

NEWSLETTER

International Regulatory Developments

TABLE OF CONTENTS

AECC Presentation to Advisory Group on Vehicle Emission Standards.....	2
EUROPE	2
Court of Justice rules against France for Breaches of Nitrogen Dioxide Limits.....	2
New European Commission delayed	2
ENVI Committee Hearing of Mr. Timmermans	2
Heavy-Duty Vehicle Rule on PEMS PN Procedure and Cold Start Emissions	2
EEA publishes 2019 Air Quality in Europe Report.....	3
Commission Response to Question on Diesel and Petrol Car Sales Ban	3
Corrigendum to Commission Regulation	3
Consultation on End-of-Life Vehicles Directive Evaluation	4
Danish Proposals on Transition to Zero Emission Fleet by 2050	4
UK announces Environment Bill and Transport Decarbonisation Plan	4
London ULEZ cuts Pollution by a Third	4
Irish Government introduces NOx-based Taxation for Cars	5
ICCT Recommendations for Post-Euro 6 Emissions Standards.....	5
T&E Position Paper on Review of Diesel NOx Limits	5
European Public Health Alliance Proposals on Air Pollution	6
ADAC publishes Life Cycle Analysis Report.....	6
NORTH AMERICA	7
Auto Companies Align with Administration on 'One National Programme'	7
Administration reported to be considering Fleet Fuel Efficiency Increase.....	7
ASIA PACIFIC	7
ICCT Fact Sheets on Bharat Stage VI Diesel Vehicles	7
Shanghai to phase out Diesel Trucks by 2022	7
UNITED NATIONS	7
Entry into Force of Amended Gothenburg Protocol	7
GENERAL	8
C40 Clean Air Cities Declaration	8
2 nd Hydrogen Energy Ministerial Meeting	8
RESEARCH SUMMARY	8
FORTHCOMING CONFERENCES	9

AECC Presentation to Advisory Group on Vehicle Emission Standards

On 18 October 2019, the Advisory Group on Vehicle Emissions Standards (AGVES) met for the second time in Brussels.

AECC Executive Director Dirk Bosteels presented at the meeting, providing input for consideration in the discussion on post-Euro 6/VI standards. He explained how RDE (Real-Driving Emissions) legislation has significantly improved real-world emissions and how AECC's ultra-low NOx diesel demonstrator achieved robust NOx control over a wide range of driving conditions.



AECC's presentation is available to read at www.aecc.eu/wp-content/uploads/2019/10/191018-AECC-presentation-AGVES-meeting-final.pdf.

EUROPE

Court of Justice rules against France for Breaches of Nitrogen Dioxide Limits

On 24 October 2019, the Court of Justice of the European Union (CJEU) ruled that 'France has systematically and persistently exceeded the annual limit value for nitrogen dioxide (NO₂) since 1 January 2010'.

The European Commission had initiated proceedings against France in 2014 and although the Member State did not dispute persistent exceedances, did dispute that they were systematic. It also claimed that 'structural difficulties' were a mitigating factor.

The CJEU ruled that it is irrelevant whether the failure to fulfil obligations is the result of intention or negligence on the part of the Member State responsible, or whether it is attributable to technical or structural difficulties which it has encountered. It also ruled that France did not implement appropriate and effective measures to ensure that the exceedance period of nitrogen dioxide limit values would be kept 'as short as possible'.

The Court therefore upheld the Commission's action and found that France has failed to fulfil its obligations under the Air Quality Directive.

The CJEU press release explaining its judgement is at curia.europa.eu/jcms/upload/docs/application/pdf/2019-10/cp190132en.pdf.

New European Commission delayed

On 17 October 2019, European Parliament President Mr. David Sassoli announced in a speech to the European Council that the vote on the new Commission has been put back to November, a delay of approximately one month.

Hearings are ongoing as a result of three commissioners-designate being rejected by the European Parliament. One of these was Ms. Sylvie Goulard, the French nomination as Commissioner-designate for Industry. She has been replaced as a candidate by Mr. Thierry Breton, whose hearing is expected to take place in November. As a result of the delays, the Commission did not take its place on 1 November as planned.

The full text of the speech is at www.europarl.europa.eu/the-president/en/speech-at-the-european-council.

ENVI Committee Hearing of Mr. Timmermans

On 9 October 2019, the Environment Committee of the European Parliament questioned Mr. Frans Timmermans, Dutch candidate for the European the European Commission's Climate directorate and the Green Deal portfolio.

During his introductory speech Mr. Timmermans said that EU policies on climate action must be centered on fairness and spoke in favour of a dedicated "just transition fund" to support people and communities in coal-reliant regions and energy-intensive economies.

He announced that, within 100 days, a climate law will be proposed, to enshrine the 2050 carbon neutrality objective, deliver on higher ambition for 2030 and update existing climate legislation. He said that he wants to see emission-free cars in Europe and also said that emission cuts are needed in the aviation and maritime sectors. The scope of the European Emission Trading System (ETS) should be broadened. He called for a large reforestation project across Europe and mentioned the possibility of a carbon border tax. Circular economy policies should also be extended to the textile and construction sectors.

