

NEWSLETTER

International Regulatory Developments

TABLE OF CONTENTS

EUROPE	2
Corrigendum to Euro 6 Regulation published.....	2
Amendment to Euro 5 Delegated Acts for L-Category Vehicles published	2
Stage V Delegated Act for Agricultural Tractors	2
Consultation on Amendment to Non-Road Stage V In-Service Monitoring	2
Trilogue Negotiations to start on HDV CO ₂ Monitoring and Reporting	3
Draft Parliamentary Report on Europe on the Move.....	3
European Commission Report on 2016 Road Transport Fuel Quality	3
Commissioner speaks to Parliament on Animal Test by Car Manufacturers	4
Parliament Study on Electric Vehicles Market and Lifecycle Emissions	4
10 Years of the Covenant of Mayors	5
UBA Report on Air Quality in Germany in 2017.....	5
BUND launches App on Air Quality in Germany.....	6
German Federal Court allows Bans of Old Diesel Cars in Cities	6
UK Air Pollutant Inventory	6
Commission Notice on UK Vehicle Type-Approvals after Brexit	7
UK Consultation on Road Vehicle Type-Approval and Brexit.....	7
UK updates Small Series Type-Approval Provisions and CO ₂ Car Labelling.....	7
Italian Air Quality Plans	7
Madrid considers Traffic Bans on High NO ₂ Episodes	8
NORTH-AMERICA	8
US EPA 2017 Environmental Enforcement Results	8
US President 2019 Budget cuts US EPA Funding	8
US Annual Energy Outlook 2018	9
Mexico publishes New Heavy-Duty Emissions Standards	9
ASIA PACIFIC	9
India proposes National Auto Policy	9
India confirms Availability of 10 ppm Sulfur Fuels in Delhi from April 2018.....	10
ICCT Report on Real-Driving Emissions in China	10
GENERAL	11
ADAC publishes EcoTest Ranking	11
ICCT Report on Vehicle Remote Sensing	11
ICCT Briefing on CO ₂ Emissions of Passenger Cars in the EU	12
ExxonMobil Energy & Carbon Summary and Outlook for Energy	12
BP Energy Outlook 2018	13
RESEARCH SUMMARY	13
FORTHCOMING CONFERENCES	14

EUROPE

Corrigendum to Euro 6 Regulation published

On 28 February 2018, a corrigendum to the Euro 6 Commission Regulation (EU) 2017/1151 was published in the Official Journal.

Three calculation formula are being corrected in Annex IIIA on Real-Driving Emissions and Annex XXI on the WLTP procedure.

The Euro 6 corrigendum is at [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R1151R\(02\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R1151R(02)&from=EN).

Amendment to Euro 5 Delegated Acts for L-Category Vehicles published

On 28 February 2018, Commission Delegated Regulation (EU) 2018/295, updating EU rules on type-approval of two- and three-wheel motor vehicles, was published in the Official Journal.

This amends Commission Delegated Regulation (EU) 44/2014 on vehicle construction and general requirements (RVCR) and Commission Delegated Regulation (EU) 134/2014 on environmental and propulsion unit performance requirements (REPPR), in order to take into account the results of the study validating the Euro 5 stage enforcement dates and emissions limits.

The Euro 5 cold/hot start weighing factors for L3e (two-wheel motorcycle), L4e (two-wheel motorcycle with sidecar), L5e (tricycle) and L7e-A (on-road heavy quad) vehicles with a $v_{max} < 130$ km/h are changed from 0.5/0.5 to 0.3/0.7, back to the Euro 4 values.

Table Ap1-1.
L-vehicle category groups for SRC-LeCV

SRC Cycle classification	WTMC classification
1	Class 1
2	Class 2-1
2	Class 2-2
3	Class 3-1
4	Class 3-2";

In the REPPR, a number of durability-related elements are amended: the classification requirements of the Standard Road Cycle for L-Category Vehicles (SRC-LeCV) in Annex VI is adapted; the use of the Approved Mileage Accumulation (AMA) mileage accumulation driving cycle is phased out for L-category III vehicles (engine ≥ 150 cm³ and $v_{max} \geq 130$ km/h) from 1 January

2025; and the use of bench ageing according to the Standard Bench Cycle (SBC) is introduced as an alternative to the actual physical durability testing as fixed Deterioration Factors are expected to be deleted soon from the main Euro 4&5 Regulation (EU) 168/2013 – a co-decision proposal is expected in coming months.

In the RVCR, the functional provisions on On-Board Diagnostic (OBD) are amended to account for technical upgrade to new standards developed for the interface

between generic scan tools and the vehicle; also the engine operation window for misfire detection is modified to ensure that the imposed requirements are technically feasible and some clarifications are made. New appendices are added to the OBD Annex XII to ensure the correct implementation of in-use performance ratios.

The regulation will enter into force on 20 March 2018.

The amended motorcycle Delegated Regulation is at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0295&from=EN>.

Stage V Delegated Act for Agricultural Tractors

On 12 February 2018 the European Commission adopted a delegated regulation introducing Stage V emissions requirements for agricultural and forestry vehicles and their engines.

This act supplements Regulation (EU) 167/2013 on the type-approval of agricultural and forestry tractors by repealing and replacing delegated Regulation (EU) 2015/96, which lays down the pollutant emissions requirements up to Stage IV. The draft new delegated act is in line with the Stage V requirements for Non-Road Mobile Machinery (NRMM) of Regulation (EU) 2016/1628 and it also provides for the transitional provisions from the currently applicable Stage IV and, for certain tractor categories, Stage IIIB.

The draft delegated act is now undergoing scrutiny. It is available at http://ec.europa.eu/info/law/better-regulation/initiatives/c-2018-721_en.

Consultation on Amendment to Non-Road Stage V In-Service Monitoring

On 1 February 2018, a public consultation was launched on a draft amendment to the Non-Road Mobile Machinery (NRMM) Stage V delegated Regulation (EU) 2017/655 on in-service monitoring.

The aim is to further improve the requirements relating to monitoring of gaseous pollutant emissions from in-service internal combustion engines installed in NRMM by amending the delegated act in line with the experience obtained by industry and Member States with the first type-approvals of Stage V engines.

For instance, the mandatory dates of application for placing on the market of engines of sub-category NRE-v-5 (56-130 kW) is one year later than for engines of sub-category NRE-v-6 (130-560 kW). To facilitate manufacturers of these NRE-v-5 engines to comply with the limit dates for submitting test results to the approval authorities, the required duration of accumulated service of NRMM engines is reduced for that sub-category. Also, some errors in the original text are corrected.

The consultation is open until 1 March 2018 and is at http://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-617736_en.

Trilogue Negotiations to start on HDV CO₂ Monitoring and Reporting

On 8 February 2018, the European Parliament's plenary confirmed the mandate to start interinstitutional negotiations with the Council (i.e. trilogue) on the Commission proposal on the monitoring and reporting of CO₂ emissions and fuel consumption of heavy-duty vehicles (HDV).

Prior to the confirmation vote, Shadow Rapporteur Fjellner (EPP, Sweden) clearly stated his opposition to the ENVI Committee Report, which will serve now as a basis for the trilogue negotiations. In particular, the MEP lamented the increased amount of information that truck manufacturers would be asked to make publicly available under the EP amendments to the Commission proposal, as it would endanger the competitiveness of the European automotive sector.

The trilogue mandate was confirmed by a very short majority of 312 MEPs in favour, 303 MEPs voted against and 7 abstained.

Draft Parliamentary Report on Europe on the Move

On 5 February 2018, a draft report of the European Parliament's Transport and Tourism (TRAN) Committee responding to the Commission Communication 'Europe on the Move' was released.

The draft report, in the intentions of the Rapporteur MEP István Újhelyi (S&D, Hungary), aims at highlighting key aspects of the transport policy which have not been covered by legislative proposals in the framework of the Mobility package. In this sense, the draft report calls on the Commission to:

- present a mid-term evaluation of the projects launched on skills in the automotive sector, including the recommendations established by the GEAR 2030 high level group;
- promote interlinked research and development regarding connected and automated cars, electrification, alternative fuels, vehicle design and manufacturing, network and traffic management, as well as smart mobility services and infrastructure;
- provide further financial support for research and innovation in areas such as power trains or intelligent transport systems;
- make available further financial support for the development of batteries and battery cell production and recycling, as the advancement of these technologies will play a key role in the future of mobility;
- address issues of data use and management in the context of connectivity among autonomous vehicles and between vehicles and infrastructure;
- make a thorough assessment of the safety implications of the use of automated systems in transport;
- promote urban and rural mobility plans that are justified by the public interest and integrate all new modes of

transport in order to increase the quality of the services for citizens and to reduce environmental costs for cities;

- promote existing national and local regulatory best practices that integrate new and traditional forms of mobility, support consumer choice and facilitate tourism, focusing on areas where there are mobility gaps;
- promote green logistics and the reduction of freight volumes through better use of capacity in empty or partially loaded trucks; and
- undertake an in-depth assessment of issues related to data privacy and liability that could arise with the development of automated cars.

