NEWSLETTER

May - June 2015

INTERNATIONAL REGULATORY DEVELOPMENTS

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Member States agree on Real-Driving Emissions Test Procedure

On 19 May 2015 EU Member States meeting in the Technical Committee on Motor Vehicles (TCMV) eventually voted on the European Commission's proposal for a Real-Driving Emissions (RDE) test procedure to be included into the Euro 6 Regulation. Out of the 23 EU Member States present, only the UK, Hungary and the Czech Republic abstained.

The agreed procedure introduces an additional emissions test at type-approval, using Portable Emissions Measurement Systems (PEMS) and conducted on open roads. A monitoring phase, without performance requirements, will start on 1 January 2016 for new type-approvals. The agreed text also introduces the possibility for third party re-assessment of in-use conformity of vehicles under conditions other than the ones that occurred during the initial RDE test at type-approval.

A political discussion will now start to establish Conformity Factors (CF i.e. ratio of Not-To-Exceed emissions to Euro 6 limit) for NOx for all vehicles and PN emissions of all Diesel and gasoline cars for which a PN limit is defined, i.e. Gasoline Direct Injection. This will be agreed as a second (and likely a third) RDE package, expected by the end of 2015.

The agreed RDE text does not specify introduction dates for implementation of Conformity Factors. The EU Commission, the Netherlands and the UK have nevertheless put forward 1 September 2017 as the date for the implementation of a first set of binding CFs for new Type-Approvals.

This new Euro 6 comitology act will go to the European Parliament and the Council for scrutiny before being published in the Official Journal.

Draft Parliamentarian Report on Non-Road Stage V

On 20 May 2015 the European Parliament's Environment Committee published the draft report from MEP Rapporteur Elisabetta Gardini (Italy, EPP) on the Commission's Stage V proposal for Non-Road Mobile Machinery (NRMM).

According to Ms Gardini, the primary goal of the draft report is to strike a balance between the health and environmental concerns, as proposed by the Commission, and the competitiveness of the EU manufacturing industry, the jobs and the know-how it entails. Considering the competition aspects, the Rapporteur deems that Small & Medium Enterprises (SME), generators of many jobs, might be vulnerable and should be granted some advantages.

The report calls for agricultural and forestry tractors to also be covered by this new emissions legislation and suggests that the Commission evaluates allowing a direct passage from Stage IIIB to Stage V in a single step for narrow-track tractors.

Regarding In-Service Conformity testing, Ms Gardini notes that PEMS PM instruments are at an advanced stage of development for Heavy-duty vehicles but not yet available for NRMM.

The possibility to replace engines with other engines of at least the same emission stage contained in the current NRMM Directive 97/68/EC should be preserved, the rapporteur notes. She therefore proposes to allow replacement engines of a previous emissions stage (that expired less than 10 years before for the main category of engines <560 kW, less than 15 years before for rail engines, and less than 16 years for engines >560 kW) to be fitted in existing machinery for the first 16 years of application of the Stage V standard.

For Inland Waterway Vessels (IWV), Ms Gardini proposes less ambitious NOx and PM limits to avoid an excessive burden on the industry which has to recover its development costs on only a few hundred machines or less produced per year. The Commission proposal to set more stringent requirements for engines >1000 kW is proposed to be deleted. For all IWV engines >300 kW, NOx and PM limits are proposed to be harmonized and increased, from 0.4-1.2 up to 1.8 g/kWh NOx and from 10-20 up to 45 mg/kWh PM. The Particle Number standards for IWVs that have been proposed by the Commission (10^{12}/kWh) are retained in the Rapporteur's draft report.

The report recommends that Stage V introduction dates for rail engines are postponed by 3 years compared to the Commission proposal, to 2023-2024, for EU type-approval of engines and placing of engines on the market respectively.

Also, a general increase of the transition period by six months, from 18 to 24 months, is proposed – by even 12 months for manufacturers with a total yearly production of less than 80 units and for mobile cranes. This is justified by the statement that NRMM needs to be redesigned in order to be able to accommodate the larger Stage V engines.

The review clause is extended by the Rapporteur to cover specifically further pollutant emission reductions for the larger engines >560 kW, the small SI engines <19 kW, rail engines, snowmobiles and all-terrain vehicles and to consider evaporative emissions.

The draft report was discussed in the Environment Committee of the European Parliament on 26 May 2015. Shadow Rapporteurs from other political groups shared their views on the report. Mr Philippe Jean of the Commission's DG-Growth noted that views seem

to be converging in the Parliament and the Council so a first reading agreement may be expected. He said the Commission was open for discussion on inland navigation, replacement engines, rail and the review clauses. However, he said an extension of the transition period and further exemptions would have negative effects on stocks.

Members of the Environment Committee had until 4 June 2015 to table further amendments. The report will be voted in the Committee on 15 July 2015.

Internal Market Committee adopts Opinion on NRMM Stage V Proposal

On 23 June 2015 the Committee on Internal Market and Consumer Protection (IMCO) of the European Parliament also adopted its opinion on the Stage V proposal for Non-Road Mobile Machinery.

According to the Rapporteur, the opinion rebalances the proposal to provide enough flexibility to ensure that manufacturers can comply with the environmental requirements without hampering the EU's competitiveness. It namely introduces provisions for replacement engines when a Stage V engine cannot be fitted in an existing machine and extends by six months (12 months for mobile cranes) the transition period foreseen by the Commission. Further exemptions are included for small volume manufacturers that produce less than 100 machines per year.

In addition, the opinion deletes the Particle Number limit for inland waterway vessels; together with some changes in HC and NOx limits. The proposed limits are, for IMCO, not applicable in a marine installation due to restrictions on cooling system design, surface temperature limitations and safety concerns. IMCO proposes alternatively to align inland waterway propulsion engine emission limit values with the US 40CFR1042 marine emission regulation; this still provides an 80% reduction in emissions from current inland waterway propulsion engine emission limits, the opinion says.

The IMCO opinion, adopted by 31 votes in favour, 2 against and 4 abstentions, will be considered by the lead Environment Committee scheduled to adopt its report on 15 July 2015.

Parliament Committees adopt Opinions on "Pot-pourri" Proposal

The Transport Committee (TRAN) and the Committee on Internal Market and Consumer Protection (IMCO) of the European Parliament have adopted their respective opinions on the so-called "Pot-pourri" proposal tabled in January 2014 by the European Commission; it proposes amendments to the light-duty Euro 5&6 and heavy-duty Euro VI Regulations *(see AECC Newsletter of January-February 2014)*.

The Transport Committee (TRAN) opinion was adopted on 16 June 2015. It calls on the Commission to submit a legislative proposal to include methane in the calculation of CO_2 emissions. This would mean that the greenhouse effect of methane would be expressed as its CO_2 equivalent for regulatory and consumer information purposes.

It also seeks to ensure that the increased total hydrocarbons (THC) emission limits for positive ignition vehicles would be offset by an overall reduction in the greenhouse effect of the total combined CO_2 and methane emissions from those vehicles.

The TRAN opinion calls on emission control systems and test cycles to be designed to reflect real driving conditions, especially in urban areas where driving conditions are much more transient than the regulatory test cycle. It says that the manufacturer must ensure the effectiveness of emission control systems by complying with a Conformity Factor that reflects only the possible tolerances of the emissions measurement procedure. Conformity Factors, representing the ratio of the maximum level of emissions of a certain pollutant measured in real world conditions to the Euro 6 regulatory limit for that same pollutant, should be set at the minimum possible value.

The TRAN Committee also adopted amendments aiming to ensure that new motor vehicles are equipped with systems that assist eco-efficient driving. Fuel consumption meters should become a standard feature of new Light-duty and Heavy-duty vehicles. In addition, the Commission should assess the appropriateness of requiring that gear shifting indicators be fitted in more categories of vehicles than passenger cars.

The Internal Market and Consumer Protection (IMCO) Committee adopted its own opinion on 29 June 2015. Two compromise amendments concerning fuel consumption meters and gear shift indicators for Light-duty and Heavy-duty vehicles and on methane as a greenhouse gas were adopted.

The IMCO opinion clarifies the areas of the scope of vehicles and test cycles. On the scope, the opinion changes the vehicle mass limit and on test cycles the opinion contains a requirement to review the accuracy of test cycles on a regular basis.

Both opinions will be considered by the lead Environment Committee scheduled to adopt its report on 15 July 2015. A vote in the European Parliament plenary could be expected in October 2015.

Agreement on Directive on Emissions from Medium Combustion Plants

Following the adoption on 6 May 2015 of the European Parliament's Environment Committee report on the proposal for a new Directive on emissions of certain

pollutants from Medium Combustion Plants (MCP), Rapporteur Andrzej Grzyb (Poland, EPP) was given a mandate to open negotiations with the Council with the aim to achieve first reading agreement. On 23 June 2015 the European Parliament and the Latvian Presidency of the Council reached such an agreement.

Medium-size combustion plants are used for a wide variety of applications, such as electricity generation, domestic or residential heating and cooling and providing heat or vapour for industrial processes.

As originally proposed by the European Commission in its 2013 Clean Air package, the maximum emission values of sulphur dioxide (SO_2), nitrogen oxides (NOx) and dust from existing combustion plants with a thermal input above 5 MW, would come into force from 2025. The smallest plants, with a thermal input from 1 to 5 MW, which are usually operated by Small and Medium Enterprises, will have to comply with emission limit values from 2030. EU Member States will have to assess whether to introduce stricter limits in areas where emissions breach EU air quality standards.

Co-legislators also included rules on monitoring carbon monoxide emissions, with the results feeding into a future review of the law.

The agreement was confirmed by the Committee of Permanent Representatives (Coreper) of the Council on 30 June 2015. The new piece of legislation will now be submitted to the European Parliament for a vote at first reading and then to the Council for final adoption.

EEA Status Report on National Emission Ceilings 2014

On 11 June 2015 the European Environment Agency (EEA) published a technical report titled 'NEC Directive status report 2014' which summarises EU Member States emissions inventories for 2010-13 and evaluates performance with regard to National Emission Ceilings (NEC) set for nitrogen oxides, Non-Methane Volatile Organic Compounds, ammonia, and sulfur dioxide.

The NEC Directive called for emission ceilings to be complied with from 2010 onwards. The EEA report indicates however that ten Member States still exceeded at least one ceiling in 2013. Germany even exceeded three of the four emission ceilings (NOx, NMVOCs and NH_3), while Austria (NOx and NH_3), Denmark (NMVOCs and NH_3) and Ireland (NOx and NMVOCs) exceeded two ceilings in 2013.

Six Member States exceeded their NOx emission ceilings in all years from 2010-2013; these are Austria, Belgium, France, Germany, Ireland, and Luxembourg. In 2013, Germany and France reported the highest NOx exceedances with 218 ktonnes and 180 ktonnes, respectively. In percentage terms, Luxembourg (41%) and Austria (32%) exceeded their NOx emission ceilings by the greatest amount in 2013. According to EEA, emissions from road transport are one of the main reasons for the large number of NOx exceedances. NOx reductions from the road transport sector have been lower than originally anticipated over the last two decades, partly because transport has grown more than expected, and partly owing to the increased number of Diesel vehicles producing higher NOx emissions in real-world than petrol-fuelled vehicles.

Six Member States also have persistent problems meeting their national emission limits for NH_3. Austria, Denmark, Finland, Germany, the Netherlands and Spain all breached the ceilings each year from 2010 to 2013. Almost 95% of NH_3 emissions stem from agriculture, mainly from the use of fertilisers and the handling of animal manure.

Finally, national ceilings for SO_2 emissions were not exceeded anywhere between 2010 and 2013.

The EEA report is at www.eea.europa.eu/publications/nec-directive-status-report-2014.

Environment Ministers discuss National Emission Ceilings

On 15 June 2015 Environment ministers from EU Member States discussed the Commission proposal to revise the National Emission Ceilings (NEC) Directive.

