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NEWSLETTER

International Regulatory Developments

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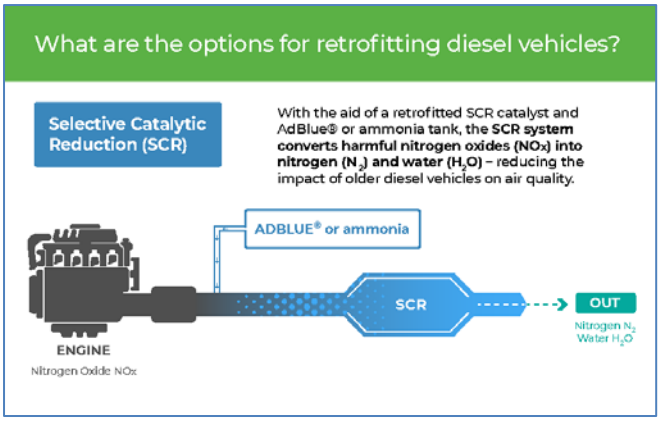
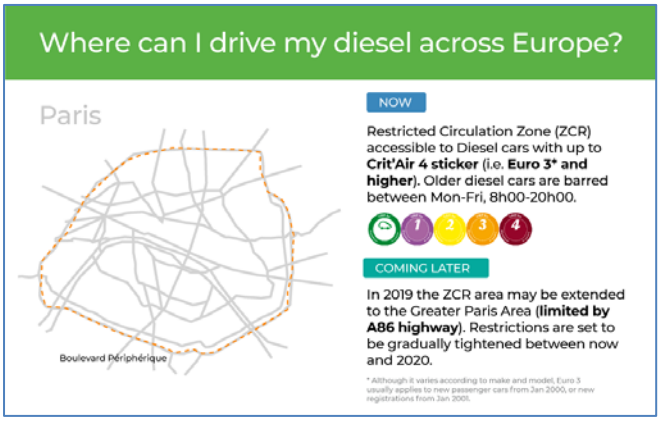
Diesel Legacy Fleet and EU City Access Schemes on Diesel Information Hub

The AECC's Diesel Information Hub has been complemented with two new pages addressing how to tackle the legacy fleet with scrapping and retrofit schemes; and how urban access restrictions implemented in European cities still allow modern diesel to be used.

Tackling the issue of the legacy fleet of older diesel vehicles will help speed up efforts to make Europe's air cleaner. Accelerating the scrapping of old vehicles and replacing them with Euro 6d-temp vehicles which meet the latest emission standards is an efficient answer to tightening air quality standards and emission reduction regulation in cities. Retrofitting is a potential measure for reducing emissions from older diesel vehicles and improving urban air quality. It has proven very effective with heavy-duty trucks and buses as well as construction machinery. However, for passenger cars it is not without challenges. Despite the challenges, retrofitting is an effective way of reducing NOx emissions from older diesel vehicles.



Another aspect is that while urban access regulations may seem to restrict where a diesel vehicle can drive, modern Euro 6 models will continue to be welcome in most cities across Europe. We have compiled an overview of urban access rules in six key European cities (London, Brussels, Stuttgart, Paris, Milan, and Barcelona) to demonstrate that driving a diesel in Europe is not as complicated as it may at first appear.



The AECC Diesel Information Hub is aimed at contributing to the public discourse on the future of mobility and urban air quality by providing clear and concise information on the modern diesel engine.

Visit the #dieselinformation hub at www.dieselinformation.aecc.eu.

EUROPE

German Government's Funding of Transport Projects in Cities

On 14 August 2018, German Environment Minister Svenja Schulze and Minister of Transport Andreas Scheuer announced €130 million of federal funding for innovative transport projects in five cities to mitigate air pollution by 2020.

The funds are available in addition to the "Immediate Programme Clean Air 2017-2020". The cities of Bonn, Essen, Herrenberg (Baden-Wuerttemberg), Mannheim and Reutlingen (Baden-Wuerttemberg) are thus implementing projects for improving public transport and reducing NO_2 pollution. These include, for example, the expansion of public transport services, ticket benefits, improved traffic control or new bike paths.

The federal government contributes an average of 95% of the total cost of the projects.

The projects are scientifically monitored and evaluated with regard to the NO_2 reduction potential. For particularly effective measures, it is examined whether they can be transferred to other cities. A first interim report on the effectiveness of the model projects is planned for the summer of 2019.

More info (in German) is at www.bmu.de/pressemitteilung/weitere-130-millionen-euro-fuer-saubere-luft-und-modernen-oepnv.

DUH publishes Results of Summer NO_2 Measurement Campaign in Germany

On 28 August 2018, the German Non-Governmental Organization Deutsche Umwelthilfe (DUH) published

results of its second national citizen science measurement campaign "Cover up where breathing makes you sick".

DUH measured NO_2 concentrations in the air at 461 measuring points in 233 cities across Germany. From 1 June 2018 to 1 July 2018, the average concentration of NO_2 in the ambient air was determined with the support of a number of citizens. That June mean value was then compared to the EU regulatory limit that applies to the average concentration over the entire year (40 µg/m³).

High NO_2 values were measured at 53 traffic-related measuring points, including in cities that are excluded from the "clean air emergency programme" of the German government, DUH said. In the DUH summer measurement campaign, the highest NO_2 values were recorded on roads in Bonn (77.2 µg/m³), Stuttgart (67.1 µg/m³), Kiel (59.7 µg/m³), Düsseldorf (59.2 µg/m³) and Hamburg (62.3 µg/m³).

In some sensitive locations, such as day-care centres, high concentrations were also measured. For example, measurements at a height of one meter at a preschool in Torstraße in Berlin yielded a concentration of 57.4 µg/m³ and 60.9 µg/m³ at a day-care centre at Berlin's Mehringdamm. An NO_2 concentration of 67.8 µg/m³ was also measured on Pragstraße in Stuttgart, at the zoo.

More info is at www.duh.de/abgasalarm.