Moreover, the draft report prompts Member States to take appropriate measures in anticipation of the shift in the job market that automated driving would cause; be proactive in responding to digitalisation.

TRAN Committee MEPs will table amendments to this draft report and a vote in TRAN Committee is planned in June 2018.

The draft TRAN report is at www.europarl.europa.eu/sides/getDoc.do?pubRef=-%2f%2fEP%2f%2fNONSGML%2bCOMPARL%2bPE-618.014%2b01%2bDOC%2bPDF%2bV0%2f%2fEN.

European Commission Report on 2016 Road Transport Fuel Quality

On 6 February 2018, the European Commission published in the official Journal its report on the quality of petrol and diesel used for road transport in the EU in 2016.

This report is based on the data submitted by Member States to the European Environment Agency (EEA) for the year 2016.

EU fuel sales continued to be dominated by diesel in 2016; 71.8% of fuel sold was diesel (257 206 million litres) and 28.2% was petrol (100 838 million litres). Total fuel sales increased by 2.7% as compared to 2015. Petrol sales in 2016 remained almost unchanged, whereas diesel sales increased by 3.8%.

The share of diesel fuel sales increased from 55.6 % in 2001 to 71.8 % in 2016. The diesel fuel consumption share is significant in most of the 28 EU Member States (>60% of total fuel sales) with the exception of Cyprus, Greece, Malta and the Netherlands.

Almost all diesel sold in the EU in 2016 contained biodiesel, whereas 85% of petrol sold contained bioethanol. 83% of diesel fuel sold contained up to 7% of fatty acid methyl esters (FAME) and 17% contained more. 75% of petrol fuel sold in the EU in 2016 had up to a 5% ethanol content by volume and 10% had up to 10% of ethanol content.

The majority of petrol sales in 2016 comprised fuels with a petrol grade research octane number RON of 95, which accounted for 86.3% of the total petrol fuel sales; 7.6% of sales were 95 < RON < 98; and 5.8% were RON ≥ 98.

Regarding compliance of fuel sold with the EU Fuel Quality Directive limits, five Member States reported full compliance for petrol (Greece, Lithuania, Netherlands, Slovenia and Sweden) and 9 for diesel (Bulgaria, Croatia, Finland, Germany, Ireland, Lithuania, Malta, Slovenia and Sweden). One Member State (Belgium) reported more than 100 non-compliances for petrol in 2016.

Member States reported a total of 507 non-compliances to the Fuel Quality Directive for petrol and 101 for diesel for the year 2016. For petrol, the most common parameters falling outside the specifications were summer vapour pressure (in 14 Member States), RON (in 11 Member States) and motor octane number MON (in 7 Member States). 14 Member States reported exceedances of aromatics, oxygen content or distillation parameters. For diesel, the most common parameters falling outside the specifications were sulfur content (in 7 Member States) and fatty acid methyl ester (FAME) content (in 7 Member States).

All Member States have described the actions taken when non-compliant samples were identified so the European Commission did not launch any investigation.

The 2016 EU road transport fuel quality report is at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0056&from=EN>.

Commissioner speaks to Parliament on Animal Test by Car Manufacturers

On 5 February 2018, the European Commissioner for industry Ms Elżbieta Bieńkowska gave a speech to the European Parliament plenary session on recent revelations of tests on animals and humans by German car manufacturers.



Ms Bieńkowska told MEPs that the Commission was shocked by the news. There is no EU law that justifies such behaviour. These were private tests, commissioned by the German car industry. The Commission does not accept this behaviour, and condemns it in the strongest possible manner.

This testing of animals and humans brings a new – and even sadder – dimension

to what we have seen in the 'Dieselgate' scandal, she continued. Breaking ethical standards is unacceptable.

She reminded MEPs that the Commission has launched infringement procedures against some EU Member States which issued type-approvals to car manufacturers that later have been found out to be cheating. Ministers have also been repeatedly asked in writing and at the Council to fully

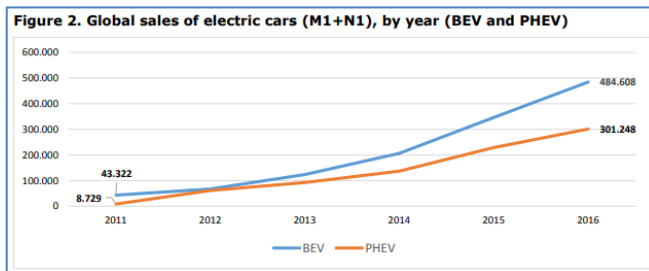
cooperate and inform the Commission about the state of play of their investigations and remedial actions. However, their willingness to do so has been limited, she added.

After statements by MEPs from all political groups, Ms Bieńkowska concluded that the car industry needs to fully accept their responsibilities for its behaviour. She will keep pushing them to ensure transparency and accountability to never see such events any more. In this context, the Commission intends to ask Member States to verify that such tests on human beings and animals are not conducted.

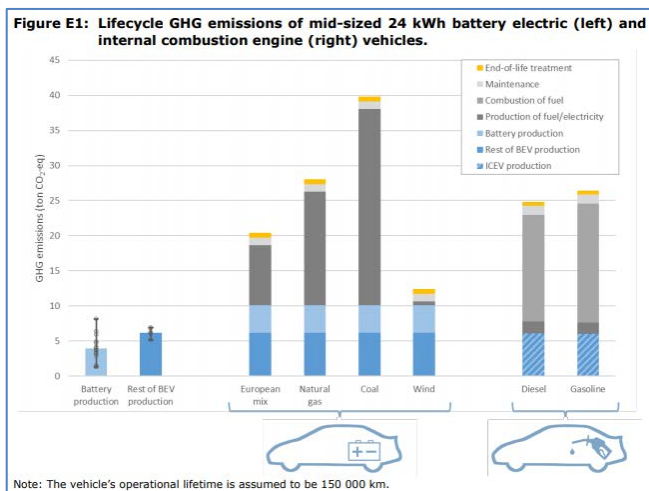
Parliament Study on Electric Vehicles Market and Lifecycle Emissions

On 26 February 2018, a European Parliament study on battery electric vehicle market development and lifecycle emissions was published to informed members of the Transport and Tourism (TRAN) Committee.

The first part of the paper traces the fast evolving market of battery and fuel-cell electric road vehicles worldwide with a focus on the European Union at the end of 2017.



In 2017, four Member States accounted for 74% of EU sales of electric cars (Germany, UK, France and Sweden). In the same year, the same countries plus the Netherlands concentrated 80% of the EU fleet of such vehicles.



The second part covers topics associated with the production and recycling of lithium-ion traction batteries and lifecycle greenhouse gas emissions of fully battery-powered electric vehicles. It describes in particular material and energy use in battery production, and the climate change impacts of electric vehicles. The effects of the

battery, vehicle size and the sources of charging electricity are discussed. Prospective developments in battery production and the power sector and their effect on lifecycle greenhouse gas emissions are also discussed.

The Parliament study is at [www.europarl.europa.eu/RegData/etudes/STUD/2018/617457/IPOL_STU\(2018\)617457_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/617457/IPOL_STU(2018)617457_EN.pdf).

10 Years of the Covenant of Mayors

On 22 February 2018, the Covenant of Mayors celebrated its 10th anniversary in a ceremony at the European Parliament in Brussels.

The EU Covenant of Mayors is bringing together more than 9200 local and regional authorities across Europe, determined to take action to help meeting the EU climate and energy objectives.

Covenant members were joined by Commission Vice-President for the Energy Union Maroš Šefčovič and Commissioners Miguel Arias Cañete (Climate Action, Energy) and Carlos Moedas (Research, Science and Innovation). Commissioner Šefčovič stressed out the importance of low emissions vehicles as a great opportunity for the technology industry. According to him, these new technologies, such as green batteries are able to revolutionize life in the cities. European innovation would be one of the key issues to guarantee the sustainable future of European cities.

Bertrand Piccard, chairman of the Solar Impulse Foundation gave an inspirational speech on today's technologies that can already deliver energy savings. He launched a new challenge called #1000solutions looking at clean, efficient and profitable technologies.

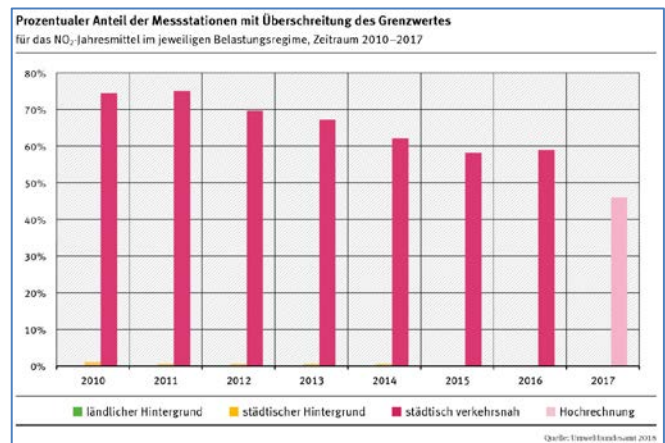
The event was an opportunity to reflect on the success of the Covenant of Mayors over the past 10 years and to look ahead to the future. The event highlighted the central role of cities in meeting the objectives agreed in the Paris Agreement on climate change. The application of the principle of subsidiarity met general agreement throughout all speeches as well as the request of combining local, national and European investment in order to counter climate change.