Many Environment ministers warned that the Commission's proposals for extending the NEC Directive out to 2030 did not correspond to governments' own assessments of what is feasible, particularly on reducing NOx, $PM_{2.5}$ and NH_3 pollution.

Lithuania, Czech Republic, Slovakia, Italy, Luxembourg, Finland, Spain, Slovenia, Romania, Hungary, Bulgaria and Poland all raised concern over their proposed emission reduction targets.

Hungary and Ireland said the Ecodesign Directive was not sufficient to solve the problem of $PM_{2.5}$ pollution from residential heating. Many member states have experienced a steady increase in $PM_{2.5}$ from residential heating, Hungary said, while Ireland called for EU standards for solid fuels.

A number of countries including the UK, Slovakia, Ireland, Finland and Croatia raised particular concern over the impact of the proposed ammonia (NH_3) reduction targets on their agriculture sectors.

Many Member States called for greater flexibility. But Belgium, Luxembourg and the Netherlands warned that any flexibility introduced should not undermine the proposal's overarching environmental and health protection and goals.

The Latvian presidency has proposed to delete a flexibility proposed by the Commission whereby Member States (MS) could offset emissions reductions

from shipping against emissions from other sectors. This was "considered complex to implement and to monitor", according to an EU presidency document.

The Czech Republic called for a flexibility mechanism that would bridge the gap between EU targets and reality if the development of emissions varies from the projections on which targets are based. Trends in energy usage and agricultural production could result in emission levels that are very different to the Commission's projections, the Czech minister said.

Slovakia called for MS to be given the option to alter their 2030 targets if they have implemented all feasible mitigation measures but the goals remain out of reach. Romania said the targets should be amended based on realistic projections or should be made non-binding. Bulgaria also wants the targets, which it said were "extremely ambitious and unrealistic", to be non-binding.

But Environment Commissioner Karmenu Vella said non-binding targets would "deprive the policy of content". He also criticised the deletion of methane by the Latvian presidency and urged countries to consider an alternative approach that would take into account synergies with climate policy. Mr Vella said he hoped progress towards a first reading agreement would be possible in the coming months.

Parliamentarian Opinion on National Emission Ceilings Directive

On 28 May 2015 the Agriculture Committee of the European Parliament adopted its opinion on the revision of the National Emission Ceilings (NEC) Directive.

The Committee asked to scrap the European Commission's plans to set new binding reduction targets for methane and proposed a more flexible regime for ammonia emissions. They highlighted farmers' efforts in reducing emissions and insisted that there are other options within the EU's farm policy to improve air quality.

The opinion of the Agriculture Committee will be considered by the lead Environment Committee where a vote is scheduled on 15 July 2015.

Draft Parliamentarian Report on Sustainable Urban Mobility

On 28 May 2015 MEP Karima Delli (France, Greens) presented her draft report on sustainable urban mobility to the Transport Committee of the European Parliament.

The own initiative draft report calls on the Commission to review the Air Quality Directive as a matter of urgency and calls on the Member States to reduce the use of cars running on traditional fuels in urban areas by 2030, and to ban them by 2050 on a gradual basis. In the explanatory statement, Ms Delli encourages authorities to ban Diesel in urban areas in 2020.

She also calls for the Commission to propose a framework of guidelines and criteria for urban road and parking pricing based on the non-discrimination, interoperability, and polluter-pays principles.

The Commission should therefore present a 'transport and climate' legislative package which integrates EU objectives in respect of climate, environment, health, energy and mobility, according to Ms Delli.

She considers that the use of renewable energy is key to achieving sustainable urban mobility, and that technology neutrality should be respected when adopting measures to meet EU targets for CO_2 emissions and energy savings.

MEPs of the Transport Committee supported the Rapporteur's intentions to improve urban mobility in the EU. However, most raised the issue of subsidiarity and thought that decisions regarding urban mobility and planning should be left at local level.

MEPs in the Transport Committee had until 4 June 2015 to table their amendments to the draft position with a view to voting on it on 14 July 2015.

Commission's Call for Tender on NO_2 Exposure Assessment Tools

On 25 June 2015 the Directorate General for Environment of the European Commission issued a call for tender on 'Improved tools for assessing NO_2 exposure (EU ambient air quality policy)'.

The general objective of the assignment is to improve the basis for EU air quality policy, both for follow-up of current policy as well as for new policy.

As exposure to NO_2 is potentially a significant component of the overall health burden, this assignment has the specific objective to propose methods and tools that are coherent with the exposure metric used when deriving the appropriate exposure-response relationships and compatible with currently used integrated assessment modelling tools of the EU. In particular, the assignment includes three tasks: 1) provide an overview of current methods/tools for assessment of NO_2 exposure assessment, health impacts and cost-benefit analysis; 2) organise an expert consultation meeting; and 3) develop and test updated and advanced methods/tools for NO_2 exposure assessment.

The call for tender is open until 12 August 2015 and more information can be found at http://ted.europa.eu/udl?uri=TED:NOTICE:218767-2015:TEXT:EN:HTML.

Commission's Better Regulation Agenda

On 19 May 2015 the European Commission released its "Better Regulation Agenda", a comprehensive package of reforms covering the entire policy cycle.

The Commission wants to boost openness and transparency in the EU decision-making process, improve the quality of new laws, and promote constant and consistent review of existing EU laws. The Better Regulation Package will be directly implemented by the Commission in its own preparation and evaluation of legislation and through cooperation with the European Parliament and Council.

The Commission will open up its policy making process to further public scrutiny and input, with a web portal where initiatives can be tracked and new public consultations on evaluations of existing policies or on possible new proposals. There will also be new opportunities for stakeholder comments throughout the entire policy lifecycle, from the initial Roadmap to the final Commission proposal. After the Commission has adopted a proposal, any citizen or stakeholder will have 8 weeks to provide feedback or suggestions which will feed into the legislative debate before Parliament and Council co-decision.

This transparent approach will also apply to secondary legislation, in the form of delegated and implementing acts (former comitology).

The Regulatory Fitness and Performance Programme (REFIT), which assesses the existing stock of EU legislation to make it more effective and efficient without compromising policy objectives, will be strengthened.

In addition, the Commission is strengthening its approach to impact assessments and evaluations to improve the evidence base which underpins all legislative proposals, without prejudice to political decisions. In particular, the Commission's Impact Assessment Board, operating since 2006, will be transformed into a Regulatory Scrutiny Board. Its members will have a more independent status and half of them will be recruited from outside the Commission.

The Commission's dedicated web page is at http://ec.europa.eu/priorities/democratic-change/better-regulation/index_en.htm.

EEA Assessment of Ozone Pollution in Summer 2014

On 6 May 2015 the European Environment Agency (EEA) published a briefing assessing ground-level ozone concentrations during the summer of 2014.

Ozone (O_3) is a 'secondary' pollutant formed from gases such as NOx and Volatile Organic Compounds (VOCs) in the presence of solar light. Exposure to high O_3 concentrations can cause breathing problems, trigger asthma, reduce lung function and cause lung diseases.

Ozone is regulated in the EU under the Air Quality Directive which sets thresholds for O_3 concentrations: information threshold (1 hour concentration of 180 µg/m³), alert threshold (1 hour concentration of 240 µg/m³), long-term objective – LTO (the maximum daily 8-hour mean concentration of ozone should not exceed 120 µg/m³), and target value (LTO should not be exceeded on more than 25 days per calendar year, averaged over 3 years). During summer 2014, concentrations of ground-level ozone significantly exceeded these standards. However, the number of exceedances was lower than in previous years, continuing the long-term downward trend observed over the last 25 years.

The ozone alert threshold was exceeded four times and only in France (mainly in southern France) at four different locations. A maximum 1-hour ozone concentration of 305 µg/m³ was reported from l'Etang de Berre, southern France, on 11 June 2014.

Nevertheless, the ozone long-term objective was exceeded in almost all Member States and in 81% of all reporting stations. The maximum number of exceedance days per country was 150 in Spain. On average, those stations observing at least one LTO exceedance reported a total of 11 days of exceedance. The maximum number of 63 exceedance days was observed at Villanueva del Arzobispo in Spain.

Regarding exceedance of the target value for the protection of human health, more than 25 LTO exceedances occurred during summer 2014 at stations in seven EU Member States (Austria, Cyprus, France, Germany, Hungary, Luxembourg, and Spain).

The EEA assessment is at www.eea.europa.eu/themes/air/ozone/air-pollution-by-ozone-across.

EEA Assessment of Past Emission Projections

On 11 May 2015 the European Environment Agency published a report assessing past emissions projections reported by Member States under EU air pollution and greenhouse gas (GHG) legislation.

The year 2010 was the target year for which the National Emission Ceilings (NEC) Directive set upper limits for each Member State for total emissions of certain air pollutants. Under the Monitoring Mechanism Decision (MMD), Member States were required to report future estimates of GHGs for the years 2005, 2010, 2015 and 2020. Actual emission inventory data for the year 2010 is now available and it is possible to compare reported emission projections with historic emission inventory data for 2010.

The report shows that there are systematic differences between projections reported over past years, and the emission inventory data for 2010 eventually produced. For both air pollutants and GHGs, the reported projections overestimated the eventual 2010 emissions, albeit to a greater extent for air pollutants than for GHG projections. Even in years immediately preceding 2010, when good agreement between reported projections and final emissions inventory data might be expected, the difference exceeded 100% in several instances in some Member States.

However, the average aggregated underestimation or overestimation did decrease, which means that projections mostly converge over time towards the value of the actual 2010 emissions.

To help improve the fitness for purpose of projections information from Member States, the report identifies a number of actions addressing both GHG projections and air pollutant projections: improving overall quality of national projections; improving the implementation of existing reporting requirements for "with existing measures" scenarios and projections information; improving the implementation of existing reporting requirements for "with additional measures" and "without measures" scenarios; increasing the transparency of reported projections and the link to policies and measures; exercising caution in interpreting reported projections; improving reporting to better understand the uncertainties associated with projection estimates; and promoting complementary methods for assessing progress to policy targets.

EEA report No 4/2015 is at
www.eea.europa.eu/publications/projections-in-hindsight.

'Signals 2015' EEA Report on Climate Change

On 30 June 2015 the European Environment Agency (EEA) published its annual Signals report. 'Signals 2015 – Living in a changing climate' focuses on climate change.

Signals 2015 consists of nine articles, including two interviews. It explains how climate change is currently impacting Europe and how it is expected to impact in the future. Signals 2015 also provides information on the main sectors contributing to climate change as well as the EU's efforts to adapt and mitigate, while taking a closer look at investments, soil, oceans and food production in the context of climate change.

Signals 2015 is at
www.eea.europa.eu/publications/signals-2015.

High-Level Conference on Decarbonisation of Transport

On 18 June 2015 three European Commissioners hosted a high-level conference to debate future policy options for cutting CO_2 in road transport.

Commissioners Miguel Arias Cañete, Elżbieta Bieńkowska and Violeta Bulc, responsible respectively for climate action and energy, internal market and industry, and transport, discussed decarbonisation of transport post-2020 with stakeholders.

The Commission does not intend to replace emission standards for cars and vans by including the sector in the emissions trading scheme (ETS) after 2020. It will publish a strategy paper on decarbonising transport in the first half of 2016, alongside a proposal to continue the effort-sharing decision setting emissions reduction targets in non-industrial sectors such as transport, buildings and agriculture after 2020, Mr Cañete said. There will be new CO_2 standards post-2020, including for heavy-duty vehicles. These targets will be ambitious but achievable.

For the motor industry, ACEA argued that cost-effective policies would have a wider focus than emissions reductions from new vehicles, instead including elements such as the carbon content of fuels, driver behaviour and infrastructure. Any cuts beyond 95 g/km can only be met with a rising market share for electric and hybrid cars, ACEA claimed.

In a letter dated 16 June 2015 to the European Commission, the Environment or Transport Ministers from Finland, Ireland, the Netherlands and Sweden lent their support to publication in 2016 of "challenging new targets for 2025". They did not specify a level though.