MEPs put forward several questions on the cost of the low-carbon transition, the need to prevent job losses in coal regions and how to make sure that the communities and member states affected are on board for the transition. They also asked about the level of ambition regarding the 2030 emission reduction objectives and questioned Mr. Timmermans on biodiversity, plastic waste, air quality and biofuels.

Full details of the hearing can be found at www.europarl.europa.eu/news/en/hearings2019/commission-hearings-2019/frans-timmermans-the-netherlands.

Heavy-Duty Vehicle Rule on PEMS PN Procedure and Cold Start Emissions

As neither the European Parliament nor the Council raised objections by 13 October 2019 to the draft Commission Regulation amending rules on the type-approval of heavy-duty vehicles and

engines with respect to emissions (Euro VI-E), the Euro VI-E Regulation is expected to be formally adopted in the coming weeks.

The Regulation will then be published in the EU Official Journal.

EEA publishes 2019 Air Quality in Europe Report

On 16 October 2019, the European Environment Agency (EEA) published its Air Quality in Europe 2019 report, providing data up to 2017.

Concentrations of particulate matter (PM) continued to exceed the EU limit values and the World Health Organization (WHO) air quality guidelines (AQGs) in large parts of Europe in 2017. For PM with a diameter of 10 µm or less (PM₁₀), concentrations above the EU daily limit value were registered at 22% of the reporting stations (646 out of 2 886) in 17 of the 28 EU Member States (EU-28) and in six other reporting countries. For PM_{2.5}, concentrations above the annual limit value were registered at 7% of the reporting stations (98 out of 1 396) in seven Member States and three other reporting countries.

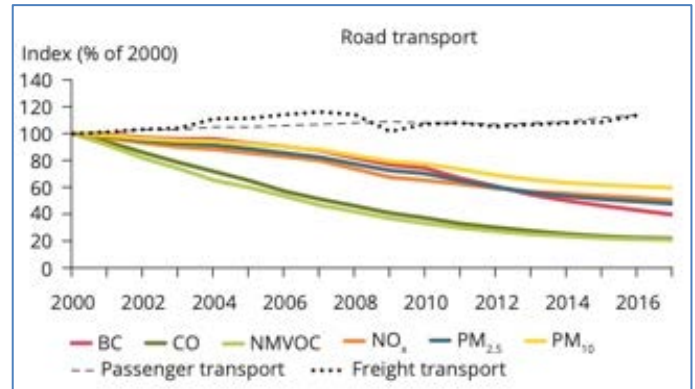
The long-term WHO AQG for PM₁₀ was exceeded at 51% of the stations (1 497 out of 2 927) and in all of the reporting countries, except Estonia, Finland and Ireland. The long-term WHO AQG for PM_{2.5} was exceeded at 69 % of the stations (958) located in all of the reporting countries, except Estonia, Finland and Norway.

A total of 17% of the EU-28 urban population was exposed to PM₁₀ levels above the daily limit value and 44% was exposed to concentrations exceeding the stricter WHO AQG value for PM₁₀ in 2017. Regarding PM_{2.5}, about 8% of the urban population in the EU-28 was exposed to levels above the EU annual limit value, and approximately 77% was exposed to concentrations exceeding the WHO AQG value for PM_{2.5} in 2017 (Table ES.1).

Concentrations above the annual limit value for nitrogen dioxide (NO₂) are still widely registered across Europe, even if concentrations and exposures continue to decrease. In 2017, around 10% of all the reporting stations (329 out of 3 260) recorded concentrations above this standard, which is the same as the WHO AQG. These stations were located in 16 of the EU-28 and four other reporting countries. In total, 86% of concentrations above this limit value were observed at traffic stations.

Around 7% of the EU-28 urban population was exposed to concentrations above the annual EU limit value (which is equal to the WHO AQG) for NO₂ in 2017; this represents the lowest value since 2000.

For both road and non-road transport sectors, emissions of key pollutants (e.g. NO_x) have decreased significantly, although transported passenger and freight volumes have been gradually increasing. Policy actions at EU level have been taken to address transport-related air pollution while allowing sectoral growth. The report also says that regulating emissions by setting emission standards (e.g. Euro 1-6) or by establishing requirements for fuel quality are good examples of such actions at EU level.



The full EEA report is available at www.eea.europa.eu/publications/air-quality-in-europe-2019-tab-figures-used.

Commission Response to Question on Diesel and Petrol Car Sales Ban

On 10 October 2019, Commissioner Bieńkowska responded to a question from Kira Marie Peter-Hansen (Verts/ALE) seeking clarification regarding banning the import and sale of new diesel and petrol cars in Denmark as from 2030.

