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AECC Position Paper on Euro 7

On 9 May 2023, AECC published an updated position paper on the proposed Euro 7 emission standards for cars, vans, buses and trucks.

This new AECC paper states that Euro 7 is needed to ensure all powertrains contribute to improved air quality and works together with other legislative efforts to reduce CO₂ emissions from the transport sector.

The paper provides further evidence showing that the proposed Euro 7 limits are technically feasible, both for light-duty and heavy-duty vehicles. It adds that affordable emission control technologies for Euro 7 are available today and that costs for such components are to be considered incremental compared to Euro 6/VI baseline costs according to the European Commission's impact assessment.

AECC calls for a swift adoption of ambitious Euro 7 emission standards, before the EU elections in 2024. This is key to ensure a prompt implementation of the Euro 7 proposal, further improving European cities' air quality as soon as possible.

The AECC position paper is available at aecc.eu/wp-content/uploads/2023/05/230509-AECC-position-on-Euro7-final.pdf.

EUROPE

Confirmation of Date for European Elections

On 22 May 2023, the European Council confirmed that the next elections to the European Parliament will take place from 6 to 9 June 2024.

These are the dates applicable under the EU Electoral Act, which determines that the European parliamentary elections take place every five years, from Thursday to Sunday, normally in the first full week of June. The dates were confirmed after exchanges within the Council preparatory bodies.

Member States will now determine, according to their respective legal and constitutional frameworks, the date or dates in the period from 6 to 9 June 2024 when they will be holding the vote in their country.

The Council press release is at consilium.europa.eu/en/press/press-releases/2023/05/22/council-confirms-6-to-9-june-2024-as-dates-for-next-ep-elections/.

Non-Paper on Euro 7 from EU Member States

On 23 May 2023, a coalition of eight EU Member States expressed their opposition to any new exhaust emission rules and proposed new application dates for light-duty vehicles and heavy-duty vehicles in a joint non-paper on the proposal setting the emission type approval of light and heavy-duty vehicles (Euro 7).

Czechia, Bulgaria, France, Hungary, Italy, Poland, Romania, and Slovakia have signed the non-paper in which the Member States expressed their opposition to any new exhaust emission rules (including new testing requirements or new emission limits) for cars and vans, arguing that these new rules would divert the industry's investments from achieving the net-zero transition pathway set out in the recently adopted CO₂ regulation.

In addition to the new exhaust emission rules, the joint nonpaper describes the Euro 7 proposal's emission limits as unrealistic and lists a series of concerns and proposed solutions.

In particular, the Member States describe the proposed application dates as far from being realistic to meet new requirements and suggest an extension of at least three years from the moment of adoption of the whole package (including implementing acts) for cars and vans and of at least five years for heavy-duty vehicles.

Moreover, the coalition describes the ambitions for the new requirements on HDVs as overambitious, in particular, CO and NOx cold emissions limits as well as new PN limits and requests differentiated conditions for individual HDV categories.

In addition, the non-paper calls for the Commission's scope of empowerment to adopt implementing and delegated acts to be limited and clearly defined and suggests the Euro 7/VII proposal be linked with the recently published CO_2 proposal for HDV

ENVI Draft Report on Euro 7 Proposal

On 26 May, the Euro 7 rapporteur of the ENVI Committee of the European Parliament, MEP Vondra (ECR, Czechia), published his draft report.

In the explanatory note, the rapporteur states he identified several reservations about the feasibility and effectiveness of the Commission proposal. The Rapporteur emphasises that the co-legislators face a significant task ahead if they are to ensure that the adopted Euro 7 rules are proportionate and ultimately fit for purpose. Reservations listed cover costs (referring to Frontier Economics study on behalf of ACEA, see below in Industry section), technological feasibility and diverting resources from decarbonisation.

The report lists amendments on the Euro 7 proposal of the European Commission, covering longer lead times before implementation, changes to light-duty test conditions, change in limits and test conditions for heavy-duty vehicles and adding provisions for type approval of vehicles running on CO_2 -neutral fuels.

