

NEWSLETTER

International Regulatory Developments

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EUROPE

WLTP Emission Test becomes Mandatory for All New Cars

On 1 September 2018, the World Harmonized Light Vehicle Test Procedure (WLTP) became mandatory for all new cars registered in the European Union.

WLTP is a more stringent and reliable testing procedure in the laboratory. It provides fuel consumption and CO₂ emissions values that are much closer to real-world conditions than the previously used procedure (New European Driving Cycle - NEDC).

Both WLTP and Real-Driving Emission (RDE) tests became mandatory for all new car models on 1 September 2017.

The RDE procedure also becomes mandatory on the same date for measuring ultrafine particles emitted by all new cars. NO_x RDE requirements will become mandatory for all new vehicles in a year from now, on 1 September 2019.

The European Commission issued a related statement on 31 August 2018. It is available at https://ec.europa.eu/growth/content/clean-mobility-new-emissions-tests-become-mandatory-all-new-cars-1-september-2018_en.

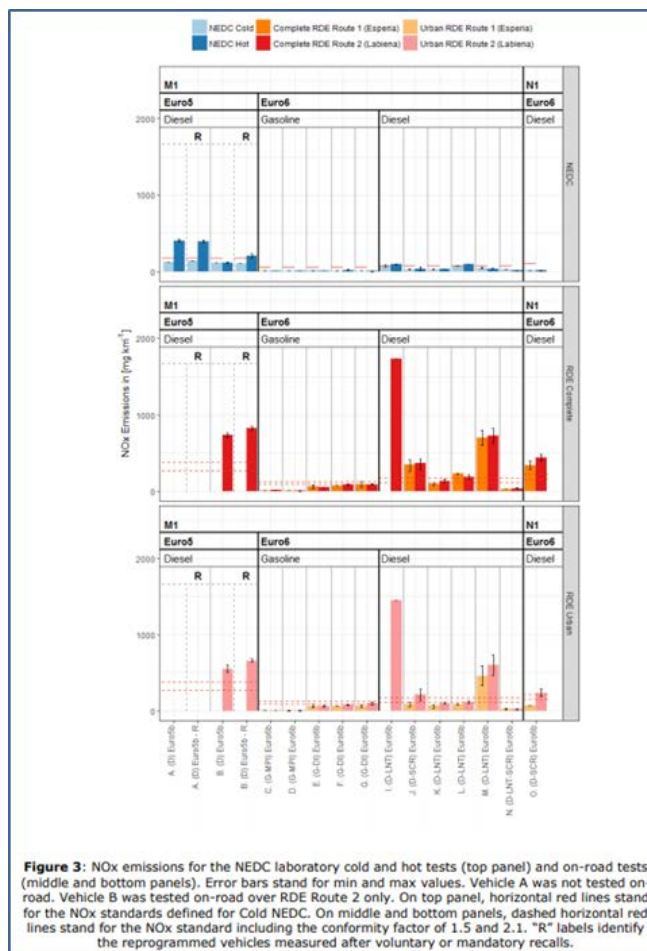
JRC 2017 Assessment of Light-Duty Vehicle Emissions

The Joint Research Centre (JRC) of the European Commission has released a report on light-duty vehicle emissions tests conducted in 2017.

This report summarises the results of the pilot study on the market surveillance of light-duty vehicles. The emission performance and the CO₂ emissions of 15 pre-RDE vehicles complying with Euro 5b and Euro 6b standards are presented. Vehicles selected represent brands with high sales numbers and using the most common technologies available. Their emissions performance was assessed both in laboratory and on-road tests.

All the tested vehicles complied with the applicable pollutant emissions limits on the New European Driving Cycle (NEDC) tests. With respect to Real-Driving Emissions (RDE) tests, while all the gasoline Euro 6b vehicles tested were already below the future NO_x Euro 6d-TEMP conformity threshold, only 2 of the 7 diesel Euro 6b vehicles tested were found to be below the NO_x Euro 6d-TEMP conformity threshold.

Under laboratory and RDE tests, and for the (small) vehicle sample, the NO_x emissions of Euro 6b diesel vehicles were still, on average, eight times higher than those of Euro 6b gasoline vehicles. The NO_x emissions of diesel cars are expected to be substantially reduced following the introduction of the RDE requirements, in force for type-approval of vehicles since September 2017, the JRC pointed out. The situation will be monitored continuously by the Commission (and the JRC in particular) over the coming years.



Interestingly, the diesel cars performed much better than gasoline cars in tests on other regulated pollutants - carbon monoxide, hydrocarbons (measured in laboratory conditions only) and ultrafine particulate matter.

The European methodology developed by the JRC to detect defeat devices (illegal emissions control strategies) was also applied to these vehicles, to improve the methodology and to support the investigations conducted by EU Member States.

The report includes emissions tests performed before and after recall of two VW Euro 5 vehicles fitted with the EA189 engine.

The JRC report on light-duty vehicle emissions is at <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC111909/kjna29302enn.pdf>.

JRC Report on Durability of Euro 6 Cars

The Joint Research Centre (JRC) of the European Commission has published a report on the durability demonstration programme for Euro 6 passenger cars: thermal load to aftertreatment systems.

This report compares the thermal load generated by the Standard Road Cycle (SRC) used for mileage accumulation and durability demonstration with that generated by the World harmonized Light vehicle Test Cycle (WLTC) on two

gasoline (one PFI and one GDI) and two diesel (one with LNT and one with SCR) Euro 6b vehicles.

The thermal load related to SRC tests was statistically similar to that of WLTC for the 2 gasoline vehicles; for the 2 diesel vehicles the thermal load related to SRC tests was from 1.5 to about 4 times larger than that of WLTC, depending on the chosen sampled variable (pre-catalyst or post-catalyst temperatures) and input parameters (reference temperature and thermal reactivity of the emission control systems).

Repetitions of SRC tests can exhibit a large dispersion of thermal load results (as measured from the exhaust gas temperature variations) even in the case of identical speed traces (within the allowed speed tolerance) and this is mainly due to the different driving styles and gear-shift strategies applied arbitrarily by the driver in absence of specific legislation provisions.

The SRC test to be performed in type-approval Test V will benefit in terms of repeatability from the introduction of an agreed gear-shift strategy and driving instructions.

WLTC and SRC tests during which the regeneration of the Diesel Particulate Filter (DPF) occurred were characterized by dramatically larger thermal loads than in tests without DPF regeneration. The regeneration frequency of the DPF may be considerably different for different passenger car models. The JRC found a mileage between two DPF regenerations equal to about 200 km for vehicle 3 and about 900 km for vehicle 4 meaning that vehicle 3 and vehicle 4 would experience about 800 and 180 regenerations, respectively, during their useful life (160 000 km).

The analysis of the contribution to total thermal load from WLTC test without DPF regeneration and from tests when the regeneration occurred indicated that during the useful life of the vehicle, 25% of the thermal load is related to mileage driven in between two DPF regeneration events.

