

NEWSLETTER

International Regulatory Developments

TABLE OF CONTENTS

EUROPE	2
EU Regulation on the Approval and Market Surveillance of Motor Vehicles.....	2
Response to MEP Question on CO ₂ Emission Standards.....	2
European Commission Consultations on Energy Directives.....	2
Judgement on Irish National Mitigation Plan	2
NORTH AMERICA	3
CARB adopts Low NOx Heavy-Duty Omnibus Regulation	3
CARB Workshop on achieving Carbon Neutrality	3
Senate Approves Diesel Emissions Reduction Act Reauthorisation.....	4
SOUTH & CENTRAL AMERICA	4
Status of Next Phase Brazilian Emission Standards	4
GENERAL	4
Analysis of European Passenger Car Registrations.....	4
ICCT Analysis of New Car CO ₂ Emissions in Europe.....	4
T&E Analysis of Road Fuel Taxes in Europe.....	5
RESEARCH SUMMARY	5
FORTHCOMING CONFERENCES	7

EUROPE

EU Regulation on the Approval and Market Surveillance of Motor Vehicles

On 31 August 2020, European Commissioner for Internal Market, Mr Thierry Breton, issued a press release communication on the EU regulation on the entry into force of EU Regulations on type approval and market surveillance of motor vehicles, which started to apply on 1 September 2020.

The key elements of the new EU rules include independence and improved quality of testing before a car is placed on the market, checks on cars that are already on the market and European oversight.

Since the adoption of the type approval and market surveillance Regulation in 2018, car manufacturers, type approval agencies and other stakeholders have been working to implement the new rules and adapt to the stricter requirements.

The Commission has provided additional resources for the Joint Research Centre (JRC) to carry out compliance and conformity checks on vehicles in laboratories or on the road, as part of the activities of its new role in market surveillance, funding necessary extra staff, operational costs and the construction of two new laboratories.

Commissioner Breton's communication is available to read at ec.europa.eu/commission/presscorner/detail/en/ip_20_1530.

Response to MEP Question on CO₂ Emission Standards

On 18 August 2020, European Commission for Internal Market, Mr Thierry Breton, responded to a written question from MEP Ms Sylvia Limmer (IDG, DE) regarding upcoming fleet CO₂ requirements and air pollutant standards.

Ms Limmer had asked if the Commission would suspend the planned introduction of new fleet CO₂ emission targets for a limited period. She also asked whether plans for stricter air pollutant emission standards would be maintained despite the coronavirus crisis and if so, on what grounds.

Mr Breton replied that although the European automotive industry is one of the sectors most hit by the pandemic crisis, it must develop into an industrial leader in lower and zero-emission vehicles. He confirmed that a Commission proposal for the revision of Regulation (EU) 2019/631 to reduce fleet CO₂ targets, as announced in the European Green Deal, is foreseen by June 2021.

The Commissioner also stated that there can be no roll back of the more stringent air pollutant emissions standards for combustion-engine vehicles to be adopted by the Commission by 2021 (Euro 7). He explained that the Commission is carrying out an evaluation of the Euro 6/VI vehicle emission standards and will assess to what extent these rules have contributed to the reduction of air pollutants emitted by road transport. The conclusions of this evaluation will feed into the Euro 7 impact assessment.

Mr Breton concluded by saying that any action on air pollutant emission limits must consider the EU's objective of achieving climate neutrality by 2050.

MEP Limmer's question is at www.europarl.europa.eu/doceo/document/E-9-2020-002632_EN.html and the response from Commissioner Breton at www.europarl.europa.eu/doceo/document/E-9-2020-002632-ASW_EN.pdf.

European Commission Consultations on Energy Directives

On 3 August 2020, the European Commission opened consultations on Roadmaps for the Renewable Energy and Energy Efficiency Directives. It says that the review of both Directives will be essential to identify how energy policies on renewables and energy efficiency will contribute in achieving the climate and environmental ambitions of the European Green Deal. The reviews are part of a broader process based on the upcoming adoption of the Climate Target Plan.