Lists of EU Vehicles Compatible with B10 and E10 Fuels

The European Automobile Manufacturer's Association (ACEA) has published the updated lists of diesel and gasoline vehicles that are compatible with B10 and E10 fuels, respectively.

While all ACEA members accept B7 diesel (blend of diesel fuel with up to 7% of FAME – Fatty Acid Methyl Ester) without question, the use of B10 (blend with up to 10% of FAME) diesel fuel presents issues of compatibility with vehicles, especially the more modern ones with more sophisticated emission control equipment.

France has decided to permit the sale of B10 diesel fuel in its territory and the French national fuel law has been changed to permit the sale of B10 fuel. At the same time, France has made sensible changes to address concerns that higher FAME diesel fuel will result in vehicle operational concerns, especially in colder conditions.

ACEA has therefore compiled a list of the vehicles and engines that manufacturers have declared to be compatible with the use of B10 diesel fuel. Manufacturers and vehicles that are not compatible with the use of B10 diesel fuel are also listed and should therefore continue to use B7 diesel fuel.

The B10 compatibility list is at
www.acea.be/uploads/publications/ACEA_B10_compatibility.pdf

On the gasoline side, it is up to EU Member States and fuel marketers to decide if and when to introduce E10 fuel (a blend of gasoline with 10% ethanol) to the market. So far E10 petrol has only been introduced in Finland, France, Germany and Belgium.

To assist consumers to recognise which unleaded petrol they should put in their car, ACEA has compiled this list that shows which petrol vehicles can safely use E10 unleaded petrol and which petrol vehicles should continue to use E5 unleaded petrol. The list also contains information for cars produced by Japanese manufacturers who are not members of ACEA.

The E10 compatibility list is at
www.acea.be/uploads/publications/ACEA_E10_compatibility.pdf

NORTH-AMERICA

US to freeze post-2021 Fuel Economy Standard for Light-duty Vehicles

On 2 August 2018, the US Environmental Protection Agency (EPA) and US Department of Transportation's National Highway Traffic Safety Administration (NHTSA) released a notice of proposed rulemaking: the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years (MY) 2021-2026 Passenger Cars and Light Trucks.

The EPA and NHTSA propose to amend certain existing Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) emissions standards for passenger cars and light trucks and establish new standards, covering MY 2021 through 2026. They are seeking public comment on a wide range of regulatory options, including a preferred alternative that locks in MY 2020 standards through 2026.

The proposal follows the Mid-Term Evaluation Final Determination which found in April 2018 that the MY 2022-2025 GHG standards are not appropriate and should be revised.

The current standards have been a factor in the rising cost of new automobiles to an average of $35 000 (€30 000) or more – out of reach for many American families, the EPA and NHTSA said. Indeed, compared to the preferred alternative in the proposal, keeping in place the standards finalized in 2012 would add $2340 (€2000) to the cost of owning a new car, and impose more than $500 billion (€430 billion) in societal costs on the US economy over the next 50 years.

The EPA is also proposing to withdraw the waiver for California's Advanced Clean Car (ACC) programme, Zero Emissions Vehicle (ZEV) mandate, and GHG standards that are applicable to MY 2021 through 2025.

The proposed new fuel economy standards are open for comments until 2 October 2018 and are at www.epa.gov/regulations-emissions-vehicles-and-engines/safer-and-affordable-fuel-efficient-vehicles-proposed.

California tables Proposal to maintain LDV State's Greenhouse Gas Standards

On 7 August 2018, in response to the Trump Administration's effort to weaken vehicle greenhouse gas (GHG) emission standards, the California Air Resources Board (CARB) posted a proposal to ensure that cars and light-duty trucks for model years (MY) 2021-2025 continue to meet tough California GHG standards.

Under CARB's existing LEV III GHG emission regulation, adopted in 2012, cars meeting federal standards for MY 2017-2025 are "deemed to comply" with California standards. This provision had the benefit of creating a single national programme allowing automakers to meet one set of fleet-wide standards throughout the US, including in California and the 12 other States that have adopted California standards.

The proposed amendment would clarify California's existing regulation to ensure that if the US EPA changes its standards, then automakers wishing to sell cars in California after the 2020 MY would need to meet California's standards – and not possibly weaker federal GHG standards.

CARB is requesting public comments by 24 September 2018 on its proposed amendments. CARB's Board will consider the proposal for adoption on 27-28 September 2018.

The proposal is at ww2.arb.ca.gov/news/california-moves-ensure-vehicles-meet-existing-state-greenhouse-gas-emissions-standards-0.

Environment Canada Report on GHG Emissions of MY2011-2016 LDVs

On 20 August 2018, Environment Canada released its "Greenhouse Gas (GHG) Emissions Performance: Model Year 2011 to 2016 Light-Duty Vehicle (LDV) Fleet" report.

The report summarizes the fleet average GHG emission performance of the LDV fleet in Canada for the 2011 to 2016 model years (MY). The report also provides a compliance summary for each of the auto manufacturers, including their individual fleet average CO_2-equivalent emissions value and the status of their emission credits.

During the MY2011 to 2015, as the stringency of the regulations has increased, the overall passenger automobile fleet continued to outperform the applicable standard. From 2011 to 2015 the average compliance values from passenger automobiles decreased from 255 to 230 g/mi (158 to 143 g/km), a reduction of 9.8%. During the 2011 to 2015 period, compliance values for the light truck fleet have also continued to trend downwards from 349 to 311 g/mi (217 to 193 g/km), a reduction of 10.9%.

The MY2016 marked the first year in which the compliance values for both passenger automobile and light truck fleets exceeded the applicable standard. The changes to the flex-fuel vehicle provisions for the MY2016 were a significant factor in the shift towards a negative compliance margin for the MY2016, the report says. The MY2016 saw the overall compliance value for passenger automobiles decrease only slightly to 228 g/mi (142 g/km), and the overall compliance value for light trucks increased to 321 g/mi (199 g/km). This resulted in an overall net improvement of 10.6% and 8.0% relative to the MY2011 for passenger automobiles and light trucks, respectively.