Based on these results, the JRC concludes that the SRC test is appropriate for the durability type-approval Test type V. This study will provide inputs to the Durability Task Force of the WLTP working group.

The JRC report on durability is at <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC108759/kjna29278enn.pdf>.

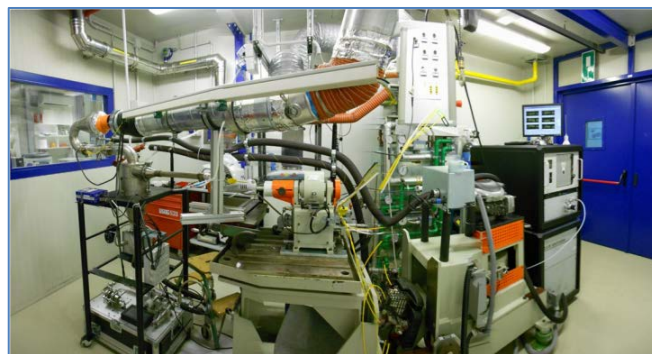
JRC Report on In-Service Monitoring for Small Utility Engines

On 21 September 2018, the Joint Research Centre (JRC) of the European Commission released a new report on the outcome of the In-Service Monitoring (ISM) pilot programme of small hand-held and non-hand-held machines.

22 Stage II-certified small engines (12 chainsaws, 2 string trimmers, 4 pedestrian controlled (walk-behind) lawn mowers and 4 blowers) were subject to emission testing at the start, middle and end of their Emission Durability

Period (EDP), as prescribed in the Non-Road Mobile Machinery (NRMM) Stage V Regulation (EU) 2016/1628, by ageing the engines on the test bench or in the field. The EDP depends on the engine class and it is for instance equal to 300 hours for professional engines such as chainsaws.

The objectives of the experimental campaign were to verify the compliance with limit values of the exhaust emissions from small gasoline engines in terms of HC, CO, and NOx during the whole durability period; to compare the severity of 2 different ageing procedures – ageing in the test cell with an automated procedure (robot ageing) and ageing directly in the field during normal service. Additional outputs related to the main objectives were to compare the emission data provided by the OEM with emissions produced at JRC; to compare the raw exhaust analysis method (JRC) with diluted exhaust analysis method (OEMs); and to assess a potential emission reduction of regulated pollutants.



Based on emission tests performed at JRC and OEMs facility (repeated and confirmed by a certification agency, TÜV Nord in Germany), and based on additional data provided by the European Engines Manufacturers' Association (EUROMOT), all engines complied with prescribed emission limit values at beginning, middle and end of their applicable EDP.

Also, the JRC could not discriminate clearly between the severity of field ageing against that of the bench ageing procedure.

A potential for the reduction of the exhaust emissions was estimated based on the gap between the emission limit values and the emission results obtained during the ISM pilot programme for the chemical components considered by the legislation. Two scenarios are given, one based on maximum obtained emissions (conservative approach), and one based on the average emissions. The latter one is prone to statistical instability due to the small size of the sample.

Following the conservative approach, the reduction potentials were:

- 10% for HC+NOx (from both JRC and OEM results);
- 30% for CO (from both JRC and OEM results);
- 40% for NOx from JRC results and 60% for NOx from OEM results.

Following the approach based on average emissions, the reduction potentials were:

- 30% for HC+NO_x (from both JRC and OEM results);
- 50% for CO (from both JRC and OEM results);
- 75% for NO_x from JRC results and 85% for NO_x from OEM results.

Based on the experimental results and considering the Stage V Regulation dealing with type-approval durability tests, the JRC strongly recommends that an In-service Monitoring procedure should not be applied to engine classes NRSh-v-1a (<19 kW and <50 cm³), NRSh-v-1b (<19 kW and ≥50 cm³), and NRS-vr-1a (<19 kW and swept volume between 80 cm³ and 225 cm³) as it is already prescribed by the current legislation that the emissions should be measured over the whole emission durability period in order to pass the type-approval.

For new engine models, or a new engine family, the manufacturer should demonstrate to the technical service during the type-approval that the automated ageing procedure (robot ageing) and the ageing during normal service are equivalent or that robot ageing is more severe.

A standardized ageing cycle needs to be defined. A wider pilot programme comparing both protocols for engine ageing (i.e. ageing in the test cell with an automated procedure (robot) or ageing directly in the field during normal service performed by professionals) involving the most recent engine models should be repeated every 5 years in order to ensure that the durability procedure is suitable and effective to control pollutant emissions over the useful life of the engines.

Additional recommendations not directly linked to the In-service Monitoring procedure are that the use of an alkylated fuel (an environmentally improved fuel with only trace content of aromatic compounds) instead of standard gasoline can be considered in order to improve the quality of emitted HCs. Basic principles and scientific peer-reviewed literature indicate a dramatic reduction or no detection in the exhaust emissions of (i) aromatic compounds such as toluene and benzene (carcinogenic to humans), (ii) polycyclic aromatic hydrocarbons (PAH), and (iii) secondary organic aerosols (SOA). A durability study aiming to assess the effect of the alkylate fuel on the durability requirements applicable to small engines would be highly desirable.

The JRC also recommends for regulators to also consider a reduction of the emission limit values of total HC, CO and NO_x for the engine classes NRSh-v-1a, NRSh-v-1b, and NRS-vr-1a in line with the findings of this report and separating total HC and NO_x limit values.

The JRC report is at <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC108758/kjna29339enn.pdf>.

Commission investigates Possible Emissions Cartel between OEMs

On 18 September 2018, the European Commission announced it has opened an in-depth investigation to assess whether BMW, Daimler and the VW group colluded, in breach of EU antitrust rules, to avoid competition on the development and roll-out of emissions control technologies for gasoline and diesel passenger cars.

In October 2017, the Commission carried out inspections at the premises of BMW, Daimler, VW and Audi in Germany as part of its initial inquiries into possible collusion between car manufacturers on the technological development of passenger cars.

The Commission's in-depth investigation focusses on information indicating that BMW, Daimler, VW, Audi and Porsche, also called the "circle of five", participated in meetings where they discussed inter alia the development and deployment of technologies to limit harmful car exhaust emissions. In particular, the Commission is assessing whether the companies colluded to limit the development and roll-out of certain emissions control systems for cars sold in the European Economic Area, namely: Selective Catalytic Reduction (SCR) systems and Gasoline Particulate Filters (GPF).

The in-depth investigation will aim to establish whether the conduct of BMW, Daimler and VW may have violated EU antitrust rules that prohibit cartels and restrictive business practices.

More info is at http://europa.eu/rapid/press-release_IP-18-5822_en.htm.

Public Consultations on WLTP-NEDC CO₂ Correlations for Cars and Vans

On 18 September 2018, the European Commission launched two public consultations on draft implementing Regulations to amend Regulations (EU) 2017/1153 and (EU) 2017/1152 on the WLTP-NEDC CO₂ correlation for cars and light commercial vehicles, respectively.