The roadmap on the Renewable Energy Directive will assess whether the EU renewable energy target of at least 32% for 2030 should be raised and whether other parts of the Directive require an adjustment in line with the Green Deal, including the Biodiversity Strategy.

The roadmap on the Energy Efficiency Directive will evaluate the adequacy of the rules in place to deliver the existing energy efficiency target of at least 32.5% for 2030.

The two roadmaps are open to responses until 21 September. The next phase in the review of these Directives will be an open public consultation later this year.

The roadmaps are available at ec.europa.eu/info/law/initiatives/12553-Revision-of-the-Renewable-Energy-Directive-EU-2018-2001 and ec.europa.eu/info/law/initiatives/12552-Review-of-Directive-2012-27-EU-on-energy-efficiency.

Judgement on Irish National Mitigation Plan

On 31 July 2020, the Irish government responded to the Supreme Court ruling that its National Mitigation Plan fails to comply with the Climate Action and Low Carbon Development Act, because it does not set out how the national transition objective of decarbonising Irish society is to be achieved.

The government says it is now committed to an average 7% per annum reduction in overall greenhouse gas emissions from 2021 to 2030, equivalent to a 51% reduction over the decade and to achieving net zero emissions by 2050.

It will set its 2050 target in law through the Climate Action Bill, which will be introduced in the Dáil (Parliament) within the first 100 days of government.

The statement from the Irish Environment Minister is at www.gov.ie/en/press/minister-ryan-welcomes-judgement-of-supreme-court-in-relation-to-national-mitigation-plan.

NORTH AMERICA

CARB adopts Low NOx Heavy-Duty Omnibus Regulation

On 27 August 2020, The California Air Resources Board (CARB) conducted a public hearing where the Board voted unanimously the adoption of the proposed Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments (HD Omnibus Regulation).

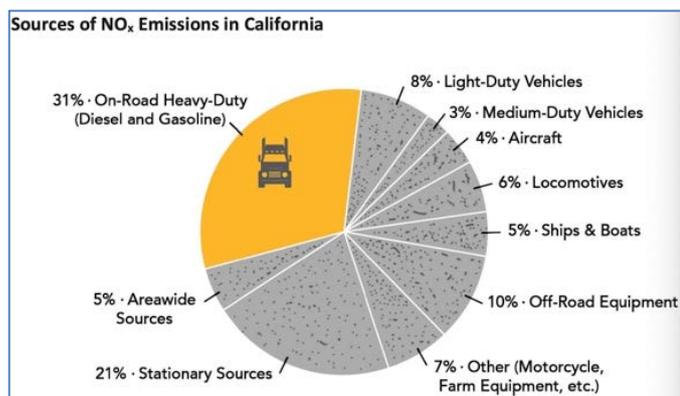
Heavy-duty vehicles remain one of the main sources of NOx emissions in California. The HD Omnibus regulation is intended to work together with the recently adopted (June 2020) Advanced Clean Trucks (ACT) regulation. The Heavy-Duty Omnibus Regulation will ensure that the remaining internal combustion engine (ICE) based vehicles are as clean as possible. It is also critical for meeting California's obligation under the Clean Air Act.

The HD Omnibus rulemaking contains elements of real-world emissions and reduces the NOx limit by 90%. It also includes provision to incentivise heavy-duty zero emission vehicles and longer useful life, which will require more durable parts. In essence, these standards constitute the most significant regulation for a decade and will be challenging for OEMs to comply with.

Prior to the hearing, on 10 August 2020, CARB published a fact sheet on the proposed regulation. This summarises the regulation and its benefits, which include 24 tons per day (tpd) reductions in oxides of nitrogen (NOx) in 2031 for California-only standards.