At the ceremony, Commissioner Moedas opened the 2018 European Capital of Innovation contest (also known as iCapital) – a €1 million prize to reward in November 2018 the cities and Mayors who have built the most dynamic innovation ecosystems, for the benefit of European citizens and businesses.

UBA Report on Air Quality in Germany in 2017

On 1 February 2018, the German Environment Agency (UBA) published a report on the evaluation of preliminary data on air quality (NO₂, PM₁₀ and ozone) in Germany in 2017.

The NO₂ pollution decreased in 2017 compared to the previous year. The number of cities experiencing NO₂ concentration above the regulatory limit decreased from 90 to 70. Nevertheless, at around 46% of the traffic-related monitoring stations, the NO₂ limit of 40 µg/m³ was exceeded on average over the year; average concentrations above 45 µg/m³ were observed in two-thirds of these stations.



The PM₁₀ particulate matter pollution was lower in 2017 compared to the period from 2005 to 2016. 2017 was one of the least polluted years recently. According to EU law, there cannot be more than 35 days a year where PM₁₀ daily mean values exceed 50 µg/m³. The traffic-related monitoring station at Stuttgart's Neckartor was the only one to breach that limit, reaching the 50 µg/m³ daily mean PM₁₀ concentration on 45 days in 2017. However, according to the World Health Organization (WHO), the PM₁₀ daily average should not be above 50 µg / m³ for more than three days per year; 87% of all monitoring stations in Germany exceeded this target in 2017.

Ozone levels were low in 2017 compared to the last 20 years. In contrast to 2015, there were no long-lasting weather periods that could have favoured ozone formation in the summer of 2017. According to EU law, the maximum 8-hour ozone concentration may not exceed 120 µg/m³ for a maximum of 25 days per calendar year - averaged over 3 years; this was exceeded at 17% of all monitoring stations still.

The UBA report (in German) is at www.umweltbundesamt.de/sites/default/files/medien/2546/publikationen/uba_hg_luftqualitaet_2017_bf.pdf.

BUND launches App on Air Quality in Germany

On 13 February 2018, BUND, a German NGO for nature preservation and environment protection, launched an information platform about particulate matter which includes an online data-base and an interactive mobile application called hackAIR.

The website and the application, available for iOS and Android, are initially getting started throughout Germany but other European areas are foreseen to be included progressively.

The platform contains a database about fine dust pollution and was developed within the frame of a European research project. Citizens can use the mobile application to get information on fine dust pollution in their region. They can also contribute to official monitoring stations by indicating their personal experience of the surrounding air quality in their city.

HackAir is at www.bund.net/mobilitaet/schadstoffe/hackair.

German Federal Court allows Bans of Old Diesel Cars in Cities

On 27 February 2018, the Federal Administrative Court in Leipzig confirmed that local authorities have the right to enforce bans on old diesel cars.

The case centred on an appeal brought by two German states (Baden-Württemberg and Rhine-Westphalia) against bans imposed by local courts in Stuttgart and Dusseldorf to bring nitrogen dioxide (NO₂) pollution down as quickly as possible.

Lower-level judges had already backed their demand for driving bans, but the states of Baden-Wuerttemberg and North Rhine-Westphalia appealed the rulings, saying such curbs should be decided at the federal level.

The Federal court did not however impose such diesel bans, leaving it up to city and municipal authorities. In their ruling, the judges said any diesel bans should be imposed gradually, with exceptions granted to certain vehicles. They urged local authorities to "exercise proportionality" in enforcing bans.

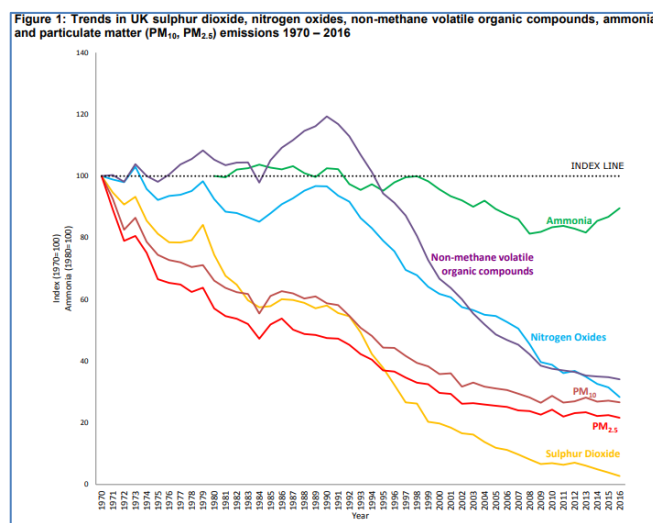
The environmental group Deutsche Umwelthilfe (DUH), which took legal action against Stuttgart and Dusseldorf in

an attempt to force them to take action against NO₂ and fine particles emitted by older diesel engines and activist lawyers ClientEarth welcomed the judges' decision.

UK Air Pollutant Inventory

On 13 February 2018, the UK department for Environment, Food & Rural Affairs (Defra) released its annual statistics on emissions of air pollutants in the UK, covering the period from 1970 to 2016.

There has been a long term decrease in the emissions of all of the air pollutants covered by this statistical release (ammonia, nitrogen oxides, non-methane volatile organic compounds, particulate matter (PM₁₀, PM_{2.5}) and sulfur dioxide).



Emissions of sulfur dioxide decreased by 29% from 2015 to 2016, dropping to the lowest level in the time series.

Emissions of nitrogen oxides decreased in 2016 compared to 2015 by 10%, dropping to the lowest level in the time series.

Emissions of non-methane volatile organic compounds are continuing to decline, by 2% between 2015 and 2016. The rate of decline was most pronounced in the 1990s and early 2000s and has slowed in recent years.

PM₁₀ emissions have remained relatively static over the past five years but decreased by 1.9% from 2015 to 2016. PM_{2.5} emissions decreased by 3.7% between 2015 and 2016. 2016 emissions are the lowest level in the time series.

There was an increase of 3.2% in emissions of ammonia between 2015 and 2016. Increases since 2013 go against the trend of steady overall reduction observed from 1997 to 2013.

The UK air pollutant statistics are at www.gov.uk/government/uploads/system/uploads/attachment_data/file/681445/Emissions_of_air_pollutants_statistical_release_FINALv4.pdf.

Commission Notice on UK Vehicle Type-Approvals after Brexit

On 8 February 2018, the European Commission issued a statement on the withdrawal of the UK and EU type-approval rules for motor vehicles.

As part of a series of documents outlining the effects of Brexit on particular industries, the Commission warned that type-approvals granted by UK authorities to certify vehicles will fall outside the remit of EU legislation once the UK leaves the bloc, meaning UK sales certificates will not be accepted in the EU27.

The UK type-approval authority will cease to be an EU type-approval authority from the date of Brexit, the Commission wrote. As a result, it will not be possible for a manufacturer to place vehicles on the EU market with a certificate of conformity referring to a type-approval granted by the UK.

The notice is at https://ec.europa.eu/info/publications/withdrawal-united-kingdom-and-eu-rules-field-type-approval-motor-vehicles_en.

UK Consultation on Road Vehicle Type-Approval and Brexit

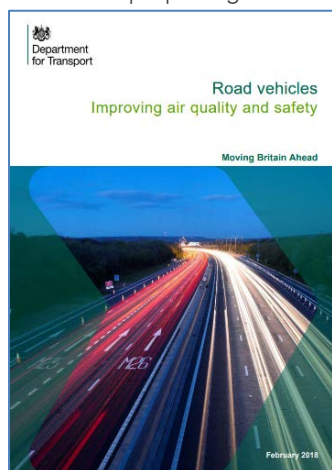
On 2 February 2018, the UK Department for Transport (DfT) launched a public consultation titled "road vehicles – improving air quality and safety" which outlines the Government plans on regulations for implementing EU emissions and safety rules, including new fuel consumption testing, and supply of defeat device penalties.

The draft regulations include new penalties for supplying a vehicle with a defeat device; the new laboratory test procedure (WLTP) for measuring fuel consumption; revised emissions and safety standards for specialist and converted vehicles; and stricter end of series derogations.

The UK Government intends to create a new offence of supplying a vehicle using a defeat device, or other similar functionality, to deliberately circumvent type-approval regulations, irrespective of which national authority is used to obtain type-approval.

The DfT is proposing all manufacturers change over to the new WLTP fuel consumption figures in their promotional material and advertising for all vehicles on the same date on 1 January 2019. They are also proposing that the change-over to WLTP-specific CO₂ emissions should take place from 6 April 2020.

Finally, the DfT is requesting views on how the field of vehicle regulations should look



after the UK exits the EU, and how to manage the transition.