Ms. Bieńkowska stated that the Commission is strongly committed to supporting the accelerating shift to clean and sustainable mobility to improve air quality and contributing to the EU's climate objectives under the Paris Agreement. It is equally committed to upholding Single Market rules to the benefit of EU industry and consumers.

She noted that Member States have the possibility to restrict access of cars with diesel and petrol engines to urban centres based on EU emission legislation criteria, in order to reduce air pollution. The Commission also notes that, apart from Denmark, several other Member States recently announced similar plans to ban cars with combustion engines.

Ms. Bieńkowska went on to say that with a view to ensuring a coordinated European approach, the Commission would welcome a policy debate on this topic in the relevant Council formations (Competitiveness, Transport and/or Environment).

The full written question and answer can be found at [www.europarl.europa.eu/RegData/questions/responses_qe/2019/002469/P9-RE\(2019\)002469_EN.pdf](http://www.europarl.europa.eu/RegData/questions/responses_qe/2019/002469/P9-RE(2019)002469_EN.pdf).

Corrigendum to Commission Regulation

On 16 October 2019, a corrigendum to Commission Regulation (EU) 2018/1832 for the purpose of improving the emission type approval tests and procedures for light passenger and commercial vehicles was published in the Official Journal.

The applicable dates have been clarified, as shown in the tables below.

On page 34, in point (26)(a) of Annex I, in the amendment to Table 1 of Appendix 6 to Annex I to Commission Regulation (EU) 2017/1151:							
for:	'BH	Euro 6d-TEMP-EVAP	Euro 6-2	N1 class II	Pl, Cl		31.8.2019'
read:	'BH	Euro 6d-TEMP-EVAP	Euro 6-2	N1 class II	Pl, Cl		31.8.2020'

On page 35, in point (26)(a) of Annex I, in the amendment to Table 1 of Appendix 6 to Annex I to Commission Regulation (EU) 2017/1151:							
for:	'BI	Euro 6d-TEMP-EVAP	Euro 6-2	N1 class III, N2	Pl, Cl		31.8.2019'
read:	'BI	Euro 6d-TEMP-EVAP	Euro 6-2	N1 class III, N2	Pl, Cl		31.8.2020'

The full announcement is at [eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1832R\(05\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1832R(05)&from=EN).

Consultation on End-of-Life Vehicles Directive Evaluation

On 29 October 2019, the European Environmental Bureau (EEB) published technical input and policy recommendations for the revision of the End-of-Life-Vehicles (ELVs) Directive, which aims to tackle the environmental impacts of ELVs' treatment in and outside the EU. The recommendations are intended to 'help the automotive sector move towards more responsible and circular business models'.

The paper says that ELVs amount to 8 million tonnes in the EU a year and raise several environmental challenges for EU governments. Large amounts of waste could be cut down if national authorities put in place the right policies and followed the Waste Management Hierarchy outlined in the EU's Circular Economy strategy. According to this strategy, waste streams should be tackled at the source by improving the design of vehicles at production stage, which would help reduce most of the environmental impact of ELVs. Waste prevention measures should also look to eliminate the toxic content of this waste stream in order to incentivise durability and reparability and facilitate recycling and avoid the circulation of toxic substances.

Specific recommendations are made regarding the calculation methodology of recycling targets, reuse and preparation for reuse, eco-design principles, recycled content, a harmonised chemicals inventory list and electric vehicles' batteries.

The EEB's paper is available at eeb.europa.eu/eeb-supporting-paper-for-the-Open-Public-Consultation-on-the-End-of-Life-Vehicles-Directive-Evaluation.pdf.

Danish Proposals on Transition to Zero Emission Fleet by 2050

On 1 October 2019, the Danish delegation to the European Council made proposals to be discussed at the Council (Environment) meeting on 4 October. They talk of an 'accelerated shift from petrol and diesel cars to a fleet of zero-emission passenger cars', in order to help ensure the transition to climate neutrality no later than 2050.

The document suggests ensuring alignment of Single Market rules to support the transition to ZEVs, as well as looking at national and EU level measures to 'improve the conditions for phasing out petrol and diesel cars'. Examples given are increased CO₂ standards, environmental zones, tax incentives, road pricing and supporting infrastructure.

The full briefing note can be found at data.consilium.europa.eu/doc/document/ST-12545-2019-REV-1/en/pdf.

UK announces Environment Bill and Transport Decarbonisation Plan

On 15 October 2019, the UK Government introduced an Environment Bill to 'maintain and improve' the UK's environmental protections as it leaves the EU. Amongst other measures, the Bill will set a legally binding target to ensure emissions of the pollutant with the most significant impact on human health, fine particulate matter, are limited. This target will be 'among the most ambitious in the world and improve the quality of millions of people's lives'.

The Government also announced plans for the full decarbonisation of the transport sector by 2050. The announcement follows four months after the UK legislated for net zero emissions by 2050 and is published as a formal response to the latest progress report from the Committee on Climate Change.