Results to date indicate that all companies have met their regulatory obligations through to the MY2016. Despite the fact that the majority of companies incurred a deficit in the MY2016, a sufficient number of credits generated from earlier MYs were available to ensure that industry was able to fulfil their regulatory obligations.

The report also examined the range of technologies used by companies to improve the efficiency of transmissions and conventional engines and reduce emissions.

Table 13 – Penetration Rates of Drivetrain Technologies in the Canadian Fleet

Technology	Penetration Rate				
	2012	2013	2014	2015	2016
Turbocharging with Engine Downsizing	3.2%	12.6%	13.7%	9.7%	15.8%
VVT	88.9%	96.3%	96.3%	94.2%	94.2%
VVL	16.7%	13.6%	20.2%	16.2%	19.3%
Higher Geared Transmission	5.1%	6.6%	14.1%	17.5%	22.0%
CVT	7.1%	6.8%	12.7%	13.5%	13.3%
Cylinder Deactivation	6.8%	6.8%	11.1%	10.0%	10.0%
GDI	17.6%	19.1%	26.7%	30.7%	37.4%
Diesel	1.9%	1.8%	2.7%	3.0%	1.8%

The Environment Canada report is at www.canada.ca/content/dam/eccc/documents/pdf/cepa/ghg-emissions-2016-eng.pdf.

California's Fourth Climate Change Assessment

On 27 August 2018, the state of California released California's Fourth Climate Change Assessment, which details new science on the impacts of climate change and provides planning tools to support the state's response.

The compilation of original climate research includes 44 technical reports and 13 summary reports on climate change impacts "to help ready the state for a future

punctuated by severe wildfires, more frequent and longer droughts, rising sea levels, increased flooding, coastal erosion, and extreme heat events."

The peer-reviewed research translates global models into scaled-down, regionally relevant reports to fill information gaps and support decisions at the local, regional, and state levels.

California's 4th climate change assessment is at www.climateassessment.ca.gov.

SOUTH-AMERICA

Brazil and Argentina sign Agreement to begin harmonizing Vehicle Standards

On 24 August 2018, Argentinian and Brazilian representatives signed a memorandum of understanding to begin merging vehicle production regulations of both countries.

The agreement established the "Working Group on Automotive Technical Regulations" to evaluate the technical regulations both countries adapt, including those controlling vehicle security, energy efficiency and exhaust gas pollution.

According to Brazilian Minister of Industry, Foreign Trade and Services Marcos Jorge, the agreement is an important step in promoting the merging of both countries' automotive industry regulations. "It means that our teams, from both sides, will begin work to converge motor vehicle regulations," he said. The Brazilian Minister noted that the automotive sector represents 4% of the country's Gross Domestic Product (GDP) and that this memorandum will attract more investment into the industry.

The eventual aim is to expand the agreement to other countries, including members of the Pacific Alliance, a sub-regional trade bloc in South-America with member countries of Peru, Colombia, Chile and Mexico, he added.

More info is at www.brazilgovnews.gov.br/news/2018/08/brazil-and-argentina-discuss-regulatory-convergence-on-automotive-sector.

ASIA PACIFIC

China includes More Cities in Air Pollution Rankings

According to *Reuters*, China extended monthly air quality rankings to 169 cities from 74, including in the northwest the high-pollution region of Shanxi-Shaanxi.

"By including more cities in the ranking, it will strengthen public supervision on air pollution and urge local governments to adopt effective measures to improve air quality," said the Ministry of Ecology and Environment (MEE) in a statement.

The MEE also said as part of the ranking that every month it will publish the 20 cities with the best air quality and the 20 cities with the worst pollution across the country.

Tangshan, the top steelmaking city in Hebei province, was named as the worst place for air quality in the new list of 169 cities in June 2018, according to the MEE. In response, Tangshan started six weeks of production curbs at steel mills, coke producers and coal-fired power plants to deepen reductions in toxic emissions.

Average $PM_{2.5}$ concentrations in 338 prefecture-level cities that are closely monitored by the central government were at 44 µg/m³ in January-June 2018, down 8.3% from the same period last year but still above the national target of 35 µg/m³.

CSE Study ranks Indian Cities on Clean Transportation

On 24 August 2018, India's Centre for Science and Environment (CSE) released a new study "The Urban Commute" that ranks 14 Indian cities (megacities: Delhi, Mumbai, Kolkata, Chennai, Bengaluru and Hyderabad; metropolitan cities: Ahmedabad, Pune, Jaipur, Lucknow, Kochi, Bhopal, Vijayawada and Chandigarh) with respect to clean transportation.

Indian cities are experiencing an explosive motorization phase. It took 60 years – from 1952 to 2008 – for the number of registered vehicles in the country to reach 105 million. But the same number was added in a mere six years – between 2009 and 2015. At the same time, the share of public transport in overall transportation modes is expected to decrease from 75.5% in 2000-01, to 44.7% in 2030-31.

This CSE study aims to understand how the Indian urban commute contributes to air pollution and energy consumption.

According to the study, Bhopal is ranked first for lowest overall emissions and energy use from the urban commute; Kolkata and Mumbai emit the least among six megacities due to high usage of public transport and walking; Kolkata also has short travel distances due to its compact form; Delhi, despite being the third highest for share of public transport trips, tanked to the bottom as overall emissions and fuel use are highest due to the sheer number of people, high volume of travel and personal vehicles, and long trip distances.

Megacities of Bengaluru, Hyderabad and Chennai scored poorly. They have a lower share of public transport compared to Delhi and yet have scored better than Delhi only because their total travel volumes are comparatively lower given their population levels. With growth and without adequate action they can get worse in the future.

Though metropolitan cities scored better than megacities due to lower population, lower travel volume and vehicle numbers, they are at risk due to much higher share of personal vehicle trips and high growth rates.

Increase in greenhouse gas emissions from transport sector is the highest among all other sectors in India; urban

traffic is also the source of high health damaging toxic emissions.

The CSE study is at www.cseindia.org/bhopal-and-kolkata-come-up-tops-in-cse-rankings-of-some-indian-cities-on-clean-transportation-8953.