The consultation is open until 2 March 2018 and is at www.gov.uk/government/consultations/road-vehicles-improving-air-quality-and-safety.

UK updates Small Series Type-Approval Provisions and CO₂ Car Labelling

On 5 February 2018, the UK notified the European Commission of draft regulations to amend the national approval schemes for small-series type approval and individual approval set up in 2009.

The UK national approval schemes offer manufacturers who sell low volumes of vehicles and sell them only into the UK, an alternative to obtaining European Whole Vehicle Type Approval. The regulations include provisions for accepting national approvals from other countries, in line with Mutual Recognition procedures. The technical standards for the national approval schemes have been updated to cover the latest EU regulations on emissions and safety.

In addition the UK is proposing an amendment to passenger car fuel consumption regulations, in order to implement Commission Recommendation of 31 May 2017 on the use of fuel consumption and CO₂ emission values type-approved and measured in accordance with the World harmonised Light Vehicles Test Procedure (WLTP) when making information available for consumers according to the labelling Directive 1999/94/EC.

The UK is delaying changeover to the WLTP CO₂ emissions figures until 6 April 2020, to align with the date when the basis for car taxation is changing to WLTP results. The WLTP CO₂ values will nevertheless be available from manufacturers and the relevant government website, but will not be considered as the "official CO₂ figures" until this date, to avoid confusion with the tax regime.

More info is at <http://ec.europa.eu/growth/tools-databases/tris/en/search/?trisaction=search.detail&year=2018&num=52>.

Italian Air Quality Plans

On 9 February 2018, the Italian Minister for Environment, Mr Gian Luca Galletti, sent a letter to the European Commissioner for Environment, Mr Karmenu Vella, on the country's investment of over €6.5 billion in the next few years to improve air quality.

This additional series of measures adds to the initiatives presented at the ministerial meeting in Brussels on 30 January 2018 and shows that Italy's commitment to improving air quality is part of an overall, integrated and concrete approach, which tries to tackle the problem from the various perspective. It involves all levels of local government, as well as all the actors who, in various capacities and from different positions, can (and must) contribute to the common effort, the letter said.

The measures complement the anti-smog programmes that were already illustrated during the meeting on 30 January 2018. In particular, the new National Energy Strategy (Strategia Energetica Nazionale or SEN), definitively approved in November 2017, is transmitted to the EU. It combines the energy policies that Italy will pursue in the coming years and the improvement of air quality.

The letter also mentions the national fund for energy efficiency intended to favour the financing of interventions consistent with the achievement of national energy efficiency targets, and therefore emissions reduction. The provision foresees an initial allocation for 2018 of €160 million, with the forecast of a possible increase by 2020 up to €490 million.

For the renewal of boilers, a €800 million funding programme was established in 2016 to scrap old biomass stoves for a more modern and efficient technology.

With regard to mobility, the letter refers to a series of initiatives already being implemented and which are in line with the proposals that emerged at the meeting of 30 January 2018 on the reduction of PM₁₀ and NO₂.

The national programme for the renewal of the local and regional public transport services has a total fund of €3.7 billion for the replacement of buses.

With the 2018 finance law, €100 million have been allocated per year up to 2033 for experimental and innovative projects of sustainable mobility. Furthermore, the "National experimental program of sustainable mobility between home and school and home-work" was launched with €74 million of projects already financed and an additional allocation of €20 million.

Lastly, a series of important cooperation agreements or letters of intent were sent to Brussels in connection with the promotion of natural gas vehicles. Through these agreements, the aim is to double the natural gas stations in the medium term.

Madrid considers Traffic Bans on High NO₂ Episodes

On 30 January 2018, the City Council of Madrid in Spain said in a statement that the protocol of measures taken during high air pollution peaks is being reviewed.

The modifications that the City Council is studying are mainly the criteria by which the protocol is activated and various scenarios for traffic limitations to the more polluting vehicles. The current protocol was approved on 21 January 2016 with the commitment to review it after some time. This revision aims at taking additional measures to reduce pollution levels earlier, as well as better management of each episode with a more progressive application.

Regarding traffic restrictions, all diesel vehicles registered before 2006 and all petrol vehicles registered prior to 2000 would be banned from accessing the city centre already

from a lower level of NO₂ alert. The most restrictive scenario being considered includes limiting access to the city centre to electric and plug-in hybrid vehicles only.

There will be a consultation on the final draft plan.

More information (in Spanish) is at <http://bit.ly/2BF0pif>.

NORTH-AMERICA

US EPA 2017 Environmental Enforcement Results

On 8 February 2018, the US Environmental Protection Agency (EPA) published its annual environmental enforcement results for 2017.

Overall the total of criminal fines, restitution, and mitigation increased to \$2.98 billion (€2.41 billion); years of incarceration resulting from the US EPA's criminal enforcement actions increased to 150 years; and the value of actions taken to improve compliance with the law and reduce pollution increased to nearly \$20 billion (€16.2 billion).

Notable 2017 enforcement cases include that Volkswagen agreed to pay a \$2.8 billion criminal fine to settle allegations that it used illegal software to cheat emissions tests to sell approximately 590 000 diesel vehicles and avoid Clean Air Act compliance. In a separate civil resolution of Clean Air Act claims, Volkswagen agreed to pay \$1.45 billion in civil penalties.

Also, the US EPA filed a complaint against the Fiat Chrysler Automobiles group alleging nearly 104 000 light duty diesel vehicles are equipped with software functions that were not disclosed to regulators during the certification application process, and that the vehicles contain defeat.

More info on the US EPA enforcement results is at www.epa.gov/newsreleases/epa-announces-2017-annual-environmental-enforcement-results.

US President 2019 Budget cuts US EPA Funding

On 12 February 2018, the US President's administration released its budget proposal for fiscal year 2019. Under the budget plan, the US Environmental Protection Agency (EPA) would receive \$6.15 billion (€5 billion) in funds, about a 23% decrease from the 2017 level.

The 2019 budget proposal for EPA "eliminates many voluntary and lower priority activities and programs, and invests in process improvements and other operational enhancements to bring greater efficiency and cost-effectiveness to the work of the agency."

The 2019 budget requests \$75.1 million for the Federal Vehicle and Fuels Standards and Certification programme, an almost 25% cut from current programme spending (\$98 million). The programme provides funding for the National Vehicle and Fuel Emissions Laboratory in Ann Arbor, MI. Engineers at the lab anticipate reviewing around 5275

different engines and vehicles in 2019, an increase from the previous year. A cut of 25% could seriously hamper the lab, which has been expanding its testing programme following the Volkswagen diesel emissions scandal, former US EPA officials told E&E News. In addition, the budget request for the US EPA proposes zeroing out a \$7 million "climate protection" programme designed to ensure automaker compliance with greenhouse gas rules.

The US EPA's overall research and development activities would also face a major cut under the plan, with funding reduced from \$475 million to \$246 million.

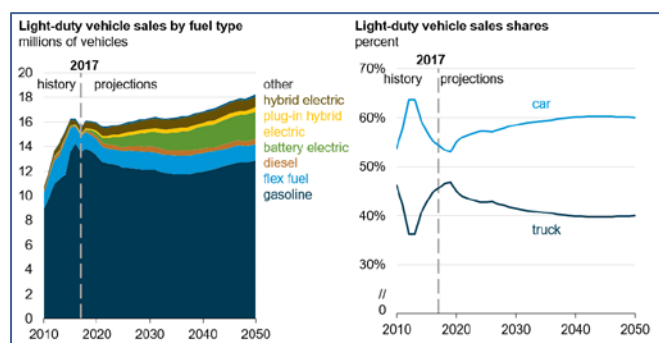
More info is at www.epa.gov/planandbudget/fy2019.

US Annual Energy Outlook 2018

On 6 February 2018, the US Energy Information Administration (EIA) published its Annual Energy Outlook which provides long-term energy projections for the US.

EIA's Annual Energy Outlook 2018 provides modelled projections of domestic energy markets through 2050, and it includes cases with different assumptions regarding macroeconomic growth, world oil prices, technological progress, and energy policies.

According to the report light-duty vehicle fuel economy will improve as sales of more fuel-efficient cars grow and as electrified powertrains gain market share but gasoline vehicles remain the dominant vehicle type through 2050 in the Reference case. Combined sales of new electric, plug-in hybrid electric, and hybrid vehicles grow in market share from 4% in 2017 to 19% in 2050 in the Reference case. The combined share of sales attributable to gasoline and flex-fuel vehicles (which use gasoline blended with up to 85% ethanol) declines from 95% in 2017 to 78% in 2050 because of the growth in the sales of electric vehicles.



Passenger cars gain market share relative to light-duty trucks because of their higher fuel efficiency in periods when motor gasoline prices are projected to increase and because crossover vehicles, often classified as passenger cars, increase in availability and popularity. New vehicles of all fuel types show significant improvements in fuel economy because of compliance with increasing fuel economy standards. New vehicle fuel economy rises by 45% from 2017 to 2050.