The Government says that the groundwork for the Transport Decarbonisation Plan will start immediately, with the (DfT) publishing a document setting out the challenge later this year. Due to be completed next year, the plan will set out in detail what government, business and society must do to deliver the emissions reductions needed from all modes of transport. In particular, the Government says, it will consider how UK technology and innovation can be implemented to encourage major changes to the way people and goods move across the UK.

The full announcements are available at www.gov.uk/government/news/government-introduces-ground-breaking-environment-bill and www.gov.uk/government/news/uk-to-go-further-and-faster-to-tackle-climate-change.

London ULEZ cuts Pollution by a Third

On 21 October 2019, the Mayor of London announced that in the two and a half years since the introduction of the Toxicity Charge and the Ultra Low Emission Zone (ULEZ) in the UK capital, nitrogen dioxide (NO₂) pollution in the zone has reduced by 36%. The ULEZ itself is estimated to have contributed 29% of the improvement. Emissions of nitrogen oxides (NO_x) are said to be 31% lower than they would have been without the ULEZ.

In addition, carbon dioxide (CO₂) emissions in the central zone are 4% lower in the first six months of ULEZ operation. There are also on average 13 500 fewer non-compliant vehicles per day entering the zone than in March 2019.

The full press release from the Mayor of London is at www.london.gov.uk/press-releases/mayoral/ulez-reduces-polluting-cars-by-13500-every-day.

Irish Government introduces NOx-based Taxation for Cars

On 8 October 2019, the Irish Finance Minister announced in his Budget that the existing diesel surcharge would be replaced with a nitrogen oxide (NOx) emissions-based charge. It will apply to all passenger cars registering for the first time in Ireland from 1 January 2020 and will apply on a € per mg/km basis. The rate will increase in line with the level of NOx emitted.

The Irish Times reports that the first 60 mg/km of NOx emissions from new cars is to be charged at a rate of €5 per mg. Above 60 mg/km of NOx, the charge increases to €15 per mg, and above 81mg/km it will be €25. The NOx charge will be capped at a maximum of €4,850 for diesel vehicles and €600 for other vehicles.

The full budget statement can be found at www.gov.ie/en/speech/b140d9-budget-2020-statement-of-the-minister-for-finance-and-public-expendi.

ICCT Recommendations for Post-Euro 6 Emissions Standards

On 3 October 2019, the International Council for Clean Transportation (ICCT) published a report containing its recommendations for post-Euro 6 light duty vehicle standards.

The report highlights the limitations of current emissions standards and provides detailed recommendations to overcome them. The recommendations cover several topics where the current light-duty vehicle emission standards should be strengthened. These topics include the emission of regulated, unregulated, and climate forcing pollutants; the testing regimes, data evaluation methods, and boundary conditions for demonstrating compliance with type-approval and in-service conformity testing; and measures to improve the durability, emissions performance, and compliance with the standards throughout the useful life of the vehicles.

In addition to technology neutrality for currently regulated emissions, with limits in line with other markets, ICCT is calling for additional limits for methane and nitrous oxide as greenhouse gases, volatile organic compounds as well as hydrocarbons, and specific limits for nitrogen dioxide in addition to total nitrogen oxides.

What to regulate	
Limits	<ul style="list-style-type: none"> Introduce fuel- and technology-neutral emission limits Tighten the emission limits to harmonize with other markets Introduce application-neutral emission limits
Ultrafine particles	<ul style="list-style-type: none"> Lower the size cutoff for particle counting from 23 nm to at least 10 nm Develop a methodology to measure volatile and semi-volatile particles Include emissions that occur during filter regeneration Make particulate number (PN) standards fuel- and technology-neutral Investigate the feasibility of PN tailpipe measurements
Unregulated pollutants	<ul style="list-style-type: none"> Set limits for ammonia emissions Set limits for CH₄ and N₂O emissions and account for them in the CO₂ standards Set limits for aldehyde emissions Regulate all VOCs and not just HC. Set emission limits for brake wear particles Consider limits for NO₂ emissions

ICCT is calling for new testing conditions, including a new low temperature test with tighter low temperature limits. It also wants to see changes to the Real Driving Emissions test, in particular around boundary conditions.

How to regulate it	
Evaporative emissions	<ul style="list-style-type: none"> Tighten the evaporative emissions limit Introduce an on-board refueling emissions standard Increase the temperature during hot-soak, prior to the 2-day diurnal test Introduce requirements for leak monitoring in on-board diagnostics (OBD) provisions
Low temperature test	<ul style="list-style-type: none"> Low temperature emission limits should be technology-neutral Set low temperature limits for a wider set of pollutants Tighten the current low temperature limits Develop a new low temperature test procedure Monitor the greenhouse gas emissions over the low temperature test
On-road CO	<ul style="list-style-type: none"> Introduce not-to-exceed limits for CO during real driving emissions (RDE) testing Reduce the laboratory limit for CO Introduce limitations for fuel enrichment as an auxiliary emissions strategy
Real Driving Emissions test	<ul style="list-style-type: none"> Extend the upper boundary condition for RDE driving dynamics Eliminate the lower boundary condition for RDE driving dynamics Revise the vehicle speed requirements during RDE tests Extend the cumulative elevation gain boundary condition Extend the temperature range for RDE testing and revise the correction factors Adjust trip requirements to allow shorter urban sections and cold-start driving Remove boundary conditions that reveal that an RDE test is taking place Eliminate the RDE evaluation factor for adjusting emissions downward

According to the report, durability and on-board diagnostics and monitoring requirements, as well as market surveillance mechanisms, should also be strengthened.

