AECC

Newsletter

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INTERNATIONAL REGULATORY DEVELOPMENTS

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WLTP adopted by Member States' Technical Committee

On 14 June 2016 the technical regulatory committee gathering Member States' representatives (Technical Committee of Motor Vehicles - TCMV) voted in favour of the Commission's proposal to introduce the Worldwide harmonized Light vehicles Test Procedure (WLTP) as the regulatory test procedure for the type-approval of new passenger cars and light commercial vehicles.

WLTP is the globally harmonized test procedure developed within the United Nations Economic Commission for Europe (UNECE) and provides a new, more realistic test procedure for measuring CO_2 emissions, fuel consumption, and regulated pollutants from cars and vans.

The draft implementing act will be sent to the European Parliament and Council for regulatory scrutiny according to comitology rules. If the current text is endorsed, the new WLTP test will be mandatory for all new vehicle types from 1 September 2017 and for all new vehicles from 1 September 2018.

Elżbieta Bieńkowska, Commissioner for Internal Market, Industry, Entrepreneurship and SMEs, said: "The Commission continues to respond to the car emission revelations with concrete measures. We recently introduced Real-Driving Emissions tests to reduce the gap between NOx emissions measured in a laboratory and actual emissions on the road. Now, we are also closing the gap on CO_2 emissions and on fuel consumption. This is good news for the consumer and the environment." Miguel Arias Cañete, Commissioner for Climate Action, added: "This is a crucial step to restore credibility. Based on this new solid testing methodology, the Commission will propose new ambitious CO_2 standards for the car sector for the period after 2020."

WLTP/NEDC CO_2 Correlation adopted by Member States' Technical Committee

On 23 June 2016 the Climate Change Committee gathering Member States' representatives voted in favour of the Commission's proposal for the WLTP to NEDC CO_2 correlation procedure.

In order to take into account the difference in the level of CO_2 emissions measured under the existing NEDC and the new WLTP procedures (*see above*), the adopted Regulation implements a methodology for correlating those values and allowing the determination of the vehicle manufacturers' compliance with their specific CO_2 emission targets once it is measured on WLTP at type-approval.

The methodology relies on the CO2MPAS tool, developed by the JRC, for the CO_2 correlation.

EU Transport Council discusses Diesel NOx Emissions

On 7 June 2016 the Transport Council of Ministers discussed the status of the diesel NOx investigation in the Member States with European Commissioner for Industry Ms Bieńkowska.

The German Minister said they did not find other defeat devices that detect the type-approval test cycle besides the one admitted by Volkswagen. However, they observed that several car manufacturers deactivate the NOx reduction technologies outside of the "thermal window" around the type-approval test conditions. OEMs have declared that this is needed to protect the engine, as allowed by the definition of defeat device. Germany therefore asked to rewrite the definition of a defeat device in article 5(2) of the Euro 6 Regulation (EC) 715/2007.

Bieńkowska asked the European Parliament and Council to fully support the introduction of the new WLTP test cycle and of the Real-Driving Emissions (RDE) procedure and to quickly adopt modifications of the type-approval framework in order to allow independent testing and market surveillance of cars. She stated that Member States are responsible for implementation and enforcement of the emissions legislation.

All Member States agreed that legislation needs to be improved to ensure that emissions limits are met in real world and that the introductions of WLTP and RDE and the new Type-Approval framework will make the system more transparent. However, a limited number of Member States supported the change of definition of defeat device with a reference to state-of-the-art technology and most of them prefer to stick to the concept of technology neutrality.

Industry Commissioner Speech on the Future of the EU Automotive Industry

On 29 June 2016, Industry Commissioner Bieńkowska gave a keynote speech on the future of the European automotive industry at the FIA summer cocktail in Brussels.

She said she believed in the automotive industry and was supporting its future. However she made strong statements on the present situation and emissions-related scandals, not only the use of defeat devices by Volkswagen but also revelations around "thermal windows" that strongly reduce emissions control in daily use of cars. She drew some parallel with the banking crisis and the four stages of denial: "Denial of what went wrong. Denial that the problems were widespread. Denial that there was a need to act. And

denial of the extent of the action needed." She said that "industry can no longer bend the rules", be it for fuel consumption and CO_2 emissions or for NOx emissions.

The situation will be solved by reforming the EU type-approval and market surveillance system – she called again on the European Parliament and Council for speedy adoption of the draft Regulation; by providing long-term investment certainty with proposals on low-carbon transport; and by making emissions test regimes fit for purpose through RDE packages and WLTP.

She then called on the industry to take strategic decisions and to plan and act with a long-term perspective as the future is challenging, she said. Changes include a profound shift in consumer behaviour, decarbonisation, autonomous driving, and competition from emerging markets.

A European industry that adapts before its partners do will win, she concluded.

The speech is at https://ec.europa.eu/commission/2014-2019/bienkowska/announcements/shifting-gears-early-be-ready-future_en.

Trilogue Agreement on National Emission Ceilings Directive

On 30 June 2016 the Council and the European Parliament reached a provisional agreement on the new National Emission Ceilings (NEC) Directive proposed by the European Commission in December 2013 as part of the Clean Air Package. The new NEC Directive sets stricter national limits from 2020 to 2029 and from 2030 onwards.

The new Directive sets national limits for the emissions of sulfur dioxide (SO_2), nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOCs), and ammonia (NH_3) but also introduces a national limit for emissions of fine particulate matter ($PM_{2.5}$). At the request of Member States, methane emissions, which were covered in the original Commission proposal, are excluded from the agreement.

The national emissions limits for each pollutant from 2020 to 2029 are identical to those to which the Member States are already committed in the revised Gothenburg protocol. New stricter reductions from 2030 have now been agreed. With the new commitments, the health impact of air pollution is estimated to be reduced by about 50% in 2030 compared to 2005, the Council said.

Indicative emissions levels for 2025 will be identified for each Member State. They will be determined on the basis of a linear trajectory towards the emissions limits that will apply from 2030. However, Member States will have the possibility to follow a non-linear trajectory if this is more efficient. If Member States deviate from the trajectory planned, they will need to give the reasons and explain the actions they intend to take in order to get back on track.

Some flexibility to comply with the limits is foreseen, under certain circumstances. For instance, if one year a Member State cannot fulfil its commitment due to an exceptionally cold winter or dry summer, this country can average out annual emissions with those of the preceding and subsequent year.

The Parliament's Environment Committee will vote on the agreement on 12 July 2016. A plenary vote is then expected in autumn 2016. If approved, the text will then be submitted to the Council for final adoption.

EEA Briefing on the National Emission Ceilings Status

On 10 June 2016 the European Environment Agency (EEA) published a briefing on preliminary 2014 data reported under the National Emission Ceilings Directive (NECD) and final data for 2010-2013.

Under the current NECD, EU Member States have individual air pollutant emission limits for four air pollutants: nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOCs), sulfur dioxide (SO_2) and ammonia (NH_3). Since 2010, all Member States have been required to meet their emission ceilings.

Nevertheless, in 2014, ten EU Member States reported emissions that were above their ceiling for at least one pollutant. Germany even exceeded three out of the four emission ceilings in 2014.

With regard to NOx, six Member States exceeded their emission ceilings in 2014. Austria and Luxembourg exceeded their NOx ceilings the most, by 26 and 29% respectively. The largest emitters of NOx in 2014 were Germany, the UK, and France. Between 2013 and 2014, 21 EU Member States reported emission reductions for NOx. The total reduction for the EU28 between 2013 and 2014 amounts to -4.7 %.

Since 2010, ten Member States have persistently exceeded their respective emission ceilings for NOx (Austria, Belgium, France, Germany, Ireland and Luxembourg), NMVOCs (Denmark, Germany, Ireland and Luxembourg) and NH_3 (Austria, Denmark, Finland, the Netherlands, Germany and Spain).

The EEA briefing is at www.eea.europa.eu/themes/air/national-emission-ceilings/nec-directive-reporting-status-2015.

Report on EU Voluntary Low Emissions Standard for Cars

The final report of the preparation of the legal and technical background for a voluntary EU standard for low emitting combustion engine driven cars (EULES) has been published.

The EULES project has been executed for the DG-Environment of the European Commission and the consortium consisted of IIASA, EMISIA, Open Evidence, the ICCT, and AVL.

The principal objectives of the project were to provide the background on the potential of a voluntary low emission standard for passenger cars, in order to deliver real-world emission levels below the most stringent current emission limits, as well as to develop the technical and legal background for its implementation.

The study demonstrates that emission levels corresponding to a diesel NOx conformity factor as low as 0.5 is technically possible using today's commercial technology. However, other issues such as durability, OBD or packaging implications at these emission levels were not examined. The extra NOx reduction achieved in that study did not lead to any extra fuel consumption and CO_2 emissions. The report recommends for the ammonia slip to be monitored during RDE testing.

In defining the compromise between fast adoption and increased stringency, EULES could be introduced at different stringency levels. More stringent conformity factors than Euro 6 RDE would be level i. Then, introduction of a package of ancillary measures would correspond to level ii. Finally, level iii would need to be accompanied by additional regulatory components, related to OBD thresholds, durability provisions, etc.

Level ii ancillary measures that would increase the stringency and/or improve the coverage of RDE tests include elements such as compliance with both data evaluation methods (EMROAD and CLEAR), a priori compliance without post-processing of the PEMS data, inclusion of cold-start emissions, ECU-independent testing, or an urban NO_2 limit. The implementation of one or several of these ancillary measures at the discretion of the regulator should allow the Commission to modulate the stringency of EULES.

