



Newsletter

November - December 2013

INTERNATIONAL REGULATORY DEVELOPMENTS

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EUROPE

European Commission adopts Clean Air Policy Package

On 18 December 2013, the European Commission adopted a new policy package on clean air. The package updates existing air quality-related legislation and further reduces harmful emissions from industry, traffic, energy plants and agriculture, with a view to reducing their impact on human health and the environment.

At a press conference Environment Commissioner Potočník said: "The air we breathe today is much cleaner than in past decades. But air pollution is still an 'invisible killer' and it prevents many people from living a fully active life. The actions we are proposing will halve the number of premature deaths from air pollution, increase protection for the vulnerable groups who need it most, and improve quality of life for all. It's also good news for nature and fragile ecosystems, and it will boost the clean technology industry – an important growth sector for Europe."

At the moment over a third of EU's Air Quality Management Zones exceed the limit values for particulate matter (PM₁₀) and a quarter for nitrogen dioxide (NO₂). 17 Member States are currently subject to infringement proceedings for PM₁₀ non-compliance. According to the adopted Communication 'A new Clean Air Programme for Europe', measures to deliver air quality compliance include fixing the light-duty diesel emissions problem. Real-world NO_x emissions from Euro 5 cars exceed those of Euro 1 cars type-approved in 1992, and are in the region of five times the limit value. This has a major impact on concentrations of NO₂, ozone and secondary particles across Europe, generating negative publicity and reputational damage for vehicle manufacturers. As outlined in the CARS 2020 Action Plan, Real-Driving Emissions (RDE) of NO_x will be recorded and communicated as from the mandatory Euro 6 dates (in 2014) and, no more than three years later, the RDE procedure will be applied for type-approval, together with robust not-to-exceed emissions limits. This will ensure the substantial reduction of real-world NO_x emissions required to achieve Euro 6 NO_x emissions limits under normal driving conditions.

Existing and planned EU source control measures will continue to make a substantial contribution to achieving the required reductions in air pollutant concentrations and the Communication particularly points out that the revision of the Non-Road Mobile Machinery Directive will generate substantial benefits by extending the capacity range and machinery types covered, and by aligning emissions limits with heavy-duty Euro VI.

The Commission has concluded that it is not appropriate to revise the Ambient Air Quality Directive now. Policy should focus rather on achieving compliance with existing air quality standards by 2020 at the latest, and on using a revised NEC (National Emission Ceilings) Directive. For 2030, the NEC Directive proposal includes stricter national emission reduction obligations for the four original air pollutants (SO₂, NO_x, NMVOCs, and NH₃), and limits for two new pollutants: PM_{2.5} and methane.

The package adopted also includes a proposal for a new Directive to reduce pollution from medium-sized combustion and small industrial installations; and a proposal to ratify the UNECE agreement to amend the Gothenburg protocol with new national emission reduction commitments to be met by 2020 and beyond.

Health benefits brought by the overall policy package will save society €40-140 billion in external costs and provide about €3 billion in direct benefits due to higher productivity of the workforce, lower healthcare costs, higher crop yields, and less damage to buildings.

The new clean air strategy applies now whilst the legislative proposals will first have to be agreed by the European Parliament and the Council.

The Clean Air Policy package is at http://ec.europa.eu/environment/air/clean_air_policy.htm.

Publication of the Directive setting Euro 3 Requirements for Mopeds

The Directive introducing the Euro 3 emissions requirements for mopeds was published in the Official Journal on 10 December 2013 as Commission Directive 2013/60/EU, amending Directive 97/24/EC.

The Directive applies to categories L1e (mopeds), L2e (3-wheel mopeds) and L6e (light quadricycles) and is effective from 1 July 2014 for new type approvals (there is no mention of existing types).

As anticipated, Annex I revises the test procedure to a cold start run of the current ECE Regulation 47 cycle followed by the existing warm start cycle.

The test results for all emissions are weighted as 30% cold start, 70% warm start. The Euro 3 emissions limits are 1 g/km CO for category L1e, 3.5 g/km CO for L2e and L6e, 1.2 g/km HC+NO_x for all categories. These are the same as for the warm start test in Euro 2. However there are two other issues that may affect results. Firstly E5 and B5 reference fuels are specified for the test. Secondly, the Directive also incorporates a set of amendments to the lighting legislation for all L-category vehicles, including requirements for daytime running lights/automatic lights, as a result of which such lights will have to be on during the emissions test.

The amended test procedure now also requires that CO₂ is measured and reported and fuel consumption

has to be calculated (by carbon balance) and reported. The manufacturer's declared CO₂/fuel consumption figures cannot exceed by more than 4% those measured by the technical service.

Directive 2013/60/EU is available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:329:0015:0038:EN:PDF>.

Publication of the Directive on Emissions from Recreational Craft

The new Directive on recreational craft covering vessels between 2.5 and 24 metres in length, including motor boats, sailing yachts and water scooters was published in the Official Journal on 28 December 2013 as Directive 2013/53/EU.

The Directive includes a new Stage II of reduced exhaust emissions limits for recreational craft. Work-specific CO and HC+NO_x limits are provided for Spark Ignition (SI) engines depending on the rated engine power and the type of engine (stern-drive vs. outboard) while CO, HC+NO_x, and particulate emission limits are defined for Compression Ignition (CI) engines depending on the rated engine power and the swept volume.

Type of engine	Rated Engine Power P _N (kW)	Carbon monoxide CO (g/kWh)	Hydrocarbons + Nitrogen Oxides HC + NO _x (g/kWh)
Stern-drive and inboard engines	P _N ≤ 37.3	75	5
	37.3 < P _N ≤ 48.5	350	16
	P _N > 48.5	350	22
Outboard engines and PWC engines	P _N ≤ 4.3	500 - (5.0 × P _N)	30
	4.3 < P _N ≤ 40	500 - (5.0 × P _N)	15.7 + $\left(\frac{50}{P_N^{0.9}}\right)$
	P _N > 40	300	15.7 + $\left(\frac{50}{P_N^{0.9}}\right)$

Stage II exhaust emission limits for spark ignition engines

The Stage II requirements will enter into force on 18 January 2017. However, small and medium-sized enterprises making outboard SI engines with a power rating equal to or less than 15 kW have until 18 January 2020 to comply.

Directive 2013/53/EU is available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0090:0131:EN:PDF>.

Provisional Agreement on 2020 Target for CO₂ Emissions from New Cars

On 29 November 2013, the Council's Permanent Representatives Committee (COREPER) confirmed the informal agreement reached with the European Parliament on the 2020 reduction of CO₂ emissions from new passenger cars.

The text was then endorsed by the Environment Committee of the Parliament on 17 December 2013

and will be put to a vote in plenary session in February 2014. The Council can then 'rubber stamp' the text.

The new regulation defines the terms and conditions for car manufacturers for reaching the 2020 target for CO₂ emissions (95 g CO₂/km) from new passenger cars. According to the agreement, a limited one-year phase-in period requires 95% of new car sales to comply with the target in 2020 and 100% by the end of 2020 onwards. The regulation also provides for the use of so-called "super-credits" from 2020 to 2022: this means incentives for car manufacturers to manufacture cars emitting less than 50 g CO₂/km, as these cars would count more towards meeting the fleet average than normal cars. The limit for the use of super-credits is set at 7.5 g of CO₂/km for 2020-2022.

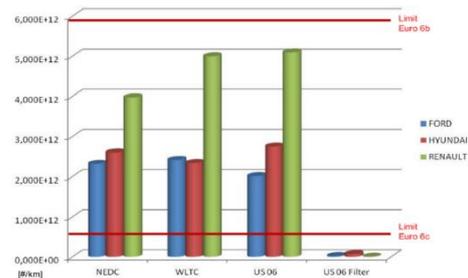
The European Commission will review the regulation by the end of 2015 in order to establish targets for the period beyond 2020.

Transport & Environment Report on Particle Emissions from Petrol Cars

On 28 November 2013, Transport & Environment (T&E) released a report on tests evaluating particles emissions from Gasoline Direct Injection (GDI) cars.

Three 2013-registered Euro 5 GDI cars were tested at TÜV-Nord on the NEDC, WLTC, and US06 cycles, the latter with and without a Gasoline Particle Filter (GPF). PM mass and Particle Number (PN) were measured according to the regulatory PMP protocol.

T&E indicates that on all cycles all vehicles without a GPF met the Euro 6b PN limit of 6x10¹²/km that comes into force in 2014/15 but none met the Euro 6c limit of 6x10¹¹/km that will be introduced in 2017/18 for GDI cars and that is already met by diesel cars.