How to guarantee it	
Durability	<ul style="list-style-type: none"> Extend the definition of useful life for durability demonstration Establish the whole-vehicle test as the only durability demonstration option Extend the age/mileage requirements for in-service conformity to the full useful life Set a minimum emission warranty program Set an emission defect tracking and reporting program Develop in-service conformity testing for CO₂, fuel consumption, and electric range Develop a battery durability test
OBD and OBM	<ul style="list-style-type: none"> Align on-board diagnostics (OBD) requirements with those of California and China Introduce on-board monitoring (OBM) of pollutant emissions Set OBD threshold limits for PN and reduce the threshold limits for other pollutants Strengthen the anti-tampering provisions
Market surveillance	<ul style="list-style-type: none"> Develop a methodology for fleet screening to identify noncompliant vehicle models Develop a remote sensing standard and establish a database of measurements Clarify the criteria for failure of market surveillance tests Issue defeat device guidance Extend the scope of market surveillance beyond pollutant emissions

The full report is at theicct.org/publications/recommendations-post-euro-6-eu.

T&E Position Paper on Review of Diesel NOx Limits

On 3 October 2019, Transport & Environment (T&E) published a position paper regarding the review of the rules for Real Driving Emissions (RDE) tests. The paper makes two demands; that the

conformity factor (CF) for diesel NOx limits be completely removed, and that the RDE test procedure be improved.

T&E's main arguments for removing the CF for diesel NOx are that the limit is already less stringent than for petrol and the data on Euro 6d-Temp and 6d cars shows that the limit can already be met. They also say that there is no need to have room in the limits for measurement errors.

Regarding improvements to RDE testing to ensure on-road compliance, T&E says that the current limits on maximum driving dynamics should be abolished, the temperature and altitude boundary conditions for the test need to be extended to the maximum capability of the test equipment and including regeneration conditions. RDE tests should also be extended to include all regulated pollutants and CO₂, not only particulates and NOx.

T&E's full position paper can be found at www.transportenvironment.org/sites/te/files/publications/T%26E_position_paper_-_RDE_review_2019.pdf.

European Public Health Alliance Proposals on Air Pollution

On 8 October 2019, the European Public Health Alliance (EPHA) issued a statement on the state of air pollution in Europe and making proposals for the next steps that are needed.

EPHA agrees that the EU legislation has proven to be an essential tool in driving action from Member States to protect human health and the environment from the harmful effects of air pollution. It sets clear and binding objectives (limit values) and defines specific responsibilities for EU Member States to monitor, report on and manage air quality.

Looking to the future, EPHA proposes that the European Commission should include in its new Zero Emission strategy further guidance to national governments to better implement the existing EU rules on monitoring air pollution and how to design air quality plans. They should also take legal action against EU national governments who do not respect EU emission limits.

It also says that national governments can improve monitoring systems to improve information about air pollution levels. They can implement a comprehensive policy package to move away from subsidising fossil fuels, instead promoting greener energy solutions, and greater use of public transport – reducing greenhouse gas and harmful pollution emissions

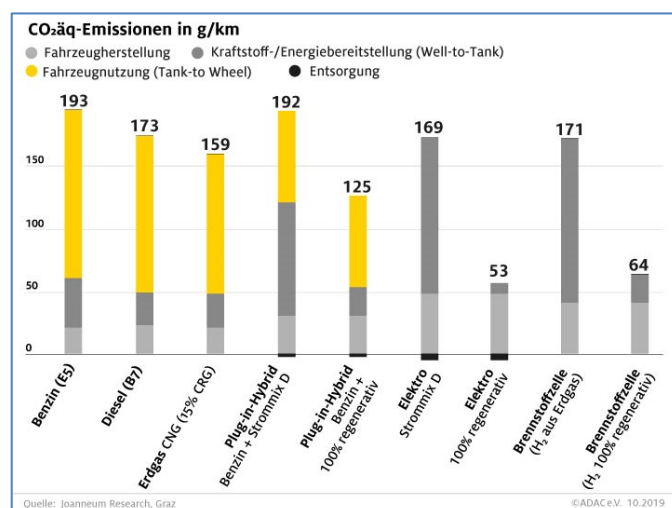
At the city level, authorities can introduce well-designed Low Emission Zones to reduce traffic-related air pollution.

EPHA suggests that individuals can join initiatives to monitor levels of air pollution and put pressure on their representatives for action. They should also be aware of personal choices available to them, such as walking, cycling and using public transport as much as possible.