The report indicates that a EULES car is not more expensive than a conventional car as the (potentially) higher purchase, running and maintenance costs are offset by a resale premium of 3% – or by a moderate form of subsidy. If EULES cars receive a discount on parking and access charges this can become a significant financial incentive for its purchase.

The legal tool to be used for EULES depends on whether this is introduced as a new standard or just as an enhancement of the Euro 6 RDE regulatory package. In any case, EULES-compliance needs to be clearly identified at vehicle type-approval so that vehicles benefitting from certain policies can be easily highlighted.

The EULES report is at http://emisia.com/sites/default/files/EULES_Final.pdf.

Further EMIS Committee Hearings

In May and June 2016 the European Parliament's Committee of Inquiry into Emission Measurements in the Automotive Sector (EMIS) held further hearings.

On 24 May 2016 the EMIS Committee invited representatives from the Netherlands Organisation for Applied Scientific Research (TNO) and of the European Environment Agency (EEA).

Richard Smokers and Rob Cuelenaere said that TNO studies revealed from 2011 onwards that, while levels of PM reduced, the levels of NOx emissions increased and exceeded Type-Approval (TA) limits up to six times. This was due to hardware and software optimisation for TA test procedures only.

TNO acknowledged that there was a trade-off between increased engine efficiency and increased NOx levels, however stated that this would be decoupled by the use of aftertreatment systems, such as Lean NOx Trap (LNT) and Selective Catalytic Reduction (SCR). TNO added that with the existing technology, manufacturers should be able to achieve the existing NOx limits and no new technology was needed. TNO felt that vehicles equipped with only Exhaust Gas Recirculation (EGR) would not be able to achieve the Euro 6 emissions level on the road. TNO also stated that they saw no reason to switch off aftertreatment systems, as those systems would not affect the performance of the engine.

Regarding the high levels of emissions measured on warm engines, TNO indicated that only control strategies could be responsible for those levels of emissions, as warm engines would normally have lower emissions when compared to cold engines.

TNO indicated that the legal definition of defeat devices is unclear and no procedure for detecting defeat devices exists as such. It is therefore difficult to build up legal proof of the use of defeat devices.

TNO said that diesel could still contribute to cleaner air, if the technologies required to meet the NOx limits were installed, and if all systems in the vehicle would function properly on the road. In this regard, they felt that the RDE test procedure was a good solution for the current issues, but warned MEPs that the devil was in the details. MEPs should not focus too much on the standalone value of the Conformity Factor (CF) but rather consider the CF in relation to other boundary conditions, formulas and weighing used by evaluation tools.

Paul McAleavey and Martin Adams then explained the role of the EEA as environmental knowledge centre.

They indicated that emissions from the transport sector have increased by 17% since 1990. Real world transport emissions of NOx have decreased by 58% since 1990, however, the decrease would have been

much greater if current emissions limits were met in real life. The EEA showed that NO_2 limits were exceeded in 19 EU Member States in 2013 and exposure to NO_2 resulted in 70 000 premature deaths in 2012.

The EEA said they started to report on the divergence between laboratory tests and real world emissions from vehicles in 2004. Since then, the EEA has published 27 more reports on the issue.

In response to a question on what future action should be taken, the EEA responded that in the long term, decarbonisation of the transport sector was the way forward. In the short term, NOx emissions should be reduced by applying available technology. The EEA would also be supportive of the labelling of vehicles with regards to NOx and PM emissions.

The two hearings can be watched at www.europarl.europa.eu/EMIS160524.

On 16 June 2016 the EMIS Committee held four further hearings, respectively of Dorothee Saar (Deutsche Umwelthilfe – DUH), Pascoe Sabido and Olivier Hoedeman (Corporate Europe Observatory – CEO), Prof. Borgeest (Aschaffenburg University of Applied Science), and Daniel Lange (Faster IT).

Ms Saar indicated that DUH presented information on the non-compliance of vehicles to the German Government in February 2011, and requested them to start investigations. The German authorities have nevertheless been reluctant to address the responsible actors in the industry to ensure full compliance with the law, she said. Since 2015 onwards, the Ministry had however no longer responded to the DUH requests.

Ms Saar indicated that both the RDE package and the Worldwide harmonized Light vehicles Test Procedure (WLTP) would lower the divergence in measurements between laboratory and road tests. In-service conformity should furthermore be checked by an independent authority, and not the type-approval authority.

She also felt that additional tests would be needed, besides RDE test procedures, for which the testing conditions would not be known beforehand. She informed MEPs that there are already indications that some cars recognise when they are subjected to a RDE test. This would be done through detecting access through the OBD or if cars drive with their trunk open, which is often necessary for the instalment of the PEMS instrument.

The representatives of CEO, a non-profit research and campaign group focusing on the effects of corporate lobbying on EU policy making, indicated that the Commission had extensive contact with ACEA while drafting legislation. Their research had found that with regards to the adoption of the second RDE package, ACEA had been able to weaken and delay the proposal. The lack of technical expertise within the Commission was frequently mentioned as a source for the close cooperation with the automotive industry. Proper documentation of the Commission on meetings with stakeholders was furthermore lacking.

During the third hearing, Prof. Borgeest explained the workings of the diesel engine and informed them that there were conflicting temperature targets with regards to low NOx and PM emissions. He subsequently explained the workings of deNOx technologies, including EGR, SCR, and LNT. When asked by Co-Rapporteur Zalba Bidegain (Spain, EPP) how to overcome the efficiency/pollution dilemma, Borgeest indicated that heavy-duty vehicles already run very efficiently and have efficient exhaust gas cleaning systems such as SCR installed.

Making smaller diesel engines cleaner would require relatively expensive technology, so diesel engines are expected to slowly phase out for small cars, while for larger vehicles and trucks it will remain a solution, he said. Hybrid engines are expected to become cheaper, and thus a viable alternative to diesel engines.

Responding to a question from Co-Rapporteur Gerbrandy (ALDE, Netherlands) on the justification by vehicle manufacturers to switch off aftertreatment systems outside of a certain temperature range, Borgeest indicated that a typical ceramic aftertreament system can withstand high temperatures which are unlikely to be reached in diesel exhaust. Only ambient temperatures of -20°C would become problematic, he said. It is therefore not necessary for car manufacturers to switch off the EGR systems below 20°C, and Borgeest felt that manufacturers switched off those systems too early and just outside of the boundaries of the test cycle conditions. In response to questions on how future legislation should be framed, Borgeest indicated that a change in mentality was needed. When asked if the 'dieselgate' revealed something new, Borgeest replied he was surprised that the issue only came to the public in 2015, and not earlier.

Legislation should not require technical measures, but instead just demand emissions limits which are possible and good for the environment. Priority should be on the enforcement of those limits during road tests, and at a later stage stricter values could be considered.

In the fourth hearing, Faster IT's Lange explained that in his view, the installation of the defeat device software could not be only the work of engineers. He explained the management structure of the company, and indicated that the decision likely came from the top of the management through cost-cutting pressure. A lack of whistle-blower protection had meant that it took a decade for the problem to be revealed, Lange added.

He said he was not convinced by the German report on the investigation in the use of defeat devices, and he felt that it was written to 'whitewash' the rest of the European car industry. Besides the software used by VW, more defeat devices exist, such as 'temperature windows' and tyre pressure.

The DUH and CEO hearings can be watched at www.europarl.europa.eu/EMIS160616AM and those of Prof. Borgeest and Lange at www.europarl.europa.eu/EMIS160616PM.

On 20 June 2016 the EMIS Committee heard from Christoph Gauss of the German Automobile Club (ADAC), and from Nick Molden of Emissions Analytics.

Gauss indicated that ADAC had only conducted laboratory tests so far. Nevertheless, they had also noticed a difference in emissions measurements when running different test cycles besides the NEDC. ADAC had not suspected the use of defeat devices, as they were convinced that the NEDC was unrealistic and weak.

Responding to a question whether European consumers should be compensated, Gauss regarded that compensation was not necessary if a vehicle worked as promised after a recall, and no significant drop in performance or an increase in fuel consumption occurs.

During the second part of the hearing, Emissions Analytics' Molden regarded the current situation as a market failure, where information provided to consumers presents a misleading image of both NOx and CO_2 emissions as well as fuel consumption.

When asked for the causes of the current problems, Molden felt that the source of the problem was the failure to deal with the shortcomings of the NEDC by involved actors. He indicated that a 'cosy equilibrium' existed for both governments and manufacturers, and was in need of an external shock to improve the situation, which came with the Dieselgate.

When asked by MEPs if the current emissions limits could be achieved using current technology, Molden indicated that European manufacturers had for years already met even stricter US legislation. Using the LNT technology, Volkswagen had already met European RDE limits, with the conformity factor of 2.1 applied. He did however suspect that the industry would favour SCR technology in the end, as LNT would be the weaker long term technological bet due to the limited amount of emissions it could abate.

Future legislation should be holistic and ensure that one problem is not solved with a (technological) solution that creates another problem, Molden felt, while referring to the use of ammonia in SCR.

The hearings of ADAC and Emissions Analytics can be watched at www.europarl.europa.eu/EMIS160620.

Finally, the EMIS meeting of 21 June 2016 consisted of a hearing of Commission representatives involved in the Technical Committee on Motor Vehicles (TCMV) and the Type-Approval Authorities Expert Group (TAAEG), namely Reinhard Schulte-Braucks (head of DG Enterprise's automotive unit until December 2007), Philippe Jean (head of DG GROW's automotive unit from January 2008 to May 2015), Joanna Szykowska (current head of DG GROW's Automotive Unit), and Gwenole Cozigou (DG GROW's Director).