Average particle number emissions

The test with the GPF fitted was conducted using the US06 test since this, generally, produced the highest emissions. With the filter fitted the mass of particulate declined by a factor of 3 for two of the vehicles and by a factor of 4 for the third. The particle number emissions were reduced by a factor of around 2000 achieving a level similar with normal (unpolluted) air, T&E report.

T&E also notes that the costs of fitting a GPF to meet the Euro 6c limit have been estimated by ADAC at €50,

whilst the European Commission is more cautious with a range of €40 - 130.

T&E concludes that with a GPF fitted, particle emissions are negligible under all driving conditions.

The T&E statement and the TÜV-Nord test report can be found at www.transportenvironment.org/publications/particle-emissions-petrol-cars.

Transport & Environment calls for Tighter Emissions Limits for NRMM

On 19 November 2013, T&E also posted a position paper on the on-going revision of the EU Directive on Non-Road Mobile Machinery (NRMM) emissions.

T&E says that “European air pollution rules for diesel machines such as bulldozers, excavators and barges are much more lax than those for cars and lorries. As well as this, some engine types and older machines are excluded from air pollution law. This is a problem because, according to the World Health Organization (WHO), diesel exhaust is carcinogenic. Ambitious, comprehensive and consistent rules are needed to limit air pollution emissions from NRMM diesel machines. These are required to address the growing urban air pollution that Europe faces.”

T&E believes that Particle Number limits should be defined for all engines (including those over 560 kW) and emissions limits set to be equivalent with Euro VI levels for heavy-duty vehicles, with no difference for fuels or engine application. T&E also calls for application of the regulation to all new machines and replacement (retrofit) engines from entry into force.

The complete position paper is available at www.transportenvironment.org/sites/te/files/publications/NRMM%20Briefing%20051113%20with%20intro_final.pdf.

European Commission adopts New Urban Mobility Package

On 17 December 2013, the European Commission adopted a new “urban mobility package” to support towns and cities in reinforcing the exchange of best practice, providing targeted financial support, and focussing research and innovation on delivering solutions for urban mobility challenges. In addition, it is encouraging the development of “sustainable urban mobility plans” to stimulate a shift towards cleaner and more sustainable transport in urban areas.

The package does not contain any legislative plans but comprises a Communication ‘Together towards competitive and resource-efficient urban mobility’, an Annex ‘A concept for sustainable urban mobility plans’, and four staff working documents.

The Commission staff working document entitled ‘A call for smarter urban vehicle access regulations’ includes an overview of the different types of access regulations

that have already been put in place throughout Europe, including Low Emission Zones. The document notes that common rules for the certification of vehicle retrofits would prevent the need for each Member State to set its own standards and certification procedures for retrofitted vehicles.

A new Eurobarometer survey published on the same day showed that European citizens are concerned by the negative impacts of urban mobility. A large majority consider congestion (76%), air quality (81%) and accidents (73%) to be serious problems. Citizens tend to be pessimistic too as less than a quarter believe that the situation will improve in the future and most believe it will stay the same or get worse.

The Commission’s Urban Mobility package is at http://ec.europa.eu/transport/themes/urban/ump_en.htm.

EEA Reports on Environmental Trends in Urban Transport

On 3 December 2013, the European Environment Agency (EEA) released a new report titled ‘A closer look at urban transport – TERM 2013: transport indicators tracking progress towards environmental targets in Europe’.

In 2011, the annual limit value for NO₂ was exceeded at 42% of the traffic stations, at 3% of the urban background stations but only at one rural background station within the EU. EEA says the increasing number of diesel vehicles in some cities in Europe has led to persistent concentrations of NO₂ measured close to traffic in the period 2002–2011. As a result, 5% of the EU urban population lives in areas where the NO₂ limit value was exceeded in 2011.

‘Dieselisation’ is also cited as one of the main causes of high particulate concentration in European cities, the report indicates. In 2011, the PM₁₀ limit was exceeded at 43% of traffic sites, 38% of urban background sites, 26% of ‘other’ sites (mostly industrial) and even at 15% of rural sites.

The report lists indicators measuring environmental trends connected to transport. In the EU, greenhouse gas emissions from transport for example fell by 0.6% between 2010 and 2011. The reduction has been limited partly because aviation emissions rose by 2.6%. EEA says that deeper year-on-year cuts will be necessary to meet the target of cutting emissions by 60% of 1990 levels by 2050, as current transport emissions are actually 25% above 1990 levels.

New cars have become more fuel-efficient in line with EU legislation, suggesting that many manufacturers will meet their 2015 target for average new car fleet CO₂ emissions ahead of time. However, there are some differences between real-world driving emissions and

the emissions in the test cycle so a new test is expected to be introduced to resolve some of these issues.

The EEA Report No 11/2013 'TERM 2013' is at

www.eea.europa.eu/publications/term-2013.

European Council approves New Environment Action Programme to 2020

On 15 November 2013, the European Council adopted the new EU Environmental Action Plan to 2020.

The seventh Environment Action Programme entitled "Living well, within the limits of our planet" replaces the sixth programme, which expired in July 2012. The Council says it reflects the EU's commitment to transforming itself into an inclusive green economy that secures growth and development, safeguards human health and well-being and provides decent jobs. The programme builds on policy initiatives in the Europe 2020 strategy, such as the EU climate and energy package, the communication on a Roadmap for moving to a low-carbon economy in 2050, the EU 2020 Biodiversity Strategy and the Roadmap to a resource efficient Europe.

EEA Data on CO₂ Emissions from Vans

On 17 December 2013, the European Environment Agency (EEA) published the revised data on CO₂ emissions from new light-duty vehicles sold in the EU.

Since legislation was adopted in 2011, 2012 was the first year of reporting on new vans' emissions levels.

EEA data show that, in 2012, the average new van emitted 180.2 g/km CO₂, which is close to the 175 g/km target to be gradually phased in between 2014 and 2017. This target will initially apply to 70 % of new vans in 2014, increasing to 100 % of these vehicles from 2017 onwards.

The EEA data on CO₂ emissions from vans is at

www.eea.europa.eu/data-and-maps/data/vans-1.

Lombardia to help fund Renewal of the Taxi Fleet

The regional government of Lombardia, Italy, has approved the proposal of Infrastructure and Mobility Councillor Maurizio Del Tenno to allocate one million euros to renew the region's taxi fleet. The objective is to replace older vehicles, reduce emissions and improve safety. The proposal included a contribution for the purchase of hybrid electric, natural gas powered or dual-fuel cars meeting at least the Euro 5 standard.

New Generation Bus Plan in Paris

The Parisian public transportation company adopted on 11 December 2013 a plan to reduce fine particles emissions from the city bus fleet by half by mid-2016.

Normally 10% of the bus fleet is renewed every year but an additional budget of €100 million was adopted to have 40-50% more buses renewed between 2014 and mid-2016. It was also decided that no rolling stock procurement contract could request a 100% diesel engine powered fleet.

In addition, Euro III vehicles of operator RATP will all be retrofitted with particle filters by the end of 2014. Another € 32.5 million subsidy will be granted to operators located in the outer suburbs to retrofit all of their buses and coaches with particle filters, representing nearly 950 vehicles to be retrofitted soon.

Euro VI hybrid buses will be favoured in the procurement plans. Also, 90 Euro VI NGV buses will be purchased to operate in suburb city Creteil where natural gas fuelling installations are already in place.

Evaluation test programmes will start or continue on plug-in hybrid, hydrogen-powered, and electric buses. The objective for 2020-2025 is to have the entire bus fleet in the Ile-de-France region powered by electricity or natural gas.

Airparif presents 3D Air Quality Modelling Tool

On 13 November 2013, Airparif, the air quality monitoring agency in Paris, presented the Aircity prototype, a 3D-modelling tool which allows high-resolution calculations of air pollution in the city.

Aircity maps NO₂ and particulates levels at any location in Paris, with a 3 meter resolution. The project relies on the use of a software called PMSS already used by the CEA (French Alternative Energies and Atomic Energy Commission) for civil defence programmes. This model allows to account for physical dispersion of air as a function of winds and obstacles. After two years of work, it was adapted to produce a 3D map of air pollution. In a first phase, calculations were performed in a central zone of 4 km² and they were then extended to the whole capital city (>160 km²).

More details are at

www.airparif.asso.fr/_pdf/publications/NUMERO_41.pdf.