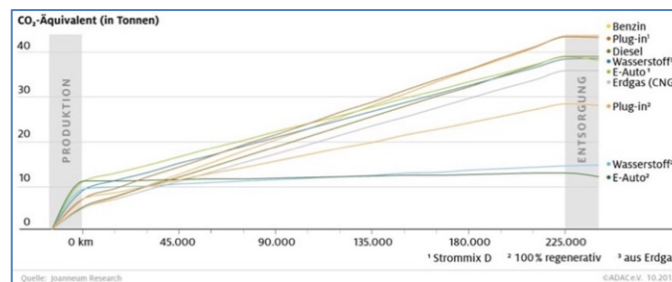
The full EPHA statement is at epha.org/looking-forward-to-eu-ambition-on-zero-air-pollution.

ADAC publishes Life Cycle Analysis Report

On 25 October 2019, the German Automobile Club (ADAC) published a report with life cycle analysis (LCA) studying the performance of a variety of different cars. Gasoline and diesel were compared with natural gas, plug-in hybrid, electric and fuel cell vehicles. Using a 'typical' German energy mix, the analysis showed that the best greenhouse gas balance for vehicles powered by conventional energy currently comes from the natural gas vehicle with 15% biomethane. Electric cars loaded with the German power mix fare worse, with plug-in hybrids at the level of a gasoline engine. The electricity variants and the fuel cell vehicle are only more climate-friendly with regenerative energy generation.



The electric car can only become more favourable compared to gasoline and diesel after about 127 500 km or 8.5 years of operation (gasoline) or about 219 000 km or 14.6 years of operation (diesel).



Only with renewable electricity does the electric vehicle have a much better balance than the other powertrains. Using 100% renewables, the amortisation of the high greenhouse gas emissions from production takes place after about 37 500 km compared with the gasoline engine or about 40 500 km compared to the diesel. The calculation for the electric vehicle assuming 100% renewables for production and power generation also shows it performing better than the natural gas vehicle (with 15% biomethane) after about 48 000 km. With renewable electricity, the fuel cell vehicle is also competitive.

The report, using data from Joanneum Research, is at www.adac.de/verkehr/tanken-kraftstoff-antrieb/alternative-antriebe/klimabilanz/?redirectId=quer.klimabilanz.

NORTH AMERICA

Auto Companies Align with Administration on 'One National Programme'

On 28 October 2019, the Coalition for Sustainable Automotive Regulation announced that it is seeking to intervene in a lawsuit between California and the federal government, expressing the Coalition's goal of achieving a unified fuel economy and greenhouse gas (GHG) programme. It said that the decision to intervene in the lawsuit is about how the standard should be applied, not what the standard should be. The statement goes on to say that "The certainty of one national program, with reasonable, achievable standards, is the surest way to reduce emissions in the timeliest manner."

The Coalition for Sustainable Automotive Regulation currently includes Association of Global Automakers, Inc., FCA U.S. LLC, General Motors LLC and Toyota Motor North America, Inc. The Coalition supports one national programme (see AECC Newsletter, September 2019), with California, that provides year-over-year fuel-efficiency improvements, promotes innovation and balances priorities like affordability, safety, jobs, and the environment.

Not all of the major manufacturers have joined this coalition however, with Ford Motor Co., Honda Motor Co. and Volkswagen AG being notable absentees.

The Coalition's full statement can be seen at www.motor1.com/news/379042/automakers-side-trump-emissions-standards.

Administration reported to be considering Fleet Fuel Efficiency Increase

A report in the Wall Street Journal (WSJ) on 31 October 2019 states that the US administration is considering a 1.5% annual increase in fleetwide fuel efficiency.

A spokesman for the California Air Resources Board (CARB) and Margo Oge, former head of the EPA's transportation office, have said that this increase is in line with historic improvements but not enough to meet air quality and climate goals.

The WSJ article (subscription) can be found at <https://www.wsj.com/articles/white-house-backing-off-proposed-fuel-efficiency-freeze-11572556860>.

ASIA PACIFIC

ICCT Fact Sheets on Bharat Stage VI Diesel Vehicles

On 22 October 2019, the International Council on Clean Transportation (ICCT) published fact sheets on what to expect from Bharat Stage VI diesel vehicles in India.

The fact sheets are aimed at Drivers & Operators and Fleet & Maintenance Managers. They explain the catalyst and filter

components now integrated into the exhaust assembly, outline changes to vehicle operation and fuelling requirements, and explain what to do when warning lights are lit. Possible training and security measures are also suggested to fleet and maintenance managers.

The fact sheets are available at theicct.org/sites/default/files/publications/BSVI-DriversOperators_factsheet_22oct2019.pdf.

and

theicct.org/sites/default/files/publications/BSVI-Managers_factsheet_22oct2019.pdf.