2014 EEA Provisional Data on CO_2 Emissions from Vans

On 13 May 2015 the European Environment Agency (EEA) released the CO_2 provisional data of new vans sold in the European Union in 2014.

According to EEA, around 1.4 million new vans were registered in the EU in 2014, with average emissions of 169.2 grams of carbon dioxide (CO_2) per kilometre, 4 g/km of CO_2 less than those sold in 2013. This is significantly below the 2017 CO_2 target of 175 g/km, which was already reached in 2013, four years ahead of schedule.

The EU market for vans grew by 18% in 2014. Registrations increased in all EU Member States compared to 2013, except for Malta and the Netherlands. More than 60% of the vehicles were registered in three countries: France (24%), United Kingdom (21%) and Germany (15%).

Diesel vehicles make up the vast majority of van sales (97%). Alternative fuel vehicles using, for example, Liquid Petroleum Gas (LPG) or Natural Gas (NG), represent less than 2% of the fleet, with electric vehicle sales comprising less than 0.5%.

CO_2 emissions levels measured on the New European Driving Cycle (NEDC) were lowest among new vans sold in Portugal (145.1 g/km), Malta (145.7 g/km) and Bulgaria (148.6 g/km). At the other end of the scale, emissions were approximately 30% higher for the average vans sold in Slovakia (193.3 g/km), the Czech Republic (191.1 g/km) and Germany (190.4 g/km).

Final CO_2 data for new vans will be published in the autumn 2015 after van manufacturers verify this preliminary data.

Commission's New Scientific Body

On 13 May 2015 the European Commission announced the setting up of a new scientific advisory body to replace former chief scientific advisor Anne Glover, whose mandate came to an end in 2014, with the conclusion of the previous Commission.

A 'high-level panel' of seven independent scientists from different backgrounds will coordinate advice to the Commission, including from national academies and other bodies. They will be supported by an operational unit of 25 officials within the Commission.

Commissioners will be able to ask the panel scientific questions, and the panel can also raise questions that were not asked by Commissioners or by the Commission's secretariat.

Commissioner Moedas, responsible for Research, Science and Innovation, said: "In combination with the forthcoming proposals on better regulation, the new model for independent scientific advice will contribute to the Commission's continued pursuit of the best possible evidence-based policy. This will be a significant step forward for an effective European Commission that delivers for citizens, and addresses the major societal challenges which Europe faces."

Sustainable Transport Forum

On 23 April 2015 the European Commission announced the creation of the Sustainable Transport Forum (STF), an expert group on alternative transport fuels.

The STF will bring together Member States and alternative fuels industry stakeholders and will assist the Commission in implementing the Union's activities and programmes aimed at fostering the deployment of alternative fuels infrastructure according to Directive 2014/94/EU and will contribute to the European Union energy and climate goals.

Belgium and Bulgaria referred to the EU Court of Justice over PM_{10} Pollution

On 18 June 2015, the European Commission referred Belgium and Bulgaria to the EU Court of Justice over persistently high levels of particles which pose a major risk to public health.

Belgium's track record on air quality has seen some improvements in recent years, as only three zones (Brussels, Ghent port and Roeselare port) show continued failures to meet the PM_{10} targets. Although measures have been adopted they have not so far been sufficient to solve the problem, and as the deadline for compliance (2005) has long expired, the Commission is now taking the case to Court.

In Bulgaria, despite a number of measures taken and some reductions in PM_{10} emissions at most monitoring points since 2011, the data shows persisting non-compliance with the annual and/or daily limit values for PM_{10} in all the country's 6 zones and agglomerations other than in Varna, which complied with the annual limit value once – in 2009. The Commission decision to refer Bulgaria to the EU Court of Justice follows a reasoned opinion sent in July 2014.

The Commission also took action against Sweden for poor air quality, sending a reasoned opinion on 18 June 2015. The latest figures show maximum daily limits for PM_{10} being exceeded in two zones – Middle Sweden (agglomerations of Norrköping, Södertälje and Uppsala, except for 2012) and Stockholm agglomeration. Sweden has previously been condemned by the Court for not meeting PM_{10} limit values between 2005 and 2007. If Sweden fails to act, the Commission may take the matter to the EU's Court of Justice.

There are currently 16 open infringement actions for PM_{10} at various stages, against Belgium, Bulgaria, the Czech Republic, Germany, Greece, Spain, France, Hungary, Italy, Latvia, Portugal, Poland, Romania, Sweden, Slovakia and Slovenia. Belgium and Bulgaria are the first cases of this type to be brought to Court.

Dutch Report on Euro 6 Cars Real-Driving Emissions Performance

TNO has released a report on a study, conducted on behalf of the Dutch Ministry of Infrastructure and the Environment, that investigated the real-world emissions of Euro 6 Diesel engine passenger vehicles, and in particular vehicles fitted with Selective Catalytic Reduction (SCR) DeNOx systems.

The study is based on emission measurements of sixteen Euro 6 Diesel cars performed in 2010 (phase 1), 2013 (phase 2), and 2015 (phase 3), both in laboratory conditions and on open road.

The tests reveal that on the basis of the NEDC type approval test, all sixteen vehicles satisfy the Euro 6 NOx standard of 80 mg/km. Under real-world conditions, however, NOx emissions were higher than this by a factor of up to eight. The particulate emissions of the vehicles were well below the regulatory limit of 4.5 mg/km.

In phase 3, six Euro 6 Diesel cars using a combination of Exhaust Gas Recirculation (EGR) and SCR technology were investigated. Real-world emissions varied a lot with average NOx real-world emissions ranging from 150 to 850 mg/km. Only one of the six vehicles achieved real-world NOx emissions of 150 g/km.

According to TNO, lower real-world NOx emissions can be achieved by applying effective engine settings, combined with changes to the amount of AdBlue® to be injected. This does require, however, a redesign of these engines because in such a situation the operational conditions would be very different. Having an AdBlue® tank capacity of between 15 and 25 litres, would imply that tanks have to be refilled in between maintenance checks.

Regarding Real-Driving Emissions (RDE) data evaluation tools, TNO evaluated their Portable Emissions Measurement System (PEMS) data with both EMROAD and CLEAR. The differences in the results from the two evaluation methods vary between +23% and -26%. On average, EMROAD applies smaller corrections than CLEAR, and these corrections also appear to be more consistent. However, TNO cannot provide a definitive judgment on the two methods because of their limited set of data, more test results for various driving conditions are needed.

In conclusion TNO writes that over the past decades the three-way catalyst for petrol engines and the Diesel particulate filters have been developed into fully-fledged products that in real-world situations achieve conversion rates of 90-99%. This success may now be followed up by EGR, Lean NOx Trap (LNT), and SCR technologies provided legislation regulates real-world emissions.

The TNO report is at http://publications.tno.nl/publication/34616868/a1Ug1a/TNO-2015-R10702.pdf.

Court orders Netherlands to further cut CO_2 Emissions

On 24 June 2015 the District Court of The Hague ruled that the Dutch government must cut the country's greenhouse gas (GHG) emissions by at least 25% by 2020.

It is the first time that a government has been ordered by a Court to step up its climate ambition. The Court stated that by aiming to reduce its emissions by up to 17% as part of the EU's collective 20% GHG reduction target, the Netherlands fails to meet the 25-40% range that the latest scientific evidence has shown to be necessary in developed countries to keep global warming below 2°C. The 25% target is "the absolute minimum" and sufficient for the country to do its fair share to avert dangerous climate change, the Court said. It declined to impose a higher target on the grounds that it would interfere with the discretionary power vested in the state.

The Dutch government can choose to appeal the ruling.

France introduces Air Quality Certificates for Vehicles

On 2 June 2015 the French Minister for Ecology Ms Ségolène Royal presented an air quality action plan to the national air council aiming at cleaning the air in cities to a sustainable level within the next five years.

Royal announced in particular the introduction on 1 January 2016 of emissions stickers for cars, called "air quality certificates". Passenger cars will be ranked according to their Euro standard, and local authorities will have then the possibility to introduce access restrictions to certain vehicle categories, based on their emissions levels.

Euro 1 and older vehicles are ranked number 6 while Euro 5 and 6 gasoline cars are ranked number 1. Euro 6 Diesel cars are only ranked number 2, like Euro 4 gasoline cars. Electric cars are attributed a specific blue sticker with no number.

A similar system is introduced for powered-two wheelers, light commercial vehicles, heavy-duty vehicles, buses and coaches.

Stickers are not mandatory but will be provided free upon demand in the first six months. Later they will be sold for €5.

Car manufacturers' associations in France (CCFA) and in Europe (ACEA) have released statements condemning the "unfair" treatment of Diesel cars, for which the Euro 6b standard ensures equivalent levels of pollution between Diesel and gasoline cars.

Air Quality in Paris in 2014

On 19 May 2015 Airparif released their annual report on air quality in the Paris region in 2014.

In spite of air quality favourable weather conditions in 2014, more than 2.3 million people living in Ile-de-France in and around Paris, remain exposed to pollution levels above regulatory limits, especially particles and nitrogen dioxide (NO_2). According to Airparif, people living in Paris and close to the main traffic roads are the most concerned.

On a trend line basis, mean levels of pollution in 2014 were slightly lower than those in 2013. For particles, a net decrease is observed.

Daily and annual limit values for PM_{10} particles are still greatly exceeded on roadside sites. In 2014 around 400 000 inhabitants in the agglomeration living close to main roads were potentially affected by the PM_{10} exceedance of the daily limit value.

For fine particles ($PM_{2.5}$), 11.1 million inhabitants were potentially affected by air quality objective exceedances. Background levels, away from traffic, were on average 1.5 times higher than the objective, whilst the roadside situation was up to 2.5 times higher than the objective.

A slight decrease of NO_2 levels is observed in 2014 in the greater Paris urban agglomeration, both for roadside levels and away from the traffic. Along the main roads, NO_2 levels are on average twice the annual limit value. The limit value is thus largely exceeded over a wide portion of the Ile-de-France road network and almost 1500 km of roads are concerned.

Regarding ozone levels, every year the quality objective is exceeded in all parts of the region and especially in suburban and rural areas.

The report (in French) is available at www.airparif.asso.fr/_pdf/publications/bilan-2014.pdf and a summary (in English) is at www.airparif.asso.fr/_pdf/publications/bilan-2014-anglais.pdf.

German Report on Durability of Replacement Catalytic Converters

BASt, the German Federal Highway Research Institute, has published a report, prepared by TÜV Nord, on the 'Examination of pollutants emitted by vehicles in operation and of emission relevant components – Replacement catalytic converters'.

In the context of the research project, the durability of replacement catalytic converters was examined. A Euro 4 VW Golf with 1.4 l petrol engine was selected as the test vehicle.

An original replacement catalytic converter, which was purchased from an authorised dealer, and four replacement catalytic converters purchased in the independent aftermarket, were examined.

TÜV Nord said that the results indicate that with the replacement systems for the aftertreatment of exhaust gases available in the independent aftermarket considerable quality differences can occur. At the end of the ageing over a distance of 80 000 km only the original replacement catalytic converter and one replacement catalytic converter from the independent aftermarket complied with the Euro 4 emission limits. With one replacement catalytic converter, the Euro 4 emission limits were already exceeded in new condition. With another replacement catalytic converter, the examination was aborted after 10 000 km ageing and with a further catalytic converter after 40 000 km ageing, both due to the Euro 4 emission limits being exceeded.

The study therefore indicates that the requirements in the UNECE Regulation No 103 are not adequate to ensure the durability of replacement catalytic converters.

The report is at www.bast.de/DE/FB-F/Publikationen/Download-Publikationen/Downloads/F1-pollutants-emitted-by-vehicles.pdf?__blob=publicationFile&v=2.