NGO Action makes Air Pollutants Visible in Paris

On 14 November 2013, French ecology campaigners of France Nature Environnement installed a white cube on a roof terrace in Paris. On one of the cube face, a sticky product was applied. Air pollutants became fixed by the product so that Paris citizens were able to visualize the pollutants they breathe and read 'irrespirable' (i.e.



'unbreathable' in French) on the cube. This action follows up on the NGO action on Black Carbon in 2012 and is a call for concrete action in France where outdoor air pollution costs €20 to 30 billion per year in healthcare and working days lost.

French Alps Valley Population calls for Action on Older Polluting Trucks

In the French Alps, a group of Arve valley inhabitants, elected representatives and doctors have been protesting against air pollution exposure and have been calling for action, especially on heavy-duty truck traffic on the highway going through the valley towards the Mont-Blanc tunnel.

Euro III trucks account for 20% of the highway traffic to Italy and have a direct impact on air pollution, according to the protesters. Since January 2013, there have already been 37 days when the fine particles concentration limit was breached, even though only 35 are permitted by the European Air Quality Directive.

Actions have been put in place in the valley to tackle particles emissions from domestic heating but not from industry and traffic emissions, the protesters say. They call for the annual 100 000 Euro III trucks to be shifted to the rail-highway.

UK introduces Particulate Filter Check in Vehicle Periodic Inspections

UK Transport Minister Robert Goodwill announced on 4 December 2013 a tightening of the periodic inspection tests for diesel cars and lorries.

Garages and testing stations will have to check for a Diesel Particulate Filter in the inspection of the exhaust system as part of the MOT test for cars or annual test for heavy-duty vehicles, from February 2014.

The UK Department for Transport explained in a press release that "some firms offer services to remove the DPF, claiming it will improve the fuel economy but it is an offence to drive a vehicle that has been modified this way, as it will no longer meet the emissions standards the car achieved when it was type-approved." The vehicle will automatically fail the MOT test (UK annual inspection) if the DPF had been fitted as standard but is no longer present.

Mr Goodwill said: "I am very concerned that vehicles are being modified in a way that is clearly detrimental to people's health and undoes the hard work car manufacturers have taken to improve emissions standards. It has become apparent the government had to intervene to clarify the position on particulate filter removal given the unacceptable negative impact on air quality."

1970-2012 Air Pollutant Emissions Inventory in the UK

On 18 December 2013, the UK Department for Environment (DEFRA) released statistics on emissions inventory of air pollutants for the period 1970-2012.

The report notes that there has been a long term decrease in the emissions of all of the pollutants covered (ammonia, nitrogen oxides, non-methane volatile organic compounds, particulate matter - PM₁₀, PM_{2.5} - and sulphur dioxide). For particulate matter and non-methane volatile organic compounds, the rate of decline was most pronounced in the 1990s, and has slowed in recent years.

Emissions of NO_x have fallen by 60% since 1970 while emissions of PM₁₀ and PM_{2.5} have fallen by 77 and 82% respectively since 1970.

The UK has agreed to reduce NO_x and PM_{2.5} emissions in 2020 and thereafter by 55% and 30% respectively from the 2005 total.

The air pollutant inventory report is available at www.gov.uk/government/publications/emissions-of-air-pollutants.

London launches Cleaner Air Website

The Mayor of London, Boris Johnson, has launched the UK capital's official Cleaner Air website - www.cleanerairforlondon.org.uk.

The site includes personalised tools to help Londoners, young people and businesses to play their part in reducing emissions and their exposure to air pollution. It features data from monitoring stations across the city, as well as steps people can take to make more informed choices about the routes they use so as to improve air quality and reduce exposure to pollutants.

The site also includes resources such as case studies and technical guides to help businesses reduce their emissions by replacing old boilers, improving deliveries and encouraging more sustainable travel.

Air Pollution Action Plan rolled out in Barcelona

On 9 December 2013 the government of Catalonia reactivated a plan to tackle air pollution in 17 municipalities in the Barcelona metropolitan area as high levels of nitrogen dioxide were faced.

The plan was set in motion on 4 and 5 December 2013 and involved imposing speed limits on the city's access roads, asking citizens to use public transport and limiting industrial companies to essential activity. The measure was adopted "due to predictions that emissions generated by day-to-day urban and inter-city traffic and industrial activity will increase [...] and atmospheric conditions will continue to be unfavourable for the dispersion [of pollutants]."

OECD reviews Austria's Environmental Performance

On 6 November 2013, the Organisation for Economic Cooperation and Development (OECD) published its third review of Austria's environmental performance. The report ([doi: 10.1787/9789264202924-en](https://doi.org/10.1787/9789264202924-en)) evaluates Austria's progress towards sustainable development and green growth, with a focus on chemicals management and climate change adaptation.

Austria's environmental performance generally meets high standards; however, some environmental pressures remain of concern. Regarding air quality, the review says that "exposure to air pollution in some urban areas is persistently high. Road transport is the major source of air pollution, largely due to the high and increasing share of diesel in the vehicle fleet, urban sprawl and related commuting patterns, and the high volume of international and transit freight traffic. Road transport is also the second largest source of greenhouse gas emissions."

Russian Government proposes Subsidies for Euro 4 and 5 Cars

The Russian government is proposing a series of subsidies to incentivise manufacture of cars that comply with the Euro 4 and Euro 5 emissions standards. The draft document indicates that for passenger cars up to 2 litres, manufacturers of Euro 4-compliant cars would receive a subsidy of 12 000 roubles (€266) per unit while manufacturers of Euro 5 cars would get 13 000 roubles (€288) per unit. For cars over 2 litres the subsidies would be 1000 roubles higher. The proposed incentives would also apply to trucks up to 6.5 tonnes, with subsidies of 40 000 to 60 000 roubles (€887 to €1330) for those meeting Euro IV and an additional 5000 roubles for those meeting Euro V.

The proposal also says that manufacturers based in Far Eastern Federal District (DFO) and Kaliningrad will get a higher subsidy (27 000 roubles for Euro 4 cars >2 litres and 31 000 for Euro 5 cars >2 litres). The two assemblers that will benefit from this are Sollers and Avtotor. The Ministry of Industry and Trade said this provision was because operating Euro 4 and 5 vehicles in these remote and undeveloped regions means they often use low quality fuels, which leads to additional costs for the manufacturer for warranty repair.

NORTH AMERICA

US EPA Draft Strategic Plan

The US Environmental Protection Agency (EPA) has announced its draft strategic plan for fiscal years 2014-2018 EPA Strategic Plan. After public comments

(closing on 3 January 2014) EPA expects to submit the final plan to the US Congress in February 2014.

Under the goal of addressing climate change and improving air quality, the priority item for 2014-2015 is to reduce greenhouse gas (GHG) emissions from vehicles and trucks. EPA says that up to the end of September 2015, it will, in coordination with the Department of Transportation, implement three sets of GHG standards for vehicles and trucks, including two sets of GHG standards for light-duty cars and trucks (model years 2012-16 and 2017-25) and the first set of standards for medium- and heavy-duty trucks and buses (model years 2014-18). EPA will also develop options for a second phase of GHG emissions standards for medium- and heavy-duty vehicles, "including exploring a more complete vehicle standard-setting approach and encouraging a wider range of advanced technologies." A further transport-related activity is that EPA will assess GHG control options for non-road sources, including evaluating whether and when to commence work on GHG emissions standards setting for a wide range of non-road equipment, locomotives, marine vessels and aircraft, and transportation fuels.

EPA will also issue a new proposal for GHG performance standards for new power plants and by 1 June 2014 will issue proposed GHG standards, regulations, or guidelines, as appropriate, for modified, reconstructed, and existing power plants, to be finalised by 1 June 2015.

The draft plan is at

www.regulations.gov/#!documentDetail;D=EPA-HQ-OA-2013-0555-0002.

US EPA announces Grants to improve Air Quality in Port Communities

The US Environmental Protection Agency (EPA) has announced the availability of \$4 million (approx. €3 million) in grant funding under the Diesel Emission Reduction Act (DERA) programme to establish clean diesel projects aimed at reducing emissions from marine and inland water ports.

EPA says that most of the country's busiest ports are located near large metropolitan areas and, as a result, people in nearby communities can be exposed to high levels of diesel emissions. Clean diesel projects at ports, using readily available technology, will reduce emissions immediately and will provide health benefits.

EPA anticipates awarding between two and five assistance agreements to port authorities. Port authorities, governmental or public agencies that operate ports, will be able to work directly with a variety of fleet owners to lower emissions from different types of equipment used in a port setting. Projects may include drayage trucks, marine engines, locomotives,

and cargo handling equipment at marine or inland ports. Priority will be given to ports located in areas of poor air quality. The closing date for receipt of proposals is 13 February 2014.