An additional fact sheet is available for Regional Transport Offices and Inspection Centres, detailing in particular the kinds of tampering that they should be aware of. This can be found at theicct.org/sites/default/files/publications/BSVI-RTOs_factsheet_22oct2019.pdf.

Shanghai to phase out Diesel Trucks by 2022

On 30 September 2019, Reuters reported that the Shanghai municipal government is planning to remove 120 000 older diesel-powered trucks by 2022 in order to reduce air pollution. 'National Three' trucks reportedly make up 2.9% of the total fleet but 30% of emissions of nitrogen oxides and 46% of particles.

Bans will start from April 2020 in certain parts of the city, and then expand in stages to cover more of the city. Subsidies of 3 000 to 116 000 Yuan (€385 to €14 950), depending on vehicle weight, will be given to operators who phase out their trucks ahead of deadlines.

The Reuters report is at www.reuters.com/article/shanghai-to-phase-out-lower-end-diesel-trucks-by-2022-idUSKBN1WF0N5.

UNITED NATIONS

Entry into Force of Amended Gothenburg Protocol

On 7 October 2019, the amended Gothenburg Protocol entered into force in 18 countries in Europe and North America.

The amended Protocol, negotiated under the UNECE Convention on Long-range Transboundary Air Pollution (Air Convention), establishes legally binding emissions reduction commitments for 2020 and beyond for the major air pollutants: sulphur dioxide (SO₂), nitrogen oxides (NO_x), ammonia (NH₃), volatile organic compounds (VOCs) and fine Particulate Matter (PM_{2.5}).

For EU Member States, 2020 and 2030 reduction commitments under the revised National Emission Ceilings Directive from 2016 (NEC Directive), together with reporting mechanisms used to monitor countries' progress, are based on the amended Gothenburg Protocol.

The amended Protocol is the first ever binding agreement to target emission reductions for PM_{2.5}, which are a major concern in most cities around the globe. These obligations represent significant reductions for this key substance, for example: 46% for Cyprus; 37% for the Netherlands; 36% for Slovakia; 35% for Greece; 33%

for Denmark; 30% for Finland and the UK; and 22% for the European Union as a whole (figures compared to 2005 base levels). By ratifying the amended Protocol, Parties commit to making emission reductions for all substances covered.

The full UNECE press release can be found at www.unece.org/entry-into-force-of-amended-göteborg-protocol/doc.html.

GENERAL

C40 Clean Air Cities Declaration

On 11 October 2019, 35 mayors pledged to deliver clean air for the more than 140 million people that live in their cities. By signing the C40 Clean Air Cities Declaration, the mayors recognise that breathing clean air is a human right and commit to work together to form an unparalleled global coalition for clean air.

The pledge unveiled at the C40 World Mayors Summit in Copenhagen commits cities to set ambitious pollution reduction targets and implement substantive clean air policies by 2025. By publicly reporting on their progress, the cities plan to generate a 'race to the top' in cleaning the air in the world's big cities.

Through the C40 Clean Air Cities Declaration, mayors commit to using their power and influence to reduce air pollution and work towards meeting the World Health Organization's Air Quality Guidelines. This means cities will continually reduce their local emissions, and advocate for reductions in regional emissions, resulting in continuous declines in air pollution levels that move towards the WHO guidelines.

The full press release is available to read at www.c40.org/press_releases/35-cities-unite-to-clean-the-air-their-citizens-breathe-protecting-the-health-of-millions.

2nd Hydrogen Energy Ministerial Meeting

On 25 September 2019, ministers and delegates from more than 30 countries attended the 2nd Hydrogen Energy Ministerial Meeting in Tokyo, Japan.

They reaffirmed the view that hydrogen can be a key contributor to clean, safe and affordable energy for the future. They also reaffirmed the value of collaborating further to accelerate the progress in hydrogen technologies, contributing to a "Hydrogen Society", as part of a broad energy portfolio.

To further encourage the use of hydrogen and fuel cells in this area, they agreed to share, where appropriate, global, aspirational goals such as, but not limited to, "10 million hydrogen powered systems" and "10 thousand Hydrogen Refuelling Stations (HRS)" in 10 years ("Ten, Ten, Ten"), as indicative, non-mandatory and collective goals to help incentivise and mobilise the private sector and investment community. Other possible examples include global or regional goals for clean hydrogen, which may be set based on individual national or state aims or mandates. To this end, a further study to estimate demand for clean hydrogen would be of value. With a view to achieving such goals, a range of actions, in areas of infrastructure development, market expansion,

harmonisation of regulations, codes and standards, R&D for next generation technology development, and ensuring safety in the use of hydrogen, will be encouraged.

The full statement is at www.meti.go.jp/press/2019/09/20190927003/20190927003-5.pdf.

RESEARCH SUMMARY

Effects of Emissions and Pollution

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Effects of prenatal exposure to air particulate matter on the risk of preterm birth and roles of maternal and cord blood LINE-1 methylation: A birth cohort study in Guangzhou, China, Xin Liu, et al.; *Environment International* (December 2019), Vol. 133, 105177, [doi: 10.1016/j.envint.2019.105177](https://doi.org/10.1016/j.envint.2019.105177).