Vietnam to tighten In-use Vehicle Emission Standards

In early August 2018, the Vietnam Register, under the Vietnam Ministry of Transport, proposed raising the in-use emission standards for cars to level 2 in order to minimize the increasing environmental pollution in the country.

The department has completed and submitted a new in-use vehicle emission control plan based on the current situation as instructed by the Ministry of Transport. Specifically, the department has proposed reducing the CO emissions ratio for in-use vehicles using gasoline fuel from 4.5 (level 1) to 3.5 (level 2); and hydrocarbon concentration (HC) from 1200 ppm to 800 ppm. In-use vehicles using diesel fuel will have to reduce their emissions from 72% Hartridge smoke units (HSU) to 60% HSU.

In-use vehicle emissions standards in Vietnam have remained unchanged for ten years. Meanwhile, the number of cars nationwide has increased by more than 3 million vehicles, so the amount of emissions released to the environment increased about 2.5 times. According to several environmental studies, indicators of pollutants in car exhaust such as CO and NOx in large cities like Hanoi and Ho Chi Minh City (formerly Saigon) have exceeded the allowable levels by 1.2 to 1.5 times.

For new cars, both domestically assembled and imported in 2018, the new emission standards will be applied in the first-time examination, because the new vehicle lines meet Euro 4 standards.

According to the new vehicle emission control plan, vehicles manufactured between 1999 and 2017 will be subject to the new in-use emissions standard (level 2). Vehicles manufactured before 1999 will be subject to the original standards (level 1). These vehicles were put into use when there were no emissions control standards and it is difficult to repair and adjust such vehicles to meet the new criteria.

The vehicles made in 2009 to 2017 will apply new in-use standards starting 1 January 2020, while vehicles made in 1999 to 2008 will be subject to the new in-use standards starting 1 January 2021.

The department also proposed putting a red mark on vehicles with poor emissions. All vehicles meeting the in-use emission standard level 2 will be granted a validation stamp. The department also proposed a red stamp for vehicles older than 20 years. The department also suggested the Ministry of Transport ban vehicles with emission standard level 1 from entering metropolitan areas.

More info is at http://english.vietnamnet.vn/fms/environment/207391/registration-agency-to-lift-vehicle-emission-standards.html.

GENERAL

Trends in Fuel Type of New Cars sold in Western Europe

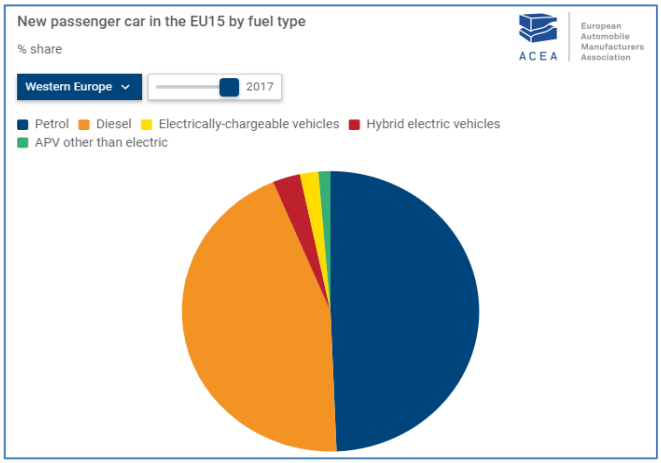
On 1 August 2018, the European Automobile Manufacturers' Association (ACEA) published trends in the fuel type of new cars between 2016 and 2017, in the different countries in Western Europe.

In 2017, diesel's market share fell from 49.9% to 44.8% of total passenger car registrations in the EU-15 compared to 2016. However, this drop was largely offset by an increase in petrol car sales. Petrol vehicles are now the most sold car type in the EU-15, accounting for almost half of new passenger car sales.

Throughout the year, diesel's market share contracted in all Western European countries, especially in Luxembourg and Greece (losing more than 10 percentage points in both markets).

However, the share of diesel cars remained stable in Italy and Denmark, with drops of around one percentage point. Ireland remains the country with the highest diesel market share (65.2%) in Western Europe, followed by Portugal (61.5%) and Italy (56.3%).

Alternatively-powered vehicles (APV) accounted for 5.8% of the car market in 2017, while electrically-chargeable vehicles (ECV) made up for only 1.5% of all cars sold last year.



More info is at www.acea.be/statistics/article/trends-in-fuel-type-of-new-cars-between-2016-and-2017-by-country.

ICCT Briefing on Vehicle Mass and Size Adjustment in Post-2020 Car CO_2 Target

On 8 August 2018, the International Council on Clean Transportation (ICCT) published a briefing on 'adjusting for vehicle mass and size in European post-2020 CO_2 targets for passenger cars'.

Light-duty vehicle CO_2 standards in the EU are indexed to vehicle mass. According to the ICCT, using mass as the utility parameter disincentivizes vehicle light-weighting, thereby unnecessarily limiting the range of compliance options and increasing the compliance cost for manufacturers. This disincentive for light-weighting is likely to gain importance in future years, and even develop into an incentive for increasing vehicle mass.

While a utility parameter was introduced into the CO_2 regulation for the practical purpose of maintaining diversity in the vehicle market and accounting for varying consumer needs, it was at the same time a political compromise intended to protect the competitive positions of European automakers, the ICCT said. German manufacturers of premium brands could continue selling larger, heavier cars with comparatively high CO_2 emissions, while their French and Italian competitors continued to sell smaller and lighter vehicles with lower CO_2 values. In practice, targets could differ by as much as 11 g/km in 2021: at the current average vehicle mass, Fiat Chrysler Automobiles (FCA) would have to meet a 91 g/km target in 2021 while Daimler would have to meet a 102 g/km CO_2 target.

Figure 2. Average CO_2 emission values and vehicle mass of major manufacturer groups in 2016.[5] Hypothetical 2021 targets are based on average 2016 mass. Limit value curve for 2015 included for reference.

The ICCT outlines three alternative regulatory options: 1) removing the utility parameter altogether; 2) using vehicle footprint instead of mass as the utility parameter; 3) keeping the mass utility parameter, but reducing its impact on manufacturers' CO_2 targets.