Further information is available at www.epa.gov/otaq/ports/ports-dera-rfp.htm.

US Funding for Construction Equipment DPF Retrofit or Engine Replacement

The US Environmental Protection Agency (EPA) has announced a second round of its funding programme designed to reduce emissions from existing fleets of non-road construction equipment.

The 2013 Construction Equipment Funding Opportunity will provide rebate incentives to either retrofit equipment with a diesel particulate filter (DPF) or to replace their non-road construction equipment engine. The equipment must be diesel powered, of between 130 and 450 kW rated power, and must be located in a PM_{2.5} or ozone non-attainment area. It must have operated for a minimum of 500 hours in the previous 12 months and must operate in the same area for 12 months or 500 hours after installation of the retrofit DPF or replacement engine. The funding is open to various public sector bodies and to private organisations that operate equipment for them or lease equipment to them.

Details are at www.epa.gov/cleandiesel/dera-rebate-construction.htm.

US EPA announces Draft Integrated Science Assessment for Nitrogen Oxides

On 22 November 2013 the US Environmental Protection Agency (EPA) announced a 60-day public comment period for a draft first external review of the "Integrated Science Assessment (ISA) for Nitrogen Oxides - Health Criteria".

The draft document was prepared by EPA's National Center for Environmental Assessment as part of the review of the primary (health-based) National Ambient Air Quality Standards (NAAQS) for NO₂. In conjunction with additional technical and policy assessments, it will provide the scientific basis for EPA decisions on the adequacy of the current NAAQS and the need for alternative standards. EPA says it intends to develop a separate ISA, and NAAQS review, for the secondary (welfare-based) NAAQS for NO₂, in conjunction with a review of the secondary NAAQS for sulfur dioxide.

Integrated Science Assessment for Oxides of Nitrogen - Health Criteria (First External Review Draft), EPA/600/R-13/202; <http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=259167>.

California ARB fines Husqvarna for Sale of Uncertified Engines

The California Air Resources Board (CARB) has announced that Husqvarna Professional Products has agreed to a fine of \$1 038 000 (€755 000) for violations of air quality laws related to the sale of uncertified small off-road engines in California.

A CARB investigation discovered that over a period of three model years, spanning from 2011 to 2013, Husqvarna Professional Products staff failed to obtain certification for nine different small off-road engine families prior to their sale in California. These engines powered thousands of hand-held products such as line trimmers, leaf blowers and chain saws. Based on its internal investigation, Husqvarna has implemented new administration procedures related to emissions certification and has improved management oversight of the process to help ensure that all future engines are fully compliant with certification requirements prior to being offered for sale in California.

US EPA Guidance Letter on Control of Diesel Emissions Fluid Quality

The US Environmental Protection Agency (EPA) has circulated a guidance letter to manufacturers of heavy-duty on-highway engines on what measures they should take to 'restrain' the adjustment of the quality of Diesel Emissions Fluid (DEF – AdBlue® in Europe) so as to limit the need for testing outside the manufacturer's specified range.

EPA says that given the need for operator intervention to replenish the DEF, there is the possibility that the operator can put fluids other than the manufacturer's recommended DEF in the tank, either accidentally or intentionally, which could result in a significant increase in NO_x emissions. EPA believes a financial motivation exists for operators to refill the DEF tank with fluids other than the manufacturer's recommended DEF (e.g. by dilution with water).

At the time of certification, EPA will review the manufacturer's engine design to assess the adequacy of the means used to inhibit DEF quality adjustment. The agency notes that NO_x sensors have been able to detect poor DEF quality for many, but not all, DEF dilution scenarios. A suitable example of an adequate design would, for instance, be one that incorporates the ability to detect DEF quality and so activate performance inducements if it falls outside the required range. EPA believes that urea quality sensors can be installed on new vehicles by 2016.

The guidance letter is at http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=31221&flaq=1.

US EPA proposes 2014 Renewable Fuels Volumes

On 15 November 2013, the US Environmental protection Agency (EPA) proposed a reduction in federal requirements for biofuel use in 2014, the first cut to renewable fuel targets written since the start of the renewable fuel legislation in 2007.

EPA proposes reducing the required total volume of renewable fuels to 15.21 billion US gallons (57.6 billion litres), which would give an overall proportion equating to 9.2% renewables in road fuels. The planned figure for renewable fuels under the Renewable Fuels Standard was 18.15 billion US gallons. The individual targets for cellulosic biofuel (i.e. fuel made from wood or non-food crops), biomass-based diesel and 'advanced biofuels' would result in percentages of 0.01, 1.16 and 1.33 respectively for the 3 types of fuel.

The plan follows the EPA's warnings that the country was approaching a point where the Renewable Fuel Standard (RFS) would require the use of more ethanol than can be blended into gasoline at the 10% (E10) level that dominates the US fuelling infrastructure. Refiners had claimed that this would force them to export more fuel or produce less gasoline, leading to shortages and higher prices at the pump.

The EPA expects to release a final rule after a 60-day public comment period.

Effects of 15% Ethanol in Gasoline

A review of 43 studies of the effects of E15 (15% ethanol blends) on Model Year 2001 and newer cars by the US Department of Energy's National Renewable Energy Laboratory (NREL) has found that the studies showed no meaningful differences between E15 and E10 in any performance category.

The studies that were evaluated covered catalyst durability, evaporative emissions, engine control adaptability, OBD failures, engine durability and maintenance, and materials compatibility.

The study, which was commissioned by the Renewable Fuels Association, did not address engines that EPA has not approved for use with E15, such as pre-2001 cars, marine, snowmobile, motorcycle, and small non-road engines.

Review and Evaluation of Studies on the Use of E15 in Light-Duty Vehicles, Robert L. McCormick, Janet Yanowitz, Matthew Ratcliff, Bradley T. Zigler; NREL (October 2013). Prepared for the Renewable Fuels Association Under Technical Services Agreement No. 13-505.

EURASIA

Azerbaijan moves on Euro 3

Following from the announcement of proposals to move to the Euro 3 emissions standard from January

2014 (see previous edition of the AECC Newsletter), the Vice-President of the Azerbaijani State Oil Company SOCAR has confirmed the plans and said that cars imported to Azerbaijan starting next year will be checked for engines matching the Euro 3 standard.

Currently, gasoline produced in the country meets Euro 2 standards. Production of Euro 3 gasoline under SOCAR's programme is scheduled to start in 2015. The diesel fuel produced by SOCAR already meets the Euro 3 standard.

Further improvement of the quality to Euro 4 and Euro 5 gasoline standards will become possible after commissioning of the new oil and gas processing petrochemical complex in Garadagh, SOCAR said. This is planned to be commissioned by late 2020 with production starting in 2023-2025.

ASIA PACIFIC

ICCT Report on India's Vehicle Emissions Control Programme

On 5 November 2013, the International Council on Clean Transportation (ICCT) published a new report on India's Vehicle Emissions Control Programme.

A comprehensive survey of past, present, and potential future vehicle emissions control programmes, the report sets India's policy options in the context of international experience and assesses technology costs versus health and economic benefits under several scenarios.

"Our study suggests strongly not just that India can afford ambitious policies on clean vehicles and fuels, but that it can ill afford not to pursue such policies," said Anup Bandivadekar, programme director at the ICCT and one of the report's co-authors. "The costs of delay are very high. We're confident the Auto Fuel Policy committee understands the urgent need to chart a course now that will put India on par with international standards by 2020."

The ICCT analysis found that particulate emissions (PM) from vehicles, which have declined since 2003 but nevertheless cause some 40 000 premature deaths each year in Indian cities alone, will return to 2003 levels within five years if new controls are not mandated. Emissions of nitrogen oxides (NOx) have continued to rise over the past decade, and the rate of increase is accelerating. "Outdoor air pollution has become the fifth largest killer in India. The ICCT study shows that vehicular emissions can be controlled substantially by early introduction of stricter standards, meaning BS-V and BS-VI, the health benefits of which far outweigh the costs", said Sumit Sharma, Fellow at The Energy and Resources Institute in New Delhi.

The report, a brief summary and fact sheet are available at www.theicct.org/indias-vehicle-emissions-control-program.

Indian Air Quality Status Report

The National Ambient Air Quality Status Report released by India's Central Pollution Control Board (CPCB) shows that major cities are well within the national ambient air quality standards. It also suggests that the Central Government could fast-track a fuel policy roadmap to leapfrog to Euro 6/VI emissions standards for new vehicles and fuels.