The draft report will be discussed in the ENVI Committee on 15 June 2023. ENVI MEPs can then submit amendments to the report until 21 June 2023. Voting on the amendments in



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ENVI is foreseen for September 2023. The final vote on the report in Plenary is then expected in October 2023.

The draft report is available at europarl.europa.eu/doceo/document/ENVI-PR-746876 EN.pdf

ITRE Debate on Euro 7

The ITRE Committee met on 22 May 2023 to exchange views on the rapporteur's draft opinion on the measure.

MEP Marinescu (EPP, Romania), substituting Rapporteur Salini (EPP, Italy), explained the content of the draft report (see AECC News of 22 May 2023).

Shadow rapporteur Ecke (S&D, Germany) stressed that idea was to bring good jobs to Europe and clarified that its political group had some commonalities and differences with the text. He said the Commission's deadlines are too ambitious, arguing that they should be discussed, while stating that emissions limits would need to be realistic. While cars last at least 15 years, the aim is to set up future-proof standards and keep vehicles working as long as possible. The MEP further emphasised the need to ensure that pollution goes down with Euro 7 and the need to help the industry to electrify vehicles successfully.

MEP Solís Pérez (Renew, Spain), substituting shadow rapporteur Glück (Renew, Germany) underlined that the automotive industry is changing to decarbonise quickly and knows that internal combustion engine cars have a deadline. The Euro 7 standards took the challenges but the changes for vans and HDVs have very unrealistic deadlines. She agreed with almost all the points raised by the ITRE Rapporteur.

Shadow rapporteur Dauchy (ID, France) highlighted that the draft opinion was going in the right direction and greatly improved the Commission's proposal.

On behalf of the Commission, Mr Mark Nicklas (head of unit in DG-GROW) recalled the objective is to improve air quality and to reduce emissions in transport while ensuring vehicles are produced in Europe and keep vehicles affordable. He noted this seems to be shared by all. The head of unit also welcomed the clarifications from the draft Opinion since the Commission wasn't clear and clarified that the rules on tires should follow international standards that are discussed at the UNECE. The extended driving conditions were also greatly clarified. On the other hand, Mr Nicklas said that the timetable presented by the Commission was ambitious and will lead to further discussions, but that it is a matter of agreement between the Parliament and the Council. The head of unit also underlined that issues on vans and HDVs could be further discussed but stressed that the EU cannot lose focus internationally since other markets have also implemented stricter regulations (both in the US and China). The Commission also added that carbon-neutral cars would have the same emissions if there are no pollutant limits being agreed upon by the text.

MEP Marinescu concluded by saying that the draft opinion seemed to be a good base for all and could lead to an agreement quickly. The MEP also added that the Delegated Acts should have a different timeline.

The ITRE Committee is provisionally scheduled to adopt its opinion on the measure on 19 July 2023.

The Committee meeting can be replayed at europarl.europa.eu/en/webstreaming/itre-committee-meeting 20230522

Appointment of Shadow Rapporteurs for HDV CO₂ Performance Standards

On 16 May 2023, the ID, ECR and GUE/NGL in the European Parliament named their Shadow Rapporteurs, Environment (ENVI) Committee on the proposal revising the CO₂ emission performance standards for new heavy-duty vehicles (HDV).

MEPs Silvia Sardone (ID, IT), Pietro Fiocchi (ECR, IT) and Nikolaj Villumsen (GUE/NGL, DK) will assist the Rapporteur MEP Yannick Jadot (Greens/EFA, FR) alongside the other Shadow Rapporteurs, in developing the ENVI Committee's draft Report on the proposal.

the ENVI Committee is provisionally scheduled to exchange views on the forthcoming Rapporteur's draft Report on the proposal on 26 June 2023, while ENVI MEPs will have until 4 July 2023 to table amendments to the draft Report.

Confirmation of the appointments is at oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?referenc e=2023/0042(COD)&l=en.