A majority of the discussion focused on the Commission's knowledge of the use of defeat devices and action taken by the Commission as of 2007. MEPs underlined that the divergence in laboratory and real world measured emissions was already known in the sector for a long time, as was the possible use of defeat devices.

Several MEPs pointed out that following the Volkswagen scandal, the Commission had adopted the RDE test procedure, the WLTP, and proposed a revision of the type-approval framework. MEPs therefore wondered whether the scandal had been required in order for the Commission to take action. The Commission representatives replied that the Commission had already taken action long before the scandal had erupted. Work on the RDE test procedure started in 2011 with the establishment of the RDE-LDV working group, following the publication of JRC studies on emissions discrepancies between lab and on-road test conditions. Responding to questions from MEPs on why the JRC had only started testing vehicles in 2011, the Commission indicated that the Euro 5 cars needed for the tests were only available from the end of 2009.

Several MEPs questioned why it took until 2015 to get the approval of the RDE test procedure, while a summary of a workshop organised by the Commission in 2010 stated that the RDE test procedure would be ready for adoption by the Commission by the end of 2012. Questions focused primarily on the years 2011-2013, in which no apparent progress was made, according to MEPs. The Commission representatives indicated that the development of the RDE test procedure had been delayed due to technical difficulties in finding a robust test method.

The Commission had furthermore found it difficult to reach an agreement in the TCMV in 2014. Member States could be divided into three categories: those like Denmark and the Netherlands which were relatively supportive; other Member States, primarily Eastern and Southern European countries, wanted sufficient transitional time; while a third group of Member States would have difficulties with the new test procedure.

Work on the deviations in CO_2 emission measurement was furthermore complemented by the development of the WLTP, the Commission representatives indicated.

They could however not answer why the Commission had chosen the development of the WLTP over the Common Artemis Driving Cycle.

Several MEPs questioned why the Commission had not started any investigations on the possible use of defeat devices following information and requests it received over the years. The Commission answered that the development of the RDE test procedure was a priority. They also felt that it was not the Commission's task, but the Member States' task to check for the use of defeat devices as part of their market surveillance obligations. In this regard, they highlighted the improved market surveillance provisions of the proposed revision of the type-approval framework.

During the hearing, MEPs also referred to a recent article published by the Guardian, stating that the Commission had been aware of the use of defeat devices by manufacturers since 2010. The Commission nevertheless replied that the vehicle in question was a gasoline one and the test was a low-temperature one (type 6 test at -7°C) and that NOx are not regulated on that test.

MEPs from different political groups indicated that they felt that the answers provided by the witnesses were insufficient and did not provide much helpful information.

The hearing of the Commission representatives can be watched at www.europarl.europa.eu/EMIS160621.

Draft Interim Report from Parliament EMIS Inquiry Committee

On 1 June 2016 the draft interim report from the European Parliament's Committee of Inquiry into Emission Measurements in the Automotive Sector (EMIS) was published.

It summarizes the Committee activities to date and those planned in June 2016. The list of guests to be invited to hearings until the summer break is still in the planning stage, the report says. Hearings to collect evidence will continue at least until fall 2016, after which the focus will shift to the preparation of the final report of the Committee of Inquiry.

Two missions are planned, a visit to the Joint Research Centre (JRC) of the European Commission in Ispra, Italy, and a meeting with the Luxembourgish Type-Approval Authorities combined with a visit to the vehicle testing facility in Lambsheim, Germany.

The report indicates that "in order to keep track of the testimony given by experts and witnesses, and be able to take all relevant information into account for the final report, a verbatim report in English is made available after each hearing to the EMIS Members and published on the EMIS website." The dedicated website for the EMIS Committee (www.europarl.europa.eu/EMIS) has been set up since March 2016.

The draft interim report from EMIS is at www.europarl.europa.eu/sides/getDoc.do?pubRef=-%2f%2fEP%2f%2fNONSGML%2bCOMPARL%2bPE-583.942%2b02%2bDOC%2bPDF%2bV0%2f%2fEN.

Parliament Report on Legal Obligations relating to Emission Measurements

On 17 June 2016 the European Parliament's EMIS Committee released a study, prepared by the Umweltbundesamt (Environment Agency Austria), on legal stakeholder obligations with regard to emissions measurements in the EU type-approval process.

The purpose of this study is to describe the legal obligations of the different stakeholders involved in the type-approval process, especially in emission testing. It also offers insights into the practical implementation of the EU type-approval process throughout the EU.

Overall, the legal framework consists of a host of individual regulatory acts linked by a vast number of cross-references. This framework is very complex, which makes it difficult to see the whole picture. Furthermore, the legal requirements lack clarity and precision in many ways. Only expert teams, mainly from vehicle manufacturers or technical services are able to gain an overall perspective of the regulation and its practical implementation.

The report stresses the lack of consistency in the penalties at Member State level in the EU and the need to further adjust the penalty provisions for the Member States. So far, no cases are known within the EU where manufacturers have been sanctioned because of infringements listed in the Euro 5&6 Regulation (EC) No 715/2007.

Manufacturers get to choose from 28 different type-approval authorities and more than 300 technical services. Commercial relationships may give rise to conflicts of interest. In some cases, the technical services responsible for testing or supervising tests at the facilities of manufacturers are partly owned by the manufacturers or integrated into a national type-approval authority. Moreover, some technical services offer research and development services. There is an obvious lack of separation of powers.

The verification of In-Service Conformity (ISC) testing for passenger cars is based on laboratory tests by the manufacturer itself. There is not yet a legal basis for mandatory testing under real-world driving conditions by an independent third party. In the event of non-conformity, Member States that did not issue the type-approval are unable to take proper action in the current legal framework, which also represents an obstacle to market surveillance programmes as these are usually financed by the Member States.

The study recommends to streamline existing legislation; switch from NEDC to WLTP, perform ISC tests organised and prepared by independent bodies and test laboratories; and impose clear sanctions on manufacturers that fail to comply with EU emissions legislation.

The report for the EMIS committee is at https://polcms.secure.europarl.europa.eu/cmsdata/upload/8e16732c-1734-4283-887f-35cc235735a3/IPOL_STU(2016)578996_EN.pdf.

Horizon Prizes for the Cleanest Engine and Retrofit

The European Commission has opened two contests under Horizon 2020, the EU's research and innovation programme, to award prizes for the development of clean engines and retrofit.

The purpose of the €3.5 million Horizon prize for the Cleanest Engine is to stimulate the development of the next generation engine and powertrain technologies using conventional fuels. It will be awarded to participants coming up with a solution integrated in a system prototype, which will be able to demonstrate reduction of emissions of pollutants and lowering fuel consumption in real driving conditions without affecting the operational capabilities of the vehicle.

Potential participants are encouraged to register for the contest by 20 May 2019. The prize will be awarded in early 2020.

More information on the Cleanest Engine prize is at https://ec.europa.eu/research/horizonprize/index.cfm?prize=clean-engine.

The Horizon prize for the Cleanest Engine Retrofit is worth €1.5 million and aims at spurring the development of new technologies that can be applied to existing diesel engines and powertrains to reduce emissions of pollutants in real driving conditions to the lowest level possible, in order to improve air quality issues in European cities.

It will be awarded to the contestants who will demonstrate on a running vehicle a solution for an existing engine and powertrains that greatly reduces emissions of NOx, particles, hydrocarbons in real driving conditions, while ensuring low levels of undesired other pollutants. The technology should not affect the operational capabilities of the retrofitted vehicles, for instance it should not significantly increase the fuel consumption.

Potential participants are encouraged to register for the contest by 12 June 2017. The prize will be awarded in early 2018.

More information on the Retrofit prize is at https://ec.europa.eu/research/horizonprize/index.cfm?prize=engine-retrofit.

Parliament Study on Air Quality Directive Implementation

On 24 May 2016 the Environment Committee of the European Parliament released a study conducted by the economic and scientific policy department of the Parliament which analysed air pollution hotspots in Europe and infringement procedures launched by the Commission against non-compliant Member States.

In 2014, PM_{10} and NO_2 limit values were exceeded in about two thirds of the EU Member States. The Commission has therefore launched infringement procedures against 23 of the 28 Member States. Ten of them have been referred to the EU Court of Justice for exceeding the PM_{10} limit values. Of these ten cases, five were still open at the end of 2015: Belgium, Bulgaria, France, Poland, and Spain. For exceedances of NO_2 none of the Member States has been taken to Court so far.

The target value for $PM_{2.5}$ was exceeded in six Member States in 2014 with the highest levels observed in the Czech Republic, Poland and Bulgaria.

PM_{10} hotspots in the EU are Eastern European countries, Northern Italy (Po valley) and Belgium/Netherlands. Exceedances are mainly caused by domestic heating due to the burning of solid fuels (coal, biomass) and by traffic, industry, and contributions from transboundary particles.

NO_2 limit values are mainly exceeded in large urban areas close to heavy traffic roads. Diesel vehicles are the primary cause of these exceedances. NO_2 levels showed a small decline at some of the hotspots but constant trends prevail at others. Measures to achieve NO_2 compliance have to address in particular diesel vehicles by introducing progressively stringent low emission zones and thus reducing or even banning diesel vehicles from inner city areas, the report suggests.

Air pollutants from vehicles should be reduced significantly by implementing Euro 5 and Euro 6 emission standards for light vehicles and the Euro VI standard for heavy-duty vehicles. However, differences in NOx emission levels between type-approval tests and real world emissions of vehicles lead to exceedances of NO_2 limit values in cities in Europe. The use of diesel particle filters has reduced PM exhaust emissions from vehicles considerably.