Strong domestic production coupled with relatively flat energy demand allow the US to become a net energy

exporter over the projection period in most cases. In the Reference case, natural gas consumption grows the most on an absolute basis, and non-hydroelectric renewables grow the most on a percentage basis.

The EIA outlook is at www.eia.gov/outlooks/aeo.

Mexico publishes New Heavy-Duty Emissions Standards

On 19 February 2018, Mexico's Secretariat of Environment and Natural Resources (SEMARNAT) published in the Diario Oficial de la Federación NOM-044-SEMARNAT-2017, final emissions standards for engines used in heavy-duty trucks and buses and complete heavy-duty vehicles.

The regulation applies to diesel vehicles and diesel engines for use in vehicles with a gross vehicle weight rating (GVWR) above 3857 kg. It sets three stages of regulatory limits aligned with prior and current standards in the US and the EU.

The first stage (1A and 2A) matches the emissions limits currently in place, equivalent to US 2004 or Euro IV, and expires on 30 June 2019. Transitional standards (1AA and 2AA) and final standards (1B and 2B) are introduced on 1 January 2019. The transitional standards 1AA and 2AA are equivalent to US 2007 or Euro V and expire on 31 December 2020. On 1 January 2021, the final standards 1B and 2B, equivalent to US 2010 and Euro VI limits become the sole mandatory standard for all heavy-duty diesel engines and vehicles sold in Mexico.

The new Mexican standard (in Spanish) is at http://dof.gob.mx/nota_detalle.php?codigo=5513626&fecha=19/02/2018.

ASIA PACIFIC

India proposes National Auto Policy

On 17 February 2018, India's Department of Heavy Industry released a draft National Auto Policy for public comment, which seeks to promote clean and safe mobility and adopt a long-term roadmap to harmonize emission standards with global benchmarks by 2028.

The policy also envisages propelling India's automotive industry amongst the top three nations in the world in engineering, manufacturing and export of automotive vehicles and components. The objective is to provide a long-term, stable and consistent policy regime and to have a clear roadmap for the automotive industry, making India a globally competitive auto R&D and manufacturing hub and achieving the targeted objectives of green mobility.

The policy eyes adoption of a long-term roadmap for emission standards beyond Bharat Stage VI that harmonize with the best global standards by 2028, across all vehicle segments. The introduction of new standards are targeted to begin in 2026, with a 2 year phase-in period.

It also envisions Corporate Average Fuel Economy (CAFE) standards for 2025 and beyond. The National Auto Policy

draft suggests that the government is considering to reduce taxes and offer other benefits to cars that are compact (<4 m long) and have reduced CO₂ emissions. Currently, average vehicle CO₂ emissions are reported at 155 g/km and the government hopes to bring it down to 110 g/km by 2028. The draft policy does not mention the Indian government's earlier vision to achieve 100% electric mobility in India but does have a brief mention saying it will "fast track comprehensive implementation of India's Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) incentive scheme and align with the overall Electric Vehicle (EV) vision of the country."

The proposal includes the creation of a nodal body with a two-tier structure having an Apex Body supported by the National Automotive Council.

Members of the Apex Body would be Ministers and Secretaries from the ministries of commerce and industry; environment, forest and climate change; finance; labour and employment; petroleum and natural gas; and power, among others. In addition to representation from the ministries, the Apex Body will include eminent stakeholders nominated from the industry and academia. The key functions and powers of the Apex Body are to finalize and notify the short term and long-term industry roadmap. It will also approve the key interventions, projects and incentives required and prioritize the critical initiatives, besides highlighting potential issues due to conflicting regulations and policies by different ministries. The Apex Body will also recommend to the government any new legislation or amendment to existing legislations.

The National Automotive Council on the other hand will be tasked with formulating the regulatory roadmap and conducting techno-commercial assessment of implications. It will also identify funding requirements for key projects and coordinate across ministries to ensure alignment in policy and regulatory decisions. The Council will also monitor industry performance and recommend key interventions and course corrections.

The draft National Auto Policy is at www.dhi.nic.in/writereaddata/UploadFile/DHI-NAB-Auto%20Policy%20Draft%20Document_vDRAFT.pdf.

India confirms Availability of 10 ppm Sulfur Fuels in Delhi from April 2018

The Indian government confirmed in February 2018 that it will start the transition to Bharat Stage VI-compliant gasoline and diesel fuel on 1 April 2018, two years ahead of schedule, in the national capital region of Delhi.

Bharat Stage (BS) VI emissions standards are scheduled to be implemented from 1 April 2020. On 5 February 2018, the India Supreme Court asked the Secretary of India's Petroleum Ministry to file an affidavit clarifying whether Euro-VI or BS-VI standard motor fuel would be available at all retail outlets of oil marketing companies in Delhi or only at select gasoline pumps. "After taking into account the serious pollution levels in Delhi and adjoining areas and as

per the decision taken by the Ministry of Petroleum and Natural Gas in consultation with oil marketing companies, it is respectfully submitted that BS-VI auto fuels will be supplied in all retail outlets of Delhi from 1 April 2018," the government said in an affidavit submitted to the Supreme Court.

ICCT Report on Real-Driving Emissions in China

On 12 February 2018, the International Council on Clean Transportation (ICCT) published a report titled 'Real-world emissions in China: A meta-study of PEMS data'.

The ICCT report states that vehicle emissions control programmes in China have made considerable progress, mainly attributed to the uptake of emissions control technologies driven by increasingly stringent standards and improved fuel quality. Nevertheless, challenges remain regarding compliance with emissions standards for vehicles under real-world driving conditions. In addition to increasing amount of evidence in Europe, recent tests in China have shown that emissions under real-world driving conditions are in some instances found to be substantially higher than laboratory-certified levels.

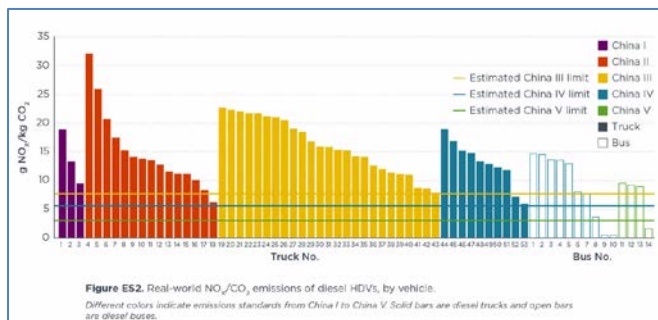
By collecting and pooling existing real-world emissions data from multiple sources, the ICCT was able to perform a "meta-study" to show trends of real-world emissions from China 0 to the latest China 5/V vehicles.

For light-duty vehicles (LDVs), emissions standards have played an important role in reducing vehicle emissions in China. NO_x, CO, and THC emissions have declined significantly as vehicle technology has improved since China 4. However, for some modern China 4 and China 5 gasoline cars, real-world NO_x emissions significantly exceed type-approval limits, which can relate to in-use tampering, or poor durability and maintenance of three-way catalytic converters.

Results from heavy-duty vehicles (HDVs) are more concerning, the ICCT said. In particular no improvement in the average ratio of NO_x to CO₂ emissions can be observed as the emissions standard tighten. Although NO_x limits decreased by 56% on paper from the China I to the China IV standard, real-world NO_x emissions from modern HDVs are not following the reduction pattern set by the standards. Surprisingly, some of the best and worst bus performers are from the same model, produced by the same manufacturer. This suggests widespread failure to refill urea tanks in use or even the removal of selective catalytic reduction (SCR) systems.

The ICCT said that the results of the PEMS meta-study indicate that advanced emissions control technologies already exist on the market, but performance in the real-world varies widely. The study further shows that end-users are tampering and disabling emission control devices. Comprehensive testing procedures and robust in-use compliance programmes are required to ensure the

technologies work as designed in all kinds of in-use conditions.



The recently released China 6 LDV emissions standards and the proposed China VI HDV standards both introduce PEMS test procedures and comprehensive in-use compliance programmes. These two regulations offer a major step towards effective control of real-world emissions.

The ICCT report is at: www.theicct.org/publications/real-world-emissions-china-meta-study-pems-data.

Nepal announces Ban on Vehicles more than 20 Years Old

The Nepal government announced in early February 2018 that a ban on vehicles that are more than 20 years old will be enforced across the country starting on 15 March 2018.

The Department of Transport Management (DoTM), under the Ministry of Physical Infrastructure and Transport, said the rule will be strictly enforced with an objective to curb vehicle congestions, controlling air pollution emanating from vehicle emissions and reduce road accidents that might happen with old vehicles plying on the roads.

The transport offices in all provinces of Nepal will be carrying out inspections of vehicle documents with the help of traffic police.

GENERAL

ADAC publishes EcoTest Ranking

On 25 January 2018, the ADAC German automobile club published its EcoTest ranking for 2017.

In the ADAC EcoTest CO₂ and pollutant emissions are measured on the test bench but also on the road. Electric cars are ranking first because they drive locally emission-free. Nevertheless, ADAC does not see them as "zero-emission vehicles" and is using a well-to-wheel approach, burdening them with CO₂ emissions from electricity generation according to the current electricity mix in Germany. This allows for a more fair comparison to internal combustion engines, ADAC said.