The report says that big cities including Delhi, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Pune, and Ahmedabad have shown a dramatic turnaround. This is said to be the result of a significant shift in daily commuting from private cars to public transport, walking and cycling. As a result the country's 12th Five Year Plan mandate of getting cities with a population of more than a million to meet the clean air standards has been fulfilled. In 2010, close to half of India's urban population lived in cities that exceeded the standard for particulate matter. The rapid change was possible only after the Central Government made implementation of its plan for clean air mandatory in big cities, making this conditional to central grants for infrastructure development, and including a stringent penalty provision of cutting central assistance if standards are not met in time.

US to assist China in developing China VI

At the conclusion on 5 December 2013 of a meeting with China's President Xi Jinping and other senior Chinese officials, US Vice-President Joe Biden announced that the United States will help China implement stricter emissions standards to help tackle air pollution. Under the new agreement, the US pledged to give China technical assistance to implement new China VI emissions standards, which will effectively require the fitment of diesel particulate filters. The US Environmental Protection Agency and Energy Department officials will help Chinese counterparts with modelling, testing and other technical research required for developing the standards.

According to China's Ministry of Public Security, passenger car ownership in the country reached 120 million by the end of 2012 and at the current growth rate will exceed 200 million by 2020.

China is currently in the process of implementing its China IV diesel fuel standards, which will limit sulfur content to 50 ppm in early 2014, instead of the current levels of 350 ppm. The China V standards for diesel and gasoline, with a 10 ppm sulfur limit, will then take effect nationwide in 2018. Under the China V gasoline standard, the content of manganese will also be reduced from 8 to 2 mg/l. Beijing implemented the China V standard in February 2013.

New Air Quality Index for Hong Kong

Hong Kong, China, is to introduce an air quality index related to pollution-induced hospital admission risks. Readings on the index will be calculated based on health risks from inhaling concentrations of ozone, NO₂, SO₂ and particulate matter, the government said. Andrew Lai, deputy director of environment protection, said "It's a much tightened standard. Under the new index, we are not only reflecting the concentration levels of the key air pollutants but also the health risks associated with those pollutants."

Hong Kong Action on LPG Taxis

A team of local and international scientist have reported that the shift over the last decade to almost complete dependence on LPG for light commercial vehicles in Hong Kong, China, has produced an unintended consequence in that ambient concentrations of NO₂ have increased by a fifth from 2008 to 2012.

At a news conference, Christine Loh, Hong Kong's Under-secretary for the Environment, said that because LPG-powered taxis and light buses are driven nearly around the clock, their catalytic converters need to be replaced about every 18 months, otherwise vehicles begin emitting high levels of pollution.

As a result, the Hong Kong government will, in the coming months, pay for the free replacement of catalytic converters on the city's entire privately owned fleet of roughly 18 000 taxis and several thousand minibuses, Ms. Loh said. Pang Sik-wing, the city's Principal Environmental Protection Officer for Air Sciences, said that the replacement effort would cost about 10 000 Hong Kong dollars (€962) per vehicle.

After the first free replacement, taxi and minibus owners will be responsible for replacing catalytic converters every 18 months at their own expense. Hong Kong will deploy five mobile sensor systems next year to measure the pollution from passing vehicles and send automatic notices to the registered owners of any vehicle surpassing emissions standards, requiring them to take in their vehicles for repairs or risk losing their vehicle licenses.

Electric and Natural Gas Buses in Beijing

The Chinese capital Beijing has announced that it plans to phase out all fuel oil powered buses within the 5th Ring Road by 2017.

The city plans to buy 13 825 new buses in the next few years, of which over 4 000 will be driven by electricity and the rest by natural gas, the city's transportation and environment protection authorities said. By 2017, two-thirds of the city's 21 000 buses will run on electricity or 'clean energy'. The rest will be low-emission diesel vehicles.

Air Quality Alerts in Guangzhou

Under measures approved on 11 November 2013 by the city government of Guangzhou in the Guangdong province of China, cars will be allowed on the road only on alternate days during red alerts for air pollution. In addition, 30% of the 13 000 government cars will remain garaged if air pollution hits serious levels, and key enterprises will have to cut 30% of their emissions during a red alert, the highest level. Under the system, a red alert will be issued when the air quality index is forecast to exceed 300 at more than half of the city's 10 monitoring stations.

During orange alerts, issued when air quality index levels of 201 to 300 are forecast, businesses that fail to meet emissions standards will have to cease emissions altogether, and 20% of government vehicles will stay off the road. Construction sites that put dust and fumes in the air, as well as fireworks and outdoor barbecues will be banned during orange alerts.

Yang Liu, director of the city's Environmental Protection Bureau, said that in the past three years, the city's air quality has never deteriorated to a level that would today prompt a red alert. An orange alert would have been issued twice in 2011 and three times last year. No orange alert would have been warranted so far this year. Air quality exceedances in the city mainly involved ozone, NO₂ and PM_{2.5}. Of the six air pollution indexes, the PM_{2.5} reading failed the standard by the largest margin, averaging 47 µg/m³ and exceeding the standard by 34% in the three quarters of 2013 so far.

Air Pollution Episode in Asia

In early December 2013, the Shanghai authorities ordered school children indoors, banned public sporting events, halted all construction work and took 30% of government vehicles off the roads as the city suffered one of its worst episodes of air pollution, with visibility restricted to a few dozen metres. The episode was reported to have affected some 100 cities in nearly half of China and beyond.

The pollution levels in Shanghai were high for several days. PM_{2.5} concentrations in the city reached 602.5 µg/m³, on 6 December 2013, exceeding the top of the 'hazardous' band of the Air Quality Index, which goes up to 500. The World Health Organization's safety guideline for PM_{2.5} is 25 µg/m³. The dirty air that has gripped Shanghai and its neighbouring provinces is attributed to coal burning, car exhaust, factory pollution and weather patterns.

The episode extended as far as South Korea. On 5 December 2013, the Seoul Metropolitan Government issued warnings against staying outdoors for long periods as the level of fine particles reached more than

double the environmental standard. A high density of fine particles was also measured across the country.

South Korea plans to introduce Euro 6 and improve Air Quality Forecasts

On 10 December 2013 the South Korean Ministry of Environment and eight other related ministries, including the Ministry of Health and Welfare, unveiled measures to tackle fine particulate pollution.

In order to tackle air pollution from China (*see item above*), South Korea sent a delegation to a meeting in China on 12 December 2013 to boost cooperation on the environment. South Korea, China and Japan will also hold a policy meeting in March 2014.

As part of ways to reduce air pollution at home, from September 2014 the South Korean government will implement the Euro 6 standard for diesel cars. They also plan to have 20% of registered cars in the metropolitan area being 'eco-friendly' cars such as electric cars. From 2015, the government also plans to tighten emissions standards for companies and to strengthen regulations for incineration facilities.

The ministries also decided to issue daily forecasts on fine particulate regardless of the amount in the air. Previously, such forecasts were only issued when the amount of fine particulate was higher than level three out of a five-level system. From February 2014, the government plans to issue such forecasts twice a day instead of once a day and, during 2014, plans to expand the scope of regions the forecasts cover to include the Jeolla and Gyeongsang provinces as well as Jeju. Starting from 26 December 2013, cell phone users will be able to get information on fine dust via text message from the website of Air Korea, which provides data on air quality real-time.

Sri Lanka initiates Emissions Certificate Inspection Programme

The Sri Lankan Department of Motor Traffic (DMT) together with the Ministry of Environment and Renewable Energy, the Central Environment Authority and the Department of Measurement Units, Standards and Services has launched a countrywide inspection programme on the annual emissions certificates, following a recent trend for motorists to produce false certificates. The DMT is to conduct daily on-road checks. Drivers of vehicles that have excessive emissions levels will be given a concessionary period to fix their engines and reduce the emission levels before imposing a fine. If a driver is found without the annual emissions testing record he will be subjected to a fine of Rs.3000 (€36).

PetroVietnam Statements on Euro IV Fuel Quality

PetroVietnam says that it should be able to meet Euro IV-equivalent 50 ppm sulfur standards for gasoline and diesel by 2016, but other aspects of those specifications would be costly.

In 2011, Prime Minister Nguyen Tan Dung issued a directive saying the country would adopt Euro III- and Euro IV-equivalent motor fuel specifications from 2016. The directive also said that Vietnam would move to Euro V-equivalent specifications from 2021.