The CO₂ correlation methodology is to deliver results that ensure that the CO₂ reduction requirements are of comparable stringency under the old (NEDC) and the new (WLTP) test procedures, and for that purpose the proposal clarifies how the WLTP test is to be performed.

The draft Amendment also determines the difference in 2020 between the CO₂ emission values declared by the manufacturers for the purpose of the WLTP type-approval with those measured. It is proposed that manufacturers be required to calculate and report to the Commission the WLTP CO₂ values for all new light commercial vehicles registered in the calendar year 2020 using the measurement values for vehicle H (Test Mass High) and L (Test Mass Low) as input to the interpolation method.

Finally the Commission wants to swiftly identify and address issues and possible inconsistencies relating to the implementation of the procedures; therefore transparency in the emissions testing is to be improved, and data on the WLTP tests as well as on the correlation results should therefore be made available to the Commission as from January 2019.

The two public consultations are open until 16 October 2018.

The consultation on cars is at https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-3865868_en and the one on vans is at https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-3905761_en.

Parliament Committee Report on Post-2021 CO₂ Standards for Cars and Vans

On 10 September 2018, the lead Environment (ENVI) Committee of the European Parliament adopted its report on the proposal for post-2021 CO₂ standards for cars and vans prepared by rapporteur MEP Miriam Dalli (S&D, MT).

The ENVI Committee MEPs adopted a 2030 fleet average CO₂ reduction of 45% for cars and vans instead of the Commission proposal of 30%. Similarly, they decided for a 20% interim reduction in 2025 compared to the 15% proposed by the Commission.

MEPs also voted to increase sales targets for low- (i.e. < 50 g/km) and zero-emission vehicles to 20% in 2025 and 40% in 2030 (the Commission had proposed 15% and 30% respectively), as well as introducing a penalty scheme for carmakers that fail to hit those goals. Exceeding the target will be rewarded with CO₂ credits.

The ENVI Committee proposed a long-term ambition beyond 2030, when at least a similar trend in CO₂ emission reduction should continue.

Other elements stressed by the ENVI committee include the need to develop appropriate Life Cycle Analysis that will ensure the integrity of environmental legislation – OEMs would have to publish the lifecycle CO₂ emissions of new vehicles from 2025 onwards, the importance of real-world CO₂ emissions measured using Portable Emissions Measurement Systems (PEMS) and remote sensing, and the need for accurate car labelling for consumers.

MEP Dalli's report was adopted by 38 votes in favour, 23 against, and 7 abstentions. A plenary vote is now scheduled on 3 October 2018.

The ENVI report is at www.europarl.europa.eu/sides/getDoc.do?pubRef=-%2f%2fEP%2f%2fNONSGML%2bREPORT%2bA8-2018-0287%2b0%2bDOC%2bPDF%2bV0%2f%2fEN.

On 11 September 2018, the European Automobile Manufacturers' Association (ACEA) issued a statement on the vote.

"We are very concerned by the direction taken by the Environment Committee," stated ACEA Secretary General, Erik Jonnaert. "The extremely stringent reduction levels adopted are totally unrealistic, as they would require a massive and sudden shift to electromobility. The framework conditions for such a seismic shift are clearly not in place, and consumers are just not ready to go fully electric at this stage."

On 11 September 2018, the association of the automotive industry suppliers' (CLEPA) also published a statement.

CLEPA noted that the position of the Environment Committee does not reflect the entire spectrum of opinions in the European Parliament. They hope that the MEPs will come to a more balanced position in the plenary session in October.

According to CLEPA, a key requirement is to reduce emissions in the most efficient, technology-open as well as least disruptive way when it comes to jobs and structural change. CLEPA Secretary General Sigrud de Vries commented that "Electrification is a major part of the solution. Industry assesses that the 30% reduction target proposed by the Commission will trigger a share of electric and electrified vehicles including mild hybrids, plug-in hybrids, fuel cell and battery-electric solutions of at least 60%, and very possibly much higher than that as technologies will increasingly be combined to meet emission targets as well as serve a broad variety of transport needs in a tailored way. Today, this percentage remains in the low single digit range. Major investments are therefore being made and will continue at a fast pace."

You can find both statements at www.acea.be/press-releases/article/future-eu-co2-targets-for-cars-and-vans-auto-makers-sound-alarm-after-parli and <https://clepa.eu/mediaroom/environment-committee-underestimates-progress-in-decarbonisation-of-transport>.

Parliament Briefing on CO₂ Standard for Heavy-Duty Vehicles

On 13 September 2018, the European Parliament Research service published a briefing that assesses the strengths and weaknesses of the European Commission's impact assessment accompanying its proposal for a regulation on CO₂ standards for new Heavy-Duty Vehicles (HDVs).

According to the EP briefing, the Impact Assessment (IA) clearly defines the problem to be addressed. The objectives appear to be relevant, sufficiently measurable and achievable, although only partially time-bound.

The Commission IA identifies five operational objectives:

- reach a specific CO₂ emissions target level by the target year(s);
- achieve actual CO₂ emissions reductions, maintaining a minimum 'emissions gap' between type-approval emission values and monitored emission values;
- stimulate the deployment of zero and low-emission vehicles (ZEV/LEV) in a specific period;

- achieve lower operating costs for transport operators;
- and increase technological innovation.

Overall, for each of the five categories, the IA examines a sufficient number of options, although in a couple of cases only one option is considered in addition to the baseline. The analysis carried out appears to be sound and well evidenced, providing ample and detailed insight into the issues considered.

The analysis of impacts focuses on the economic and environmental dimension consistently with the manner in which the problems have been defined, while social impacts are considered only with respect to employment. Their quantitative assessment is based on three models which, according to the IA, have already been 'successfully' used in previous IAs regarding transport, energy and climate policies. The IA appears to have addressed all of the Regulatory Scrutiny Board's recommendations, and the legislative proposal seems to be consistent with the analysis carried out in the IA.

The EP briefing is at [www.europarl.europa.eu/RegData/etudes/BRIE/2018/621850/EPRS_BRI\(2018\)621850_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/621850/EPRS_BRI(2018)621850_EN.pdf).

Parliament Resolution on “Europe on the Move” Road Mobility Package

On 13 September 2018, the European Parliament (EP) adopted a resolution in response to the European Commission's Communication 'Europe on the Move' adopted in May 2017 in its Road Mobility Package.

The Resolution welcomes the Commission's Communication as a step forward towards a safer, more innovative, sustainable, fairer and more competitive road transport sector, interconnected with other more sustainable modes of transport.

In particular, the Resolution supports the ambition of the Commission to ensure sustainable and innovative transport technologies and mobility solutions to enhance road safety, limit climate change and CO₂ emissions, air pollution and congestion.

However, it calls for more funding for interlinked cross-sectoral research and development regarding connected and driverless cars, electrification of rail and road infrastructures, alternative fuels, vehicle design and manufacturing, network and traffic management as well as smart mobility services and infrastructure.