Almost full compliance with existing Air Quality limit values can be achieved by 2030 if stringent measures are implemented on a European, national and local scale. The large differences between laboratory conditions and real-driving emissions even for Euro 6 diesel vehicles will however further delay compliance with NO_2 limit values.

Concerning the interaction between climate change and air quality, a coordinated policy strategy can lead to benefits in both areas, the report concludes.

The study is at www.europarl.europa.eu/RegData/etudes/STUD/2016/578986/IPOL_STU(2016)578986_EN.pdf.

JRC Tool on Air Quality Modelling

On 2 June 2016 the Joint Research Centre (JRC) of the European Commission released the SHERPA (Screening for High Emission Reduction Potential on Air) tool which calculates how changes in traffic or residential heating emissions affect air quality.

The SHERPA tool has been designed to support public authorities in selecting sound policies to improve air quality in urban areas. The model is configured to work with a predefined set of input data (including emission inventories) that cover the whole of Europe at high (roughly 7 km^2) resolution.

The JRC's SHERPA tool is at http://aqm.jrc.ec.europa.eu/sherpa.aspx.

EEA Signals 2016 Report on Clean and Smart Mobility

On 28 June 2016 the European Environment Agency (EEA) released its Signals 2016 report which explores how Europe's carbon-dependent transport sector can be turned into a clean and smart mobility system.

Transport underpins our modern society and economy. At the same time, it is responsible for a quarter of the EU's greenhouse gas emissions, and causes air pollution, noise pollution and habitat fragmentation, the EEA said. The EU has already taken measures to mitigate the effects of transport pollution, and it has launched work on ambitious plans to create a low-carbon economy by 2050. These plans include making sure transport plays its part in reducing emissions.

The report includes articles focusing on the state of Europe's transport sector, its impact on public health, the issue of food miles, aviation and shipping, plus an interview on how cities can plan for smart mobility and climate change.

The EEA report Signals 2016 is at www.eea.europa.eu/publications/signals-2016.

EEA Data on New Vans' CO_2 Emissions

On 17 May 2016 the European Environment Agency (EEA) published the 2015 provisional data on CO_2 emissions from new Light-duty vehicles.

In 2015, 1.5 million new vans were registered in the EU, an increase of 2% compared to 2014. More new vans were sold in most Member States (MS). However, three MS reported lower sales: Poland (-24%), Spain (-16%) and France (-12%). 60% of new vans registered in the EU were sold in just three countries: the UK (24 %), France (21 %) and Germany (15 %).

Diesel vehicles continue to make up the vast majority of the new van fleet, constituting 97% of sales.

The average van registered in 2015 emitted 168.2 g/km of CO_2 which is 0.9 g/km less than in 2014. This is the smallest annual reduction since monitoring of emissions from new vans started in 2012.

While the reported annual reduction is small, CO_2 emissions are nevertheless below the EU's 2017 target of 175 g/km of CO_2. Further efficiency improvements are still to be achieved to reach the EU's 2020 target of 147 g/km of CO_2.

Finally, only 10 250 electric and plug-in hybrid vans were sold in 2015, representing 0.7% of the total EU van sales. This is lower than the 184 000 electric and plug-in hybrid passenger cars sold the same year, a share of 1.3% of total car sales.

The EEA data is at www.eea.europa.eu/highlights/reduction-of-co2-emissions-from.

EEA Report on 2016 Greenhouse Gas Emissions Inventory

On 21 June 2016 the European Environment Agency (EEA) published its report "Annual EU greenhouse gas inventory 1990-2014 and inventory report 2016" submitted to the United Nations Framework Convention on Climate Change.

In absolute terms, greenhouse gas (GHG) emissions have decreased by 1383 million tonnes (Mt) in the EU since 1990, reaching 4282 Mt of CO_2 equivalents in 2014, this represents an overall reduction of 24.4% in GHG emissions in spite of a 47% increase in gross domestic product (GDP). Between 2013 and 2014, EU GHG emissions were cut by 185 Mt (4.1%).

GHG emissions decreased in the majority of sectors between 1990 and 2014. Emission reductions were the largest for manufacturing industries and construction (-372 Mt), electricity and heat production (-346 Mt), and residential combustion (-140 Mt).

Road transport however was responsible for the largest increase in CO_2 emissions and grew by 124 Mt from 1990 to 2014, and 7 Mt from 2013 to 2014.

The EEA Report No 15/2016 is at www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2016.

Industry and NGOs call for CO_2 Standards for Trucks in the EU

On 27 May 2016 nineteen global brands, logistics companies and green organisations, including IKEA, Nestlé, Philips, DB Schenker, Deutsche Post, DHL and T&E signed a letter to European Commission's President Juncker and nine Commissioners, calling for

a proposal to introduce CO_2 standards for trucks within the next two years.

The EU Commission is expected to announce a new strategy to lower carbon emissions in the transport sector in 2016. A new tool to calculate and monitor trucks' CO_2 emissions, called VECTO, will be announced but campaigners have said that this does not go far enough. "We do not believe that introducing a truck CO_2 test procedure and monitoring truck CO_2 emissions would be sufficient to kick start the market for ultra-fuel efficient trucks in Europe," the letter said.

The letter is at www.transportenvironment.org/sites/te/files/publications/2016_05_Letter_on_fuel_efficiency_standards_for_trucks-.pdf.

ICCT Report on EU Road Transport CO_2 Policy Options

On 1 June 2016 the International Council on Clean Transportation (ICCT) published a report titled "Reducing CO_2 emissions from road transport in the European Union: an evaluation of policy options".

The EU's 2030 climate and energy framework requires the transport, building and agriculture sectors to reduce by 2030 greenhouse gas emissions to 30% below a 2005 baseline. The study demonstrates that meeting that goal depends on deploying a combination of policy measures that include CO_2 standards for both cars and heavy-duty trucks, improving vehicle testing regulations, and accelerating the transition to electric vehicles.

According to the ICCT, if current policies remain unchanged CO_2 emissions from cars and trucks in the EU will likely increase by 7.6% from 2005 to 2030, reaching 960 million metric tons (Mt) per year in 2030. Tightening the mandatory CO_2 target for new passenger cars from 95 g/km in 2021 to 78 g/km in 2025 and 60 g/km in 2030 would prevent 95 Mt of CO_2 per year in 2030. However, setting targets of 68 g/km and 42 g/km for 2025 and 2030 respectively would further increase the carbon emissions avoided to 144 Mt per year in 2030.

Strengthening the vehicle emissions testing system in Europe, by introducing a not-to-exceed limit for CO_2 under real-world driving conditions, would avoid another 25 Mt of CO_2 per year by 2030.

Introducing mandatory CO_2 standards for new trucks in 2025 could prevent about 17 Mt of CO_2 per year in 2030. If such standards were introduced even earlier, in 2020, that effect would more than triple, to about 55 Mt of avoided CO_2 emissions per year in 2030.

Accelerating the transition to electric-drive of the passenger car fleet in Europe, with the aim of seeing electric vehicles reach a 23% share of the new car market in 2030, could prevent another 19 Mt of CO_2 in that year. By contrast, including the transport sector into the EU's Emissions Trading System would not produce any significant CO_2 reductions.

By implementing a comprehensive set of policy measures, including not only those outlined above but also support for advanced biofuels and higher fuel taxes, CO_2 emissions could be reduced by a total of 282 Mt per year in 2030, which is 24% below the 2005 baseline. Additional measures would still be required to meet the EU 30% reduction target.

The ICCT report is at www.theicct.org/sites/default/files/publications/ICCT_EU-CO2-policies_201606.pdf.

New CEN Standard for Paraffinic Diesel Fuel

On 11 May 2016 the European Committee for Standardization (CEN) announced that it has approved a new European Standard for paraffinic diesel fuel made from synthesis or hydro-treatment.

Paraffinic diesel fuels are liquid fuels that can be synthetically created from feedstocks such as natural gas (GTL), biomass (BTL) or coal (CTL); or through hydro-treatment of vegetable oils or animal fats (HVO). These high-quality fuels burn cleaner than conventional crude-oil based diesel fuels and are thus able to reduce NOx and PM emissions. Therefore they can lead to improvements in local air quality without having to introduce changes in the existing fuel infrastructure.

The new standard EN 15940, which will be published by all CEN members before the end of 2016, establishes requirements and test methods for marketed and delivered paraffinic diesel fuel containing a level of up to 7% fatty acid methyl ester (FAME) for use in diesel engines.

JRC Report on Alternative Fuels for Marine and Inland Waterways

On 5 May 2016 the Joint Research Centre (JRC) of the European Commission released a new report on alternative fuels for marine transport and inland waterways to decarbonize the shipping sector.

The report gives an overview of the shipping sector, including market share, emission related issues, fuel standards and existing legislation. It covers different alternative fuels, engine types and the introduction of alternative fuels. The report reviews low sulfur grade diesel fuels, biofuels, traditional fuels, gaseous fuels and battery operated propulsion, Fischer-Tropsch or synthetic diesel, pyrolysis oil, hydrogen in combination with fuel cells, solar power and wind energy as potential alternatives.

The report finds that fuels like Liquefied Natural Gas (LNG) and methanol are the most promising

alternatives to contribute to the fight against climate change. From a long-term perspective, each of the two fuels has a biofuel counterpart: biomethane and biomethanol. This means that ships and infrastructure built for LNG and methanol can be used to supply biomethane and biomethanol without a large overhaul of installations. This could equate to using the two fuels as transition fuels before making a major shift to biofuels. However, their potential use will depend on a number of factors, including environmentally sustainable biomass feedstock for their production, cost-effective production technologies and ultimately on their market penetration.