Speaking at the ASEAN Clean Fuels and Vehicles Forum in Singapore, Nguyen Anh Duc, deputy general director of the Vietnam Petroleum Institute said that while his company could meet Euro III-equivalent sulfur standards for gasoline and diesel already, it would cost 4-5 cents/litre to upgrade its existing Dung Quat refinery to meet full Euro IV standards. One key issue would be olefin concentration in gasoline, he said, which for Euro IV is set at 18% maximum. Vietnam's current gasoline specification requires a maximum 38% olefin content. PetroVietnam's new Nghi Son refinery, due to come on stream in 2015, would meet Euro IV and V standards, down to sulfur levels of 10 ppm. "Our national specification is 500 ppm sulfur in gasoline and diesel, and PetroVietnam produces fuel at 30 ppm and 200 ppm," Duc said.

PetroVietnam/Gazprom Joint Venture to Develop Gas as a Public Transport Fuel

Russia's Gazprom has signed an agreement with PetroVietnam to form a joint venture to carry out a project to use gas as motor fuel in Vietnam. The two companies would coordinate efforts to convert public transport in Ho Chi Minh City to gas. The company's aim is to supply 500 million m³ of gas per year to the Vietnamese motor fuel market and will start to work on the whole Vietnamese market.

MIDDLE EAST

Israel approves Natural Gas to fuel Cars

On 29 November 2013, Israeli Minister for National Infrastructures Mr. Silvan Shalom signed a directive allowing the use of Compressed Natural Gas (CNG) by vehicles, as an alternative to gasoline and diesel.

The directive is part of the government's effort to encourage the construction of a CNG infrastructure for vehicles. Delek Group Ltd. is building the first CNG fuel station at Zerifin, outside Tel Aviv.

"When natural gas replaces gasoline and diesel, drivers will be able to save thousands of shekels a year, and benefit from cleaner, cheaper travel" said Mr Shalom. The Ministry estimates that switching to CNG

could save NIS 1 700 (€ 350) a year in fuel costs for a car with an engine larger than 1.4 litres, assuming that CNG costs NIS 5.40 (€1.13) a litre.

The conversion of buses to CNG has been delayed after a CNG bus was blown up causing far more damage than the explosion of a conventional bus. Until the safety problem has been addressed, the Ministry hopes that large car fleets will convert to CNG.

AFRICA

10 ppm Sulfur Diesel launched in South Africa

Sasol has launched 10 ppm sulfur diesel fuel in the South African market. The company says its turbodiesel™ fuel is the lowest sulfur content diesel available in South Africa. It is available at 78 locations in Gauteng and Mpumalanga and will be selectively rolled-out to other areas in 2014 and 2015.

UNITED NATIONS

UN Retrofit Regulation adopted

At the meeting of the United Nations World Forum for the Harmonisation of Vehicle Regulations (WP.29) in Geneva from 12 to 15 November 2013, the new Regulation on Retrofit Emissions Control (REC) systems was adopted.

The new Regulation will provide performance and test requirements for 4 classes of REC suitable for application to heavy-duty vehicles and Non-Road Mobile Machinery (NRMM) and tractors:

Class I: devices for the control of particulate emissions, with no increase in direct NO₂ emissions;

Class II: devices for the control of particulate emissions with a limited increase in direct NO₂ emissions (NO₂ is used for regeneration);

Class III: devices for the control of NO_x emissions;

Class IV: devices for the control of both particulate and NO_x (with no increase in NO₂).

The main performance requirements are for the system to enable the engine to meet at least the level of the next highest emissions stage for PM and/or NO_x as appropriate whilst still meeting the original limits for other pollutants. In addition a minimum reduction efficiency has to be demonstrated over the WHTC test for heavy-duty engines or the NRTC test for NRMM and tractor engines. This minimum efficiency requirement is 50% for PM mass and 60% for NO_x. However, the PM efficiency will be increased to 90% in a first revision of the Regulation, due to be adopted in 2014. As UN Contracting Parties can opt to maintain the initial version of the Regulation or to adopt the higher standard, this will allow countries to choose their preferred approach.

Durability has to be demonstrated over a 1000-hour endurance test (either in a field test or on an engine test bed), with the system able to maintain performance over 200 000 km or 6 years for heavy-duty engines and 4000 operating hours for other applications.

General requirements also cover NO_x control diagnostics, consumable reagent monitoring, operator warning and inducement systems for NO_x control, on-board failure warning for particulate filter reagent control systems, provision of installation and maintenance documents, the choice of test engine and REC, conformity of production, definition of REC families, and Type Approval documentation.

GRPE adopts the World-harmonised Light Vehicle Test Procedure (WLTP)

A special meeting of the UN's Working Party on Pollution and Energy (GRPE) on 14 November 2013 adopted the global technical regulation (gtr) for the World-harmonised Light vehicle Test Procedure. The gtr provides a fully-workable Type I test for the measurement of pollutant emissions and CO₂/energy consumption. The gtr and its Technical Reports will now be submitted to the March 2014 session of WP.29 for adoption and is expected to be published by the UN around mid-2014. This will enable the European Commission to incorporate it into updated European CO₂ regulations.

A mandate has been developed for a 'phase 1b' of the gtr development to run until the end of 2015. This includes the proposed supplemental test with representative regional temperature and soak period, finalisation of the methods for additional pollutants, and a number of issues related to hybrid and electric vehicles. Other aspects of current emissions test procedures (low temperature tests, OBD, durability etc.) will be developed in phases 2 and 3.

GENERAL

ACES Phase 2 Study on Emissions from US 2010 Diesel Heavy-duty Engines

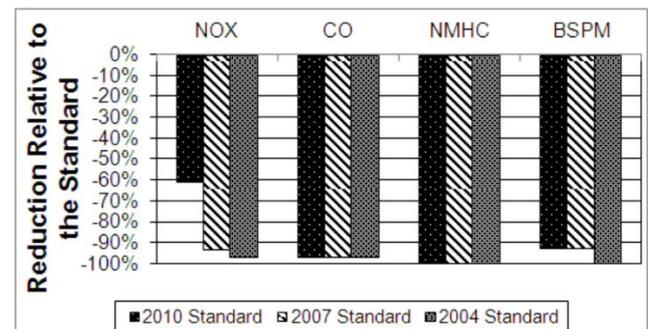
The Coordinating Research Council in cooperation with the Health Effects Institute released on 4 December 2013 a report on the second phase of the Advanced Collaborative Emissions Study (ACES) looking at exhaust emissions from US heavy-duty diesel engines. Tests were conducted by the Southwest Research Institute in San Antonio, Texas.

The ACES Phase 2 study included detailed chemical characterization of exhaust emissions from three 2011 model-year heavy-duty engines complying with US-EPA 2010 emissions standards, and followed up the ACES Phase 1 study in which US-EPA 2007 engines had been evaluated. The cold- and hot-start Federal

Test Procedures (FTP) transient cycle was used to determine if the engines met the applicable standard on regulated emissions and separate runs of the hot-start FTP and the 16-hour transient cycle were conducted to characterize the regulated and unregulated emissions in engine exhaust.

The 2010-compliant engines showed substantially lower regulated emissions of NO_x, CO, NMHC, and PM relative to the US 2010 standard. Also, average emissions of NO_x, NO₂, CO, NMHC, CH₄, PM, Elemental Carbon and Organic Carbon mass, and particle number, observed with the three 2010 engines were substantially reduced compared to emissions of the 2007 technology engines used in ACES Phase 1.

Greenhouse gas emissions based on CO₂, N₂O, and CH₄ led to no change in the 100-year global warming potential; the reduction in CH₄ and the slight reduction in CO₂ observed with 2010 engines were actually offset by the increase in N₂O.



Regulated emissions performance of 2010 engines relative to 2010, 2007, and 2004 EPA standards

The ACES Phase 2 report is at http://crao.org/reports/recentstudies2013/ACES%20Ph2/03-17124_CRC%20ACES%20Phase2-%20FINAL%20Report_Khalek-R6-SwRI.pdf.

ICCT Report shows Benefits of Global Expansion of Euro 6/VI

A new study from the International Council on Clean Transportation (ICCT) finds that more stringent vehicle emissions and fuel quality standards worldwide could dramatically reduce premature mortality while cutting short-lived climate change emissions by up to 80%.