The fact sheet points out that the NOx reductions are the equivalent of taking 16 million light-duty cars off the road. This is estimated to result in roughly 3 900 avoided premature deaths and 3 150 avoided hospitalisations state-wide over the life of the rule.

On-road heavy-duty vehicles comprise 31% of NOx emissions in California, the largest single source of this pollutant in the state.



The proposed regulation would reduce NOx standards to 75% below current standards from 2024 and 90% lower from 2027. Along with tighter limits, it is also intended to improve the in-use testing and durability demonstration programmes, as well as improving warranty, useful life and emissions warranty information and reporting.

The hearing included 52 comments from different stakeholders, from government officials to associations and NGOs. Relevant stakeholders like the Manufacturers of Emission Controls Association (MECA) and the Engine Manufacturers Association (EMA) were amongst the ones who commented the CARB's proposed HD Omnibus Regulation.

The CARB staff presentation is available at ww3.arb.ca.gov/board/books/2020/082720/20-8-2pres.pdf.

and the fact sheet can be found at ww2.arb.ca.gov/sites/default/files/2020-08/HD_NOx_Omnibus_Fact_Sheet.pdf?source=govdelivery.

MECA's comments on the proposed HD Omnibus Regulation are available from www.meca.org/attachments/3552/MECA_Low-NOx_Omnibus_Comments_08272020_Final.pdf.

CARB Workshop on achieving Carbon Neutrality

On 19 August 2020, the California Air Resources Board (CARB) held a virtual public workshop to discuss a recent publication by Energy and Environmental Economics (E3), identifying scenarios California could take to reduce emissions from the fossil energy and industrial sectors to help achieve carbon neutrality by 2045.

CARB contracted the report to help initiate planning for 2022 Scoping Plan Update that will focus on technology and fuel transformations to achieve 80% reduction in greenhouse gases (GHGs) from 1990 levels by 2045. The study examined three scenarios of 80% to 92% reductions in direct emissions (energy and non-combustion GHGs) by 2045, using a "high electrification" scenario as the starting point for each.

All scenarios would increase electric loads by 50-90% relative to today by 2045. They also assume similar total quantity of waste and residues biomass for biofuels, based on California's population-weighted share of waste biomass. The Balanced and Zero Carbon Energy scenarios assume widespread use of hydrogen in heavy-duty vehicle trucks and industry. The largest source of remaining GHG emissions in all scenarios is from high global warming potential gases. All scenarios include a significant reduction in fuel combustion relative to today, implying potential co-benefits for air quality and human health could be significant.

All scenarios involve risk trade-offs in the categories of technology adoption risk and implementation risk. Technology adoption risk includes the risk that consumers will be able to feasibly transition to buying electric technologies by a certain timeline. Implementation risk includes the risk that certain technologies will be commercialised and cost-effective by 2045, such as hydrogen and biofuel production.

Presentation slides from the workshop are available at ww2.arb.ca.gov/our-work/programs/carbon-neutrality/carbon-neutrality-meetings-workshops.

Senate Approves Diesel Emissions Reduction Act Reauthorisation

On 23 July 2020, the US Senate approved the reauthorisation of the Diesel Emissions Reduction Act (DERA) of 2019.

This programme helps finance the replacement of older diesel engines with cleaner, American-made technology. The amendment reauthorises the programme through fiscal year 2024 at its current funding levels and ensures equal funding opportunities between both metropolitan centres and less populated, rural areas across the country.

The DERA programme is administered by the Environmental Protection Agency (EPA) and distributes federal grants, rebates and loans to leverage state and other non-federal funding to finance the voluntary replacement or installation of retrofits on existing heavy-duty diesel vehicles and engines.

The US Senate announcement can be found at www.epw.senate.gov/public/index.cfm/2020/7/senate-approves-bipartisan-dera-reauthorization-in-ndaa.