The JRC report is at http://publications.jrc.ec.europa.eu/repository/bitstream/JRC100405/inland%20and%20marine%20waterways%20exploratory%20work%20on%20alternative%20fuels_kamaljit%20moirangthem_final.pdf.

Stakeholder Consultation on End-of-Life Vehicles Directive

On 29 June 2016 the Öko-Institut e.V. launched, on behalf of the European Commission, a public consultation on potential measures to improve the implementation of certain aspects of the Directive 2000/53/EC on end-of life vehicles (ELV), with emphasis on ELVs of unknown whereabouts.

The survey contains 6 topics: keeping track of vehicles within the EU (intra-EU trade); methods to achieve more complete reporting on extra-EU export and ways to distinguish between exporting ELVs vs. used vehicle; enforcement techniques to reduce illegal dismantling of ELVs at dealers and repair shops and actions to improve Authorised Treatment Facilities (ATF) compliance; public awareness and incentives for ELV tracking and environmental risks; aspects to improve coverage and data quality when reporting on ELVs (possible revision of the Commission Decision 2005/293/EC); and Persistent Organic Pollutants (POPs) and ELVs.

The consultation is open until 21 September 2016 and is at http://elv.whereabouts.oeko.info.

Dutch Report on NOx Emissions from Euro 5 Diesel Vans

On 19 May 2016 the Netherlands Organisation for Applied Sientific Research, TNO, published a report on on-road NOx emissions from Euro 5 diesel light commercial vehicles (vans).

The emission tests were carried out as part of a project conducted for the Dutch Ministry of Infrastructure and the Environment between 2010 and 2015. This new report follows a similar one published in March 2016 on Euro 5 and 6 passenger cars real-world emissions.

Nine of the ten selected vehicles (Peugeot Expert, Ford Transit, VW Transporter, Mercedes Sprinter, Mercedes Vito, Opel Vivaro, Renault Trafic, Iveco Daily, and Peugeot Boxer) were N1 Class III light commercial vehicles (gross vehicle weight between 1760 kg and 3500 kg). One, a VW Caddy, was a Class II van (gross vehicle weight between 1305 kg and 1760 kg).

The three van models that were tested on the chassis dynamometer were found to comply with the Euro 5 type-approval limit (235 or 280 mg/km depending on vehicle class) on the cold-start NEDC. On the hot-start NEDC, CADC (Artemis), TNO-Dynacycle and WLTC these vehicles showed significantly elevated NOx emission levels though.

In on-road testing using Smart Emission Measurement System (SEMS), the Euro 5 light commercial vehicles emitted on average five to six time more NOx than the Euro 5 limit. Their average real-world NOx emissions ranged from around 800 to more than 2000 mg/km.

The best performing vehicle in the test programme was a Mercedes Sprinter with a Euro VI engine, type-approved in accordance with the regulations for heavy-duty vehicles and equipped with an SCR catalyst. On average this vehicle emitted around 200 mg/km in tests on the road.

The TNO report is at http://publications.tno.nl/publication/34620498/nwfIII/TNO-2016-R10356.pdf.

Paris Mayor appeals the European Court of Justice on RDE Regulation

On 11 May 2016 Anne Hidalgo, the Mayor of Paris, announced she has launched two appeals to the European Court of Justice (ECJ) to challenge the RDE Regulation published on 26 April 2016 (i.e. the 2nd RDE package).

She has launched an action for annulment and an action for damages in the form of a civil action before the ECJ, appeals to which she invites 19 other Mayors of major European cities to join.

Twenty cities including Paris, Madrid, Athens, Milan, Stockholm, Vienna and Amsterdam, signed on 16 March 2016 a petition against the agreement on NOx Conformity Factors considered as a “license to pollute”.

Ms Hidalgo is contesting the EU decision on both its content and its form since the comitology procedure is usually used to amend “non-essential elements” of EU regulations, the Mayor’s press release said.

French Parliament Report on Air Quality Policy

On 19 May 2016 the French Lower House of Parliament released a report on the evaluation of public policies to mitigate air pollution.

Three major axes are identified: the need to evaluate the cost of air pollution and clarify the role of the

different stakeholders, the importance of enhancing measures to control emissions from mobile and fixed sources, and to make indoor air quality a priority.

On traffic emissions, it is proposed to:

- increase fleet renewal incentives by creating, in addition to the CO_2-based "bonus-malus", an air pollution "bonus-malus" based on particulate and NOx emissions of vehicles, and by creating a scrapping scheme dedicated to the most pollutant vehicles;

- facilitate market take up of electric and natural gas heavy- and light-duty commercial vehicles, with considerations for the last mile delivery issue;

- act on the existing fleet by establishing Low Emission Zones relying on mandatory identification of vehicles according to their Euro standard and facilitating access conditions to low emitting vehicles, and by incentivizing car-sharing commuting to work by ensuring that half of the transport costs are covered by the company;

- apply soon the new RDE test protocol and establish an EU surveillance authority, independent from Member States and vehicle manufacturers, that would conduct random emissions tests on the existing fleet.

One of the two co-rapporteurs suggests to encourage European authorities to adopt rapidly a Euro 7 standard that would close the emission gap. While the other co-Rapporteur prefers an early introduction of the Euro 6 standard, without further lowering of emissions requirements.

The French report is at www.assemblee-nationale.fr/14/rap-info/i3772.asp.

Euro Standard-based Classification System for Vehicles in France

On 23 June 2016 an order defining a vehicle labelling system, based on the Euro standard vehicles are certified to, was published in the Official Journal of France.

The updated classification stems from the public consultation organised earlier in the year. The Environment Ministry has retained six categories of vehicles that apply to passenger cars, light commercial vehicles, two- and three wheelers, quads, and heavy-duty vehicles, including buses and coaches.

In this updated classification, class 1, the cleaner vehicles class, does not include any diesel vehicles. Euro 6 diesel cars and vans and Euro VI heavy-duty vehicles all belong to class 2.

The new classification replaces the previous French national scheme published in May 2012.

It will allow local authorities to set traffic and parking restrictions to the most polluting vehicles in order to improve air quality.

The order (in French) is at www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000032749723&dateTexte=&categorieLien=id.

Results of Vehicles Emissions Tests in Belgium

On 2 June 2016 the Ministry of Environment of the Walloon region in Belgium released their report on the emissions test campaign conducted on a series of Euro 5 diesel cars.

NOx and CO_2 emissions have been measured on a chassis dyno where an on-road commuting route (including urban, motorway, rural, and urban parts over a total of 18 km) was simulated.

The 38 cars tested were equipped with Euro 5 engines between 1.4 and 2.1l and had driven less than 100 000 km. They all exceeded the Euro 5 standard, with an average NOx value of 617 mg/km, 3.4 times more than the regulatory limit of 180 mg/km. The worst performance was measured on a Nissan Qashqai with 1183 mg/km of NOx measured, which is 6.57 times higher than the Euro 5 standard.

CO_2 emissions were in average 36% higher than the certification value.

These results will be provided to the European Commission in their effort to coordinate national test campaigns on diesel cars, following the Volkswagen scandal.

The Walloon emissions testing report is at http://diantonio.wallonie.be/sites/default/files/nodes/story/8830-rapportvwfinal.pdf.

Low Emission Zone in Brussels

On 2 June 2016 the Government of the Brussels Capital Region in Belgium reached an agreement on the introduction of a Low Emission Zone (LEZ) where the most polluting cars will be banned.

The LEZ will start in early 2018 when Euro 1 and older diesel cars will be banned. Euro 2 diesel and Euro 1 and older gasoline cars will then be banned from 2019 onwards, Euro 3 diesel cars from 2020, Euro 4 diesel cars from 2022, and Euro 5 diesel and Euro 2 gasoline cars from 2025.

There will be no car labelling scheme but a car identification system using number plate recognition cameras.

NORTH AMERICA

US EPA and CARB announce Settlement on VW Two-Litre Diesel Case

On 28 June 2016 the US Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) announced two settlements in the Volkswagen

case, one with the US and the State of California, and one with the US Federal Trade Commission (FTC).

The Volkswagen group has agreed to spend up to $14.7 billion (€13 billion) to settle allegations of cheating emissions tests and deceiving customers, the US EPA said. VW will offer consumers a buyback and lease termination for nearly 500 000 model year 2009-2015 2.0-litre diesel vehicles sold or leased in the US, and therefore will spend up to $10 billion (€9 billion) to compensate consumers. In addition, VW will give $2.7 billion (€2.4 billion) to an environmental remediation fund and will invest $2 billion (€1.8 billion) in initiatives to promote the use of zero-emission vehicles in the US.

The settlements partially resolve allegations relating to the vehicles' use of "defeat devices" to cheat emissions tests. The settlements also resolve claims by the FTC that VW violated the FTC Act through unfair advertising and sale of its "clean diesel" vehicles.

The settlements require VW to offer owners of any affected vehicle the option to have the company buy back the car and to offer lessees a lease cancellation at no cost. The settlements also allow VW to apply to EPA and CARB for approval of an emissions modification on the affected vehicles, and, if approved, to offer consumers the option of keeping their cars and having them modified to comply with emissions standards. Under this option, consumers would also receive money from VW.