Retrofit Requirements for Construction Machinery in Germany

On 28 May 2015 Germany notified the European Commission of a draft Ordinance mandating emissions reduction requirements for diesel-run mobile machines and equipment used at construction sites in areas where air quality limit values for PM_{10} are exceeded or are at risk of being exceeded.

The scope of the regulation covers Diesel engines above 18 kW (e.g. mini-excavators, compaction machines, excavators, caterpillars). The requirements are based primarily on the requirements of the Non-Road Mobile Machinery Directive 97/68/EC with an alternative to require retrofitted machines.

In 2016, 80% of machines used on construction sites with four or more machines will have to meet the emissions requirements. The share will increase to 95% in 2018 and 100% in 2019.

The equipment used must comply with the following emissions requirements:

- 19 kW to less than 37 kW

- from 1 July 2016, Stage IIIA or retrofitted.

- from 1 January 2019, also Stage IIIA machinery have to be retrofitted with a particulate reduction system.

- 37 kW to less than 56 kW

- from 1 July 2016, Stage IIIB or retrofitted.

- 56 kW to less than 560 kW

- from 1 July 2016, Stage IIIB or retrofitted.

- from 1 January 2017, Stage IV or retrofitted.

From 1 January 2018 retrofit filters will have to be approved according to the requirements of the second stage of the UN REC Regulation No 132 for Class I systems (no increase in NO_2 emissions). Until that date retrofit devices can be certified as Class I or II, reduction stage 1 of the UN REC regulation or by the Technical Rules for Hazardous Substances 554 (TRGS 554), Verification of Emission Reduction Technologies (VERT), Förderkreis exhaust aftertreatment technologies for diesel engines (FAD), or by Annex

XXVII of the Road Traffic Licensing Regulations - StVZO.

Authorities may grant exceptions for individual equipment without particulate matter reduction systems, provided evidence is submitted which indicates that, for technical reasons retrofitting is not possible or would be economically unreasonable.

The Ordinance will apply specifically to the cities of Ludwigsburg, Markgröningen, Reutlingen, Stuttgart and Tübingen in Baden-Württemberg.

The draft ordinance is at http://ec.europa.eu/growth/tools-databases/tris/en/search/?trisaction=search.detail&year=2015&num=275.

Denmark updates Environmental Requirements for Taxis and Ambulances

On 13 May 2015 the Danish Transport Authority notified the European Commission of a draft Order amending environmental requirements for taxis.

The order governs the CO_2 and pollutants emissions from passenger cars and light-duty vehicles used as taxis, limousines or ambulances or for public service.

From 1 October 2015, vehicles registered for this type of use for the first time must meet the Euro 6 requirements. Regardless of the date for the registration of the vehicle as a taxi, limousine, ambulance, or for public transport, Diesel-powered vehicles not equipped with a particle filter must be retrofitted.

The order also defines three vehicle categories – ordinary, large vehicle I, and large vehicle II – and specifies fuel efficiency requirements for each category. For example, ordinary vehicles must be in energy class A or better, i.e. at least 18.2 km/l for petrol vehicles (<5.5 l/100 km) and 20.5 km/l for Diesel vehicles (<4.88 l/100 km).

Limousines with a wheelbase of over 3 500 mm, or which were registered for the first time more than 35 years ago, cars equipped with a permanently fixed lift and designed to carry at least 2 wheelchairs, and vehicles designed to transport sick persons lying down, with stretcher space and 1-2 seats in the patient cabin are all exempted from the requirements.

The draft order is at http://ec.europa.eu/growth/tools-databases/tris/en/search/?trisaction=search.detail&year=2015&num=251.

NORTH AMERICA

US EPA proposes Phase 2 GHG Standard for Medium- and Heavy-duty Vehicles

On 19 June 2015 the US Environmental Protection Agency (EPA) and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a national program that would establish the next phase of greenhouse gas (GHG) emissions and fuel efficiency standards for medium- and heavy-duty vehicles.

According to EPA, this "Phase 2 program" builds on the success of EPA's Phase 1 heavy-duty GHG standards and would significantly reduce carbon emissions and improve the fuel efficiency of heavy-duty vehicles, helping to address the challenges of global climate change and energy security.

The proposed standards are tailored to each of four regulatory categories: combination tractors; trailers pulled by combination tractors; heavy-duty pickup trucks and vans; and vocational vehicles. For most categories, standards are proposed to begin with Model Year (MY) 2021, with increased stringency in MY 2024, and fully phased-in standards in MY 2027. The ranges of CO_2 emissions and fuel consumption reductions necessary to meet the Phase 2 standards in model year 2027, relative to the respective 2018 vehicle categories, are up to 24% for class 8 tractors, 12-16% for vocational vehicles and 16% for commercial pickups and vans.

EPA is also proposing more stringent N_2O standards for heavy-duty engines: 50 mg/bhp-hr starting in MY 2021, with a default 10 mg/bhp-hr deterioration factor. As in Phase 1, excess N_2O and CH_4 emissions above the caps may be offset with available CO_2-equivalent credits or CO_2-equivalent over-compliance. EPA has asked for comment on whether they should update their global-warming potential values for both N_2O and CH_4 used in the CO_2 credit exchange process.

As in all EPA mobile source regulatory programs, the proposal includes credit averaging, banking, and trading compliance flexibilities.

In addition to the proposed standards, EPA and NHTSA are seeking comment on alternative standards that would accelerate the program by 2-3 years (e.g. full phase-in by 2024 instead of 2027), as well as on several other alternative sets of standards, including less stringent and more stringent options.

The proposal is open for comments and can be found at www.epa.gov/oms/climate/regs-heavy-duty.htm.

The International Council on Clean Transportation (ICCT) has put together a detailed summary of the US Phase 2 heavy-duty GHG proposal.

It is available at www.theicct.org/us-phase2-hdv-efficiency-ghg-regulations-policy-update.

EPA Report on Global Action Impact on Climate Change in the US

On 22 June 2015 the US Environmental Protection Agency (EPA) released the peer-reviewed report "Climate Change in the United States: Benefits of

Global Action" prepared under the Climate Change Impacts and Risks Analysis (CIRA) project, led by EPA in collaboration with the Massachusetts Institute of Technology, the Pacific Northwest National Lab, and the National Renewable Energy Laboratory.

According to EPA it is one of the most comprehensive analyses to date on the economic, health and environmental benefits to the US of global climate action. It examines how future impacts and damages of climate change across a number of sectors in the US can be avoided or reduced with global action. The report compares two future scenarios: a future with significant global action on climate change, where global warming has been limited to 2°C, and a future with no action on climate change (where global temperatures rise by 5°C). The report then quantifies the differences in health, infrastructure and ecosystem impacts under the two scenarios, producing estimates of the costs of inaction and the benefits of reducing global GHG emissions.

The report is at www2.epa.gov/cira/downloads-cira-report.

ARB Report on Diesel Particulate Filters

On 8 May 2015 the California Air Resources Board (ARB) released a report on their "evaluation of particulate matter filters in on-road Heavy-duty Diesel vehicle applications".

The report discusses findings regarding the cost, reliability, and fire safety of Diesel Particulate Filters (DPF). ARB has actually considered the following questions raised by truck operators: Do PM filters increase the risk of truck fires? Do PM filters effectively reduce diesel PM by 85% or more? And do PM filters perform reliably in on-road applications?

ARB staff concludes that overall DPFs do not increase the likelihood of truck fires and are manufactured in accordance with federal and state safety requirements; DPFs are effective in removing more than 98% of toxic Diesel PM emissions; DPFs are operating properly, and most trucking fleets are not having problems with their engines or DPFs; and some fleets are experiencing problems with their DPFs, but engine durability issues and inadequate maintenance practices are the primary reasons for these problems.

ARB has therefore developed recommendations in five areas that will help better inform the direction of future efforts, actions, and rulemakings:

- Continue working to hold manufacturers accountable;
- Educate truck and bus owners and operators;
- Enhance certification programs;
- Develop stronger inspection and maintenance requirements; and
- Continue to provide assistance to fleets operating retrofits in on-road and off-road applications.

The report is at www.arb.ca.gov/msprog/onrdiesel/documents/DPFEval.pdf.

ARB proposed Aftermarket DPF Approval for Heavy-duty Engines

On 9 June 2015 the California Air Resources Board (ARB) published a revised draft procedure for approving aftermarket Diesel Particulate Filters (DPF) for on-road heavy-duty Diesel engines.

An aftermarket DPF approval program would allow for additional options in the market place for the end-user. Currently, original equipment manufacturer (OEM) filters are the only option available to replace DPFs after expiration of the warranty period. The procedure will allow ARB to evaluate non-OEM aftermarket parts for DPFs for 2007-2009 model year heavy-duty diesel engines to determine if they can be used in place of OEM devices.

Major elements in the draft approval procedure include emissions testing and durability/compatibility testing after 500 hours laboratory aging and 500 hours field demonstration, warranty requirements and other administrative requirements.

The draft procedure is at www.arb.ca.gov/msprog/mailouts/ecars1506/ecars1506.pdf.

Draft Strategy to reduce Short-Lived Climate Pollutants in California

On 7 May 2015 the California Air Resources Board (ARB) released a concept paper on their strategy to reduce short-lived climate pollutants. This paper describes initial ideas that will be explored over the next several months as the strategy is developed.

Short-lived climate pollutants include methane (CH_4), tropospheric ozone (O3), black carbon (soot), and fluorinated gases (F-gases, including hydrofluorocarbons, or HFCs). They are powerful climate forcers that remain in the atmosphere for a much shorter period of time than longer-lived climate pollutants, including carbon dioxide (CO_2). Cutting emissions of these pollutants is the only way to immediately slow global warming and reduce the impacts of climate change, ARB said.

While some sources will remain difficult to control over the next 15 years – especially natural sources – existing strategies can cost-effectively reduce global methane emissions by an estimated 40% and black carbon by an estimated 80% below reference levels in 2030. Achieving these levels of global reductions would deliver significant climate benefits. It would cut the expected rate of global warming in half by 2050, or by about 0.6°C, which is about four times more than the reductions in warming that may come by 2050 from action on CO_2 alone. It would also increase the probability of staying below the 2°C threshold to more

than 90% through 2050. The benefits could be even greater in the Arctic, which is especially vulnerable to black carbon emissions and is warming twice as fast as the rest of the world.

Black carbon is a component of fine particulate matter ($PM_{2.5}$) resulting from combustion sources such as biomass burning and diesel emissions. Recent studies suggest that deploying existing, cost-effective technologies to reduce short-lived climate pollutants emissions can also cut global emissions of $PM_{2.5}$ by 50%, NOx emissions by 35%, and CO emissions by 60%. If these measures were fully in place by 2030, an estimated 2.4 million premature deaths and 53 million metric tons of crop losses could be avoided globally, per year. The economic value of these climate, crop, and health benefits is estimated to be about $5.9 trillion (€5.2 trillion) annually.

ARB notes that California's clean fuel and in-use vehicle requirements for on- and off-road sources have accelerated the switch to cleaner diesel equipment and vehicles. As a result, ambient levels of black carbon in California are now 90% lower than in the early 1960s, despite the use of diesel fuel more than tripling over the same time period. Existing rules will cut them in half again by 2020.

The ARB paper is at www.arb.ca.gov/cc/shortlived/concept_paper.pdf.

ARB donates Air Monitoring Equipment to Mexico's Baja California

On 6 May 2015 the California Air Resources Board (ARB) announced that it is donating surplus air monitoring equipment to the Environmental Protection Agency of Mexico's Baja California to help bolster its air monitoring network along the US-Mexico border.

Equipment being donated includes a handful of particulate matter monitors and supporting equipment, including instruments that perform checks on gaseous analysers to ensure proper performance (ozone, CO, and NOx) and data loggers.

In related news, ARB has been awarded a grant from the US EPA to perform a monitoring study of fine particulate matter ($PM_{2.5}$) in the city of Mexicali. This two-year study will begin in late 2015 and help inform future control strategies.