SOUTH & CENTRAL AMERICA

Status of Next Phase Brazilian Emission Standards

On 7 August 2020, the International Council on Clean Transportation (ICCT) published a blog highlighting the implications of delaying the next stages of emission standards in Brazil, as requested by the Brazilian automotive industry to help it cope with the impact of the COVID-19 pandemic.

The ICCT reports that industry has asked for a three-year postponement of the introduction of P-8 for heavy-duty and L-7 for light vehicles, due to be introduced in 2022.

If the longest possible implementation period was already chosen to introduce new technologies and an even greater delay would reward “only those who did not prioritise the technological advancement required by the country”. ICCT goes on to say that component manufacturers and suppliers who have already invested in Euro VI technology would suffer, and that Euro VI vehicles are already being made in Brazil, albeit for export.



Brazil, the NGO points out, is already lagging behind other large nations with regard to implementation dates, as the heavy-duty chart above shows. Further delays would damage its competitiveness, as other countries in Latin America are also planning, if they have not already implemented equivalent legislation, in the next two to three years.

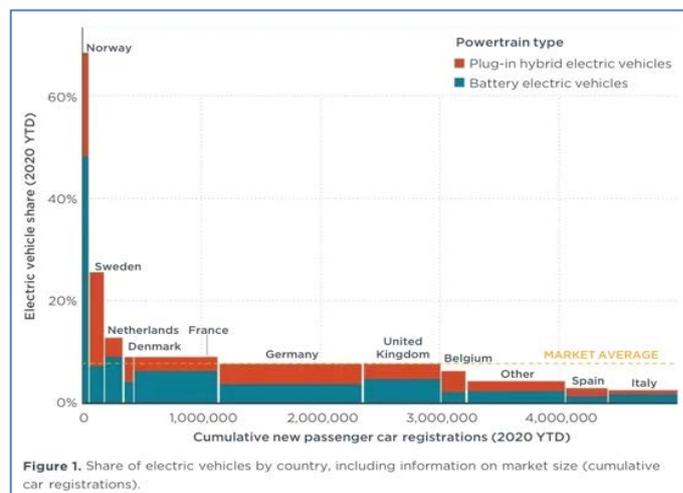
The ICCT blog is available to read at theicct.org/blog/staff/covid-e-proconve-20200807.

GENERAL

Analysis of European Passenger Car Registrations

On 5 August 2020, the International Council on Clean Transportation (ICCT) published analysis of European passenger car registrations for the first half of 2020.

In June 2020, new car registrations in France and Belgium returned to June 2019 levels. Italy and Spain six-month registration volumes remain 51% lower than in 2019. In most other markets, the gap compared with January–June 2019 is at around 30%. The year-to-date share of electric vehicles was the highest in Norway (68%), with two thirds of those being battery electric vehicles. Iceland (44%), Sweden (26%), Finland (16%), the Netherlands (14%), Portugal (10%), and France (9%) are currently the other above-average electric vehicle markets in Europe.



ICCT says that it has updated its methodology to reflect the 2019 performance of manufacturers with respect to average vehicle mass and the application of eco-innovations, and improved correlation factors between NEDC and WLTP CO₂ emission levels for some vehicles. It claims that the last change in particular has a strong influence on its monitoring of average CO₂ levels with respect to manufacturers’ 2020 regulatory targets.

On this basis, ICCT calculated that the European car industry is on average within 7% of regulatory CO₂ targets.