The ICCT briefing is at www.theicct.org/sites/default/files/publications/ICCT_EU-LDV-CO2parameters_brief_201808.pdf.

IHS Markit Outlook on 2021 CO_2 Excess Emissions and Potential Fines

On 6 August 2018, IHS Markit released their outlook on car manufacturers' compliance gaps with anticipated 2021 CO_2 emissions and fines across the EU passenger car sales fleet.

The IHS Markit baseline scenario suggests that the EU28 sales-weighted passenger car fleet CO_2 average in 2020 is likely to reach 102.3 g/km (NEDC-equivalent). This includes 4 g/km of CO_2 reduction derived from super credits and a further 2 g/km of CO_2 reduction from forecasted eco-innovation technology deployment. In 2020, when the best 95% of the fleet has to comply, fines paid by OEMs could amount to €11 billion.

Furthermore, with a 2021 target set at 114.9 g/km (as the 95 g/km NEDC target is adjusted to an equivalent WLTP value), IHS Markit forecasts that the sales-weighted passenger car fleet CO_2 average will reach 122.9 g/km (WLTP). If this level of excess emission is unable to be curtailed, it could lead to a total of €14 billion in excess emission premiums.

The analysis shows that 25 OEMs are, however, on course to meet targets in 2020 and 2021, given developments and initiatives toward electrification and hybridization of their fleets.

In 2020, the final year of being monitored under the NEDC regime, it is abundantly clear that technologies commensurate to compliance are not envisaged to reach demand levels sufficient enough to guarantee it, under the IHS Markit baseline scenario. Once in 2021 and subject to full WLTP regulatory monitoring, only a seismic shift (over the baseline) in consumer demand for BEV (Battery Electric) and PHEV (Plug-In Hybrid) vehicles will result in the full mitigation of EU28 fleet level excess emissions premiums.

More info is at https://news.ihsmarkit.com/press-release/automotive/automakers-could-be-fined-more-%E2%82%AC14-billion-european-co2-excess-emissions-pr.

RESEARCH SUMMARY

Effects of Emissions and Pollution

Association Between Ambient Air Pollution and Cardiac Morpho-Functional Phenotypes, Nay Aung, et al.; *Circulation* (in press), doi: 10.1161/CIRCULATIONAHA.118.034856.

Socioeconomic and Particulate Air Pollution Correlates of Heart Disease Risk, Louis Anthony Cox; *Environmental Research* (November 2018), Vol. 167, pp. 386-392, doi: 10.1016/j.envres.2018.07.023.

Exposure to ambient fine particulate matter during pregnancy and gestational weight gain, Jiaqiang Liao, et al.; *Environment International* (October 2018, Vol. 119, pp. 407-412, doi: 10.1016/j.envint.2018.07.009.

Acute changes in DNA methylation in relation to 24 h personal air pollution exposure measurements: A panel study in four European countries, Nahid Mostafavi, et al.; *Environment International* (November 2018, Vol. 120, pp. 11-21, doi: 10.1016/j.envint.2018.07.026.

The association of air pollution with congenital anomalies: An exploratory study in the northern Netherlands, N. Salavati, et al.; *Hygiene and Environmental Health* (August 2018), Vol. 221 (7), pp. 1061-1067, doi: 10.1016/j.ijheh.2018.07.008.

Does utilizing WHO's interim targets further reduce the risk - meta-analysis on ambient particulate matter pollution and mortality of cardiovascular diseases?, Zhiguang Liu, et al.; *Environmental Pollution* (November 2018), Vol. 242 (B), pp. 1299-1307, doi: 10.1016/j.envpol.2018.07.041.

Ambient fine and coarse particles in Japan affect nasal and bronchial epithelial cells differently and elicit varying immune response, Toshinori Onishi, et al.; *Environmental Pollution* (in press), doi: 10.1016/j.envpol.2018.07.103.

Bioaccessibility and exposure assessment of trace metals from urban airborne particulate matter (PM_{10} and $PM_{2.5}$) in simulated digestive fluid, Peng Gao, et al.; *Environmental Pollution* (in press), doi: 10.1016/j.envpol.2018.07.109.

Ambient $PM_{2.5}$ Reduces Global and Regional Life Expectancy, Joshua Apte, et al.; *Environ. Sci. Technol. Lett.* (in press), doi: 10.1021/acs.estlett.8b00360.

Stringent Emission Control Policies Can Provide Large Improvements in Air Quality and Public Health in India, Luke Conibear, et al.; *GeoHealth* (July 2018), Vol. 2, pp. 196-211, doi: 10.1029/2018GH000139.

Differential effects of diesel exhaust particles on T cell differentiation and autoimmune disease, Chelsea O'Driscoll, et al.; *Particle and Fibre Toxicology* (2018), Vol. 15 (35), doi: 10.1186/s12989-018-0271-3.

The impact of exposure to air pollution on cognitive performance, Xin Zhang, et al.; *Proceedings of the National Academy of Science of the USA* (in press), doi: 10.1073/pnas.1809474115.

Exposure to ambient air pollution and risk of childhood cancers: A population-based study in Tehran, Iran, Morteza Seifi, et al.; *Science of The Total Environment* (1 January 2019), Vol. 646, pp. 105-110, doi: 10.1016/j.scitotenv.2018.07.219.

Short-term effects of meteorological factors and air pollution on childhood hand-foot-mouth disease in Guilin, China, Guoqi Yu, et al.; *Science of The Total Environment* (1 January 2019), Vol. 646, pp. 460-470, doi: 10.1016/j.scitotenv.2018.07.329.

Association between short-term exposure to fine particulate matter and daily emergency room visits at a cardiovascular hospital in Dhaka, Bangladesh, Roksana Khan, et al.; *Science of The Total Environment* (1 January 2019), Vol. 646, pp. 1030-1036, doi: 10.1016/j.scitotenv.2018.07.288.