The most environmentally-friendly 5* category includes five battery electric and plug-in electric models. The 4* category contains 17 car models: the first one is the natural gas Audi A4 Avant g-tron S tronic. That category includes a wide variety of powertrains. The first diesel car ranks 13th and is the Mercedes E 220 d T-model 9G-Tronic.

Platz 1-10	Platz 11-20
Hyundai Ioniq Elektro ★★★★★	Toyota Prius+ 1.8 Hybrid ★★★★★
VW e-Golf ★★★★★	VW Golf 1.5 TSI BMT ★★★★★
Toyota Prius 1.8 Plug-in Hybrid ★★★★★	Mercedes E 220 d T-Modell 9G-Tronic ★★★★★
Opel Ampera-e ★★★★★	Citroën C3 PureTech 110 Stop&Start ★★★★★
Renault Zoe (41 kWh, mit Batteriemiete) ★★★★★	Mercedes B 200 c 7G-DCT ★★★★★
Audi A4 Avant g-tron S tronic ★★★★★	Dacia Logan MCV Tce 90 LPG Start&Stop ★★★★★
Tesla Model X 100D ★★★★★	VW Golf 1.5 TSI BlueMotion DSG ★★★★★
Suzuki Ignis 1.2 SHVS ★★★★★	VW Polo 1.0 TSI ★★★★★
Toyota Yaris 1.5 ★★★★★	BMW 520d Steptronic ★★★★★
Toyota C-HR 1.8 Hybrid ★★★★★	Hyundai Ioniq Plug-in-Hybrid ★★★★★

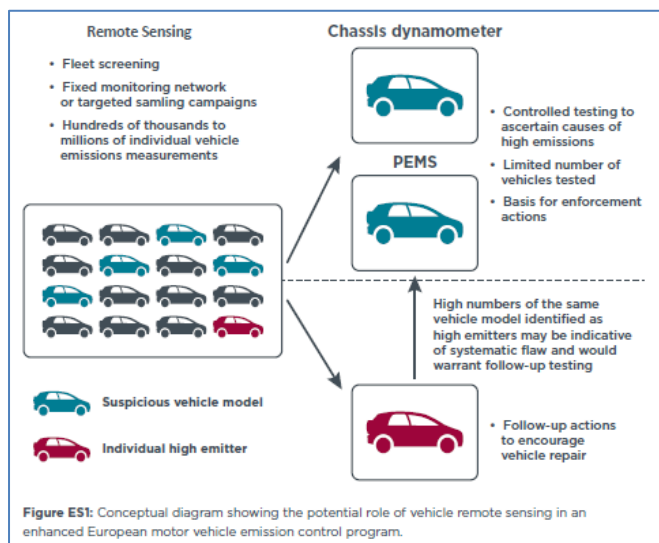
The complete ADAC EcoTest ranking 2017 at www.adac.de/der-adac/motorwelt/reportagen-berichte/innovation/adac-ecotest-ranking-2017.

ICCT Report on Vehicle Remote Sensing

On 1 February 2018, the International Council on Clean Transportation (ICCT) published a report on an overview of vehicle remote sensing.

The purpose of the paper is threefold: 1) To review technical details of the vehicle remote sensing test method; 2) To describe the multiple types of emissions analyses that can be conducted with remote sensing data and 3) To explore areas where remote sensing can supplement emission test methods currently used in the EU light-duty vehicle regulatory programme.

Vehicle emission remote sensing differs from all other regulatory emissions test methods in that the testing equipment does not physically interact with the vehicle undergoing testing. Rather, a light source and detector, placed either at the side of or above a roadway, are used to measure exhaust emissions remotely via spectroscopy as vehicles pass by the measurement location. In this way, remote sensing measurements yield snapshots of emission rates from thousands of individual vehicles as they are driven on actual roadways by their owners. Speed and acceleration are measured at the same time as the emissions measurement, providing information about the engine load. Finally, a camera captures an image of the vehicle's number plate, allowing for the retrieval of essential vehicle information (make, model, model year, certified emission standard, fuel type and rated power) from vehicle registration databases. Thus, remote sensing provides air pollutant emission rates for the fleet across a wide range of driving conditions. These data can be sorted by vehicle category (e.g. by fuel and Euro standard), brand, possibly vehicle model, and eventually down to the level of individual vehicles, as much as the overall sample size allows.



To date, remote sensing has primarily been used in Europe for research applications. However, with the need for improved real-world control of vehicle emissions, there are a number of areas where remote sensing could supplement existing regulatory emission test methods. The very large sample sizes obtainable with remote sensing mean the method is well-suited for market surveillance and fleet screening applications. These data would provide valuable emissions information to authorities and would help in the identification of vehicle models with poor or suspicious real-world performance.

This could then direct the more rigorous, and costly, measurement methods such as PEMS and chassis dynamometer testing as part of market surveillance programmes. Similarly, the short- and long-term effectiveness of, for example, promised emission improvements can be tracked over time. Remote sensing can in addition be used to identify high-emitting vehicles, detect individual tampering, and encourage proper maintenance of vehicle emission control systems.

The ICCT report is at www.theicct.org/publications/vehicle-emission-remote-sensing.

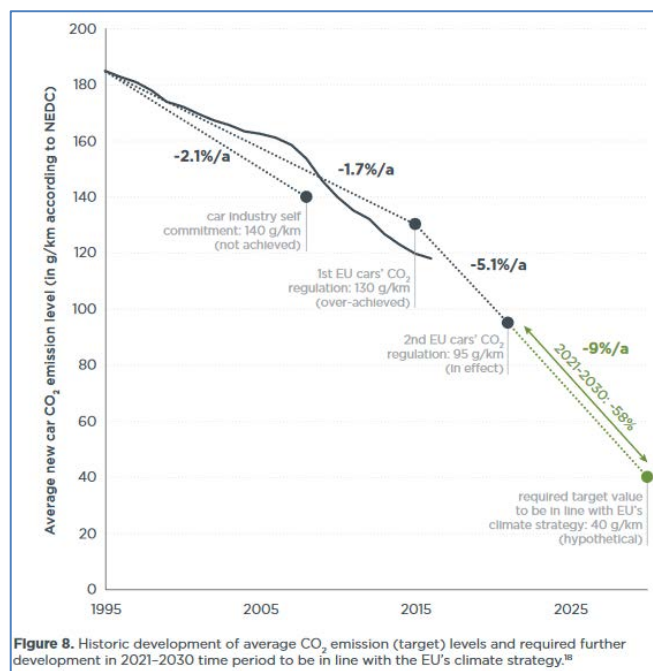
ICCT Briefing on CO₂ Emissions of Passenger Cars in the EU

On 13 February 2018, the International Council on Clean Transportation (ICCT) published a briefing on the role of standards in reducing CO₂ emissions of passenger cars in the EU.

The ICCT briefing reminds that the European Commission envisioned in 1995 a strategy to reduce CO₂ emissions from cars supported by three pillars: CO₂ performance standards for new cars, improved consumer information, and reforms to the system of vehicle taxes. The logic of that approach remains compelling, and the experience of the past years adds empirical support. Now, a dramatically changing technological context, especially with respect to developments in electrified vehicles and information technologies (as those affect mobility options) highlights a

number of possible components of a multifaceted strategy for the 2020-2030 time period.

Vehicle CO₂ performance standards for cars, vans, and trucks - effectively enforced - are at the core of any serious effort to realize lower-carbon transport, the ICCT said. To be in line with the EU's climate goals for 2030, the level of ambition of the proposed 2025/30 CO₂ standards must increase and must be complemented by a similar CO₂ regulation for heavy-duty trucks, as well as by measures to limit the gap between official and real-world CO₂ emission levels.



In addition to these EU-wide measures, EU Member States will have to leverage the effects of the new-vehicle CO₂ performance standards by implementing supporting policy measures at the national level, such as emissions-based vehicle taxes, mandates for electric vehicles, and emissions-based road pricing.

The ICCT briefing is at www.theicct.org/publications/role-standards-reducing-co2-emissions-passenger-cars-eu.

ExxonMobil Energy & Carbon Summary and Outlook for Energy

On 2 February 2018, ExxonMobil released its Energy & Carbon Summary: "Positioning for a Lower-Carbon Future and its Outlook for Energy: A View to 2040".

The reports highlight ExxonMobil's analysis of 2°C scenarios and include sensitivity analyses on electric vehicle penetration and renewables deployment. They are in response to a 2017 shareholder resolution seeking additional climate disclosures about the impacts of technology advances and global climate change policies on the company.

In 2040, oil and natural gas continue to supply about 55% of the world's energy needs; oil continues to provide the

largest share of the energy mix with demand rising about 20%, driven by commercial transportation and chemicals.

Nuclear and renewable energy sources are likely to account for nearly 40% of the growth in global energy demand to 2040. The share of the world's electricity generated by coal is expected to fall to less than 30% in 2040 from approximately 40% in 2016.