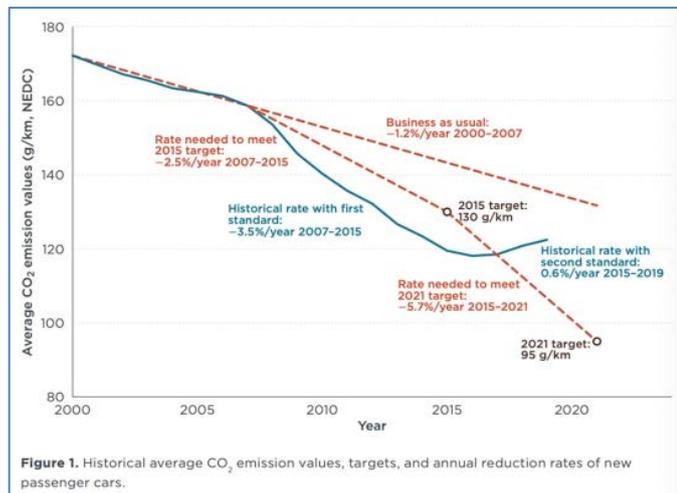
The full analysis is available to read at theicct.org/publications/market-monitor-european-passenger-car-registrations-january-june-2020.

ICCT Analysis of New Car CO₂ Emissions in Europe

On 26 August 2020, the International Council on Clean Transportation (ICCT) published a briefing note analysing CO₂ levels of new passenger cars in the EU in 2019 based on a preliminary dataset recently released by the European Environment Agency (EEA). The provisional EEA figures were reported in AECC News of 3 July 2020.

The paper details manufacturer performance in terms of CO₂ emissions reduction, fuel type and technology trends, and market

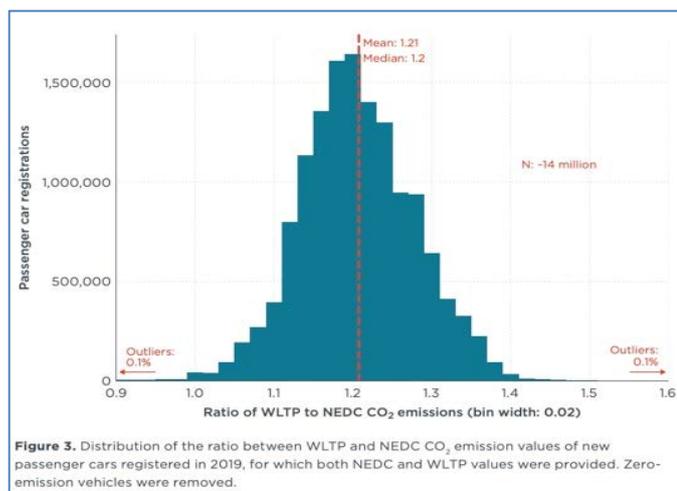
share. It focuses on differences between Member States, as well as between the major car makers. It also discusses flexible compliance mechanisms and presents data on the Worldwide Harmonized Light Vehicles Test Procedure (WLTP).



ICCT points out that although overall fleet-average CO₂ emissions increased by 1 g/km from 2018 to 2019, three manufacturers recorded a decrease in average emissions. One of these was the FCA-Tesla ‘pool’, the others being Toyota-Mazda and Nissan.

The briefing says that “overall gains in electrified powertrains almost offset the five-percentage-point decline in diesel sales, limiting the growth in petrol vehicles to two percentage points.”

Analysis of the ratio between WLTP and NEDC CO₂ emission values shows that the mean and median ratio were 1.21 and 1.2 respectively, almost identical to the 2018 averages. ICCT says that this topic will require continued scrutiny in the run-up to 2020/21 CO₂ emission targets.



ICCT warns against extrapolating these data to future years, as a number of factors will affect manufacturers’ compliance with the 2020/21 CO₂ targets. It says that there is potential for emissions reduction for conventional combustion engine vehicles, including lightweighting and improvements in aerodynamic and rolling

resistance. There may also be substantial growth in the hybrid and electric vehicle market. The application of eco-innovation credits could greatly increase. The number of approved eco-innovation technologies reached 30 in 2020, but according to ICCT, only a fraction of them have been installed in significant numbers.