Soy Biodiesel Exhaust is More Toxic than Mineral Diesel Exhaust in Primary Human Airway Epithelial Cells, Katherine Landwehr, et al.; *Environ. Sci. Technol.* (2019), Vol. 53, pp. 11437-11446, [doi: 10.1021/acs.est.9b01671](https://doi.org/10.1021/acs.est.9b01671).

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Emissions Measurements and Modelling

Intermediate and high ethanol blends reduce secondary organic aerosol formation from gasoline direct injection vehicles, Patrick Roth, et al.; *Atmospheric Environment* (in press), [doi: 10.1016/j.atmosenv.2019.117064](https://doi.org/10.1016/j.atmosenv.2019.117064).

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Emissions Control, Catalysis, Filtration

Size-resolved physico-chemical characterization of diesel exhaust particles and efficiency of exhaust aftertreatment, Soheil Zeraati-Rezaei, et al.; *Atmospheric Environment* (in press), [doi: 10.1016/j.atmosenv.2019.117021](https://doi.org/10.1016/j.atmosenv.2019.117021).

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duration in rich conditions, Chengxiong Wang, et al.; *Environ. Sci. Technol.* (in press), [doi: 10.1021/acs.est.9b03893](https://doi.org/10.1021/acs.est.9b03893).

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Transport, Climate Change & Emissions

IJER editorial: The future of the internal combustion engine, R Reitz, et al.; *International Journal of Engine Research* (in press), [doi: 10.1177/1468087419877990](https://doi.org/10.1177/1468087419877990).

FORTHCOMING CONFERENCES

Integer Emissions Summit USA

12-13 November 2019, Indianapolis, USA
www.integer-research.com/conferences/ies-usa-2019/

12th International ECMA Conference & Exhibition 2019 on Cleaner IC Engines for Sustainable Environment with Innovative Emission Control Technologies

14-15 November 2019, Pune, India
www.ecmaindia.in/eventsdetails.aspx?mpgid=41&pgidtrail=42&Eventsid=21

The ECT 2019 conference will address implementation of Bharat Stage VI emission norms and will look beyond, to forthcoming regulations such as RDE and World Harmonized Test procedures which will ensure that vehicles that come on the road in future are emissions-compliant in the true sense.

Greening Mobility: are we acting fast enough?

20 November, Brussels, Belgium
events.euractiv.com/event/info/greening-mobility-are-we-acting-fast-enough

9th China International Diesel Engine Summit 2019

21-22 November 2019, Beijing, China
www.borscon.com/2019de9/cn/index.html

The 9th China International Diesel Engine Summit will provide an opportunity to discuss China's energy-saving and emission-reduction policies and regulations for diesel engine, the latest technology progresses and future trends of new energy and alternative fuels, as well as innovative ideas in business modes.

POLIS Annual Conference

27-28 November 2019, Brussels, Belgium
www.polisnetwork.eu/2019conference
Europe's leading event on sustainable urban mobility in cities and regions

EU Clean Air Forum

28-29 November 2019, Bratislava, Slovakia
ec.europa.eu/info/events/eu-clean-air-forum-2019-nov-28_en

The European Commission is organising the 2nd Clean Air Forum in close collaboration with the Ministry of Environment of the Slovak Republic. It will focus on three themes: air quality and energy; air quality and agriculture; and clean air funding mechanisms.

Internal Combustion Engines and Powertrain Systems for Future Transport

11-12 December 2019, West Midlands, UK
events.imeche.org/ViewEvent?code=CON6849

The 2019 conference will provide a forum for IC engine, fuels and powertrain experts to look closely at developments in powertrain technology required to meet the demands of the low carbon economy

SAE World Congress Experience (WCX)

21-23 April 2020, Detroit, USA

www.sae.org/attend/wcx

41st International Vienna Motor Symposium

22-24 April 2020, Vienna, Austria

wiener-motorensymposium.at/en

TRA2020

27-30 April 2020, Helsinki, Finland

traconference.eu

TRA, The Transport Research Arena is the biggest European Research and Technology Conference on transport and mobility. In 2020 TRA is themed "Rethinking transport - towards clean and inclusive mobility" and brings together the experts from around the world to discuss the newest innovations and the future of mobility and transport.

SIA Powertrain & Energy

3-4 June 2020, Rouen, France

www.sia.fr/evenements/193-sia-powertrain-energy-rouen-2020

Deadline for abstract: 4 November 2019

SAE Powertrains, Fuels and Lubricants

22-24 September 2020, Krakow, Poland

www.sae.org/pfl

Call for abstracts opens in August 2019; deadline for abstract: 18 February 2020

SAE Heavy-Duty Diesel Emissions Control Symposium

13-14 October 2020, Gothenburg, Sweden

IRU World Congress

19-21 October 2020, Berlin, Germany

www.iruworldcongress.com