TRAN Committee Draft Opinion on HDV CO₂ Emission Performance Standards

On 11 May 2023, the Transport and Tourism (TRAN) Committee of the European Parliament published a draft opinion on the proposal for a regulation amending Regulation (EU) 2019/1242 as regards strengthening the CO₂ emission performance standards for new heavy-duty vehicles and integrating reporting obligations, and repealing Regulation (EU) 2018/956. Rapporteur for opinion is MEP Andris Ameriks (S&D, LV).

The Rapporteur says that a valuable point of the proposal is the inclusion of urban buses into the amending Regulation. The CO_2 emission reduction in urban areas will bring several positive aspects, improving air quality of cities as well as individual health of European people. In light of this, the Rapporteur underlined the importance of shortening the timeline for the Commission for adopting delegated acts.

The Rapporteur says he seeks to ensure that the future heavy duty vehicle fleet will play its part in leading to a 90% reduction in greenhouse gas emissions from transport by 2050, with respect to 1990, while providing benefits for European transport operators and users, most of which are



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SMEs, resulting from a wider deployment of more energyefficient vehicles.

Proposed amendments relate particularly to charging infrastructure and to a Just Transition.

The draft opinion can be found at europarl.europa.eu/doceo/document/TRAN-PA-748959_EN.pdf.

TRAN Opinion Report on AQ Directive

On 25 May 2023, the Committee of Transport and Tourism (TRAN) of the European Parliament published its draft opinion report on the review of the Air Quality Directive.

The draft report welcomes the review of the Air Quality Directive and states it is important further strengthening the transport-related elements that will be part of the information included in Member States' air quality plans for the improvement of ambient air quality. Information on air pollution shall be broken down and reported per each mode of transport. Furthermore, information shall be provided on all measures to reduce air pollution in hotspots, including in ports, notably through the deployment of on-shore power infrastructure for ships at berth, as well as measures to better protect the health of workers who are exposed to unhealthy levels of air pollution in their profession. Also information regarding existing and planned zero-emission zones and data relevant for the reductions of emissions and pollutant concentrations contained in Sustainable Urban Mobility Plans shall be provided. It is added the rapporteur believes it is necessary to improve the functioning of the sampling points for air pollutants, especially in locations where pollution levels are predominately determined by concentrations of traffic emissions from nearby roads. The Commission should adopt guidance and templates concerning the content, structure and format of the Member States' air quality indexes. The Commission should also regularly commission an independent review of the scientific evidence related to air pollutants and their effects on human health and the environment, involving the World Health Organization.

The report then lists all the amendments proposed by the rapporteur, to be further discussed in the TRAN Committee.

The report is available at europarl.europa.eu/doceo/document/TRAN-AD-742298_EN.pdf

NORTH AMERICA

Senior Appointment to White House Climate Policy Office

On 10 May 2023, the International Council on Clean Transportation announced that its founding Executive Director, Drew Kodjak, will join the Biden-Harris Administration to serve as Senior Director of Transportation Emissions in the White House Climate Policy Office.

Mr Kodjak will be replaced at ICCT by Ms Rachel Muncrief as Acting Executive Director and Stephanie Searle as the new Deputy Director.

The ICCT announcement is at theicct.org/drew-whcpo-may23/.

Report on Benefits of adopting California ACC II Standards in 16 States

On 24 May 2023, the International Council on Clean Transportation (ICCT) published a consultant report from Sonoma Technology on the benefits of adopting California's Advanced Clean Cars II standards in 16 US states.

Baseline emissions modelling using the U.S. Environmental Protection Agency's (EPA) MOtor Vehicle Emission Simulator 3 (MOVES3) model was conducted. MOVES input data and growth rates relevant to the analysis were provided by each state, and these were used along with NEI input data. Emissions modelling was conducted for 2017 as a base year, 2030, and 2040.

The baseline MOVES output was adjusted in post-processing to account for the benefits of ACC II. Emissions scenarios were developed with the ACC II programme starting in model years 2026 and 2027. The in-use ZEV fractions were used to calculate ZEV electricity consumption. Projections of light-duty ZEV population over time were generated using each state's current in-use ZEV population, and CARB estimates of in-use ZEV increases due to the rule. EPA's CO-Benefits Risk Assessment (COBRA) model was used to estimate the health benefits associated with implementation of the ACC II programme in each state for calendar year 2040.