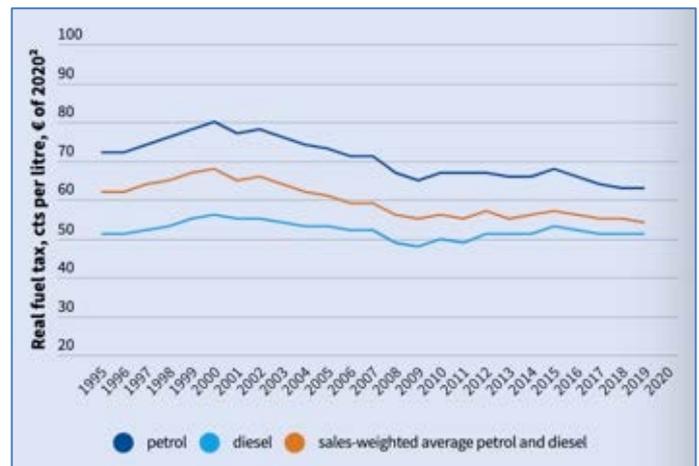
The full ICCT briefing note can be found at theicct.org/sites/default/files/publications/CO2-EU-update-aug2020.pdf.

T&E Analysis of Road Fuel Taxes in Europe

On 4 August 2020, Transport & Environment (T&E) published updated analysis of fuel taxes in the EU and UK.

T&E says that although road transport accounts for 21% of total EU greenhouse gas (GHG) emissions, in real terms, fuel taxes have decreased in recent decades. The sales-weighted average petrol and diesel fuel tax dropped from 68 cents per litre of fuel in 2000 to 54 cents in 2019.

It goes on to say that EU Member States have been rethinking their tax policies, closing the gap between diesel and petrol taxes, albeit very slowly. In 2019, the gap in tax levels for diesel and petrol paid by motorists approaches €0.12 per litre, diesel tax being 27% lower than petrol tax per unit of energy.



Only two countries – UK and Belgium – have equal taxes for petrol and diesel. Greece on the other hand has a difference of 29 cents between the fuels, which T&E says is exacerbating the air pollution.

T&E’s analysis can be found at www.transportenvironment.org/what-we-do/sustainable-finance/fuel-taxes.

RESEARCH SUMMARY

Effects of Emissions and Pollution

Time-weighted average of fine particulate matter exposure and cause-specific mortality in China: a nationwide analysis, Zhaomin Dong, et al.; *The Lancet Planetary Health* (August 2020), Vol 4, [doi.org/10.1016/S2542-5196\(20\)30164-9](https://doi.org/10.1016/S2542-5196(20)30164-9)

Air emission impacts of low-level automated vehicle technologies in U.S. metropolitan areas, Saeed Vasebi, et al.; *Transportation Research Interdisciplinary Perspectives* (September 2020) Vol 7, 100194, doi.org/10.1016/j.trip.2020.100194.

Air Quality, Sources and Exposure

Indoor and outdoor concentrations of benzene, toluene, ethylbenzene and xylene in some Italian schools evaluation of areas with different air pollution, Patrizia Lucialli, et al.; *Atmospheric Pollution Research* (in press), doi.org/10.1016/j.apr.2020.08.007

Distribution characteristics and policy-related improvements of PM2.5 and its components in six Chinese cities, Qiong Wang, et al.; *Environmental Pollution* (in press), doi.org/10.1016/j.envpol.2020.115299

Assessment of the PM2.5 oxidative potential in a coastal industrial city in Northern France: Relationships with chemical composition, local emissions and long range sources, Lamia Moufarrej, et al.; *Science of The Total Environment* (in press), doi.org/10.1016/j.scitotenv.2020.141448

Did the London Congestion Charge Reduce Pollution? Colin P. Green, et al.; *Regional Science and Urban Economics* (in press), doi.org/10.1016/j.regsciurbeco.2020.103573

Air pollution and cause-specific mortality: a comparative study of urban and rural areas in China, Shuang Zhao, et al.; *Chemosphere* (in press), doi.org/10.1016/j.chemosphere.2020.127884