The report says regulations that have been implemented in Europe, the United States, Canada, Japan, Australia, and South Korea have proven highly effective at curbing pollution from vehicles. By controlling vehicle tailpipe emissions of NO_x, SO_x, and particulate matter, as well as fuel sulfur content, these standards will reduce premature mortality related to vehicle emissions in these regions by 85% below year 2000 levels in 2030. Low-sulfur fuels are a key factor in controlling pollutant emissions because fuels with higher sulfur content not only emit more particulates but

also inhibit the use of aftertreatment devices such as particulate filters.

Simply extending those standards throughout the rest of the world could reduce the number of premature deaths caused annually by vehicle fine particle emissions by 75% in 2030. In doing so it would have the added benefit of reducing near-term climate impacts through reductions in black carbon and other short-lived climate pollutants by the equivalent of 710 million tonnes of CO₂ annually. But unless tighter controls are put in place the number of early deaths will increase by 50% globally between now and 2030, with China, India, and other countries in Asia-Pacific, Africa, and the Middle East accounting for more than 85% of all these premature deaths.

The ICCT report lays out a global policy roadmap aimed at significantly altering regional trends in pollution and mortality by accelerating the spread of improved vehicle emissions and fuel-quality regulations. The goal, the report's authors argue, should be tailpipe emission standards equivalent to Euro 6/IV standards, in tandem with 10 ppm sulfur fuel by no later than 2025. Countries on the African continent and in the Middle East, with much earlier or no standards in place, are expected to take longer to reach these standards but can still significantly reduce health impacts over the same period by moving through some of the interim regulatory steps.

The Impact of Stringent Fuel and Vehicle Standards on Premature Mortality and Emissions, Sarah Chambliss, Josh Miller, Cristiano Façanha, Ray Minjares, Kate Blumberg, ICCT, October 2013, www.theicct.org/global-health-roadmap.

IEA Publication on CO₂ Emissions

The International Energy Agency (IEA) has announced its latest country-by-country listing of CO₂ emissions from fossil-fuel combustion, with up to 51 years of detailed data broken down by fuel and cross-referenced with population, GDP and other indicators.

The 2013 edition of the annual data compilation is available in book and CD form, with highlights available on line. It details CO₂ emissions related to electricity and heat production as well as transportation, industry and other categories. The information can be arranged geographically, including a global view, or by fuel or timeline, dating back to 1960 for OECD countries and to 1971 for the rest of the world. Also available are emissions of other greenhouse gases such as CH₄, N₂O and various fluorocarbons for selected years.

Two sectors combined, generation of electricity and heat and transport, represented nearly two-thirds of global emissions in 2011. The fast emissions growth for transport was driven by emissions from the road sector.

Details of the publications are at www.iea.org/statistics/topics/CO2emissions.

RESEARCH SUMMARY

Effects of Emissions and Pollution

A new report in *'The Lancet'* released on 9 December 2013 says that even if air quality meets EU standards, Europeans with long-term exposure to particulate pollution from road traffic or industry run a higher risk of premature death.

Scientists led by Rob Beelen of Utrecht University in The Netherlands looked at 22 previously published studies that monitored the health of 367 000 people in 13 countries in Western Europe. The individuals, recruited in the 1990s, were followed for nearly 14 years. During the time of the study, 29 000 people died, according to the data.

The authors went around to all the study areas to get readings of traffic pollution between 2008 and 2011. They used these as a basis for calculating the long-term exposure of local residents to PM₁₀, PM_{2.5}, NO_x and NO₂. They took into account factors such as smoking habits, socio-economic status, physical activity, body mass index and education that can skew the results. The biggest source of concern was PM_{2.5}, particles measuring under 2.5 microns. The risk of early death rose by 7% with every increase of 5 µg/m³ of PM_{2.5}, the new study found.

EU guidelines set down maximum exposure to PM_{2.5} of 25 µg/m³ but even in locations where the pollution levels were well below this, there were still higher-than-normal cases of early death.

Beelen told the News Agency AFP that the loss of life expectancy through background exposure to PM_{2.5} was likely to be up to a few months. "Although this does not seem to be much, you have to keep in mind that everybody is exposed to some level of air pollution and that it is not a voluntary exposure, in contrast to, for example, smoking", he said.

Effects of long-term exposure to air pollution on natural-cause mortality: an analysis of 22 European cohorts within the multicentre ESCAPE project, Rob Beelen et al.; *The Lancet* (in press), [doi: 10.1016/S0140-6736\(13\)62158-3](https://doi.org/10.1016/S0140-6736(13)62158-3).

Other recent papers on health effects:

Comparison of the toxicity of diesel exhaust produced by bio- and fossil diesel combustion in human lung cells in vitro, Sandro Steiner, Jan Czerwinski, Pierre Comte, Olga Popovicheva, Elena Kireeva, Loretta Müller, Norbert Heeb, Andreas Mayer, Alke Fink, Barbara Rothen-Rutishauser; *Atmospheric Environment* (December 2013), Vol. 81, pp.380-388, [doi: 10.1016/j.atmosenv.2013.08.059](https://doi.org/10.1016/j.atmosenv.2013.08.059).

Reduction in (pro-)inflammatory responses of lung cells exposed in vitro to diesel exhaust treated with a non-catalyzed diesel particle filter, Sandro Steiner, Jan Czerwinski, Pierre Comte, Loretta L. Müller, Norbert V. Heeb, Andreas Mayer, Alke Petri-Fink, Barbara Rothen-Rutishauser; *Atmospheric Environment* (December 2013), Vol. 81, pp.117-124, [doi: 10.1016/j.atmosenv.2013.08.029](https://doi.org/10.1016/j.atmosenv.2013.08.029).

Air pollution effects on fetal and child development: A cohort comparison in China, Deliang Tang, Ting Yu Li, Judith C. Chow, Sanasi U. Kulkarni, John G. Watson, Steven Sai Hang Ho, Zhang Y. Quan, L.R. Qu, Frederica Perera; *Environmental Pollution* (February 2014), Vol. 185, pp.90-96, [doi: 10.1016/j.envpol.2013.10.019](https://doi.org/10.1016/j.envpol.2013.10.019).

Toxic assessment of urban atmospheric particle-bound PAHs: Relevance of composition and particle size in Barcelona (Spain), Sofia Raquel Mesquita, Barend L. van Drooge, Cristina Reche, Laura Guimarães, Joan O. Grimalt, Carlos Barata, Benjamin Piña; *Environmental Pollution* (January 2014), Vol. 184, pp.555-562; doi: [10.1016/j.envpol.2013.09.034](https://doi.org/10.1016/j.envpol.2013.09.034).

National Particle Component Toxicity (NPACT) Initiative: Integrated Epidemiologic and Toxicologic Studies of the Health Effects of Particulate Matter Components, Morton Lippmann, Lung-Chi Chen, Terry Gordon, Kazuhiko Ito, and George D. Thurston; *Health Effects Institute Report No.177* (October 2013), <http://pubs.healtheffects.org/view.php?id=410>.

National Particle Component Toxicity (NPACT) Initiative Report on Cardiovascular Effects, Sverre Vedal, Matthew J Campen, Jacob D McDonald, Joel D Kaufman, Timothy V Larson, Paul D Sampson, Lianne Sheppard, Christopher D Simpson, and Adam A Szpiro; *Health Effects Institute Report No.178* (October 2013), <http://pubs.healtheffects.org/view.php?id=411>.

Composition and effects of inhalable size fractions of atmospheric aerosols in the polluted atmosphere. Part II. In vitro biological potencies, Jiří Novák, Klára Hilscherová, Linda Landlová, Pavel Čupr, Lukáš Kohút, John P. Giesy, Jana Klánová; *Environment International* (February 2014), Vol. 63, pp. 64-70, doi: [10.1016/j.envint.2013.10.013](https://doi.org/10.1016/j.envint.2013.10.013).

"The results suggest that an average daily exposure based just on the concentrations of contaminants contained in PM₁₀, as regulated in EU legislation so far, is not a sufficient indicator of contaminants in air particulates and adoption of standards more similar to other countries and inclusion of other parameters besides mass should be considered."

In utero and early life exposure to diesel exhaust air pollution increases adult susceptibility to heart failure in mice, Weldy CS, Liu Y, Chang Y, Medvedev IO, Fox JR, Larson TV, Chien W, Chin MT; *Particle and Fibre Toxicology* (2013), Vol. 10:59, doi: [10.1186/1743-8977-10-59](https://doi.org/10.1186/1743-8977-10-59).

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FORTHCOMING CONFERENCES

Exhaust Systems: Euro VI and Beyond – Focus on CO₂ Reduction

28-29 January 2014, Mainz, Germany

www.exhaustsystems-forum.com

International experts will give presentations on how to reduce and avoid CO₂ & NOx emissions because there is still more potential in the field of exhaust systems.