CENTRAL & SOUTH AMERICA

Chile declares Environmental Emergency over Polluted Air in Santiago

Chilean authorities declared an environmental emergency for the Santiago metropolitan region on 22 June 2015, forcing more than 900 industries to temporarily shut down and about 40% of the capital's 1.7 million cars off the roads.

The emergency, the first since 1999, was in place for 24 hours, with possible extension if air quality would not improve. A lack of rain and winds have allowed concentrations of small particulate matter ($PM_{2.5}$) to build up, shrouding the city in smog. Cold temperatures this time of year prompt many residents to use wood-burning heaters, which vastly worsens air quality.

ASIA PACIFIC

China 5/V Emission Standards in Guangdong

On 8 May 2015 the International Council on Clean Transportation (ICCT) published a policy update on the adoption of China 5/V vehicle emission standards in the Guangdong province.

The Guangdong Environmental Protection Department (EPD) has announced a province-wide plan for early adoption of China 5/V (Euro 5/V-equivalent) tailpipe emission standards. Guangdong province becomes the third region in China after Beijing and Shanghai to move from China 4/IV to China 5/V standards on an advanced schedule.

The plan includes both Light-duty Vehicle (LDV) (GB 18352.5 – 2013) and Heavy-duty Vehicle (HDV) (GB 17691 – 2005) standards.

The China 5 LDV standards must be in place in the Pearl River Delta region no later than 31 December 2015, and in the rest of the province by 30 June 2016. China V HDV standards will phase in with the same schedule for public heavy-duty vehicle fleets (buses, sanitation and postal trucks, and other civil vehicle fleets). This is about 1.5 to 2 years earlier than the national timeline.

The ICCT report is at http://theicct.org/sites/default/files/publications/ICCTupdate_Guangdong-China5V_20150508.pdf.

China issues Guideline on Environmental Development

On 5 May 2015 China's Cabinet published a guideline on improving the country's environment, vowing to achieve "major progress" in the area by 2020.

In the 35-clause guideline, the State Council stressed the need to consider environmental protection when planning economic and social development, and to raise public awareness about the environment.

According to the guideline, China aims to reduce carbon dioxide emissions by 40 to 45% from the 2005 level by 2020, and increase the share of non-fossil fuels in primary energy consumption to around 15%.

Decades of breakneck growth in China have dried up resources and left the country saddled with problems including smog and contaminated waterways. In 2014,

only 8 of 74 major Chinese cities subject to $PM_{2.5}$ air quality monitoring met the national standard for clear air, according to data released by the Ministry of Environmental Protection (MEP).

The guidelines also indicate that Diesel used outside the automotive sector will have to meet the National V fuel quality standard by January 2018, a year later than automotive fuels. That fuel standard is similar to quality specifications of Euro V, with a maximum sulfur content of 10 parts per million (ppm).

New Indian Fuel Efficiency Guidelines for Passenger Cars

On 14 May 2015 India's Bureau of Energy Efficiency notified automakers of the new fuel efficiency guidelines that they must follow from April 2017.

Cars and utility vehicles will be expected to deliver an average fuel economy of at least 18.2 km/l, a 15% increase over the existing average mileage. From April 2022, the average will be raised to 22 km/l. The corresponding fuel consumption targets are 5.5 l/100 km in 2017 and 4.55 l/100 km in 2022.

These guidelines would be mandatory for the entire passenger car industry and cover all auto fuels, including petrol, Diesel and CNG and LPG.

The finer details for the implementation and procedures for penalties would be decided by the Indian Ministry of Road Transport and Highways.

Separate standards are likely to be announced for trucks and buses.

Automotive Manufacturers concerned over B10 Programme in Malaysia

On 29 June 2015 the Malaysian Automotive Association (MAA) and local automotive manufacturers expressed concerns over the implementation of the B10 biodiesel programme coming in October 2015.

MMA stressed that the current Diesel cars in the Malaysian market are not suitable for the usage of B10 biofuel (10% biofuel blended in Diesel), but only of B7 (7% biofuel in Diesel).

This came after BMW Malaysia's recent claims, stating that their tests with B10 biodiesel found that palm's fatty-acid methyl ester (FAME), which boils at high temperatures, will move into the motor oil, causing it to thin and possibly leading to oil sludge. This reduces lubricity and increases the risk of engine damage. Other issues cited include formation of injector deposits, injection invariance, reduced idling cycle stability and higher levels of water in the fuel, the latter causing component corrosion.

The Malaysian government's biodiesel mandate is to increase the domestic use of palm oil in the country and reduce the reliance on fossil fuel usage. Under the 11th Malaysia Plan, the government is targeting to implement a B15 mandate by 2020.

UNITED NATIONS

WHO Report on Economic Cost of Health Impact of Air Pollution in Europe

On 28 April 2015 the World Health Organization (WHO) released a new study on the economic cost of the health impact of air pollution in Europe.

It is the first assessment of the economic burden of deaths and diseases resulting from outdoor and indoor air pollution in the 53 countries of the WHO Region.

The economic cost of the approximate 600 000 premature deaths alone accounts for over US$ 1.4 trillion (€ 1.3 trillion) in 2010. Adding another 10% to this, as the cost of diseases from air pollution, results in a total of almost US$ 1.6 trillion. The amount is nearly equivalent to one tenth of the gross domestic product (GDP) of the entire European Union in 2013.

The economic value of deaths and diseases due to air pollution corresponds to the amount societies are willing to pay to avoid these deaths and diseases with necessary interventions. In these calculations, a value is attached to each death and disease, independent of the age of the person and which varies according to the national economic context.

The WHO report is at www.euro.who.int/__data/assets/pdf_file/0004/276772/Economic-cost-health-impact-air-pollution-en.pdf.

WHO Resolution on Air Pollution

On 26 May 2015 the World Health Assembly, the supreme decision-making body of the World Health Organization (WHO), adopted a resolution to address the health impacts of air pollution – the world's largest single environmental health risk.

WHO estimates that 3.7 million deaths are attributable to outdoor air pollution every year and 4.3 million deaths occur from exposure to indoor air pollution. The resolution highlights the key role national health authorities need to play in raising awareness about the potential to save lives and reduce health costs, if air pollution is addressed effectively. It also stresses the need for strong cooperation between different sectors and integration of health concerns into all national, regional and local air pollution-related policies. It urges Member States to develop air quality monitoring systems and health registries to improve surveillance for all illnesses related to air pollution; promote clean cooking, heating and lighting technologies and fuels; and strengthen international transfer of expertise, technologies and scientific data in the field of air pollution.

The resolution asks the WHO Secretariat to strengthen its technical capacities to support Member States in taking action on air pollution. At the next World Health Assembly, WHO will propose a roadmap for an enhanced global response by the health sector that reduces air pollution health effects.

Climate and Clean Air Coalition Report on Black Carbon Reduction Finance

On 20 May 2015 the Climate and Clean Air Coalition (CCAC) released its 'Black Carbon Finance Study Group Report' stemming from work led by the World Bank Group.

The CCAC is a global partnership committed to take actions to reduce short-lived climate pollutants, including methane, black carbon and hydrofluorocarbons.

The new report finds that existing funds are already in a position to finance businesses, activities, technologies, and policies that will contribute to cutting black carbon emissions, and that several black carbon-rich sectors are sufficiently mature to absorb finance. The report also outlines strategies and steps needed to scale up black carbon finance over time.

The report recommends funding the development of black carbon performance standards so that investors can screen potential projects to ensure that activities are reducing emissions and achieving climate and health benefits. However, practical steps can be taken immediately in the Diesel transportation and residential cooking sectors.

In the transportation sector, the suggestion is for development finance institutions to use concessional loans and grants to incentivize Diesel vehicle owners to transition to lower-soot or soot-free engines. Results-based finance instruments can be used to incentivize the adoption and continued maintenance of Diesel Particulate Filters. Funds could flow through national authorities to municipalities, private fleet owners, and other beneficiaries.

The CCAC report is at www.ccacoalition.org/docs/pdf/1514315_Black_Carbon_Report_WEB.pdf.

UNEP Annual Report 2014

On 20 May 2015 the United Nations Environment Programme (UNEP) released their annual report for 2014, highlighting global environmental successes.

2014's major success story came in September, when the Scientific Assessment of Ozone Depletion 2014, a report by UNEP and the World Meteorological Organization, confirmed that the ozone layer is healing and will return to pre-1980 levels by mid-century, thanks to actions taken by Member States under the UNEP-hosted Montreal Protocol to phase out ozone-depleting substances.

The report also highlights advances in renewable energy and the first-ever United Nations Environment Assembly (UNEA).

The UNEP report is at http://unep.org/annualreport/2014.

UNEP and UNECE Partnership on Green Economy and Sustainable Development

On 4 May 2015 the United Nations Environment Programme (UNEP) and the United Nations Economic Commission for Europe (UNECE) signed a Memorandum of Understanding to reinforce their collaboration on environmental protection, supporting the shift to a green economy and promoting sustainable development.

The agreement will allow the two organizations to provide coherent assistance to Member States on a range of topics including preparations for and follow-up of the Environment for Europe Ministerial process, and in particular the next Ministerial Conference in Batumi, Georgia in 2016; promotion of the shift towards a green economy in the pan-European region; improvement of air quality; implementation of the roadmap on Education for Sustainable Development in the region; and environmental monitoring and assessment at country and regional levels, in particular via links between their information platforms.

The agreement foresees that the cooperation framework between the two organizations could be further extended to other sectors, in particular in the fields of energy, forests, housing and transport.

GENERAL

Air-o-Meter Tool

On 23 June 2015 Non-Governmental Organization European Environmental Bureau (EEB) launched the Air-o-Meter on-line tool.

The tool is offering citizens an opportunity to compare different sets of National Emission Ceilings (NEC) that are currently being discussed by the EU co-legislators for 2020, 2025, and 2030. The results displayed in the Air-o-Meter stem from the expected impact of reducing emissions of the five pollutants covered in the revision of the NEC Directive.

For each policy scenario, impacts on health, economy and environment can be visualized, either for a specific Member State or for the entire EU.

The Air-o-Meter is at www.eeb.org/air-o-meter.

ICCT Reports on Heavy-duty Vehicles' Fuel Efficiency Evaluation

On 20 April 2015 the International Council on Clean Transportation (ICCT) released a new report on fuel efficiency testing methods for Heavy-duty Vehicles.

The report analyses testing and certification methods employed in Heavy-duty Vehicle (HDV) efficiency regulations worldwide, to identify test methods appropriate for India's initial regulation in this area.

A number of countries, including Japan, the US, Canada, and China, have implemented regulations to control HDV fuel consumption and greenhouse gas emissions, and the EU is currently in the process of establishing a certification process for determining HDV's CO_2 emissions. Other countries, such as Mexico, South Korea, and Brazil, are in the early phases of exploring opportunities for developing their own HDV regulatory measures.

Testing and certification procedures are a crucial component of HDV fuel efficiency regulations. There are a number of different approaches. These certification pathways include physical testing such as evaluations performed on engine and chassis dynamometers, as well as assessments of virtual vehicles, done in computer simulation models.

The ICCT report is at http://theicct.org/sites/default/files/publications/ICCT_HDV-test-procedures_India_20150420.pdf.

The ICCT released on 11 May 2015 another report, this time on simulation tools used for evaluating Heavy-duty vehicles (HDV) fuel efficiency.

The report discusses the use of computer simulation to certify whole-vehicle efficiency of HDVs, and compares tools used to quantify HDV CO_2 emissions in the US (GEM v2.0) and EU (VECTO v2.0.3 beta; not yet used in a regulatory context).

Computer simulation offers regulators and OEM exciting prospects for the certification of HDV efficiency and CO_2 emissions. However, results of the simulations show important differences that can be attributed to the model components (e.g. driver model, gearshift strategy) that differed most significantly between the US and EU models.