The Resolution also highlights the crucial importance that the European transport sector continues to develop, invest, innovate and renew itself in a sustainable manner and maintains its technological leadership. However, the Resolution acknowledges a shift in the job market arising from the automated driving. Therefore, the Resolution calls on the Commission to develop an EU strategy which embraces the new employment opportunities that the digitalisation of the transport sector will create, including

as a priority fair transitional arrangement for employees whose jobs become obsolete.

MEPs adopted the Resolution with 525 votes in favour, 32 against and 78 abstentions.

The EP resolution is at www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+TA+P8-TA-2018-0355+0+DOC+PDF+V0//EN.

Parliament Committee debates Motorcycles Euro 5

On 24 September 2018, members of the Internal Market and Consumer Protection (IMCO) Committee of the European Parliament debated the Commission proposal to amend Regulation (EU) No 168/2013 on the Euro 5 step to the type-approval of two- or three- wheel vehicles and quadricycles (see *AECC Newsletter of March 2018*).

Rapporteur MEP Daniel Dalton (ECR, UK) qualified the amendments as technical. He pointed out that the main change relates to very small sections of the market for these vehicles. He supported all of the amendment proposed by the Commission except the date of application of Euro 5 for certain L-category vehicles (microcars L6e-B, three-wheel mopeds designed for utility purposes L2eU, trial motorcycles L3e-AxT and endurance motorcycles L3e-AxE) that the Commission proposed to postpone from 2020 to 2022. Indeed, the Rapporteur would like to further postpone that date to 2024, as recommended by the study on the effect of the environmental step Euro 5 for L-category vehicles.

The Rapporteur explained that manufacturers of these vehicles, which are mainly SMEs, would require more lead time to ensure that the transition towards zero emission powertrains, such as electrification, can be achieved without harming the market. He added that technical limits would currently prevent a transition from current diesel powertrains to alternative powertrains with lower emissions. Notably, petrol engines would be underpowered due to the size restrictions of the vehicles. In addition, he explained that electric batteries are, at present, too big to be included in microcars.

European Court of Auditors Report on Air Pollution

On 11 September 2018, the European Court of Auditors (ECA) published a special report titled 'Air pollution: Our health still insufficiently protected'.

ECA audited the 2008 EU Ambient Air Quality (AAQ) Directive, which sets air quality standards for the concentrations of pollutants in the air. In this audit, ECA assessed whether EU actions to protect human health from air pollution have been effective. To do this, they examined whether (i) the AAQ Directive was well designed to tackle the health impact of air pollution; (ii) Member States' effectively implemented the Directive; (iii) the Commission monitored and enforced implementation of the Directive; (iv) air quality was adequately reflected in

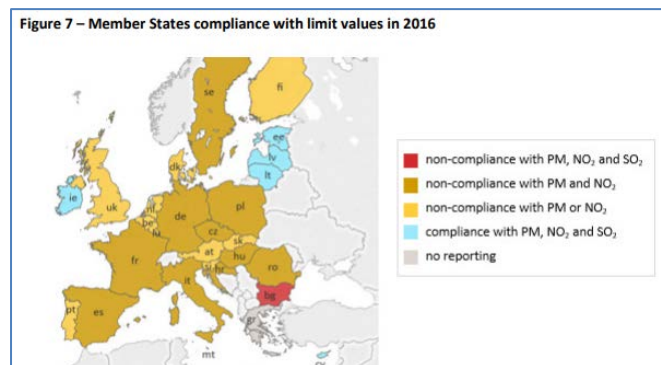
other EU policies and adequately supported by EU funds; and (v) the public has been well informed on air quality matters.

They concluded that EU action to protect human health from air pollution had not delivered the expected impact. The significant human and economic costs have not yet been reflected in adequate action across the EU.

The EU's air quality standards were set almost twenty years ago and some of them are much weaker than WHO guidelines and the level suggested by the latest scientific evidence on human health impacts.

While air quality has been improving, most Member States still do not comply with the EU's air quality standards and were not taking enough effective action to sufficiently improve air quality. Air pollution can be underestimated as it might not be monitored in the right places. Air Quality Plans – a key requirement of the Ambient Air Quality Directive – often did not deliver expected results.

The Commission faces limitations in monitoring Member States' performance. Subsequent enforcement by the Commission could not ensure that Member States complied with the air quality limits set by the Ambient Air Quality Directive. Despite the Commission taking legal action against many Member States and achieving favourable rulings, Member States continue to frequently breach air quality limits.



Many EU policies have an impact on air quality, but, given the significant human and economic costs, the ECA considers that some EU policies do not yet sufficiently well reflect the importance of improving air quality. Climate and energy, transport, industry, and agriculture are EU policies with a direct impact on air quality, and choices made to implement them can be detrimental to clean air.

The report makes recommendations to the European Commission aimed at improving air quality. Recommendations cover more effective actions which should be taken by the Commission; the update of the Ambient Air Quality Directive; the prioritisation and mainstreaming of air quality policy into other EU policies; and the improvement of public awareness and information.

The ECA special report on air pollution is at www.eca.europa.eu/Lists/ECADocuments/SR18_23/SR_AIR_QUALITY_EN.pdf.

€122 Million Available for Horizon 2020 Transport Projects

On 5 September 2018, the European Commission launched a call for applications for eight transport projects under the 2018-2020 Horizon 2020 Work Programme with a total budget available of €122 million.

The applicants will have to present project proposals in the areas of waterborne transport, logistics, aviation, transport infrastructure and safety. The topics for application are:

Topic	Budget
Logistics solutions that deal with requirements of the 'on demand economy' and for shared-connected and low-emission logistics operations	€10 million
Advancements in aerodynamics and innovative propulsion systems for quieter and greener aircrafts	€15 million
Retrofit Solutions and Next Generation Propulsion for Waterborne Transport	€23 million
Upgrading transport infrastructure in order to monitor noise and emissions	€7 million
Moving freight by Water: Sustainable Infrastructure and Innovative Vessels	€30 million
Safety in an evolving road and mobility environment	€8 million
Innovative applications of drones for ensuring safety in transport	€15 million
Integrated multimodal, low-emission freight transport systems and logistics (Inco Flagship)	€14 million

The projects will be selected for funding in a two-stage evaluation. First, candidates should submit short project proposals by 16 January 2019. They will then be informed within three months after the deadline if they have qualified for the second stage of the selection process. If so, they will be invited to submit full project proposals by 12 September 2019. The final decision about which projects will receive EU funding will be known by February 2020 at the latest.

More info is at <https://ec.europa.eu/inea/en/news-events/newsroom/%E2%82%AC122-million-available-horizon-2020-transport-projects>.