10th ACEM Conference - A Global Vision for the Powered Two-Wheeler market

29 January 2014, Brussels, Belgium

<http://events.r20.constantcontact.com/register/event?llr=ny4uoriab&oeidk=a07e8jppgaa37fa45dfe>

International trade will be the topic discussed at the 10th ACEM Conference, where manufacturers and EU Institutions will debate whether the way to recovery lies in creating favourable conditions for developing manufacturing and creating jobs in Europe or if the solution resides in exporting production facilities to third countries.

3rd Integer Emissions Summit Russia & CIS 2014

5-6 March 2014, Moscow, Russia

www.integer-research.com/dec-russia-2014

The conference will examine the implications of the next stage of diesel emissions legislation in Russia and CIS countries, the barriers to progress and analyse effective strategies to achieve compliance. The conference covers heavy-duty commercial vehicles, non-road mobile machinery, light-duty vehicles and passenger cars, natural gas vehicles, and AdBlue.

14th Stuttgart International Symposium "Automotive and Engine Technology"

18-19 March 2014, Stuttgart, Germany

www.fkfs.de/english/company/events/stuttgart-symposium-2014

Organized by the FKFS (Stuttgart Research Institute of Automotive Engineering and Vehicle Engines).

11th Green Ship Technology Conference 2014

18-20 March 2014, Oslo, Norway

www.informamaritimeevents.com/event/greenshiptechology

The conference will include retrofitting: analysis of the best methods for fitting new technologies and industry case studies; and opportunities for alternative marine fuels.

AVL Roadshow Real Driving Emissions

18 March 2014, Rhein-Main, Germany

20 March 2014, Stuttgart, Germany

25 March 2014, Hannover, Germany

www.avl-fahrzeugmesstechnik.de

Gaseous Fuels for Road Vehicles

25 March 2014, London, UK

www.imeche.org/events/S1807

This seminar will examine the application and use of gaseous fuels in vehicles. Delegates will be able to explore the different types of gases that can be used as fuels, and gain an insight into the benefits gaseous fuels have over traditional liquid fuels. What difference can they make to emissions, and CO₂ and fuel consumption? How can they be applied to passenger and commercial vehicles?

7th Integer Emissions Summit Asia 2014

25-27 March 2014, Beijing, China

www.integer-research.com/dec-asia-2014

The conference will examine diesel emissions regulation compliant strategies of leading on- and non-road vehicle and engine manufacturers and the growing opportunities for the AdBlue market.

8th International Exhaust Gas and Particulate Emissions Forum

1-2 April 2014, Ludwigsburg, Germany

www.abgas-partikel-forum.com/index.html

The focus of the forum is on issues related to the development of petrol and diesel combustion including hybrid solutions and the use of conventional and alternative fuels. Requirements for Real Driving Emissions and the increase of efficiency and robustness of exhaust aftertreatment systems also play a role, as does the technology of recording even the lowest emissions at transient operation.

SAE 2014 World Congress

8-10 April 2014, Detroit, Michigan, USA

www.sae.org/congress

6th International Conference Selective Catalytic Reduction

28-30 April 2014, Stuttgart, Germany

www.scr-systems.de

The conference will address how to incorporate SCR technology with all its various components in existing vehicle platforms, the latest innovations in validation and testing and examine methods for sensors, catalysts and OBD functions with regard to DeNOx technologies, and how SCR system space can be optimized and sufficient exhaust system temperatures be achieved without compromising fuel consumption.

6th AVL Large Engines TechDays

6-7 May 2014, Graz, Austria

www.avl.com/large-engines-techdays2014

Leaders and opinion makers from the Large Engines Industry will share their views on future trends and upcoming challenges around 'Gas & Dual Fuel'. "Impulse speeches" by renowned personalities from outside the industry will cover issues like availability of gas, costs, politics and environment.

35th International Vienna Motor Symposium

8-9 May 2014, Vienna, Austria

www.xn--vk-eka.at/veranstaltungen/_veranst_symp_en.htm

The conference will present the latest results in worldwide engine and powertrain development, future legislation, fuels and components, drive train electrification, hybrid technology, CO₂ reduction, and exhaust emissions control.

4th Integer Emissions Summit Brazil 2014

20-22 May 2014, Sao Paulo, Brazil

www.integer-research.com/dec-brazil-2014

The conference will examine current and future Brazilian diesel emissions legislation and the latest in advanced optimum emissions reduction technology.

SIA Powertrain: The Clean Compression Ignition Engine of the Future

21-22 May 2014, Rouen, France

www.sia.fr/evenement_detail_sia_powertrain_rouen_2014_1200.htm

The Clean Compression Ignition Engine Conference intends to give powertrain developers and researchers the opportunity to obtain an overall picture of state-of-the-art technologies and look ahead to future tasks and challenges.

36th Motorship Propulsion & Emissions Conference

21-22 May 2014, Hamburg, Germany

www.propulsionconference.com

The conference will address how ship energy efficiency is working now and will focus on how ship operators can navigate the current market to improve the efficiency of their ships. Topics include high fuel costs; and complex and complicated imminent legislation, including Tier III regulation.

2014 JSAE Annual Spring Congress and Exposition

21-23 May 2014, Yokohama, Japan

www.jsae.or.jp/2014haru/index_e.html

7th Emission Control 2014

22-23 May 2014, Dresden, Germany

www.emission-control-dresden.de/index.html

The latest results and methods of development will be represented. Amongst others engine developing engineers and manufacturers of exhaust treatment systems and other important components will be contributing.

4th International Exhaust Emissions Symposium

22-23 May 2014, Bielsko-Biala, Poland

The main topics of the symposium include emissions legislation for all automotive sectors, fuel economy, new methods of PM testing, compounds which are potential candidates for emissions regulation, emissions test equipment (including PEMS) and emissions reduction technology including aftertreatment.

FISITA 2014 World Automotive Congress

2-6 June 2014, Maastricht, the Netherlands

www.fisita2014.com

Congress topics will include clean and efficient engine technologies, new energy powertrains, and new mobility and vehicle concepts.

10th Integer Emissions Summit Europe 2014

17-19 June 2014, Düsseldorf, Germany

www.integer-research.com/dec-europe-2014

The conference will examine the latest legislation, optimum diesel emissions reduction technologies and strategies for Heavy-duty commercial vehicles, NRMM, passenger cars and marine applications.

18th ETH Conference on Combustion Generated Nanoparticles

22-25 June 2014, Zürich, Switzerland

www.lav.ethz.ch/nanoparticle_conf

EU Sustainable Energy Week

23-27 June 2014, Brussels and across Europe

www.eusew.eu

Launched in 2006 as an initiative of the European

Commission, the EU Sustainable Energy Week has become a reference point for public authorities, energy agencies, private companies, NGOs and industry associations engaged in helping to meet the EU's energy and climate goals.

Engine Expo 2014

24-26 June 2014, Stuttgart, Germany

www.engine-expo.com

5th International Conference on MinNOx

25-26 June 2014, Berlin, Germany

www.iav.com/sites/default/files/events/downloads/c4p_minnox_en.pdf

Proposals are requested for the areas including emissions legislation, technologies, simulations and application of minNOx systems, and synergetic reduction of nitrogen oxide and CO₂ emissions.

Deadline for submissions: 15 January 2014

5th NGVA Europe International Show & Workshops

7-10 July 2014, Brussels, Belgium

www.ngv2014brussels.com

26th International AVL Conference "Engine & Environment"

11-12 September 2014, Graz, Austria

www.avl.com/engine-environment-2014

The theme for 2014 is Engine 2020: spark versus compression ignition in a new environment.

SAE 2014 Emission Control from Large Ships Symposium

15-16 September 2014, Gothenburg, Sweden

www.sae.org/events/ecls

AVL Emission Roadshow

16-17 September 2014, Stuttgart, Germany

23-24 September 2014, Magdeburg, Germany

30 September - 1 October 2014, Neuss, Germany

SAE 2014 Heavy-Duty Diesel Emissions Control Symposium

17-18 September 2014, Gothenburg, Sweden

www.sae.org/events/hddec

23rd Aachen Colloquium Automobile and Engine Technology 2014

6-8 October 2014, Aachen, Germany

www.aachener-kolloquium.de

Deadline for abstracts: 14 February 2014

SAE 2014 International Powertrain, Fuels & Lubricants Meeting

20-23 October 2014, Birmingham, UK

www.sae.org/events/pfl/2014

Deadline for abstracts: 1 March 2014