Increasing electrification of light-duty vehicles is anticipated to grow strongly. In total, full hybrid, plug-in hybrid and electric vehicles will be approaching 40% of global light-duty vehicle sales in 2040, compared to about 3% in 2016.

The ExxonMobil's Outlook for Energy is at <http://corporate.exxonmobil.com/en/energy/energy-outlook>.

BP Energy Outlook 2018

On 20 February 2018, BP released its Energy Outlook 2018 which considers the forces shaping the global energy transition out to 2040 and the key uncertainties surrounding that transition.

As the speed of the energy transition is uncertain, the new Energy Outlook considers a range of scenarios. The evolving transition (ET) scenario, which assumes that government policies, technologies and societal preferences evolve in a manner and speed similar to the recent past, expects fast growth in developing economies drives up global energy demand a third higher; the global energy mix is the most diverse the world has ever seen by 2040, with oil, gas, coal and non-fossil fuels each contributing around 25%; renewables are by far the fastest-growing fuel source, increasing five-fold and providing around 14% of primary energy; demand for oil grows over much of the Outlook period before plateauing in the later years; natural gas demand grows strongly and overtakes coal as the second largest source of energy; oil and gas together account for over half of the world's energy; global coal consumption flattens with Chinese coal consumption seeming increasingly likely to have plateaued; the number of electric cars grows to around 15% of the car park, but because of the much higher intensity with which they are used, account for 30% of passenger vehicle kilometres. Finally, carbon emissions continue to rise, signalling the need for a comprehensive set of actions to achieve a decisive break from the past.

The BP Energy Outlook is at www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/energy-outlook/bp-energy-outlook-2018.pdf.

RESEARCH SUMMARY

Effects of Emissions and Pollution

Cardiovascular effects of air pollution, Thomas Bourdrel, et al.; *Archives of Cardiovascular Diseases* (November 2017), Vol. 110 (11), pp. 634-642, doi: 10.1016/j.acvd.2017.05.003.

Local- and regional-scale air pollution modelling (PM₁₀) and exposure assessment for pregnancy trimesters, infancy, and childhood to age 15 years: Avon Longitudinal Study of Parents and Children (ALSPAC),

John Gulliver, et al.; *Environment International* (April 2018), Vol. 113, pp. 10-19, doi: 10.1016/j.envint.2018.01.017.

Long-term exposure to fine particulate matter air pollution and type 2 diabetes mellitus in elderly: A cohort study in Hong Kong, Hong Qiu, et al.; *Environment International* (in press), doi: 10.1016/j.envint.2018.01.008.

Associations between ambient air pollution and daily mortality in a cohort of congestive heart failure: Case-crossover and nested case-control analyses using a distributed lag nonlinear model, Stephane Buteau, et al.; *Environment International* (in press), doi: 10.1016/j.envint.2018.01.003.

Comparative Cardiopulmonary Effects of Particulate Matter- And Ozone-Enhanced Smog Atmospheres in Mice, Mehdi Hazari, et al.; *Environmental Science & Technology* (in press), doi: 10.1021/acs.est.7b04880.

C-reactive protein (CRP) and long-term air pollution with a focus on ultrafine particles, Veronika Pilz, et al.; *International Journal of Hygiene and Environmental Health* (in press), doi: 10.1016/j.ijheh.2018.01.016.

ISD3: a particokinetic model for predicting the combined effects of particle sedimentation, diffusion and dissolution on cellular dosimetry for in vitro systems, Dennis Thomas, et al.; *Particle and Fibre Toxicology* (in press), doi: 10.1186/s12989-018-0243-7.

Higher health effects of ambient particles during the warm season: The role of infiltration factors, Stefano Zauli-Sajani, et al.; *Science of The Total Environment* (June 2018), Vol. 627, pp. 67-77, doi: 10.1016/j.scitotenv.2018.01.217.

Association of ultrafine particles with cardiopulmonary health among adult subjects in the urban areas of northern Taiwan, Jun-Yu Liu, et al.; *Science of The Total Environment* (June 2018), Vol. 627, pp. 211-215, doi: 10.1016/j.scitotenv.2018.01.218.

Air Quality, Sources and Exposure

Trends of atmospheric black carbon concentration over United Kingdom, Vikas Singh, et al.; *Atmospheric Environment* (April 2018), Vol. 178, pp. 148-157, doi: 10.1016/j.atmosenv.2018.01.030.

Comparison of atmospheric new particle formation events in three Central European cities, Zoltán Németh, et al.; *Atmospheric Environment* (in press), doi: 10.1016/j.atmosenv.2018.01.035.

The effects of transboundary air pollution following major events in China on air quality in the U.S.: Evidence from Chinese New Year and sandstorms, N.S. Ngo, et al.; *Environmental Management* (April 2018), Vol. 212, pp. 169-175, doi: 10.1016/j.jenvman.2018.01.057.

Evaluation of an Air Quality Health Index for Predicting the Mutagenicity of Simulated Atmospheres, Jose Zavala, et al.; *Environmental Science & Technology* (in press), doi: 10.1021/acs.est.8b00613.

Emissions Measurements and Modelling

Co-formation and co-release of genotoxic PAHs, alkyl-PAHs and soot nanoparticles from gasoline direct injection vehicles, Maria Muñoz, et al.; *Atmospheric Environment* (in press), doi: 10.1016/j.atmosenv.2018.01.050.

A high temporal-spatial vehicle emission inventory based on detailed hourly traffic data in a medium-sized city of China, Yong-Hong Liu, et al.; *Environmental Pollution* (May 2018), Vol. 236, pp. 324-333, doi: 10.1016/j.envpol.2018.01.068.

Solid Particle Number Emission Factors of Euro VI Heavy-Duty Vehicles on the Road and in the Laboratory, Barouch Giechaskiel; *Int. J. Environ. Res. Public Health* (2018), Vol. 15 (2), p. 304, doi: 10.3390/ijerph15020304.

Secondary Organic Aerosol Production from Gasoline Vehicle Exhaust: Effects of Engine Technology, Cold Start, and Emission Certification Standard, Yunliang Zhao, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.7b05045.

Determining factors for levels of volatile organic compounds measured in different microenvironments of a heavy traffic urban area, Nguyen

Phuc and Nguyen Oanh; *Science of The Total Environment* (June 2018), Vol. 627, pp. 290-303, doi: 10.1016/j.scitotenv.2018.01.216.

Emissions Control, Catalysis, Filtration

Cu-ZSM-5 zeolite supported on SiC monolith with enhanced catalytic activity for NH₃-SCR, Qing Yuan, et al.; *Catalysis Communications* (April 2018), Vol. 108, pp. 23-26, doi: 10.1016/j.catcom.2018.01.030.

In-depth insights into N₂O formation over Rh- and Pt-based LNT catalysts, L. Castoldi, et al.; *Catalysis today* (in press), doi: 10.1016/j.cattod.2018.01.026.

Mn/beta and Mn/ZSM-5 for the low-temperature selective catalytic reduction of NO with ammonia: Effect of manganese precursors,

Wenjin Xu, et al.; *Chinese Journal of Catalysis* (January 2018), Vol. 39, pp. 118–127, doi: 10.1016/S1872-2067(17)62983-8.

Different copper species as active sites for NH₃-SCR reaction over Cu-SAPO-34 catalyst and reaction pathways: A periodic DFT study, Guangpeng Yang, et al.; *Microporous and Mesoporous Materials* (in press), doi: 10.1016/j.micromeso.2018.01.034.

Transport, Climate Change & Emissions

Impact of uncoordinated plug-in electric vehicle charging on residential power demand, Matteo Muratori, et al.; *Nature Energy* (in press), doi: 10.1038/s41560-017-0074-z.

FORTHCOMING CONFERENCES

2nd Real-Driving Emissions Forum

6-7 March 2018, Amsterdam, Netherlands

www.bisgrp.com/portfolio/conferences/automotive/2nd-annual-real-driving-emissions-forum

11th International Conference on Air Quality – Science and Application

12-16 March 2018, Barcelona, Spain

www.airqualityconference.org

The conference brings together participants from the air quality, climate and health research and other stakeholder communities to discuss the latest research advances, new applications and highlight important implications for policy and users.

Integer Emissions Summit & AdBlue® Forum Asia Pacific 2018

14-15 March 2018, Tokyo, Japan

www.integer-research.com/conferences/ies-apac-2018

9th VERT Forum and Toxicity Focus Event

15-16 March 2018, Zurich, Switzerland

<https://vert-dpf.eu/j3/index.php/start-page/events>

WCX18: SAE World Congress Experience

10-12 April 2018, Detroit, USA

www.wcx18.org

8th AVL Large Engines TechDays

11-12 April 2018, Graz, Austria

www.avl.com/-/8th-avl-large-engines-techdays

Electrification, New Fuels and Power Sources: Boom or Doom for Large Engines?

TRA 2018 – A Digital Era for Transport

16-19 April 2018, Vienna, Austria

www.traconference.eu

Key focus areas of TRA 2018 will be how digitalisation is transforming transport & mobility systems; decarbonisation & future growth – how to change our mobility system & remain competitive; and shaping the new mobility landscape – a vision for transport & mobility for Europe.