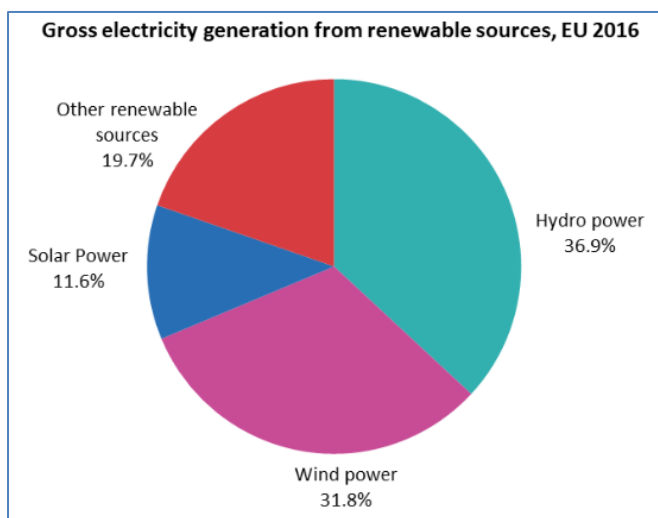
EU Electricity from Renewable Sources in 2016

On 21 September 2018, Eurostat published the 2016 data on the EU electricity generated from renewable sources.

In 2016, electricity generation from renewable sources contributed more than one quarter (30%) to total gross electricity consumption in the EU. Hydro power is the most important source, followed closely by wind power and then solar power. Other renewable sources for generating electricity include wood, biogas, renewable waste and geothermal energy.

At the level of EU Member States, in five countries more than half of the electricity consumed in 2016 was generated from renewable sources: Austria (73%), Sweden (65%), Portugal and Denmark (both 54 %) and Latvia (51%). In contrast, there were four countries where less than 10% of the electricity consumed in 2016 came

from renewable sources: Malta (6%), Luxembourg and Hungary (both 7%) and Cyprus (9%).



More info is at <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20180921-1>.

Poland Clean Air Programme

On 12 September 2018, the Environment Ministry of Poland published information on their national clean air priority programme, which will be implemented in 2018-2029.

The Polish clean air programme budget is PLN 103 billion (€24 billion), of which PLN 63.3 billion (€14.7 billion) will go to financing grants and PLN 39.7 billion (€9.2 billion) will be dedicated to repayable loans. The money will be spent in particular on housing insulation and modernization of domestic heating systems.

Finland implements National Emissions Ceiling Directive

On 6 September 2018, the Ministry of Environment of Finland announced that the government approved changes to the Environmental Protection Act to reduce air pollution.

The Environmental Protection Act would introduce graduated emission reduction obligations for Finland for sulfur dioxide, nitrogen oxides, ammonia, fine particles and volatile organic compounds with the exception of methane. The amendments will bring national requirements in line with the new National Emission Ceilings Directive (EU) 2016/2284 which set obligations for 2020-2029 and from 2030 onwards.

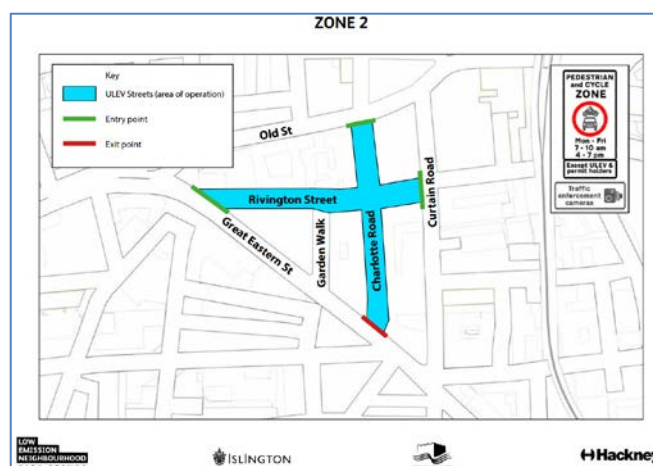
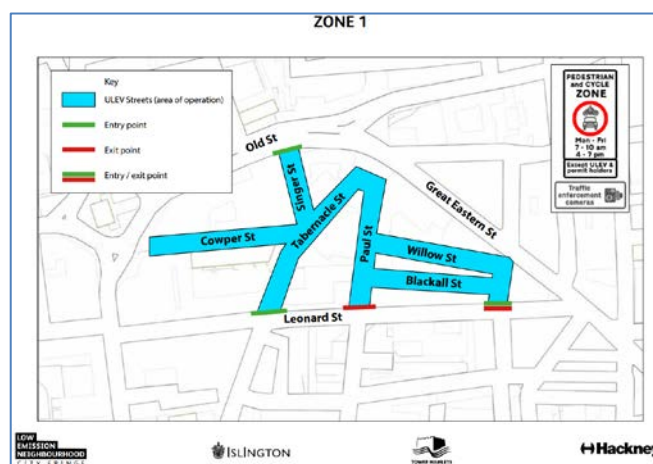
To fulfil these obligations, Finland will draw up a new national air protection programme under the Ministry of the Environment. The bill contains provisions on the content, drafting and updating of the programme. According to estimates made during the preparation of the programme, the obligations are already fulfilled by the current emissions regulations, the medium-term climate policy plan and the climate and energy strategy.

The law would also include emission inventories to monitor the development of emissions under the national emission reduction obligations. Based on the inventories, the national air protection programme will be updated as necessary.

Pilot ULEV Zone in London Boroughs of Hackney and Islington

On 3 September 2018, following local consultation, a pilot Ultra-Low Emission Vehicle (ULEV) zone was created in a small area of London Boroughs of Hackney and Islington.

In these streets, during rush hours (7:00-10:00 and 16:00-19:00) from Monday to Friday, access is restricted to ULEVs, i.e. vehicles that emit less than 75 g/km CO₂. This includes battery electric and hydrogen vehicles and some hybrid vehicles.



UK hosts First Zero Emission Vehicle Summit

On 11 September 2018, UK Prime Minister Theresa May hosted the first Zero Emission Vehicle Summit, held in Birmingham.

At the summit Ms May announced £106 million (€119 million) for R&D into green vehicles, new batteries and low carbon technology. She also hosted an automotive roundtable with leading supply-chain companies from

Germany, the USA, Japan, China, Spain and India, to explore what more the UK government and industry can do together to accelerate the development of the zero-emissions market and to highlight the UK's strong offer.

The UK government also unveiled a new, international declaration that forges the way for the worldwide deployment of green vehicles, and the introduction of smart, zero-emission infrastructure. The first signatories to the 'Birmingham Declaration' include Italy, France, Denmark, the United Arab Emirates, Portugal, Belarus and Indonesia, with more nations currently in talks to sign up.

UK Low Carbon Vehicle Event

On 12-13 September 2018, UK's centre of excellence for low carbon and fuel cell technologies (Cenex) organised the 11th Low Carbon Vehicle event at the Millbrook Proving Ground.

The event provided a showcase for UK capabilities and leadership in low carbon technology development and to build awareness and confidence to adopt those technologies in vehicles and in fleet operations. The event incorporated a seminar programme, technology exhibition and the possibility to drive demonstrator vehicles.