Approved modifications would be subject to emission limits as well as OBD requirements. While the affected vehicles would require changes to the software to disable the defeat device, some additional hardware and software changes would also be required. Some details are outlined such as:

Gen 1, 2.0l (NOx adsorber): installation of a new exhaust flap, EGR filter, and NOx trap that meets the specifications of BASF TEX2064; DPF efficiency monitoring using the pressure differential across the low pressure EGR filter and the pressure differential across the DPF as a secondary backstop monitor; and installation of a NOx trap with a functional monitor for the entire NOx reduction system.

Gen 2, 2.0l (SCR): capability to detect the presence of less than 1% DEF (Diesel Exhaust Fluid or aqueous urea solution) in the tank and initiating inducements based on such detection.

Gen 3, 2.0l (SCR): installation of OBD hardware and software to achieve compliant SCR monitoring, including the addition of a second NOx sensor strategy to detect poor reductant quality; and DOC replacement if 150 000 mile durability cannot be demonstrated with the existing DOC.

Under the settlement, VW must achieve an overall recall rate of at least 85% of affected 2.0-litre vehicles under these programs or pay additional sums into the mitigation trust fund.

The settlements do not resolve pending claims for civil penalties or claims concerning 3.0-litre diesel vehicles.

Canada proposes New Emissions Standards for Off-Road Small SI Engines

On 10 June 2016 the Government of Canada proposed amendments to the Off-Road Small Spark-Ignition Engine Emission Regulations with more stringent emissions standards to reduce smog-forming air pollutants from common household tools, such as lawn mowers, snow blowers and chainsaws, starting with 2018 model years.

The proposed amendments would only apply to the manufacture and import of new products into Canada and would align with the US EPA Phase 3 standards for small SI engines up to 19 kW.

A public consultation is open until 25 August 2016.

The proposal is at www.gazette.gc.ca/rp-pr/p1/2016/2016-06-11/html/reg2-eng.php.

Canada proposes Locomotive Emissions Regulations

On 17 June 2016 the Government of Canada then proposed to regulate for the first time emissions from locomotives.

Transport Canada is proposing to introduce the Locomotive Emissions Regulations under the Railway Safety Act to control emissions from locomotives. Locomotive emission standards would be specified for smoke opacity and air pollutant emissions, including NOx, PM, HC and CO. The standards would align with those specified in the US regulations. Other requirements for controlling idling, labelling, testing, record-keeping and reporting would also be specified.

It is expected that the proposed Regulations would result in a reduction of locomotive emissions of approximately 79.6 kilotonnes (kt) of NOx and 1.4 kt of PM (or a reduction of 9.3% and 8.0% of NOx and PM, respectively), over a 10-year analysis period.

A public consultation is open until 15 September 2016.

The proposal is at www.gazette.gc.ca/rp-pr/p1/2016/2016-06-18/html/reg4-eng.php.

ASIA PACIFIC

Consultation on Draft China 6 Regulation

The China's Ministry of Environment (MEP) Vehicle Emission Control Centre (VECC) has published their China 6 light-duty emission regulatory proposal.

The primary features of the China 6 light-duty proposal include:

- Fuel neutral emission regulations based on the WLTC test cycle. Emission limits for gaseous pollutants include a phase-in schedule that goes beyond Euro 6 standards. The first stage, China 6a, begins implementation in 2020 nationally with limits at 68 mg/km NMHC, 60 mg/km NOx (equivalent to the Euro 6 gasoline NOx standard), and 4.5 mg/km PM. China 6b further tightens the limits in 2023 to 35 mg/km NMHC, 35 mg/km NOx, and 3.0 mg/km PM.
- The proposal includes the Euro 6c Particle Number standard of $6x10^{11}$/km for both gasoline and diesel vehicles, effective in 2020.
- Gasoline vehicles must meet Tier 2/LEV II-type evaporative standards with similar stringency that include a 0.70 g/test 48 hr diurnal limit and 0.05 g/l on-board refuelling vapour recovery (ORVR) but measured using the WLTC cycle.
- Low temperature (-7°C) tests are using a low + medium-speed test cycle with limits for THC (1.2 g/km), CO (10 g/km), and NOx (0.25 g/km).
- Full useful life emissions durability after 160 000 km
- RDE tests using Portable Emissions Measurement Systems (PEMS) with a monitoring phase under China 6a from 2020 onwards and full RDE requirements beginning in 2023 with China 6b. The compliance conformity factors for both NOx and PN is 2.1 under China 6b. RDE testing is also being proposed for in-use compliance testing.
- OBD requirements are based on the 2013 US OBD II regulation however the OBD thresholds are less stringent and are the Euro 6 OBD thresholds.
- Both diesel and gasoline fuels must have <10 ppm sulfur and no MMT may be added to gasoline.

It is understood that MEP/VECC hope to finalize their China 6 light-duty emission standards before the end of 2016. A proposal covering China VI heavy-duty vehicle emission standards is expected to be released soon. This heavy-duty proposal is expected to be very similar to the current Euro VI heavy-duty standards.

Nissan Qashqai Recall in South Korea for Emissions Problem

On 16 May 2016 the South Korean Ministry of Environment announced that Nissan Korea has been ordered to recall 814 diesel Qashqai SUVs and warned of a fine of 330 million won (€250 000), accusing the car manufacturer of cheating on emissions tests.

The announcement comes after the Ministry renewed emission tests on 20 Euro 6 diesel cars, from local and foreign brands, released after September 2015.

Nissan's Qashqai model manipulated Exhaust Gas Recirculation (EGR) systems, where the EGR was designed to stop when the internal intake temperature hits 35°C, and this violates the local regulation, the Ministry said.

The Qashqai was found to emit 3760 mg/km of NOx when air conditioning was on. On the road it emitted 1670 mg/km of NOx, far above the Euro 6 limit of 80 mg/km.

Nissan has replied that the Qashqai sold in Korea complies with - and has been homologated to - European Euro 6 standards and Korean regulations permit the importation and sales of vehicles that comply with these standards.

Voluntary Vehicle Fleet Modernization Programme in India

On 26 May 2016 the Indian Ministry of Road Transport and Highways released a concept note proposing to introduce a voluntary vehicle fleet modernization programme.

The programme proposes financial incentives for the scrapping of vehicles older than 11 years, which represents around 28 million vehicles, and replace them by Bharat Stage (BS) IV or more compliant vehicles. BS IV will be rolled-out nation-wide in April 2017.

The incentive would include a scrap value for the old vehicle, car manufacturers' special discount, and partial excise duty exemption. The total benefit for the customer would amount to 8-12% of the total vehicle cost.

The programme is expected to have significant benefits in terms of air pollution reduction, energy efficiency, and import substitution. The air quality benefit is estimated to 25-30% reductions in CO, HC+NOx, and PM emissions.

In addition, the programme can support India's COP21 targets by contributing up to 2% of the intended CO_2 reduction due to lower CO_2 emissions from new vehicles.

UNITED NATIONS

2016 Update of WHO Global Urban Air Pollution Database

On 12 May 2016 the World Health Organization (WHO) released the 2016 update of its global urban ambient air pollution database.

WHO was able to compare a total of 795 cities in 67 countries for levels of small and fine particulate matter (PM_{10} and $PM_{2.5}$) between 2008 and 2013.

Global urban ambient air pollution levels increased by 8% over the period 2008-2013, despite improvements in some regions. More than 80% of people living in urban areas that monitor air pollution are exposed to

PM_{10} and $PM_{2.5}$ levels that exceed the WHO limits (20 µg/m³ and 10 µg/m³ annual means respectively).

While all regions of the world are affected, populations in low-income cities are the most impacted. According to the database, 98% of cities in low- and middle income countries with more than 100 000 inhabitants do not meet WHO air quality guidelines. In high-income countries, that percentage decreases to 56%.

In the past two years, the database – now covering 3000 cities in 103 countries – has nearly doubled, with more cities measuring air pollution levels and recognizing the associated health impacts.

In general, urban air pollution levels were lowest in high-income countries, with lower levels most prevalent in Europe, the Americas, and the Western Pacific Region.

During the World Health Assembly held between 23 and 28 May 2016, Member States discussed a roadmap for an enhanced global response to the adverse health effects of air pollution.

The WHO database, including spreadsheets and a summary, is at www.who.int/phe/health_topics/outdoorair/databases/cities/en.

UNECE Report "Towards Cleaner Air"

On 31 May 2016 the United Nations Economic Commission for Europe (UNECE) released a new report "Towards Cleaner Air" developed under the UNECE Convention on Long-range Transboundary Air Pollution (Air Convention).

The report says that coordinated action under the UNECE Air Convention during the last 30 years has significantly improved air quality in North America and Europe but more efforts are needed.

The main findings of the report are that average life expectancy in Europe has increased by one year and hundreds of thousands of premature deaths every year have been avoided as a result of policy-driven reductions in air pollution. In addition, soil acidification has been halted in most parts of Europe, and fish stocks are recovering in freshwaters where they had largely disappeared. Despite these successes, air pollution is still the primary environmental cause of premature death in Europe, notably due to high concentrations of fine particles and ground-level ozone, and ecosystem biodiversity is threatened due to nitrogen deposition.

The report was launched in Brussels by UNECE Executive Secretary Christian Friis Bach who said "This report shows that solutions are at hand and that action pays off. Implementing the protocols under the Air Convention could not only significantly reduce air pollution but also enable an international level playing field for industries and prevent countries from competing with each other at the expense of the environment and human health".

The UNECE report is at www.unece.org/fileadmin/DAM/env/lrtap/ExecutiveBody/35th_session/CLRTAP_Scientific_Assessment_Report_-_Final_20-5-2016.pdf.