Emission reductions for adoption of the California ACC II program vary by calendar year, programme start date (model year 2026 or model year 2027), and state. By calendar year 2040, the LDV emissions reductions ranged from 40% to 54% for NOx, 16%-22% for PM2.5, and 57%-76% for CO2e. Well to wheel emissions reductions ranged from 9% to 120% for NOx, 2%-57% for PM2.5, and 54%-100% for CO2e. Delaying programme implementation by one model year leads to a net loss of benefit of 7.5% in calendar year 2027, declining to 3% in calendar year 2040. All states showed a net health benefit in the COBRA modelling.

The report can be found at theicct.org/wp-content/uploads/2023/05/ACC-II-project-report-final-042623.pdf.

US EPA RFI on Zero-Emission HDVs

On 8 May 2023, US Environmental Protection Agency (EPA) has announced a technical Request for Information (RFI) on zero-emissions heavy-duty vehicles and port equipment to inform the development of the new Clean Heavy-Duty Vehicles and Clean Ports Programs in the Inflation Reduction Act. EPA invites manufacturers, fleets, ports, municipalities, school districts, utilities, and other stakeholders with zero-



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emission technology experience or understanding to respond to this RFI, by June 5, 2023. EPA is specifically requesting information on availability, performance, pricing and practical considerations such as best practices and workforce training needs for class 6 and 7 heavy-duty vehicles, port equipment and charging infrastructure.

Respondents are also requested to explain if equipment and components are currently manufactured in the United States or expect to be in the near future. Responses will help EPA understand the availability of U.S. manufactured equipment and components to better create targeted funding programs and address Build America Buy America requirements. This information will also help inform EPA in discussions with other federal, state, and private sector stakeholders in helping determine approaches in supporting different funding opportunities.

The announcement is available at regulations.gov/document/EPA-HQ-OAR-2023-0216-0001

ASIA-PACIFIC

Confirmation of China VI-b Standards Implementation

On 9 May 2023, the Chinese government confirmed that the China VI-b national emission standard for all new vehicles will proceed as scheduled from 1 July, and will prohibit the production, import and sales of vehicles that do not meet the standard.

The new regulation had been scheduled for 1 July, although there had been some industry calls for the implementation date to be postponed. China VI-b introduces slightly more stringent testing requirements and portable emissions monitoring.

The guideline released by the government noted that for light-duty commercial vehicles, if their pollutant emission testing reports from actual driving showed a result that only requires monitoring, a six-month sales transition period will be granted, and such vehicles will be allowed for sale until December 31.

A report on the announcement can be found at chinadaily.com.cn/a/202305/10/WS645af964a310b6054fad21c1.html.

Indian Government Panel Proposal on Diesel Car Ban

On 8 May 2023, the Indian Ministry of Petroleum and Natural Gas published a report of the Energy Transition Advisory Committee (ETAC) on 'The Green Shift', looking at the low carbon transition of India's Oil and Gas sector.

In relation to energy for surface transport, the report proposes promoting the uptake of electric vehicles in preparation for phasing out two- and three-wheel vehicles by 2035. It adds that in the intermediate period, policy support for ethanol-blended fuel with an increasing blend ratio needs

to be given. ETAC proposes that diesel cars are 'eliminated' as soon as possible. It says they should be banned from all cities with more than a million inhabitants and towns with high pollution by 2027.

The report suggests that CNG is used as a transition fuel for up to 10-15 years, and that vehicles with flex-fuel capabilities and hybrids be promoted in the short and medium terms.

The report can be found at mopng.gov.in/files/uploads/ETAC_2023_FINAL_PRINT.pdf.