AECC's Dr Demuyck gave a presentation on "Diesel engines on the pathway to low impact on local air quality" in the session on Advanced propulsion, efficiency and emissions. In the same session, Dr Kufferath (Bosch) showed the low emissions that can be expected from Euro 6d diesel vehicles. Mr Reinhart (SwRI) gave a status update of the CARB (California Air Resources Board) heavy-duty low NO_x programme. Dr Peckham (Cambustion) showed transient NO_x emission peaks from a gasoline Plug-in Hybrid Vehicle during a journey around central London.

More details about the seminar programme can be found at www.cenex-lcv.co.uk/seminars.

Frankfurt must ban Old Diesel Cars, Court rules

On 5 September 2018, the German administrative court in Wiesbaden ordered the State of Hesse to bring the city of Frankfurt in line with regulations by banning old diesel vehicles from parts of the city.

The court ruled that from February 2019, Frankfurt must ban diesel cars of Euro 4 emission standards or worse, as well as petrol cars of Euro 1 and 2 standards. Euro 5 diesels must be banned from September 2019.

If upheld, the ruling would affect about a quarter of the cars registered in Frankfurt, as well as commuters and visitors from the surrounding area. "The driving ban is necessary because all other measures considered by the State will not lead to a significant reduction of nitrogen oxides emissions in an appropriate time," said presiding judge Rolf Hartmann.

The court did not specify which areas would be affected by the new driving ban, but the judge suggested basing it on the existing borders of the environmental zone.

German Transport Ministry Statement on Diesel Hardware Retrofit

On 27 September 2018, the German Ministry for Transport (BMVI for Bundesministerium für Verkehr und digitale Infrastruktur) issued a statement on the work of its Expert Group 1 which was set up as part of the National Diesel Forum.

According to BMVI, there is no common position of Expert Group 1 on hardware retrofits and hardware retrofits has not been advocated by the group.

Statements on hardware retrofit costs of €1400 to €3300 are not realistic, as shown by the expert studies of the BMVI.

The Federal Motor Transport Authority (KBA) cannot oblige manufacturers to retrofit hardware because the vehicle type-approval was lawfully granted. This is also contrary to European law.

There are technical, legal and financial concerns with hardware retrofits for passenger cars. This position is also largely supported by experts and experts consulted within the framework of the work of Expert Group 1.

Hardware upgrades only make sense for municipal vehicles and buses. They are technically mature, the space is available, the cost-benefit is high and they can be quickly implemented. This is far more effective than a hardware retrofit of millions of old diesel cars that only drive into town from time to time.

BMVI concluded that a concretization of the measures and plans on the overall issue will take place by the beginning of next week.

The BMVI statement (in German) is at www.bmvi.de/SharedDocs/DE/Artikel/K/dieselnachruestungen.html.

Global Alliance Power Fuels kicks off in Germany

On 19 September 2018, the German Energy Agency (dena) and partners from the industry launched in Berlin the Global Alliance Power Fuels.

Power Fuels are synthetic, gaseous or liquid fuels produced using renewable energy sources. The conversion methods are known under terms such as Power-to-Gas and Power-to-Liquid. The application possibilities are manifold: as road transport fuel, as fuel for the production of heat and electricity or as raw material in the chemical industry. Unlike electricity, power fuels can be flexibly stored and transported.

The international alliance pursues the goal of opening up global markets for synthetic fuels based on renewable energies.

Members of the Global Alliance Power Fuels includes companies and associations from the energy and renewable energy, automotive and aerospace, chemical and mineral oil, machinery and equipment, insurance and finance sectors (dena, Daimler, the German Association of Liquid Gas, the German Aerospace Center (DLR), ENERTRAG, Bosch, Uniper Power Plants, UNITI, ...)

NORTH-AMERICA

California moves to preserve Vehicle Standards

On 28 September 2018, California regulators voted to require that automakers stick with Obama-era federal vehicle emissions standards for cars sold in the state regardless of Trump administration efforts to weaken the standards.

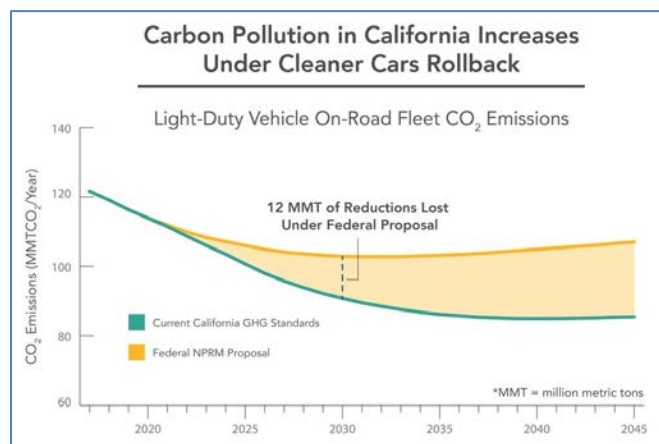
The California Air Resources Board (CARB) affirmed a provision in its greenhouse gas (GHG) vehicle regulation that establishes that only cars meeting current federal standards for model years 2017 through 2025 comply with the state's standards and can be sold there.

California's position is nationally significant because the state is the largest U.S. auto market and boasts the nation's most aggressive policies to address climate change. Also, a dozen states and the District of Columbia have adopted California's emissions rules, accounting for more than a third of all U.S. vehicle sales.

California has long been allowed under a U.S. Environmental Protection Agency (EPA) waiver to set its own, stricter vehicle emissions rules to fight heavy smog in Los Angeles and other urban areas.

The Trump administration has proposed revoking that authority, something that could cast doubt on the State's powers to sidestep federal standards.

In a statement, CARB Chair Mary Nichols said the state would "continue to work to keep a single national programme," but that the vote ensures that California and 12 other states will not fall victim to the Trump administration's rollback of vehicle standards should its proposal be finalized.



More info is at www2.arb.ca.gov/news/statement-carb-chair-action-preserve-ca-vehicle-standards.

USA reach Settlement with Emission Control Defeat Devices Manufacturer

On 24 September 2018, the U.S. Environmental Protection Agency (EPA) and U.S. Department of Justice (DOJ) announced a settlement with Derive Systems to address the sale of approximately 363 000 aftermarket products designed to defeat the emission control systems of cars and trucks in violation of the Clean Air Act.

Over a span of multiple years, Derive sold products, including custom engine tuning software and parts, online and at distributors across the nation under the brand names of "Bully Dog" and "SCT" for use in many types of gasoline- and diesel-fuelled cars and trucks.

Under the terms of the settlement, Derive will spend approximately \$6.25 million (€5.3 million) to ensure future compliance and pay a civil penalty of \$300 000 (€255 000).

Derive manufactured and sold custom tuning software designed to access and overwrite the original vehicle manufacturer's software. Derive's software enabled the user to remove emission control components, including catalysts, diesel particulate filters (DPF), exhaust gas recirculation (EGR) systems, elements of on-board diagnostic systems, and other elements of design certified by vehicle manufacturers to comply with the Clean Air Act. In addition, Derive sold parts or components for motor vehicles and motor vehicle engines that bypass, defeat, or render inoperative elements of design that were installed by the vehicle or engine manufacturer to comply with emission standards.