UNEP Report on Actions on Air Quality

On 24 May 2016 the United Nations Environment Programme (UNEP) released a report titled "Actions on Air Quality" at the second United Nations Environment Assembly held in Nairobi, Kenya.

The report provides a snapshot of policies and programmes for improving air quality around the world and progress made. UNEP found improvements in some areas such as access to cleaner cooking fuels and stoves, renewables, fuel sulfur content and public transport, pointing to a growing momentum for change. However, action in other areas is less impressive and will not halt the increase in air pollution that is threatening to claim many more lives.

While policies and standards on clean fuels and vehicles could reduce emissions by 90%, only 29% of countries worldwide have adopted Euro 4 vehicles emissions standards or above.

The UNEP report is at www.unep.org/transport/airquality.

UN Global Environment Outlook

On 8 June 2016 the United Nations Economic Commission for Europe (UNECE) and the United Nations Environment Programme (UNEP) published a Global Environment Outlook (GEO) assessment for the pan-European region.

According to the report, prepared with support from the European Environment Agency (EEA), air pollution is now the greatest health risk in the region, with more than 95% of the EU urban population exposed to levels above World Health Organization (WHO) guidelines, for example. Over 500 000 premature deaths in the region were attributable to outdoor air quality and 100 000 to indoor air quality in 2012.

Climate change is one of the largest threats to human and ecosystem health and to achieving sustainable development in the pan-European region. It is also an accelerator for most other environmental risks. Impacts of climate change affect health through floods, heat waves, droughts, reduced agricultural productivity, exacerbated air pollution and allergies and vector, food and water-borne diseases.

A factsheet on the GEO assessment is at www.unece.org/fileadmin/DAM/Media_Factsheet_-_GEO-6_Assessment_for_the_pan-European_region_FINAL.pdf.

GENERAL

Daimler announces GPF Deployment and RDE-Compliant Diesel Engine

On 27 May 2016 Daimler announced that Mercedes-Benz plans the large-scale use of Gasoline Particulate Filters (GPF).

"After more than two years of positive field tests with the Mercedes-Benz S 500, additional versions of the S-Class with gasoline engines are to be equipped with this new [GPF] technology with the next model upgrade. That will be followed by gradual implementation in further new models, model upgrades and new engine generations. After that, particulate filters will also be applied in the current model ranges."

In the same announcement, Daimler reported on their new RDE-compliant OM 654 diesel engine.

Indeed, the newly developed four-cylinder diesel engine fitted in the new E-class includes an extended operating range of Exhaust Gas Recirculation (EGR) towards significantly lower temperatures as well as Selective Catalytic Reduction (SCR) systems with increased efficiency achieved by modifying the design of the exhaust system and by applying new catalyst materials. DEKRA, a German vehicle inspection company, has carried out an extensive Real-Driving Emissions (RDE) test programme with a Mercedes-Benz E220d. The RDE measurements were carried out at various temperatures between about 2 and 16°C, and with various numbers of occupants and varying loads. The E220d emitted less NOx than the limit of 80 mg/km on all applicable RDE routes, Daimler said. In some cases, the NOx emissions were as low as 13 and 21 mg/km, even at low ambient temperatures.

The Daimler press release is at http://media.daimler.com/marsMediaSite/en/instance/ko/Innovative-solution-for-diesel-and-gasoline-engines-Mercedes.xhtml.

Volkswagen announces GPF Introduction

On 22 June 2016 Matthias Müller, the CEO of Volkswagen, presented "TOGETHER – Strategy 2025", the company's vision for the next decade to shareholders, which includes fitting new TSI and TFSI engines with Gasoline Particulate Filters (GPF) from June 2017 onwards.

Müller said "We will successively equip the group's new TSI and TFSI engines with Gasoline Particulate Filters. This initiative will begin with the 1.4 litre TSI engine in the new VW Tiguan and the Audi A5 in June 2017. This will reduce particulate emissions by up to 90%. Up to 7 million Volkswagen vehicles could be equipped with this technology each year by 2022."

More information is available from www.volkswagen-media-services.com/en/detailpage/-/detail/Matthias-Mller-We-have-launched-the-biggest-change-process-in-Volkswagens-history/view/3710903/7a5bbec13158edd433c6630f5ac445da?p_p_auth=1PSB73lq.

Concawe Report on GDI Particulate Study

On 21 June 2016 Concawe, the scientific association of oil companies, published a report on their Gasoline Direct Injection (GDI) particulate study.

Two GDI light duty-vehicles (one Euro 4 and one Euro 5) have been tested to investigate the effect of oxygenates (mainly ethanol) on particulate mass and number, fuel economy and regulated gaseous emissions. The vehicles were tested on NEDC, using ethanol-containing gasolines at different oxygen levels and RON values. An ether-containing blend was also tested for comparison.

In general fuel effects were small compared to vehicle to vehicle effects and did not affect the vehicles ability to meet the legislated specifications. Some individual observations were made in one vehicle where PN reduced with ethanol levels at >3.7 mass% oxygen compared to lower levels and fuel consumption debits were observed in both vehicles although the low levels of PM produced by these vehicles made it difficult to come to any conclusions on fuel effects on this parameter.

The Concawe report is at www.concawe.eu/uploads/Modules/Publications/rpt_16-10.pdf.

IEA World Energy Outlook 2016 Special Report on Energy and Air Pollution

On 27 June 2016 the International Energy Agency (IEA) released its Energy Outlook 2016 Special Report on Energy and Air Pollution.

Based on new data for pollutant emissions in 2015 and projections to 2040, the report provides a global outlook for energy and air pollution as well as detailed profiles for the US, Mexico, the EU, China, India, Southeast Asia and Africa. The report highlights the links between energy, air pollution and health. It identifies contributions the energy sector can make to curb poor air quality, the fourth-largest threat to human health, after high blood pressure, poor diets, and smoking.

Energy production and use – mostly from unregulated, poorly regulated or inefficient fuel combustion – are the most important man-made sources of key air pollutant emissions: 85% of particulate matter and almost all of the sulfur oxides and nitrogen oxides.

The report presents strategies tailored to various country circumstances to deliver cleaner air for all. A Clean Air Scenario demonstrates how energy policy choices backed by just a 7% increase in total energy investment through 2040 produce a sharp improvement in health. Under such a scenario, premature deaths from outdoor air pollution would decline by 1.7 million in 2040 compared with the main

scenario, and those from household pollution would fall by 1.6 million annually.

According to the study, if the EU applies its current and pledged legal instruments – including contributions towards Paris goals and targets for renewables and energy efficiency – NOx and SO_2 emissions will shrink by a respective 55% and 50% by 2040. However, IEA researchers said NOx emissions could be slashed by a further 10% (65% in total) by 2040 if fuel-efficiency standards are tightened for both light- and heavy-duty diesel vehicles and diesel cars are gradually replaced by gasoline hybrid, natural gas and electric alternatives.

The IEA special report is at www.iea.org/publications/freepublications/publication/WorldEnergyOutlookSpecialReport2016EnergyandAirPollution.pdf.

OECD Report on the Economic Consequences of Outdoor Air Pollution

On 9 June 2016 the Organisation for Economic Co-operation and Development (OECD) released a report on the economic consequences of outdoor air pollution.

The report provides a comprehensive assessment of the economic consequences of outdoor air pollution in the coming decades, focusing on the impacts on mortality, morbidity, and changes in crop yields as caused by high concentrations of pollutants.

Outdoor air pollution caused more than 3 million premature deaths in 2010, with elderly people and children most vulnerable. The OECD projections imply a doubling, or even tripling, of premature deaths from dirty air, i.e. one premature death every four or five seconds, by 2060.

According to the report, the reduction in global economic output by 2060 will equate to around $330 (€290) per person, as annual healthcare costs related to air pollution rise from $21 billion (€18 billion) in 2015 to $176 billion (€153 billion) and the number of work days lost to air pollution-related illness jumps from 1.2 billion to 3.7 billion.

The biggest rises in mortality rates from air pollution are forecast in India, China, Korea and Central Asian countries like Uzbekistan, where rising populations and congested cities mean more people are exposed to power plant emissions and traffic exhaust. Premature death rates are forecast to be up to three times higher in 2060 than in 2010 in China and up to four times higher in India. Death rates are seen stabilising in the US and falling in much of Western Europe thanks in part to efforts to move to cleaner energy and transport.

Projected Gross Domestic Product (GDP) losses will be biggest in China, Russia, India, Korea and countries in Eastern Europe and the Caspian region, as health costs and lower labour productivity hit output. Poor air quality will hit China's economy harder than India's because differences in household savings rates and demographics mean the knock-on effects of lower productivity and increased health spending on the rest of the Chinese economy will be much larger.

A reduction in crop yields as a result of air pollution will weigh on most countries' economies. Exceptions will include Brazil, Russia and some Latin American countries where agricultural land is set to be less affected, meaning improved export competitiveness and thus economic gains.

Finally, the report also examines the negative impact of outdoor air pollution in terms of the price people would be willing to pay each year to not have their health impaired or their lives cut short by it. This hypothetical annual value of air pollution is seen rising from less than $500 (€435) per person in 2015 to as much as $2800 (€2440) in 2060.

The OECD report is at https://issuu.com/oecd.publishing/docs/economic_consequences_of_outdoor_ai.

ICCT Report on Road Load Impact on CO_2 Emissions of EU Passenger Cars

On 9 May 2016 the International Council on Clean Transportation (ICCT) published a report highlighting the effects of disparities between real-world data and official road load coefficients used to set up vehicle type-approval test equipment on fuel consumption and CO_2 ratings for European passenger cars.