Air Quality, Sources and Exposure

Impact of residential combustion and transport emissions on air pollution in Santiago during winter, Andrea Mazzeo, et al.; *Atmospheric Environment* (October 2018), Vol. 190, pp. 195-208, doi: 10.1016/j.atmosenv.2018.06.043.

Intake fraction estimates for on-road fine particulate matter ($PM_{2.5}$) emissions: Exploring spatial variation of emissions and population distribution in Lisbon, Portugal, Joana Bastos, et al.; *Atmospheric Environment* (October 2018), Vol. 190, pp. 284-293, doi: 10.1016/j.atmosenv.2018.07.037.

Spatial and temporal (short and long-term) variability of submicron, fine and sub-10 µm particulate matter (PM_1, $PM_{2.5}$, PM_{10}) in Cyprus, M. Pikridas, et al.; *Atmospheric Environment* (October 2018), Vol. 191, pp. 79-93, doi: 10.1016/j.atmosenv.2018.07.048.

The importance of transport to ozone pollution in the U.S. Mid-Atlantic, Mojtaba Moghani, et al.; *Atmospheric Environment* (October 2018), Vol. 191, pp. 420-431, doi: 10.1016/j.atmosenv.2018.08.005.

Spatiotemporal trends in $PM_{2.5}$ levels from 2013 to 2017 and regional demarcations for joint prevention and control of atmospheric pollution in China, Nan-Nan Zhang, et al.; *Chemosphere* (November 2018), Vol. 210, pp. 1176-1184, doi: 10.1016/j.chemosphere.2018.07.142.

Women and girls in resource poor countries experience much greater exposure to household air pollutants than men: Results from Uganda and Ethiopia, Gabriel Okello, et al.; *Environment International* (October 2018, Vol. 119, pp. 429-437, doi: 10.1016/j.envint.2018.07.002.

Evaluation of a passive sampling method for long-term continuous monitoring of volatile organic compounds in urban environments, Robert Healy, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.8b02792.

Distinguishing Emission-Associated Ambient Air $PM_{2.5}$ Concentrations and Meteorological Factor-Induced Fluctuations, Qirui Zhong, et al.; *Environ. Sci. Technol.* (in press), doi: 10.1021/acs.est.8b02685.

Temporal variations in ambient particulate matter reduction associated short-term mortality risks in Guangzhou, China: A time-series analysis (2006–2016), Rongshan Wu, et al.; *Science of The Total Environment* (15 December 2018), Vol. 645, pp. 491-498, doi: 10.1016/j.scitotenv.2018.07.091.

Air stagnation in Europe: Spatiotemporal variability and impact on air quality, Jose Garrido-Perez, et al.; *Science of The Total Environment* (15 December 2018), Vol. 645, pp. 1238-1252, doi: 10.1016/j.scitotenv.2018.07.238.

Exploring the public's willingness to reduce air pollution and greenhouse gas emissions from private road transport in Catalonia, Siamak Zahedi, et al.; *Science of The Total Environment* (1 January 2019), Vol. 646, pp. 850-861, doi: 10.1016/j.scitotenv.2018.07.361.

Impact of primary NO_2 emissions at different urban sites exceeding the European NO_2 standard limit, J. A. Casquero-Vera, et al.; *Science of The Total Environment* (1 January 2019), Vol. 646, pp. 1117-1125, doi: 10.1016/j.scitotenv.2018.07.360.

Multilayer urban canopy modelling and mapping for traffic pollutant dispersion at high density urban areas, Chao Yuan, et al.; *Science of The Total Environment* (10 January 2019), Vol. 647, pp. 255-267, doi: 10.1016/j.scitotenv.2018.07.409.

Measuring and mapping the effectiveness of the European Air Quality Directive in reducing N and S deposition at the ecosystem level, Helena Serrano, et al.; *Science of The Total Environment* (10 January 2019), Vol. 647, pp. 1531-1538, doi: 10.1016/j.scitotenv.2018.08.059.

Air pollution characteristics in China during 2015–2016: Spatiotemporal variations and key meteorological factors, Rui Li, et al.; *Science of The Total Environment* (15 January 2019), Vol. 648, pp. 902-915, doi: 10.1016/j.scitotenv.2018.08.181.

Characteristics of atmospheric $PM_{2.5}$ composition during the implementation of stringent pollution control measures in shanghai for the 2016 G20 summit, Haiwei Li, et al.; *Science of The Total Environment* (15 January 2019), Vol. 648, pp. 1121-1129, doi: 10.1016/j.scitotenv.2018.08.219.

Emissions Measurements and Modelling

Modeling the formation of traditional and non-traditional secondary organic aerosols from in-use, on-road gasoline and diesel vehicles exhaust, Sepideh Esmaeilirad and Vahid Hosseini; *Journal of Aerosol Science* (October 2018), Vol. 124, pp. 68-82, doi: 10.1016/j.jaerosci.2018.07.003.

Particle nucleation-accumulation mode trade-off: A second diesel dilemma? Jos Reijnders, et al.; *Journal of Aerosol Science* (October 2018), Vol. 124, pp. 95-111, doi: 10.1016/j.jaerosci.2018.06.013.

Size distribution of vehicle emitted primary particles measured in a traffic tunnel, Xiang Li, et el.; *Atmospheric Environment* (October 2018), Vol. 191, pp. 9-18, doi: 10.1016/j.atmosenv.2018.07.052.

The real driving emission characteristics of light-duty diesel vehicle at various altitudes, Haohao Wang, et al.; *Atmospheric Environment* (October 2018), Vol. 191, pp. 126-131, doi: 10.1016/j.atmosenv.2018.07.060.

Real-world exhaust emissions and fuel consumption for diesel vehicles fueled by waste cooking oil biodiesel blends, Xianbao Shen, et al.; *Atmospheric Environment* (October 2018), Vol. 191, pp. 249-257, doi: 10.1016/j.atmosenv.2018.08.004.

Estimation and analysis of emissions from on-road vehicles in Mainland China for the period 2011–2015, Tao Jia, et al.; *Atmospheric Environment* (October 2018), Vol. 191, pp. 500-512, doi: 10.1016/j.atmosenv.2018.08.037.