Vehicular non-exhaust particulate emissions in Chinese megacities: source profiles, real-world emission factors, and inventories, Jinsheng Zhang, et al.; *Environmental Pollution* (in press), doi.org/10.1016/j.envpol.2020.115268

Multi-city comparative PM2.5 source apportionment for fifteen sites in Europe: The ICARUS project, D Saraga, et al.; *Science of The Total Environment* (in press), doi.org/10.1016/j.scitotenv.2020.141855

Machine learning reveals that prolonged exposure to air pollution is associated with SARS-CoV-2 mortality and infectivity in Italy, Roberto Cazzolla Gatti, et al.; *Environmental Pollution* (in press), doi.org/10.1016/j.envpol.2020.115471

The experimental study on transient emissions and engine behaviors of a sporting motorcycle under World Motorcycle Test Cycle, Jianqin Fu, et al.; *Energy* (in press), doi.org/10.1016/j.energy.2020.118670

Comprehensive analysis of the air quality impacts of switching a marine vessel from diesel fuel to natural gas, Weihang Peng, et al.; *Environmental Pollution* (November 2020) Vol 266, 115404, doi.org/10.1016/j.envpol.2020.115404

Emissions Measurements and Modelling

An open-path dual-beam laser spectrometers and Actuators A: Physicaletor for path-integrated urban NO2 sensing, Jun Chen, et al.; *Sensors and Actuators A: Physical* (in press), doi.org/10.1016/j.sna.2020.112208

Multiscale characterization of exhaust and crankcase soot extracted from heavy-duty diesel engine and implications for DPF ash, Sujay Bagi, et al.; *Fuel* (December 2020) Vol 282, 118878, doi.org/10.1016/j.fuel.2020.118878

Statistical evaluation of on-road vehicle emissions measurement using a dual remote sensing technique, Yuhang Huang, et al.; *Environmental Pollution* (in press), doi.org/10.1016/j.envpol.2020.115456

Characterizing the gaseous and particulate SVOC emissions of a commercial light-duty compression ignition engine via GCxGC-ToF-MS, Zhirong Liang, *Fuel* (January 2021) Vol 284, 118918, doi.org/10.1016/j.fuel.2020.118918

Emissions Control, Catalysis, Filtration

Observations of new particle formation, modal growth rates, and direct emissions of sub-10 nm particles in an urban environment, Alyssa Zimmermann, et al.; *Atmospheric Environment* (in press), doi.org/10.1016/j.atmosenv.2020.117835

The effect of ethanol and iso-butanol blends on polycyclic aromatic hydrocarbon (PAH) emissions from PFI and GDI vehicles, Cavan McCaffery, et al.; *Atmospheric Pollution Research* (in press), doi.org/10.1016/j.apr.2020.08.024

One-pot synthesis of Fe/Cu-SSZ-13 catalyst and its highly efficient performance for the selective catalytic reduction of nitrogen oxide with ammonia, Jie Wan, et al.; *Journal of Environmental Sciences* (February 2021) Vol 100, doi.org/10.1016/j.jes.2020.08.003

Transport, Climate Change & Emissions

Review of the regulations and techniques to eliminate toxic emissions from diesel engine cars, A.G. Olabi, et al.; *Science of The Total Environment* (in press), doi.org/10.1016/j.scitotenv.2020.141249

In-car particulate matter exposure across ten global cities, Prashant Kumar, et al.; *Science of The Total Environment* (in press), doi.org/10.1016/j.scitotenv.2020.141395

Integration of renewable hydrogen in light-duty vehicle: Nexus between energy security and low carbon emission resources, Wu He, et al.; *International Journal of Hydrogen Energy* (in press), doi.org/10.1016/j.ijhydene.2020.06.177

Dual fuel combustion and hybrid electric powertrains as potential solution to achieve 2025 emissions targets in medium duty trucks sector, Antonio Garcia, et al.; *Energy Conversion and Management* (November 2020) Vol 224, 113320, doi.org/10.1016/j.enconman.2020.113320