On average, real-world fuel consumption and CO_2 emissions of new European passenger cars exceeded official vehicle type-approval values by approximately 40% in 2014. This report shows that about one-third of this gap can be explained by vehicle manufacturers systematically exploiting technical tolerances and imprecise definitions in the procedures specified for the coast-down tests that provide data used to set up lab equipment for type-approval testing.

The study focused on preparatory tests that measure forces of inertia, friction, and aerodynamic resistance affecting a vehicle on the road. Collectively these forces are referred to as "road load." The coast-down tests determine parameters required to set up a chassis dynamometer to simulate road load during a type-approval test.

The road load coefficients greatly influence official fuel consumption and CO_2 emissions values, because energy is required to overcome road load. If the coefficients used to set up the type-approval test simulate too little road load, the vehicle will consume an artificially low volume of fuel for the test, and emit less CO_2. And, because coast-down testing is rarely repeated during the production cycle of a vehicle

model, the initial coast-down values have a lasting impact.

The study analysed real road load data for 29 passenger cars from model years 2009-2012 obtained from four independent vehicle test labs. For 19 of the 29 cars, it compared the real-world road loads to official road loads from the French and German type-approval agencies. For the models also sold in the US, the study also compared real-world road loads to official parameters used in US emissions certification tests.

For all 19 vehicles, actual road load exceeded what was simulated during type-approval tests. The study estimates that the influence of unrealistic road load data on CO_2 emissions and fuel consumption tests produced official values between 0.7% and 14.5% lower than they would have been if actual real-world road load data had been used. Averaged across all vehicles, official CO_2 emission figures were 7.2% lower than actual emissions because of the inaccurate official road load coefficients. By contrast, the average impact on CO_2 emissions and fuel consumption of differences between the official US road load coefficients and the real-world data was only 1.8%.

The EU introduction of the Worldwide Harmonized Light Vehicles Test Procedure (WLTP) in 2017 will entail improvements and eliminate some of the existing methodological errors, according to the ICCT. Manufacturers will be directly responsible for the officially declared road loads. On the other hand, the WLTP offers completely new options on road load determination, increasing complexity, and the corresponding descriptions of these new methods are rather vague. Transparency and independent control measures will become even more important than today.

The ICCT report is at www.theicct.org/sites/default/files/publications/ICCT_Coastdowns-EU_201605.pdf.

LAT Investigations on Real-World CO_2 Emissions

On 21 June 2016 the International Council on Clean Transportation (ICCT) released a study prepared by the Laboratory of Applied Thermodynamics (LAT) of the Thessaloniki University investigating the assessment of real-world CO_2 emissions from light-duty vehicles using simulation and PEMS data.

Using a generic model and data from public sources and the LAT database it was shown that the real-world (RDE compliant) hot-start CO_2 emissions of a 6-speed manual transmission medium-sized diesel vehicle equipped with start-stop and brake energy recuperation were successfully simulated. The error in total simulated CO_2 emission was lower than ±2.5% and the cumulative fuel consumption calculated over the entire test remained within ±5%, compared to the measurements. To achieve this accuracy the PEMS measurements of the current RDE regulation need to be complemented with a coast-down and weight measurement of the test vehicle and on-board alternator current measurement.

The CO_2 emissions over several driving cycles using the generic model were also simulated. The results indicate that the general overall tendencies and relationships between different cycles are adequately reproduced, however particular emphasis has to be given to the road load and weight actually used; additional information is necessary for the simulation of cold-start extra fuel consumption; and further investigations may be necessary for cycles of extreme transient conditions.

The LAT report is at http://theicct.org/sites/default/files/publications/Real_world_CO2_assesment-Final_Report-20160616.pdf.

T&E Study on NOx Emissions Abatement Policy Options from Shipping

On 16 June 2016 NGO Transport & Environment (T&E) released a new study, conducted by the Swedish Environmental Research Institute (IVL) and CE Delft, which identifies policy options available at the EU level to regulate NOx emissions from ships in the EU seas and compares them with the measures to be taken under the International Maritime Organisation (IMO).

In March 2016, the states surrounding the Baltic Sea, North Sea and the English Channel agreed to apply for the designation of these seas as NOx Emission Control Areas (NECA) under IMO. An 80% reduction of NOx emissions will be required from new ships when sailing in the NECA.

According to the study, a levy on NOx emissions with revenues earmarked to fund the uptake of NOx abatement measures is the most promising tool to reduce these ship emissions by up to 70%. In addition to a NOx levy with a fund, the study identified two other EU-level policy tools: mandatory slow steaming of ships and a stand-alone levy on emitted NOx.

The study is at www.transportenvironment.org/publications/nox-pollution-sea-europe-must-run-tighter-ship.

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FORTHCOMING CONFERENCES

Advanced Emission Control Concepts USA 2016

25-27 July 2016, Ann Arbor, Michigan, USA

www.automotive-emission-control-usa.com

Topics include current and future emissions legislations and developmental pathways to production; the potential of gasoline and diesel engine optimization to reduce emissions; innovative concepts for aftertreatment systems in diesel engines to minimize NOx; filter technologies for medium and heavy-duty diesel engines; innovative strategies of fuel injection as one of the key in-engine technologies to comply with current and future emission targets; and the consequence of the VW saga.

6th International Congress on Ceramics (ICC6)

21-25 August 2016, Dresden, Germany

www.icc-6.com

ICC6 topics include ceramic materials and systems for energy conversion and storage; additive manufacturing; novel, green and energy efficient processing and manufacturing technologies and new equipment trends; cellular and porous ceramics; new trends in silicate and traditional ceramics; materials and process diagnosis for quality assessment/non-destructive testing; bioceramics and medical applications; ceramic coatings for structural, environmental, functional and bioapplications; nanoscaled ceramics and composites; functional ceramic materials and systems; advanced structural ceramics and their applications; precursor-derived ceramics; max phases and ultra-high temperature ceramics; ceramic matrix composites; transparent and luminescent materials; and ceramic materials and systems for thermoelectric applications.

SAE 2016 Heavy-Duty Diesel Emissions Control Symposium

20-21 September 2016, Gothenburg, Sweden

www.sae.org/events/hddec

The programme will focus on regulatory facts and trends, technical information and the latest strategies regarding Heavy-duty diesel emissions control technologies.

20th International Forum on Advanced Microsystems for Automotive Applications (AMAA 2016)

22-23 September 2016, Brussels, Belgium

www.amaa.de

The conference theme will be "Smart Systems for the Automobile of the Future". Topics include some discussion on how to minimize CO_2 and pollutant emissions.

FISITA 2016 World Automotive Congress

26-30 September 2016, Busan, South Korea

www.fisita2016.com

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

VPC – Simulation und Test 2016

27-28 September 2016, Hanau, Germany

www.atzlive.de/VPC-Simulation-und-Test-201618--MTZ-Fachtagung/konferenzen/761.html

The conference will discuss the challenges of Real-Driving Emissions (RDE).

NGV Global 2016 International Conference

4-7 October 2016, St Petersburg, Russia

www.ngvglobal.org/events/ngv-global-2016-conference-and-exhibition

25th Aachen Colloquium

10-12 October 2016, Aachen, Germany

www.aachener-kolloquium.de

The Aachen colloquium on automobile and engine technology provides a wide range of technical presentations addressing current challenges of the vehicle and engine industry.

GreenPort Congress 2016

11-14 October 2016, Venice, Italy

www.greenport.com/congress

The congress will discuss alternative fuels for port infrastructure and maritime transport; reducing the carbon footprint of the logistics chain; port reception facilities/dust/noise/air emissions; circular economy; and industrial symbiosis.

4th International Conference Real Driving Emissions

25-27 October 2016, Germany

www.real-driving-emissions.eu

Topics include latest developments on Real Driving Emissions regulation, results of test runs and round robins, insight into RDE data evaluation models, current PEMS technology, application and

improvements, simulation models for cost effective RDE strategies, and engine design strategies and exhaust aftertreatment in regard to RDE compliance.

AECC will make a presentation.

9th Integer Emissions Summit & DEF Forum USA 2016

25-27 October 2016, Chicago, USA

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

The conference will host dedicated streams examining the regulatory and emissions reduction challenges for Heavy-duty commercial vehicles, off-highway vehicles, Light-duty vehicles and passenger cars, marine vessels, and DEF Forum.

14th FAD-Conference

3-4 November 2016, Dresden, Germany

www.fad-diesel.de/news/14th_FAD_Conference

The conference will discuss state of the art, new technologies as well as innovative ideas in the field of exhaust aftertreatment.

Ricardo Motorcycle Conference 3.0 – Riding Future Technologies

7 November 2016, Milan, Italy

www.motorcycleconference.com

The conference will explore the current trends and needs of the motorcycle world, including the challenges relating to future emissions legislation, latest developments of rider assistance systems and urban mobility.

Advanced Fuels for Sustainable Mobility

9-10 November 2016, Aachen, Germany

www.fev.com/fev-conferences/fev-conference-advanced-fuels-for-sustainable-mobility.html

The FEV conference will discuss future-oriented developments in engine technology, fuels and fuel system components.

SAE 2017 World Congress

4-6 April 2017, Detroit, USA

Info will be at www.sae.org/congress/2017

Emissions 2017

12-13 September 2017, Frankfurt, Germany

https://gamcinc.com/conferences/emissions/?id=1

The forum will address key topics and issues on advances in emission technology and management systems related to OEMs, suppliers (all tiers), component manufacturers, governmental and non-governmental agencies.

Deadline for abstracts: 10 November 2016