Evaluation analysis of particulate relevant emission of a diesel engine running on fossil diesel and different biofuels, György Szabados, et al.; *Energy* (15 October 2018), Vol. 161, pp. 1139-1153, doi: 10.1016/j.energy.2018.07.154.

Performance studies on homogeneous charge compression ignition (HCCI) engine powered with alternative fuels, S.V. Khandal, et al.; *Renewable Energy* (March 2019), Vol. 132, pp. 683-693, doi: 10.1016/j.renene.2018.08.035.

Experimental studies on engine performance and emission characteristics using castor biodiesel as fuel in CI engine, M. Arunkumar, et al.; *Renewable Energy* (February 2019), Vol. 131, pp. 737-744, doi: 10.1016/j.renene.2018.07.096.

Characterization and carcinogenic risk assessment of polycyclic aromatic and nitro-polycyclic aromatic hydrocarbons in exhaust emission from gasoline passenger cars using on-road measurements in Beijing, China, Xuewei Hao, et al.; *Science of The Total Environment* (15 December 2018), Vol. 645, pp. 347-355, doi: 10.1016/j.scitotenv.2018.07.113.

A novel real-world braking cycle for studying brake wear particle emissions, Marcel Mathissen, et al.; *Wear* (15 November 2018), Vol. 414-415, pp. 219-226), doi: 10.1016/j.wear.2018.07.020.

WLTP-based Real-World Brake Wear Cycle, Marcel Mathissen, et al.; *Mendeley Data* (26 July 2018), v1, doi: 10.17632/dkp376g3m8.1.

Emissions Control, Catalysis, Filtration

Perovskites as geo-inspired oxygen storage materials for chemical looping and three-way catalysis – a perspective, Xing Zhu, et al.; *ACS Catal.* (2018), Vol. 8, pp. 8213-8236, doi: 10.1021/acscatal.8b01973.

The impact of voltage and flow on the electrostatic soot sensor and the implications for its use as a diesel particulate filter monitor, M. Maricq and David Bilby; *Journal of Aerosol Science* (October 2018), Vol. 124, pp. 41-53, doi: 10.1016/j.jaerosci.2018.07.002.

Fully Dispersed Rh Ensemble Catalyst To Enhance Low-Temperature Activity, Hojin Jeong, et al.; *J. Am. Chem. Soc.*, (2018), Vol. 140, pp. 9558-9565, doi: 10.1021/jacs.8b04613.

Combination of Pt@CeO_2/MCM-56 and CeO_2-CuO/MCM-56 to purify the exhaust emissions from diesel vehicles, Ting Yi, et al.; *Applied Catalysis A: General* (in press), doi: 10.1016/j.apcata.2018.07.041.

The influence of phosphorus on the catalytic properties, durability, sulfur resistance and kinetics of Cu-SSZ-13 for NOx reduction by NH_3-SCR, Zhen Chen, et al.; *Applied Catalysis B: Environmental* (5 December 2018), Vol. 237, pp. 116-127, doi: 10.1016/j.apcatb.2018.05.075.

Local dynamics of copper active sites in zeolite catalysts for selective catalytic reduction of NOx with NH_3, Peirong Chen, et al.; *Applied Catalysis B: Environmental* (5 December 2018), Vol. 237, pp. 263-272, doi: 10.1016/j.apcatb.2018.05.091.

Effective catalysts for the low-temperature NH_3-SCR process based on MCM-41 modified with copper by template ion-exchange (TIE) method, Andrzej Kowalczyk, et al.; *Applied Catalysis B: Environmental* (5 December 2018), Vol. 237, pp. 927-937, doi: 10.1016/j.apcatb.2018.06.052.

Impact of SO_2-poisoning over the lifetime of a Cu-CHA catalyst for NH_3-SCR, Peter Hammershøi, et al.; *Applied Catalysis B: Environmental* (15 December 2018), Vol. 238, pp. 104-110, doi: 10.1016/j.apcatb.2018.06.039.

Simultaneous removal of NOx and soot particulate from diesel exhaust by in-situ catalytic generation and utilisation of N_2O, Catherine Davies, et al.; *Applied Catalysis B: Environmental* (30 December 2018), Vol. 239, pp. 10-15, doi: 10.1016/j.apcatb.2018.07.072.

Precisely fabricating Ce-O-Ti structure to enhance performance of Ce-Ti based catalysts for selective catalytic reduction of NO with NH_3, Zhaoyang Fei, et al.; *Chemical Engineering Journal* (December 2018), Vol. 353, pp. 930-939, doi: 10.1016/j.cej.2018.07.198.

Development and Validation of a Two-Site Kinetic Model for NH_3-SCR over Cu-SSZ-13. Part 1. Detailed Global Kinetics Development Based on Mechanistic Considerations, Rohil Daya et al.; *Emiss. Control Sci. Technol.* (2018), Vol. 4 (3), pp. 143-171, doi: 10.1007/s40825-018-0095-5.

Reduction of particle emissions from gasoline vehicles with direct fuel injection systems using a gasoline particulate filter, Jihwan Jang, et al.; *Science of The Total Environment* (10 December 2018), Vol. 644, pp. 1418-1428, doi: 10.1016/j.scitotenv.2018.06.362.

Continuous effectiveness of replacing catalytic converters on liquified petroleum gas-fueled vehicles in Hong Kong, Dawen Yao, et al.; *Science of The Total Environment* (15 January 2019), Vol. 648, pp. 830-838, doi: 10.1016/j.scitotenv.2018.08.191.

Transport, Climate Change & Emissions

Electric vehicle adoption in Sweden and the impact of local policy instruments, Filippa Egnéra and Lina Trosvik; *Energy Policy* (October 2018), Vol. 121, pp. 584-596, doi: 10.1016/j.enpol.2018.06.040.

The dual-credit policy: Quantifying the policy impact on plug-in electric vehicle sales and industry profits in China, Shiqi Ou, et al.; *Energy Policy* (October 2018), Vol. 121, pp. 597-610, doi: 10.1016/j.enpol.2018.06.017.