The ICCT report is at http://theicct.org/sites/default/files/publications/ICCT_GEM-VECTO-comparison_20150511.pdf.

T&E Report on Car Manufacturers' Progress towards CO_2 Target

On 11 June 2015 Transport and Environment (T&E) released the 10th report on carmakers' progress in reducing the CO_2 emissions of new cars. It is based on data from the official European Commission 'monitoring mechanism' on cars and CO_2 and examines carmakers' progress in 2014.

Based on the official European Environment Agency figures (*see AECC Newsletter of March-April 2015*), Peugeot-Citroën has become the lowest carbon carmaker (its average new car emitted 110 g/km of CO_2). Among major manufacturers Honda continues to produce the least fuel-efficient cars (133 g/km). The most rapid progress in 2014 was made by Nissan, which reduced its emissions by 12%. Exceptionally Ford and Hyundai increased their emissions in 2014.

Overall, the 130 g/km CO_2 target for 2015 has been overachieved and just three companies (Honda, Suzuki and Hyundai) have still to meet this target. On average the 95 g/km target is expected to be met by 2021 but performance varies widely between carmakers. Based upon past performance, the current projection is that four companies will achieve their targets early and a further three are broadly on schedule. However, seven companies need to accelerate progress in order to avoid fines.

The T&E report is at www.transportenvironment.org/sites/te/files/2015_TE_cars_CO2_report_FINAL.pdf.

CE Delft Report on How Company Cars drive down Costs and Emissions

On 10 June 2015 Greenpeace released a report prepared by CE Delft titled "saving fuel, saving costs" which provides an overview of the corporate fleet sector, the environmental impacts and financial costs of its fuel use, and options for reducing both.

According to the report 45% of the total Greenhouse Gas (GHG) emissions from road transport in the EU come from company fleets. The impact of fleet managers' purchasing decisions is even greater than this, as the majority of company cars are sold into the second hand car market, so fleet managers control a large proportion of the supply of used vehicles in the private market.

CE Delft's list of solutions to save fuel on company cars includes choosing more fuel-efficient conventional cars, adopting alternative powertrains, like full electric or plug-in hybrid cars, measures encouraging fuel-efficient driving behaviour, teleworking and teleconferencing.

Freight fleets can be cleaner, more efficient and cost less with solutions such as choosing the most fuel-efficient conventional vehicle, purchasing alternative powertrains (electric, hybrid, natural gas engines), and eco-driving programmes. Reducing freight vehicle kilometres can also contribute to lower GHG emissions. This can be done by modal shift or increasing the logistical efficiency.

The report is at www.greenpeace.org.uk/sites/files/gpuk/CEDelft_Saving%20fuels%20saving%20costs%2020150410_final%20(3).pdf.

ICCT Report on Vehicles' Emissions Reduction Policies in G20 Nations

On 8 June 2015 the International Council on Clean Transportation (ICCT) published a new report on policies to reduce fuel consumption, air pollution, and carbon emissions from vehicles in G20 nations.

ICCT notes that the economies of the G20 represent over 90% of global vehicle sales. The policies of G20 members thus largely dictate the energy efficiency, air quality impacts, and climate impacts of the global transport sector. The briefing paper shows that there are significant opportunities for G20 member countries to progress further toward best-practice vehicle and fuel regulations. A collective G20 commitment would amplify the impact of these policies and promote sharing of best practices and technology developments among regions. Technical assistance among G20 countries for policy and program design, development, implementation would accelerate policy action.

The paper reviews the status of motor vehicle energy efficiency and emissions control programs in G20 nations. These programs include low-sulfur fuel standards; tailpipe emissions standards for new vehicles; fuel economy and CO_2 standards for new vehicles; and voluntary Green Freight programs. The briefing also summarizes information on technology availability and costs, emissions reductions, and cost-benefit ratios.

The ICCT report is at http://theicct.org/sites/default/files/publications/ICCT_G20-briefing-paper_Jun2015.pdf.

IEA Report on Energy Technology Perspectives

On 4 May 2015 the International Energy Agency (IEA) released the report "Energy Technology Perspectives 2015" (ETP 2015) which shows that despite a few recent success stories, clean-energy progress is falling short of the levels needed to limit the global increase in temperatures to no more than 2°C.

A concerted push for clean-energy innovation is the only way the world can meet its climate goals, IEA said. The ETP 2015 report provides a comprehensive analysis of long-term trends in the energy sector, centred on the technologies and the level of deployment needed for a more environmentally sustainable, secure, and affordable energy system. Recent success stories, such as the rapid growth of solar photovoltaics and carbon capture and sequestration (CCS) technology for power stations, indicate that there is significant and untapped potential for accelerating research and development in clean technologies. Yet research and development alone are insufficient for moving new technologies from ideas to commercial products. Governments have a key role to play in creating the initial market opportunities that send a signal to innovators and drive investment.

Around $40 trillion (€36 trillion) of additional investment in low-carbon energy is needed by 2050 to meet the 2ºC goal, the main target in global climate change policy.

The IEA report is for sale at www.iea.org/bookshop/710-Energy_Technology_Perspectives_2015 but the report's executive summary is available at www.iea.org/Textbase/npsum/ETP2015SUM.pdf.

RESEARCH SUMMARY
Effects of Emissions and Pollution

Toxicity of aged gasoline exhaust particles to normal and diseased airway epithelia, Lisa Künzi, Manuel Krapf, Nancy Daher, et al.; *Scientific Reports* (2015), Vol. 5, Article 11801, doi: 10.1038/srep11801.

Long-Term Exposure to Fine Particulate Matter, Residential Proximity to Major Roads and Measures of Brain Structure, Elissa H. Wilker, Sarah R. Preis, Alexa S. Beiser, et al.; *Stroke* (2015), Vol. 46, pp. 1161-1166, doi: 10.1161/strokeaha.114.008348.

Prenatal air pollution exposure effects on autism spectrum disorder and neurodevelopment, Heather E. Volk, Rob McConnell, Irva Herz-Picciotto, et al.; *Neurotoxicology and Teratology* (May-June 2015), Vol. 49, pp. 100-101, doi: 10.1016/j.ntt.2015.04.009.

Developmental exposure to ultrafine particle air pollution produces features of the autism phenotype, Deborah Cory-Slechta, Joshua Allen, Gunter Oberdorster; *Neurotoxicology and Teratology* (May-June 2015), Vol. 49, pp. 101, doi: 10.1016/j.ntt.2015.04.010.

Epidemiological studies on outdoor air pollution exposure and neuro-psychological effects: from cradle to grave, Tamara Schikowski; *Neurotoxicology and Teratology* (May-June 2015), Vol. 49, pp. 101, doi: 10.1016/j.ntt.2015.04.011.

Short term exposure to air pollution and stroke: systematic review and meta-analysis, Anoop S V Shah, Kuan Ken Lee, David A McAllister, et al.; *British Medical Journal* (2015), Vol. 350, h1295, doi: 10.1136/bmj.h1295.

Comparison of cellular toxicity caused by ambient ultrafine particles and engineered metal oxide nanoparticles, Senlin Lu, Wenchao Zhang, Rui Zhang, et al.; *Particle and Fibre Toxicology* (2015), Vol. 12 (5), doi: 10.1186/s12989-015-0082-8.

Cardiac effects of seasonal ambient particulate matter and ozone co-exposure in rats, Aimen K Farraj, Leon Walsh, Najwa Haykal-Coates, et al.; *Particle and Fibre Toxicology* (2015), Vol. 12 (12), doi: 10.1186/s12989-015-0087-3.

Exposure to concentrated ambient particulate matter induces reversible increase of heart weight in spontaneously hypertensive rats, Zhekang Ying, Xiaoyun Xie, Yuntao Bai, et al.; *Particle and Fibre Toxicology* (2015), Vol. 12 (15), doi: 10.1186/s12989-015-0092-6.

Acute and subchronic exposure to air particulate matter induces expression of angiotensin and bradykinin-related genes in the lungs and heart: Angiotensin-II type-I receptor as a molecular target of particulate matter exposure, Octavio Gamaliel Aztatzi-Aguilar, Marisela Uribe-Ramírez, José Antonio Arias-Montaño, et al.; *Particle and Fibre Toxicology* (2015), Vol. 12 (17), doi: 10.1186/s12989-015-0094-4.

Fine particulate matter and the risk of autism spectrum disorder, Evelyn O. Talbott, Vincent C. Arena, Judith R. Rager, et al.; *Environmental Research* (July 2015), Vol. 140, pp. 414-420, doi: 10.1016/j.envres.2015.04.021.

Methodological issues related to pooling results from panel studies of heart rate variability and its association with ambient air pollution, Stephane Buteau, Mark S. Goldberg; *Environmental Research* (July 2015), Vol. 140, pp. 462-465, doi: 10.1016/j.envres.2015.05.002.

Fine particulate air pollution, nitrogen dioxide, and systemic autoimmune rheumatic disease in Calgary, Alberta, Sasha Bernatsky, Audrey Smargiassi, Markey Johnson, et al.; *Environmental Research* (July 2015), Vol. 140, pp. 474-478, doi: 10.1016/j.envres.2015.05.007.

Associations of daily levels of PM_{10} and NO_2 with emergency hospital admissions and mortality in Switzerland: Trends and missed prevention potential over the last decade, Laura Perez, Leticia Grize, Denis Infanger, et al.; *Environmental Research* (July 2015), Vol. 140, pp. 554-561, doi: 10.1016/j.envres.2015.05.005.

Fetal growth and maternal exposure to particulate air pollution. More marked effects at lower exposure and modification by gestational duration, Ellen Winckelmans, Bianca Cox, Evelyne Martens, et al.; *Environmental Research* (July 2015), Vol. 140, pp. 611-618, doi: 10.1016/j.envres.2015.05.015.

Maternal ambient air pollution exposure preconception and during early gestation and offspring congenital orofacial defects, Yeyi Zhu, Cuilin Zhang, Danping Liu; *Environmental Research* (July 2015), Vol. 140, pp. 714-720, doi: 10.1016/j.envres.2015.06.002.

Association of air pollution with cognitive functions and its modification by APOE gene variants in elderly women, Tamara Schikowski, Mohammad Vossoughi, Andrea Vierkötter, et al.; *Environmental Research* (October 2015), Vol. 142, pp. 10-16, doi: 10.1016/j.envres.2015.06.009.

Association between prenatal exposure to traffic-related air pollution and preterm birth in the PELAGIE mother-child cohort, Brittany, France. Does the urban–rural context matter?, Mélanie Bertin, Cécile Chevrier, Tania Serrano, et al.; *Environmental Research* (October 2015), Vol. 142, pp. 17-24, doi: 10.1016/j.envres.2015.06.005.

Years of life lost and morbidity cases attributable to transportation noise and air pollution: A comparative health risk assessment for Switzerland in 2010, Danielle Vienneau, Laura Perez, Christian Schindler, et al.; *International Journal of Hygiene and Environmental Health* (in press), doi: 10.1016/j.ijheh.2015.05.003.

Associations between short-term exposure to particulate matter and ultrafine particles and myocardial infarction in Augsburg, Germany, Kathrin Wolf, Alexandra Schneider, Susanne Breitner, et al.; *International Journal of Hygiene and Environmental Health* (in press), doi: 10.1016/j.ijheh.2015.05.002.

Exposure to ambient air pollution in Canada and the risk of adult leukemia, Nicholas Winters, Mark S. Goldberg, Perry Hystad, et al.; *Science of The Total Environment* (1 September 2015), Vol. 526, pp. 153-176, doi: 10.1016/j.scitotenv.2015.03.149.

Cost saving potential in cardiovascular hospital costs due to reduction in air pollution, Stefanie Devos, Bianca Cox, Stijn Dhondt, et al.; *Science of The Total Environment* (15 September 2015), Vol. 527-528, pp. 413-419, doi: 10.1016/j.scitotenv.2015.04.104.