FORTHCOMING CONFERENCES

ONLINE 48th European Transport Conference

9-11 September 2020, Milan, Italy

aetransport.org

Future of Biofuels

22-23 September 2020, Copenhagen, Denmark (postponed from June)

fortesmedia.com/future-of-biofuels-2020

ONLINE SAE Powertrains, Fuels and Lubricants

22-24 September 2020, Krakow, Poland

www.sae.org/pfl

European Research & Innovation Days

22-24 September 2020, Online

ec.europa.eu/info/research-and-innovation/events/upcoming-events/european-research-and-innovation-days_en

Driving the Green Deal: how can biofuels help decarbonise EU transport?

24 September 2020, Brussels, Belgium

events.euractiv.com/event/info/driving-the-green-deal-how-can-biofuels-help-decarbonise-eu-transport

ONLINE FVV 2020 Autumn Conference

24-25 September 2020, Würzburg, Germany

www.fvv-net.de/en/events

Urban Mobility Days 2020

29 September – 2 October 2020, Online

www.eltis.org/in-brief/news/registration-now-open-urban-mobility-days-2020

ONLINE Decarbonisation of Heavy Transport and the Role of Hydrogen

1 October 2020, Brussels, Belgium

www.politico.eu/event/decarbonize-heavy-transport

ONLINE 29th Aachen Colloquium

5-7 October 2020, Aachen, Germany

www.aachener-kolloquium.de/en

POSTPONED IRU World Congress

19-21 October 2020, Berlin, Germany

www.iruworldcongress.com

Ricardo Motorcycle Conference 7.0

2 November 2020, Milan, Italy

i.emlfiles4.com/cmpdoc/9/8/9/9/1/1/files/65919_mcc-7.0_callforpapers_v3.pdf?dm_i=2KL1,1LHJG,372FEM,5EVQY,1

SIA Powertrain & Energy

3-4 November 2020, Rouen, France (postponed from June/September)

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

5th Green & Sustainable Chemistry Conference

8-11 November 2020, Dresden, Germany

www.elsevier.com/events/conferences/green-and-sustainable-chemistry-conference

4th International FEV Conference: Zero CO₂ Mobility

10-11 November 2020, Aachen, Germany

www.fev.com/en/coming-up/fev-conferences/fev-conference-zero-co2-mobility

Hydrogen and P2X European Conference

25-26 November 2020, Copenhagen, Denmark

fortesmedia.com/hydrogen-p2x-2020,4,en,2,1,4.html

2020 Annual POLIS Conference

2-3 December 2020

www.polisnetwork.eu/2020-annual-polis-conference

The Polis Annual Conference provides an opportunity for cities and regions to showcase their transport achievement to large audience of mobility experts, practitioners and decision makers.

11th VERT Forum

25 March 2021, Dübendorf, Switzerland (postponed from March 2020)

www.vert-certification.eu

International Transport and Air Pollution Conference

30-31 March 2021, Graz, Austria (postponed from September 2020)

www.tapconference.org

The main topics of the 24th TAP Conference include energy consumption and GHG emissions from vehicles, open issues for pollutant emissions, such as tampering, retrofits of software and hardware and non-regulated pollutants, emissions from non-road mobile machinery and other transport modes and measurements and simulation of traffic related environmental impacts and air quality.

9th AVL Large Engines Techdays

21-22 April 2021, Graz, Austria

www.avl.com/large-engines-techdays

42nd International Vienna Motor Symposium

28-30 April 2021, Vienna, Austria

wiener-motorensymposium.at/en/

8th International MinNOx Conference

16-17 June 2021, Berlin, Germany (postponed from September 2020)

www.iav.com/en/events/minnox

SAE Heavy-Duty Diesel Emissions Control Symposium

5-6 October 2021, Gothenburg, Sweden (postponed from October 2020)

www.sae.org/attend/heavy-duty-diesel-emissions-control-symposium