Under the terms of the settlement, Derive must stop introducing new non-compliant tuners into commerce and retrofit existing tuners so that they comply with the Clean Air Act. All new and existing tuners offered for sale must have a reasonable basis demonstrating that the use of the products will not adversely affect vehicle emissions. Besides tuners, Derive must limit access to key emission control parameters in their custom tuning software and create a customer verification programme for users of the custom tuning software, which includes training about vehicle functions, emission controls, and the Clean Air Act requirements. Derive must stop any marketing that would provide information on how consumers can defeat emission controls in their vehicles, and work with their national distributors to prevent the packaged sale of their products with companion defeat devices.

The proposed consent must be approved by a federal judge before it takes effect.

More info is at www.justice.gov/enrd/consent-decree/us-v-derive-systems-inc-et-al.

ASIA PACIFIC

ICCT Cost-Benefit Assessment of Heavy-duty China VI Standard

On 11 September 2018, the International Council on Clean Transportation (ICCT) published a cost-benefit assessment of the China VI standard for new Heavy-Duty Vehicles (HDVs).

The China VI standard is among the world's most stringent HDV emission standards and combines best practices from both European and U.S. regulations. It will be a key pathway to clean up diesel emissions and is therefore a critical step toward winning the war against air pollution in China.

According to the ICCT, the China VI standard will approximately reduce emissions of CO by 1.327 million tonnes, of HC by 86 000 tonnes, of NOx by 4.512 million tonnes and of PM by 159 000 tonnes in 2030. These emission reductions would help decrease the national annual average PM_{2.5} and ground-level ozone pollution concentrations by 1.04 µg/m³ and 0.93 ppb, respectively, in 2030.

As a result from improved air quality at least 29 200 premature deaths and 17 350 hospital admissions would be avoided annually in 2030. The health benefits from implementing China VI are valued at \$57 billion (€49 billion) at a technology upgrade cost of \$2.8 billion (€2.4 billion) annually in the year of 2030. With a benefit-to-cost ratio of 21:1 and annual net benefit of \$54 billion (€46.6 billion), it is a very cost-effective standard.

The ICCT report on China VI cost-benefit assessment is at www.theicct.org/sites/default/files/publications/China_VI_cost_benefit_assessment_20180910.pdf.

Ho Chi Minh City to limit New Vehicle Registrations through Fees and Quotas

The Transport Department of Vietnam's Ho Chi Minh City (formerly Saigon) is mulling a special consumption tariff and higher fees on private vehicles, as well as an environmental fee to mitigate air and noise pollution caused by private vehicles.

The department also plans to limit the number of newly licensed vehicles through an annual quota and require each citizen who wants to buy a new motorbike or car to bid for vehicle ownership, the *Vietnam News Agency* reported on 9 September 2018.

In 2013, Ho Chi Minh City had 6.4 million private vehicles, of which nearly 5.9 million were motorbikes, accounting for 91.7% of the total number of vehicles. The rest were automobiles. By the end of March 2017, the city had nearly 8 million vehicles, of which motorbikes accounted for 92% of the total number. By 2020, the number of vehicles in Ho Chi Minh City is expected to reach 10 million, including 800 000 cars. Most families in the city own at least one motorbike. Air pollution in Ho Chi Minh City caused by

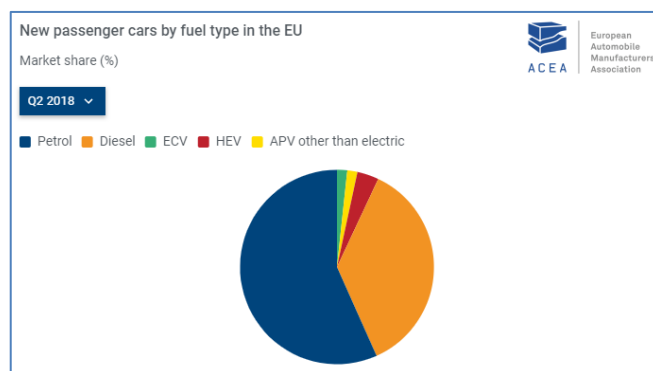
vehicles has become even more serious than the level of pollution emitted by industrial zones, local environment experts said.

GENERAL

Fuel Type of New EU Passenger Cars

On 6 September 2018, the European Automobile Manufacturers' Association (ACEA) published statistics on fuel type of new passenger cars sold in the EU in the second quarter of 2018.

Over the period April to June 2018, almost 57% of all new passenger cars in the EU ran on petrol, while diesel cars accounted for 36.3% of the market. All alternatively-powered vehicles (APV) combined accounted for 6.9% of the market.



Diesel's market share fell from 45.2% to 36.3% of total passenger car registrations compared to the same quarter one year ago. This drop was largely offset by an increase in demand for petrol cars (+19.8%).

In the 2nd quarter of 2018, demand for alternatively-powered vehicles in the EU grew significantly (+44.3%), mostly driven by hybrid (+49.2%) and battery electric (+45.5%) car sales. Overall, 72 168 electrically-chargeable cars were registered. Demand for Liquefied Petroleum Gas (LPG) and Natural Gas Vehicles (NGV) also increased strongly – up 35.2% – mainly thanks to a notable uplift of NGV car registrations (+139.8%).

Among the five key EU markets, APV registrations saw the highest increases in Spain (+79.4%) and Germany (+72.1%). Demand for alternatively-powered vehicles also continued to post strong growth in France (+43.4%), the UK (+42.3%) and Italy (+20.7%).

More info is at www.acea.be/press-releases/article/fuel-types-of-new-cars-diesel-15.5-petrol-19.8-electric-43.8-in-second-quar.

FuelsEurope Vision 2050 on Low Carbon Liquid Fuels for Transport

On 24 September 2018, the EU Refining industry (FuelsEurope) published its long term pathway "Vision 2050" on low-carbon liquid fuels for developing a low-carbon system for all transport modes.

While renewable electricity – hydro, solar and wind – will play a major role in Europe’s energy system, for the foreseeable future full electrification is not likely to occur for all modes of transport. Petroleum liquid fuels offer an unequalled combination of qualities: high energy density; easy and safe handling; extensive, resilient, already existing infrastructure for production, distribution and storage; and low cost compared to the alternatives. As such, petroleum liquid fuels continue to be attractive for use in all transport sectors. It is unlikely that a single option – a silver bullet – will deliver low-emission mobility across all transport segments.

For policy purposes, a proper comparison of different options for the reduction of greenhouse gas (GHG) emissions in transport needs to adopt a holistic approach. It should consider emissions from or associated with vehicles, fuels, infrastructure and consumers. As the impact of GHG emissions on climate change is independent of the specific point of emission, a non-comprehensive approach may lead to wrong – and counter-productive – conclusions.