Gender-specific differences of interaction between obesity and air pollution on stroke and cardiovascular diseases in Chinese adults from a high pollution range area: A large population based cross sectional study, Xiao-Di Qin, Zhengmin Qian, Michael G. Vaughn, et al.; *Science of The Total Environment* (1 October 2015), Vol. 529, pp. 243-248, doi: 10.1016/j.scitotenv.2015.05.041.

Ultrastructural alterations in the mouse lung caused by real-life ambient PM_{10} at urban traffic sites, Constantini Samara, Athanasios Kouras, Katerina Kaidoglou, et al.; *Science of The Total Environment* (1 November 2015), Vol. 532, pp. 327-336, doi: 10.1016/j.scitotenv.2015.05.139.

Low-Concentration $PM_{2.5}$ and Mortality: Estimating Acute and Chronic Effects in a Population-Based Study, Liuhua Shi, Antonella Zanobetti, Itai Kloog, et al.; *Environ. Health Perspect.* (in press), doi: 10.1289/ehp.1409111.

Particulate Matter from Both Heavy Fuel Oil and Diesel Fuel Shipping Emissions Show Strong Biological Effects on Human Lung Cells at Realistic and Comparable In Vitro Exposure Conditions, Sebastian Oeder, Tamara Kanashova, Olli Sippula, et al.; *PLoS ONE* (2015), Vol. 10 (6), p. e0126536, doi: 10.1371/journal.pone.0126536.

The Effects of Air Pollution on Mortality in South Korea, Jin-Ok Park, Sanghoo Yoon, Myung Hwan Na, et al.; *Procedia Environmental Sciences* (2015), Vol. 26, pp. 62-65, doi: 10.1016/j.proenv.2015.05.025.

Long-term effects of elemental composition of particulate matter on inflammatory blood markers in European cohorts, Regina Hampel, Annette Peters, Rob Beelen, et al.; *Environment International* (September 2015), Vol. 82, pp. 76-84, doi: 10.1016/j.envint.2015.05.008.

Comparison between ultrafine and fine particulate matter collected in Lebanon: Chemical characterization, in vitro cytotoxic effects and metabolizing enzymes gene expression in human bronchial epithelial cells, Mireille Borgie, Zeina Dagher, Frédéric Ledoux, et al.; *Environmental Pollution* (October 2015), Vol. 205, pp. 250-260, doi: 10.1016/j.envpol.2015.05.027.

Enhanced deposition by electrostatic field-assistance aggravating diesel exhaust aerosol toxicity for human lung cells, Linda Stoehr, Pierre Madl, Matthew Boyles, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.5b02503.

Addressing Global Mortality from Ambient $PM_{2.5}$, Joshua S. Apte, Julian D. Marshall, Aaron J. Cohen, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.5b01236.

Air Quality, Sources and Exposure

The impact of Low Emission Zones on particulate matter concentration and public health, Christiane Malina, Frauke Scheffler; *Transportation Research Part A: Policy and Practice* (July 2015), Vol. 77, pp. 372-385, doi: 10.1016/j.tra.2015.04.029.

Sources of ultrafine particles in the Eastern United States, Laura N. Posner, Spyros N. Pandis; *Atmospheric Environment* (June 2015), Vol. 111, pp. 103-112, doi: 10.1016/j.atmosenv.2015.03.033.

Modelling particle number concentrations in a typical street canyon in Germany and analysis of future trends, N. Toenges-Schuller, C. Schneider, A. Niederau, et al.; *Atmospheric Environment* (June 2015), Vol. 111, pp. 127-135, doi: 10.1016/j.atmosenv.2015.04.006.

Review of the efficacy of low emission zones to improve urban air quality in European cities, Claire Holman, Roy Harrison, Xavier Querol; *Atmospheric Environment* (June 2015), Vol. 111, pp. 161-169, doi: 10.1016/j.atmosenv.2015.04.009.

Concentration and chemical composition of $PM_{2.5}$ for a one-year period at Thessaloniki, Greece: A comparison between city and port area, Evangelos I. Tolis, Dikaia E. Saraga, Magdalini K. Lytra, et al.; *Atmospheric Environment* (July 2015), Vol. 113, pp. 197-207; doi: 10.1016/j.atmosenv.2015.05.014.

Residential NOx exposure in a 35-year cohort study. Changes of exposure, and comparison with back extrapolation for historical exposure assessment, Peter Molnár, Leo Stockfelt, Lars Barregard, et al.; *Atmospheric Environment* (August 2015), Vol. 115, pp. 62-69, doi: 10.1016/j.atmosenv.2015.05.055.

An integrated assessment of two decades of air pollution policy making in Spain: Impacts, costs and improvements, Michel Vedrenne, Rafael Borge, Julio Lumbreras, et al.; *Science of The Total Environment* (15 September 2015), Vol. 527-528, pp. 351-361, doi: 10.1016/j.scitotenv.2015.05.014.

Assessing traffic and industrial contributions to ambient nitrogen dioxide and volatile organic compounds in a low pollution urban environment, Tor H. Oiamo, Markey Johnson, Kathy Tang, et al.; *Science of The Total Environment* (1 October 2015), Vol. 529, pp. 149-157, doi: 10.1016/j.scitotenv.2015.05.032.

The PM_{10} fraction of road dust in the UK and India: Characterization, source profiles and oxidative potential, Pallavi Pant, Stephen J. Baker, Anuradha Shukla, et al.; *Science of The Total Environment* (15 October 2015), Vol. 530-531, pp. 445-452, doi: 10.1016/j.scitotenv.2015.05.084

High-Resolution Mapping of Sources Contributing to Urban Air Pollution Using Adjoint Sensitivity Analysis: Benzene and Diesel Black Carbon, Lucas A. J. Bastien, Brian C. McDonald, Nancy J. Brown, et al.; *Environ. Sci. Technol.* (2015), Vol. 49 (12), pp. 7276-7284, doi: 10.1021/acs.est.5b00686.

Heavy metal and nitrogen concentrations in mosses are declining across Europe whilst some "hotspots" remain in 2010, H. Harmens, D. A. Norris, K. Sharps, et al.; *Environmental Pollution* (May 2015), Vol. 200, pp. 93-104, doi: 10.1016/j.envpol.2015.01.036.

Emissions Measurements and Modelling

Gaseous Emissions from Light-Duty Vehicles: Moving from NEDC to the new WLTP test procedure, Alessandro Marotta, Jelica Pavlovic, Biagio Ciuffo, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.5b01364.

Osmium and Platinum Decoupling in the Environment: Evidences in Intertidal Sediments (Tagus Estuary, SW Europe), Clara Almécija, Mukul Sharma, Antonio Cobelo-García, et al.; *Environ. Sci. Technol.* (2015), Vol. 49 (11), pp. 6545-6553, doi: 10.1021/acs.est.5b00591.

Evaluating the Effects of Aromatics Content in Gasoline on Gaseous and Particulate Matter Emissions from SI-PFI and SI-DI Vehicles, Georgios Karavalakis, Daniel Short, Diep Vu, et al.; *Environ. Sci. Technol.* (2015), Vol. 49 (11), pp. 7021-7031, doi: 10.1021/es5061726.

The effects of neat biodiesel and biodiesel and HVO blends in diesel fuel on exhaust emissions from a light duty vehicle with a diesel engine, Adam Prokopowicz, Marzena Zaciera, Andrzej Sobczak, et al.; *Environ. Sci. Technol.* (2015), Vol. 49 (12), pp. 7473-7482, doi: 10.1021/acs.est.5b00648.

Plume-based analysis of vehicle fleet air pollutant emissions and the contribution from high emitters, J. M. Wang, C. H. Jeong, N. Zimmerman, et al.; *Atmos. Meas. Tech. Discuss.* (2015), Vol. 8, pp. 2881-2912, doi: 10.5194/amtd-8-2881-2015.

Effects of Ethanol on In-Cylinder and Exhaust Gas Particulate Emissions of a Gasoline Direct Injection Spark Ignition Engine, Mohammad Fatouraie, Margaret S. Wooldridge, Benjamin R. Petersen, et al.; *Energy Fuels* (2015), Vol. 29 (5), pp. 3399-3412, doi: 10.1021/ef502758y.

Characterization of fleet emissions from ships through multi-individual determination of size-resolved particle emissions in a coastal area, Jonathan Westerlund, Mattias Hallquist, Åsa M. Hallquist; *Atmospheric Environment* (July 2015), Vol. 112, pp. 159-166, doi: 10.1016/j.atmosenv.2015.04.018.

Measurement of particulate matter emissions from in-use locomotives, Trevor Krasowsky, Nancy Daher, Constantinos Sioutas, et al.; *Atmospheric Environment* (July 2015), Vol. 113, pp. 187-196, doi: 10.1016/j.atmosenv.2015.04.046.

Predicting annual average particulate concentration in urban areas, Athena G. Progiou, Ioannis C. Ziomas; *Science of The Total Environment* (1 November 2015), Vol. 532, pp. 353-359, doi: 10.1016/j.scitotenv.2015.05.095.

A simplified benchmark of ultrafine particle dispersion in idealized urban street canyons: a wind tunnel study, L. Stabile, F. Arpino, G. Buonanno, et al.; *Building and Environment* (in press), doi: 10.1016/j.buildenv.2015.05.045.

Characterizations of organic compounds in diesel exhaust particulates, Jaehyun Lim, Cheolsoo Lim, Sangkyun Kim, et al.; *Environmental Sciences* (August 2015), Vol. 34, pp. 171-183, doi: 10.1016/j.jes.2015.03.013.

Emissions Control, Catalysis, Filtration

Diesel Engine SCR Control: Current Development and Future Challenges, Xinmei Yuan, Hongqi Liu, Ying Gao, *Emission Control Science and Technology* (May 2015), Vol. 1(2), pp. 121-133, doi: 10.1007/s40825-015-0013-z.

Interaction of NOx Reduction and Soot Oxidation in a DPF with Cu-Zeolite SCR Coating, E. Tronconi, I. Nova, F. Marchitti, et al.; *Emission Control Science and Technology* (May 2015), Vol. 1(2), pp. 134-151, doi: 10.1007/s40825-015-0014-y.

Emission Reduction with Diesel Particle Filter with SCR Coating (SDPF), Jan Czerwinski, Yan Zimmerli, Andreas Mayer, et al.; *Emission Control Science and Technology* (May 2015), Vol. 1(2), pp. 152-166, doi: 10.1007/s40825-015-0018-7.

Development of a Catalyzed Diesel Particulate Filter Multi-zone Model for Simulation of Axial and Radial Substrate Temperature and Particulate Matter Distribution, Boopathi S. Mahadevan, John H. Johnson, Mahdi Shahbakhti; *Emission Control Science and Technology* (May 2015), Vol. 1(2), pp. 183-202, doi: 10.1007/s40825-015-0015-x.

Recent Developments in the Measurement of Low Particulate Emissions from Mobile Sources: A Review of Particle Number Legislations, Oliver F. Bischof; *Emission Control Science and Technology* (May 2015), Vol. 1(2), pp. 203-212, doi: 10.1007/s40825-015-0016-9.

Development and Investigation of Diesel Fuel Reformer for LNT Regeneration, Thomas Wittka, Volker Müller, Peter Dittmann, et al.; *Emission Control Science and Technology* (in press), doi: 10.1007/s40825-015-0017-8.

The effect of cordierite/Pt catalyst on the NOx reduction in a diesel and Jatropha bio-diesel operated single cylinder engine, A.P. Manoj Kumar, J.S. Sreekumar, P. Mohanan; *Environmental Chemical Engineering* (June 2015), Vol. 3 (2), pp. 1125-1136, doi: 10.1016/j.jece.2015.04.018.

Performance evaluation of non-thermal plasma on particulate matter, ozone and CO_2 correlation for diesel exhaust emission reduction, Meisam Babaie, Pooya Davari, Pouyan Talebizadeh, et al.; *Chemical Engineering* (15 September 2015), Vol. 276, pp. 240-248, doi: 10.1016/j.cej.2015.04.086.