Natural gas vehicles in heavy-duty transportation-A review, Arvind Thiruvengadam, et al.; *Energy Policy* (November 2018), Vol. 122, pp. 253-259, doi: 10.1016/j.enpol.2018.07.052.

Exploring the public's willingness to reduce air pollution and greenhouse gas emissions from private road transport in Catalonia, Siamak Zahedi, et al.; *Science of The Total Environment* (1 January 2019), Vol. 646, pp. 850-861, doi: 10.1016/j.scitotenv.2018.07.361.

FORTHCOMING CONFERENCES

Powertrain Modelling and Control Conference 2018

10-11 September 2018, Loughborough, 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

The Low Carbon Vehicle Event 2018

12-13 September 2018, Millbrook, UK

www.cenex.co.uk/cenex-lcv/

AECC will give a presentation on diesel engines on the pathway to low impact on local air quality.

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.

Integer Emissions Summit & AdBlue® Forum India 2018

26-27 September 2018, New Delhi, India

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

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.

6th International Conference Real-Driving Emissions

15-17 October 2018, Berlin, Germany

https://real-driving-emissions.iqpc.de

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.

ECT 2018 Conference

25-26 October 2018, Pune, India

www.ecmaindia.in/eventsdetails.aspx?mpgid=41&pgidtrail=42&Eventsid=15

The overall theme for the conference organized by the Emissions Control Manufacturers' Association (ECMA) in India is "BS VI and Real Driving Emissions ……Path Forward" with specific themes for each session: regulation and real emissions on road.

Routes to Clean Air 2018

29-30 October 2018, Birmingham, UK
http://iaqm.co.uk/event/routes-to-clean-air-2018
The Institute of Air Quality Management (IAQM) presents Routes to Clean Air 2018, a two-day conference where air quality, public health and transport professionals share their experiences of improving traffic emissions.

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, H_2 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).

WHO 1st Global Conference on Air Pollution and Health

30 October - 1 November 2018, Geneva, Switzerland

www.who.int/airpollution/events/conference/en

The conference will bring together global, national and local partners to share knowledge and mobilize action for cleaner air and better health globally. The conference will update the evidence on the health impacts of air pollution; methods of monitoring pollution and health exposures; and tools for assessing and implementing effective interventions. It will support strong health sector leadership for change, in partnership with other sectors. Cities and countries will be invited to join the BreatheLife campaign and commit to reducing air pollution by 2030 in line with WHO Air Quality Guidelines.

Ricardo Motorcycle Conference 5.0

5 November 2018, Milan, Italy

https://motorcycle.ricardo.com/motorcycle-conference

A niche annual event that brings together leading global motorcycle industry experts to discuss new technologies and future drivers within the motorcycle and urban mobility arenas.

Integer Emissions Summit USA 2018

6-7 November 2018, Indianapolis, USA

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

16th FAD-Conference "Challenge – Exhaust Aftertreatment for Diesel Engines"

7-8 November 2018, Dresden, Germany

www.fad-diesel.de/Conference_2018

2nd International FEV Conference Zero CO_2 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

http://baq2018.org

The 10th Better Air Quality (BAQ) is themed, Regional Action, Global Impact. It is organized by Clean Air Asia, the Clean Air Forum Society of Malaysia (MyCAS), Malaysia's Ministry of Natural Resources and Environment, and the Natural Resources and Environment Board of Sarawak.

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

22-23 November 2018, Manchester, UK

www.polisnetwork.eu/2018conference

AECC will give a presentation on Modern, Real-Driving Emissions (RDE)-compliant cars: Key to improving urban air quality

4th Annual Automotive Exhaust Systems Summit

29-30 November 2018, Düsseldorf, Germany

http://vonlanthengroup.com/en/events/4th-annual-automotive-exhaust-systems-summit.html

Key practical learning points of the summit include insights on the best practices and latest innovative technologies for exhaust systems, virtual exhaust development, latest advanced design tools, exhaust sensors, real-time OBD, simulation, exhaust heat recovery system development, future diesel engine exhaust systems and diesel exhaust gas aftertreatment, the role of tomorrow's exhaust systems, future powertrains, and future energy carriers for clean mobility, emissions legislation and future requirements, and exhaust emissions of hybrid vehicles.

4th Annual Future of Transport Conference

4 December 2018, Brussels, Belgium
www.eu-ems.com/summary.asp?event_id=4379&page_id=9766

The conference will focus on the technological innovations revolutionising the transport sector and redefining Europe's mobility systems. Topics discussed will include the pan-European implementation of intelligent transport systems; the development of clean and safe mobility; towards a fully multi-modal transport system; how public service providers are adapting to a digitalised mobility sector; and what should the EU's priorities be in 2019 and beyond?

8th China International Diesel Engine Summit 2018

4-6 December 2018, Beijing, China

www.borscon.com/2018de8/cn/index.html

The summit will cover what is happening in the diesel engine industry in China, with focus on the policies and regulations for efficiency, emission, and fuel consumption which are of the industry's top concern currently, as well as latest technologies, future trends and burgeons of innovative business models.

3rd Annual Real Driving Emissions Forum

19-20 March 2019, Berlin, Germany

Info will be at www.rde-realdrivingemissions.com

The Forum will showcase the forefront practices and approaches towards RDE and Energy Consumption reduction, compliance with recent update of the legislation on RDE, main automotive technology trends based on cost-and-energy-efficient solutions.

23rd International Transport and Air Pollution (TAP) Conference

15-17 May 2019, Thessaloniki, Greece

www.tapconference.org

The theme of TAP2019 is 2020-2030: Transport in critical transition. Indeed, this decade will determine whether transport systems will succeed in moving ahead, fulfilling their sustainability targets.

Deadline for abstract: 31 October 2018

40th International Vienna Motor Symposium

16-17 May 2019, Vienna, Austria

https://wiener-motorensymposium.at

Deadline for abstract: 30 September 2018

28th Aachen Colloquium Automobile and Engine Technology

7-9 October 2019, Aachen, Germany

Info will be at www.aachener-kolloquium.de

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