FuelsEurope also published a study prepared by Ricardo examining a scenario for near-full electrification of light-duty vehicles and comparing it with a combination of low-carbon liquid fuels and electrification scenario. Assuming all new vehicles sold after 2040 are electric, with an on-road ratio of 90% by mid-century, some €630 billion to €830 billion will have to be invested in charging and network infrastructure. By contrast, a scenario with 68% internal combustion engine vehicles running on low-carbon liquid fuels – biofuels and e-fuels – and supplemented by 23% electric vehicles, would entail infrastructure costs of roughly half that (€326 billion to €390 billion).

Both scenarios lead to the same 87% reduction in CO₂ emissions by 2050 compared to 2015.

The Vision 2050 and the Ricardo study are at www.fuelseurope.eu/vision-2050.

OPEC's World Oil Outlook 2018

On 23 September 2018, the Organization of the Petroleum Exporting Countries (OPEC) launched its 2018 World Oil Outlook (WOO) in Algiers, Algeria.

First published in 2007, the OPEC WOO offers a thorough review and assessment of the medium- and long-term prospects to 2040 for the global oil industry, as well as analysis of various sensitivities that have the potential to impact the petroleum industry in the years ahead.

Highlights from the WOO report include that all forms of energies will be required in the future; it is not about choosing one form of energy over another. Oil is expected to remain the fuel with the largest share in the energy mix throughout the forecast period to 2040.

Total primary energy is set to expand by 33% between 2015 and 2040, driven predominantly by developing

countries, which see almost 95% of the overall energy demand growth.

Natural gas witnesses the largest demand growth in absolute terms, and renewables the largest growth in percentage terms.

Long-term oil demand has been revised upward for the second consecutive year, with total demand at over 111.7 mb/d in 2040. Demand growth is driven by non-OECD regions, which see a huge increase of around 23 mb/d to 2040.

The total vehicle fleet – including passenger and commercial vehicles – is projected to increase to around 2.4 billion in 2040. The majority of the growth continues to be for conventional vehicles, but the long-term share of electric vehicles in the total fleet is projected to expand and reach a level of around 13% in 2040, supported by falling battery costs and policy support.

There is no expectation for peak oil demand over the forecast period to 2040. Long-term demand growth comes mainly from the petrochemicals (4.5 mb/d), road transportation (4.1 mb/d) and aviation (2.7 mb/d) sectors. The share of OPEC crude in the global oil supply is estimated to increase from 34% in 2017 to 36% in 2040. Global refinery additions are projected mainly in developing regions, led by the Asia-Pacific and the Middle East, but also Africa and Latin America.

Fast evolving trade patterns for crude oil and refined products will continue to evolve, driven initially by additional flows from the USA and Canada, and in the long-term by the Middle East, mostly attributed to increasing imports to the Asia-Pacific.

The OPEC World Oil Outlook is at <https://woo.opec.org/index.html>.

ICCT Report on GHG Lifecycle Assessment of Electrofuels

On 20 September 2018, the International Council on Clean Transportation (ICCT) published a white paper on the decarbonisation potential of electrofuels in the EU.

Electrofuels, also known as power-to-liquid, power-to-gas, e-fuels, and e-gas, can deliver greenhouse gas (GHG) savings compared to petroleum when they are produced using low-carbon electricity. Electrofuels will be incentivized in the EU by the recast Renewable Energy Directive (RED II) for 2021-2030 and automaker associations and other stakeholders are advocating for the GHG savings from electrofuels to also count toward EU vehicle CO₂ standards.

This ICCT study updates a prior analysis on the economic viability of electrofuels in the EU and assesses the lifecycle GHG performance of these fuels. In particular, the ICCT analysed how the accounting of electrofuels in the final RED II impacts the GHG performance of these fuels.

According to the ICCT, because of high production costs, electrofuels will deliver limited renewable fuel volumes and GHG reductions in the EU in the 2030 timeframe, even with strong policy support. They also found that the RED II effectively counts twice as much energy toward the renewable energy target as the amount of fossil fuels displaced, which will likely result in a shortfall in total renewable energy usage in the EU and thus an increase in fossil fuel use. Significant GHG savings can only be achieved if EU Member States take measures to ensure that renewable electricity used in electrofuels is fully additional – even then, electrofuels would still only offset 0.5% of projected road transport GHG emissions in 2030 in the EU with very high policy support.

The ICCT paper on electrofuels is at www.theicct.org/sites/default/files/publications/Electrofuels_Decarbonization_EU_20180920.pdf.

Report on the Impact of Electrification on EU Automotive Jobs and Growth

On 4 September 2018, the European Automobile Manufacturers' Association (ACEA) released a new report prepared for them by FTI Consulting on the impact of electrically-chargeable vehicles on jobs and growth in the EU.

ACEA said that according to the report, bringing together the results of various recent studies, a rushed shift to full electric vehicles will have a profound impact on employment. This is because the production and maintenance of battery electric vehicles is less labour intensive than conventional ones, given their lower mechanical complexity and fewer parts.

There could be serious implications for the entire automotive supply chain, disproportionately affecting suppliers of parts and components, according to a UBS study cited in the FTI report. Indeed, Europe's automotive suppliers are expected to produce roughly 38% less parts and components for electric cars, compared to a loss of around 17% for automobile manufacturers. The study points out that many of these suppliers in the EU are SMEs, who are likely to struggle more with making the transition in a short timeframe than car manufacturers.

It is estimated that batteries will make up 35-50% of the cost of an electric car in the future. However, studies point out that it remains uncertain as to whether those batteries will be produced in the EU or imported instead. In case of the latter, the value added by EU companies (and the millions of Europeans they employ) to cars will be much lower, the report underlines.

As part of its proposal on post-2020 CO₂ targets, the European Commission published an Impact Assessment to identify the potential implications of the proposed reduction targets on the EU automotive industry. While the Commission recognises that full battery electric vehicles are less labour-intensive than vehicles with an internal combustion engine, the FTI report now shows that the

Commission underestimated the negative impact of the proposed CO₂ targets, ACEA said.

The FTI Consulting report for ACEA is at www.fticonsulting.com/~media/Files/us-files/intelligence/intelligence-research/impact-electrically-chargeable-vehicles-jobs-growth-eu.pdf.

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FORTHCOMING CONFERENCES

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 EmissionsPath 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, 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).

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 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

<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.

EU Green Week High-Level Summit

15-17 May 2019, Brussels, Belgium

https://ec.europa.eu/info/events/eu-green-week-2019_en

The 2019 EU Green Week will be focusing on the implementation of EU environmental legislation, highlighting the benefit of EU environmental policies and showing their benefits for citizens.

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>

SIA Paris 2019 Power Train & Electronics

5-6 June 2018, Port-Marly, France

www.sia.fr/evenements/136-sia-power-train-electronics-2019

To support the automotive industry in the transition towards ever more environmentally friendly mobility, a new automotive event in France named SIA power train & Electronics broadens the scope of the Powertrain Conference to include electric traction technologies, along with internal combustion engines (ICE), low carbon fuels, and transmissions.

Deadline for abstract: 26 October 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.