7th Annual Platts Geneva Biofuels Conference

26 April 2018, Geneva, Switzerland

www.platts.com/events/emea/EU-Biofuels/index

Key topics will include policy updates (RED II and updates on NER300 and H2020), feedstock markets for first and advanced generation biofuels, pricing and trading techniques, international outlook with a focus on production and trade flow due to the duties updates.

39th International Vienna Motor Symposium

26-27 April 2018, Vienna, Austria

<https://wiener-motorensymposium.at>

Outstanding lecturers from all over the world will present the latest findings in engine development and, amongst other topics, will report on new engines, fuel cells, hybrid technology, exhaust gas treatment and real driving emissions (RDE).

7th Freiburg Workshop 'Luftreinhaltung und Modelle'

15-16 May 2018, Freiburg, Germany
www.ivu-umwelt.de/front_content.php?idcat=3

SIA Powertrain 2018: the New Compression Engine for Passenger Cars & Commercial Vehicles

16-17 May 2018, Rouen, France
www.sia.fr/evenements/93-sia-powertrain-rouen-2018

The conference will support the automotive community in providing an overall picture of state-of-the-art technologies and by anticipating future development challenges. Reflecting the ongoing focus shift in transportation decarbonisation to a well-to-wheel basis, new topics will be introduced on alternative powertrain energy types (sustainable liquid and gaseous fuels) and fuel cells.

European Commission Green Week "Green Cities for a Greener Future"

22-24 May 2018, Brussels, Belgium
www.eugreenweek.eu

EU Green Week 2018 will explore ways in which the EU is helping cities to become better places to live and work. Showcasing policy developments on air quality, noise, nature and biodiversity, waste and water management, it will promote participatory approaches to urban development, networking schemes, and tools for sharing best practices, engaging local authorities and citizens, and encouraging them to share their vision of a sustainable future.

Integer Emissions Summit & AdBlue[®] Forum China 2018

5-7 June 2018, Beijing, China
www.integer-research.com/conferences/ies-china-2018

Connectivity – Key to future emission and consumption reduction in vehicle and powertrain?

7-8 June 2018, Graz, Austria
www.avl.com/-/30th-international-avl-conference-engine-environment-2018

On the one hand, connectivity enables predictive and adaptive management of energy and emissions with advantages regarding energy consumption, emissions, wear and durability thanks to the online monitoring of all relevant system parameters. On the other hand, the subject "Online Vehicle" necessitates stricter requirements being placed on data security and also causes a paradigm shift in the development and validation of vehicles. The questions "what does networking make possible, what is meaningful, and how do we control the corresponding risks" pose quite possibly the most intriguing range of topics in automotive development today.

6th International Exhaust Emissions Symposium

14-15 June 2018, Bielsko-Biala, Poland
www.bosmal.com.pl/693-symposium_2018

The main topics of the symposium are emissions legislation - for all jurisdictions; WLTP- and RDE-focused R&D test methods; fuel economy in light of Euro 6d, WLTP and RDE; new methods of PM testing; compounds which are potential candidates for emissions regulation; emissions test equipment (including PEMS); emissions reduction technology; aftertreatment systems, technologies and strategies; emissions simulation; powertrain development and electrification; IC Engine test method development; vehicular fuel development; alternative fuels, fuel additives and fuel blends; gaseous fuels CNG & LPG; engine oil development; commercial vehicles, discussion of other automotive sectors: synergies and shared challenges/solutions.

Cambridge Particle Meeting 2018

15 June 2018, Cambridge, UK
www.cambridgeparticlemeeting.org/2018

Deadline for abstract: 1 April 2018

22nd ETH- Conference on Combustion Generated Nanoparticles

18-21 June 2018, Zurich, Switzerland
www.nanoparticles.ethz.ch

The conference serves as an interdisciplinary platform for expert discussions on all aspects of nanoparticles, freshly emitted from various sources, aged in ambient air, technical mitigation aspects, impact of particles on health, environment and climate and particle legislation.

Deadline for abstract: 23 March 2018

7th International MinNOx Conference

19-20 June 2018, Berlin, Germany

www.iav.com/MinNOx

Topics of the conference include: exhaust emission legislation, MinNOx systems in diesel, gasoline and hybrid powertrains from passenger car to heavy-duty as well as off-highway applications; global optimization of engine and MinNOx systems to reduce both NOx and CO₂ emissions; innovative ideas and methods for the development, modelling or control of component and overall systems; emission control technologies; boundary conditions for operating MinNOx systems monitoring and diagnostics of MinNOx systems; and potential for cost reduction of future concepts.

The Future of Transportation World Conference

19-20 June 2018, Cologne, Germany

www.thefutureoftransportconference.com

Conference streams include urban mobility & smart cities; mobility as a service; quantum shifts; sustainability in transportation; changing landscape for automotive industry; etc.

Integer Emissions Summit & AdBlue[®] Forum Europe 2018

26-28 June 2018, Brussels, Belgium

www.integer-research.com/conferences/integer-emissions-summit-adblue-forum-europe-2018

The summit will cover emissions control for heavy-duty commercial vehicles, non-road mobile machinery, light-duty vehicles and passenger cars, and the European AdBlue[®] market.

AECC will give a presentation on the evolution of advanced emissions control system to meet NOx and particulates regulations.

FEV Conference Diesel Powertrain 3.0

3-4 July 2018, Coventry, UK

www.fev.com/events/fev-conferences/fev-conference-diesel-powertrains-30/introduction.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.

Powertrain Modelling and Control Conference 2018

10-11 September 2018, Leicester, UK

www.pmc-conf.com

Topics of interest include electric drivetrains; hybrid powertrains; system identification; powertrain optimization; emission legislation; powertrain / engine testing; fuel cell; noise, vibration and harshness; combustion engine modelling; performance /drivability; ECU development; drive cycles; mapping and calibration; Hardware-in-Loop (HIL) testing; driveline and transmission; and tribology and friction

SAE International Powertrains, Fuels & Lubricants Meeting

17-19 September 2018, Heidelberg, Germany

www.pfl18.org

Topics of interest include general powertrain development; engine combustion; exhaust, aftertreatment & emissions; fuels and lubricants; new engines, components, actuators & sensors; hybrid & electric powertrains; and transmission and driveline technology.

37th FISITA World Automotive Congress: Disruptive Technologies for Affordable and Sustainable Mobility

2-5 October 2018, Chennai, India

www.fisita-congress.com

The congress topics include powertrain & emissions, fuels & lubricants, noise & vibration, vehicle dynamics, active and passive safety, electric & hybrid vehicles, autonomous & connected vehicles, manufacturing & materials, vehicle concepts, and sustainability.

2018 Aachen Colloquium Automobile and Engine Technology

8-10 October 2018, Aachen, Germany

www.aachener-kolloquium.de

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

SAE Heavy Duty Diesel Emissions Control Symposium

16-17 October 2018, Gothenburg, Sweden

<https://hddec18.org>

At the bi-annual symposium, the very latest trends in global emissions control legislation and the implications of these regulations on engine and after treatment technology will be discussed.

Integer Emissions Summit & AdBlue® Forum India 2018

17-18 October 2018, New Delhi, India

www.integer-research.com/conferences/ies-india-2018/

11th International Congress on Catalysis and Automotive Pollution Control CAPoC11

29-31 October 2018, Brussels, Belgium

<http://capoc.ulb.ac.be>

The International Congress on Catalysis and Automotive Pollution Control will discuss applications and requirements of catalysis in automotive emission control such as catalyst and sorption technologies; particulate emission control for both diesel and gasoline engines; aftertreatment for gaseous HC, H₂ and renewable or reformulated fuel mixtures; emission control for natural-gas and dual-fuel engines; emission control for hybrid vehicles; off-cycles emissions and unregulated pollutants (e.g. greenhouse gases); materials for catalysts, washcoat and fuel-borne catalysts; modelling of aftertreatment systems and catalyst characterization; integrated emission control systems, on-board diagnostics; sustainable fuel technologies; and innovative technologies (new materials, recovery of precious metals).

Integer Emissions Summit USA 2018

6-7 November 2018, Indianapolis, USA

www.integer-research.com/conferences/ies-usa-2018/

2nd International FEV Conference Zero CO₂ Mobility

13-14 November 2018, Aachen, Germany

www.fev.com/events/fev-conferences/fev-conference-zero-co2-mobility/introduction.html

The conference will offer a platform for strategic discussion on the potential and performance of various forms of energy storage – from battery technologies to eco- and e-fuels.

10th Better Air Quality Conference

14-16 November 2018, Kuching, Malaysia

Info will be at <http://baqconference.org>

2018 Polis Conference on "Transport innovation for sustainable cities and regions"

22-23 November 2018, Manchester, UK

www.polisnetwork.eu/2018conference

40th International Vienna Motor Symposium

16-17 May 2019, Vienna, Austria

Info will be at <https://wiener-motorensymposium.at>