Preparation, characterization and NH_3-SCR activity of $FeVO_4$ supported on TiO_2-WO_3-SiO_2, Marzia Casanova, Luca Nodari, Amod Sagar, et al.; *Applied Catalysis B: Environmental* (October 2015), Vol. 176-177, pp. 699-708, doi: 10.1016/j.apcatb.2015.04.056.

Assessment of cost as a function of abatement options in maritime emission control areas, Haakon Lindstad, Inge Sandaas, Anders H. Strømman; *Transportation Research Part D: Transport and Environment* (July 2015), Vol. 38, pp. 41-48, doi: 10.1016/j.trd.2015.04.018.

Generation of NH_3 Selective Catalytic Reduction active catalysts from decomposition of supported $FeVO_4$, Adrian Marberger, Martin Elsener, Davide Ferri, et al.; *ACS Catal.* (2015), Vol. 5, pp. 4180-4188, doi: 10.1021/acscatal.5b00738.

High NO_2/NOx emissions downstream of the catalytic diesel particulate filter: An influencing factor study, Chao He, Jiaqiang

Li, Zhilei Ma, et al.; *Environmental Sciences* (1 September 2015), Vol. 35, pp. 55-61, doi: 10.1016/j.jes.2015.02.009.

Effects of Particle Filters and Selective Catalytic Reduction on Heavy-Duty Diesel Drayage Truck Emissions at the Port of Oakland, Chelsea V. Preble, Timothy R. Dallmann, Nathan M. Kreisberg, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.5b01117.

Improvement of Air/Fuel Ratio Operating Window and Hydrothermal Stability for Pd-Only Three-Way Catalysts through a Pd-$Ce_2Zr_2O_8$ Superstructure Interaction, Zhiliang Zhang, Yunzhao Fan, Ying Xin, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.5b01361.

Transport, Climate Change & Emissions

Reduce short-lived climate pollutants for multiple benefits, Noah Scovronick, Carlos Dora, Elaine Fletcher, et al.; *The Lancet* (in press), doi: 10.1016/S0140-6736(15)61043-1.

Influence of Methane Emissions and Vehicle Efficiency on the Climate Implications of Heavy-Duty Natural Gas Trucks, Jonathan R. Camuzeaux, Ramón A. Alvarez, Susanne A. Brooks, et al.; *Environ. Sci. Technol.* (2015), Vol. 49 (11), pp. 6402-6410, doi: 10.1021/acs.est.5b00412.

Comparison of Life Cycle Greenhouse Gases from Natural Gas Pathways for Medium and Heavy-Duty Vehicles, Fan Tong, Paulina Jaramillo, Inês Azevedo; *Environ. Sci. Technol.* (2015), Vol. 49 (12), pp. 7123-7133, doi: 10.1021/es5052759.

U.S. air quality and health benefits from avoided climate change under greenhouse gas mitigation, Fernando Garcia-Menendez, Rebecca Karina Saari, Erwan Monier, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.5b01324.

Pricing local emission exposure of road traffic: An agent-based approach, Benjamin Kickhöfer, Julia Kern; *Transportation Research Part D: Transport and Environment* (June 2015), Vol. 37, pp. 14-28, doi: 10.1016/j.trd.2015.04.019.

A European vision for more environmentally friendly buses, Maria Vittoria Corazza, Umberto Guida, Antonio Musso, Michele Tozzi; *Transportation Research Part D: Transport and Environment* (in press), doi: 10.1016/j.trd.2015.04.001.

CO_2 and energy efficiency car standards in the EU in the context of a decarbonisation strategy: A model-based policy assessment, Pelopidas Siskos, Pantelis Capros, Alessia De Vita; *Energy Policy* (September 2015), Vol. 84, pp. 22-34, doi: 10.1016/j.enpol.2015.04.024.

Evaluation of the impact of transportation changes on air quality, G. Titos, H. Lyamani, L. Drinovec, et al.; *Atmospheric Environment* (August 2015), Vol. 114, pp. 19-31, doi: 10.1016/j.atmosenv.2015.05.027.

FORTHCOMING CONFERENCES

Clean Air for European Cities

6 July 2015, Berlin, Germany

www.cleanair-europe.org/en/news/conference-clean-air-for-european-cities-6-july-2015-berlin

The conference will discuss strategies to improve urban air quality and its future challenges. What measures can cities take to effectively improve their air quality? What can local and national governments do to support them? And what is happening to the proposed Clean Air legislation package on EU level right now?

11th International Conference SCR Systems

7-9 July 2015, Stuttgart, Germany

www.car-training-institute.com/scr

The conference will discuss promoted NOx decomposition by electro-catalytic honeycomb, DeNOx control system for future RDE standards, VECTO tool / PEMS testing, blue sticker for environmental zone, control and OBD-monitoring of SCR systems, novel titania / vanadate SCR catalyst-powder, SCR on filter systems, different approaches for urea quality sensors, and optical visualization for efficient catalyst layout.

2015 JSAE/SAE Powertrains, Fuels and Lubricants International Meeting

1-4 September 2015, Kyoto, Japan

http://pfl2015.jp

12th International Conference on Engines and Vehicles

13-17 September 2015, Capri, Naples, Italy

www.sae-na.it/ice2015.asp

The conference is organized by SAENA (Italian SAE section) with Argonne National Laboratory (USA) and Istituto Motori CNR - Napoli (Italy) and will address engine modelling and diagnostics; engine combustion; hybrid and electric powertrains; new engines, components, actuators & sensors, fuels and lubricants, and exhaust aftertreatment and emissions.

International Conference on Environmental Engineering and Pollution Technology (ICEEPT 2015)

1-3 October 2015, Phuket Island, Thailand

www.iceept.org

The conference is aimed at building an adequate forum for the discussion of the many aspects related to the creation and development of environmental engineering and pollution technology, both from a theoretical perspective and from the practical exemplification of their potential applications.

24th Aachen Colloquium

5-7 October 2015, Aachen, Germany

www.aachener-kolloquium.de/en

The congress provides a wide range of technical presentations addressing current challenges of the vehicle and engine industry.

SAE 2015 Commercial Vehicle Engineering Congress

6-8 October 2015, Rosemont (IL), USA

www.sae.org/events/cve

10th GreenPort Congress

7-9 October 2015, Copenhagen, Denmark

www.greenport.com/congress/home

Congress will highlight the innovations in equipment and technology to allow port users to adhere to environmental policy, whilst illustrating practical solutions through case studies from the global logistics chain.

Asia Diesel Engine Summit 2015

20-21 October 2015, Beijing, China

www.duxes-events.com/DE

The conference will address policies & regulations, market climate, green product trends, fuel economy improvements, and aftermarket.

8th China Off-Highway Vehicle Summit 2015

22-23 October 2015, Beijing, China

www.duxes-events.com/OHV8

The conference will address market climate, policies and regulations, OEM's development strategy, new growth points in the OHV market, technical development trends of core spare parts & product updating, and aftermarket.

8th Integer Emissions Summit & DEF Forum USA 2015

27-29 October 2015, Chicago, USA

www.integer-research.com/conferences/ies-usa-2015

The conference will examine the latest US developments in emissions legislation and advanced emissions reduction technologies for the on- and off-highway sectors, light-duty vehicles and passenger cars, marine vessels and host the DEF Forum.

3rd International Conference Real Driving Emissions

27-29 October 2015, Berlin, Germany

www.real-driving-emissions.eu

Conference programme includes an update on current EU regulations, latest test drive results, PEMS technology review, data evaluation tools, RDE simulation strategies, PEMS testing logistics, and engine optimization approaches.

Conference includes AECC presentation "New results from Real-Driving Emission testing campaigns on Diesel and gasoline Euro 6b vehicles".

CAPoC10

28-30 October 2015, Brussels, Belgium

http://capoc.ulb.ac.be

Tenth International Congress on Catalysis and Automotive Pollution Control.

Ricardo Motorcycle Conference

16 November 2015, Milan, Italy

www.motorcycleconference.com

Main subject areas of the conference will be future powertrain technologies, future vehicle technologies, and motorcycle market drivers.

Les Respirations

23 November 2015, Paris, France

www.lesrespirations.org/edition-2015

The Theme of the forum, organized one week ahead of the COP21 conference, is 'Air Quality: growth work for cities'

9th International Exhaust Gas and Particulate Emissions Forum

23-24 February 2016, Ludwigsburg, Germany

www.forum-emissions.com/index.html?lang=en

The AVL Forum will focus on further development of spark-ignition and compression-ignition combustion processes including hybrid solutions and the use of conventional and alternative fuels. In all of this, capturing real-driving emissions is as important as quantifying lowest emissions during steady-state and transient operations via measuring techniques.

6th Integer Emissions Summit & ARLA 32 Forum Brazil 2016

1-3 March 2016, São Paulo, Brazil

www.integer-research.com/conferences/ies-brazil-2016

The conference will provide an in-depth insight into the latest research, developments, technologies and opinion on all aspects of Diesel emissions reduction in Brazil.

31st BAUMA 2016

11-17 April 2016, Munich, Germany

www.bauma.de

31st edition of the world's leading trade fair for construction machinery, building material machines, mining machines, construction vehicles and construction equipment.

9th Integer Emissions Summit & AdBlue® Forum Asia 2016

April 2016 (date to be confirmed), Beijing, China

www.integer-research.com/conferences/ies-asia-2016

The conference will address Asia's unique emissions control challenges and examine cost-effective, regulation compliant emissions reduction strategies.

6th European Transport Research Conference – Moving Forward: Innovative Solutions for Tomorrow's Mobility

18-21 April 2016, Warsaw, Poland

www.traconference.eu

The conference topics address the main challenges in transport and mobility of people and goods with respect to energy, environment, safety and security as well as socio-economic issues.

7th AVL Large Engines TechDays

19-20 April 2016, Graz, Austria

www.avl.com/large-engines-techdays

Forum for information, exchange and discussion for the large engine industry community, representing manufacturers, suppliers and users.

21st International Transport and Air Pollution (TAP) Conference

24-26 May 2016, Lyon, France

http://tap2016.sciencesconf.org

The aim of TAP 2016 will be "Towards energy transition and cleaner transport" and their implication to air quality, with an emphasis on the programme topics.

Deadline for abstracts: 30 November 2015

SIA Powertrain: The clean compression ignition engine of the future

1-2 June 2016, Rouen, France

www.sia.fr/evenement_detail_sia_powertrain_rouen_2016_welcome_1261.htm

The topics to be addressed include new Diesel engines for passenger cars, commercial vehicles, Heavy-duty trucks, off-road, industrial applications, and range extenders; downsizing, fuel injection technology, combustion processes, turbocharging, air & EGR management systems and exhaust aftertreatment; electrification and hybridization; innovative concepts for emissions and CO_2 reduction; engine, vehicle tests & calibration techniques; new fuels and lubricants; future emissions regulations; environment and air quality; eco-mobility; and worldwide market evolution.

Deadline for abstracts: 30 September 2015

2nd International Conference Diesel Powertrains 3.0

14-15 June 2016, Leipzig, Germany

www.fev.com/fev-conferences/fev-conference-on-diesel-powertrains-30.html

The international conference will highlight current developments in the Light-Duty Diesel Powertrain segment with a widespread list of topics, offering multiple interesting paths for best compliance with upcoming demands.

Deadline for abstracts: 15 August 2015

12th Integer Emissions Summit & AdBlue® Forum Europe 2016

14-16 June 2016, Brussels, Belgium

www.integer-research.com/conferences/ies-europe-2016

The conference will address emissions control strategy and technology for the on-road, non-road and marine sectors.

FISITA 2016 World Automotive Congress

26-30 September 2016, Busan, South Korea

www.fisita2016.com

FISITA 2016 will focus on the issues of energy-efficiency, safety, eco-friendly technology, and connectivity.

Deadline for abstracts: 30 September 2015