Next Euro Steps in New Zealand

On 11 May 2023, the Ministry of Transport in New Zealand opened consultation proposing stronger harmful emission standards for vehicles entering the country. The consultation seeks feedback on imposing new standards (Euro 6d, Euro VI-E, and some other similar standards) on new and used vehicles imported to New Zealand. The requirements would be progressively phased in between 2024 and 2028. The proposal covers nearly all forms of vehicles entering New Zealand (motorcycles, mopeds, cars, vans, buses and trucks).

The proposed standards would lower the permitted level of nitrogen oxides by about 56 percent for light diesel vehicles and 80 percent for heavy vehicles, lower the permitted levels of particulate matter and other pollution, and introduce more accurate testing practices. This is expected to save over \$6 billion in social costs out to 2050, against costs of less than \$0.2 billion. Responses are sought by 22 June 2023.

More info is available at

transport.govt.nz/area-of-interest/environment-and-climate-change/harmful-vehicle-emissions/

Clean Car Discount Rebates New-Zealand

On 9 May the Ministry of Transport in New-Zealand adopted new regulations that reduce the financial incentives offered to purchasers of zero/low CO_2 emission vehicles, and increase purchase charges on vehicles with CO_2 emissions. These changes will apply from 1 July 2023.

More info is available at transport.govt.nz/area-of-interest/enviro

transport.govt.nz/area-of-interest/environment-and-climate-change/clean-cars/

GENERAL

T&E Euro 7 Event in European Parliament

On 23 May 2023, Transport & Environment (T&E) held a Euro 7 breakfast event in the European Parliament earlier today, hosted by MEP Schaldemose (S&D, Denmark). It was titled 'Why a robust Euro 7 for cleaner air is possible'.

Each panellist had the opportunity to give some opening statements followed by Q&A.

AECC's Joachim Demuynck joined the panel. He said Euro 7 is needed to further improve air quality, to be adopted before

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the European Parliament elections in 2024 to ensure prompt implementation. He went on to say that the European Commission proposal is technically feasible with available and affordable technologies. Following a question on the timeline, he added that a gradual introduction with separation of new types/all types could perhaps take away the concerns raised. Another possible option could be a later introduction for non-exhaust topics to ensure no time is lost for exhaust emissions, for which technologies are available.

Mr Cale Lawlor of the European Public Health Alliance (EPHA) said there is no compromise to be made with respect to health. Effects are being observed at lower levels of emissions than expected before, with children and pregnant women being especially vulnerable.

Mr Pedro Gomes (POLIS) commented that cities will need to comply with stricter air quality requirements, and they should have the tools to do so. Euro 7 is one of these tools, even if cities mainly want fewer and smaller cars.

Mr Robin Loos from the European Consumer Organisation (BEUC) said the history of Euro 6 showed delta cost for Euro 6 was not a decisive factor for consumers to buying a vehicle, and that the delta cost for Euro 7 of ~2% is small compared to significant cost increase of 25-30% seen in recent years due to impact of several complex factors. He added that OEMs unfortunately only offer premium models now, and that small cars are disappearing.

Ms Anna Krajinska of T&E said the European Commission proposal is the absolute minimum. She stated that OEMs could work with a two-year lead-time, as was shown by the introduction of RDE. Following a question, she said she could see a potential compromise on extreme test conditions to be covered by a definition of abusive driving.

Call from European Health NGOs for Immediate Euro 7 Implementation

On 12 May 2023, a group of European health organisations including the European Respiratory Society and the European Public Health Alliance called for an "ambitious, stringent, logical and health-focused" Euro 7 Emissions Standards Policy to be implemented across the European Union (EU) – without delay. The NGOs say the policy should be in line with the latest scientific recommendations and evidence on the health, social and environment effects related to internal combustion engines and road transport, including the 2021 World Health Organization (WHO) Air Quality Guidelines.

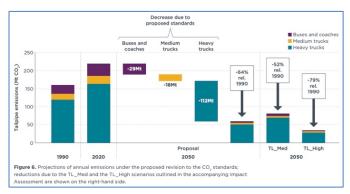
The position statement goes on to say that the proposal gives a "green label to vehicles which perform no better than current Euro 6 standards".

The group's position statement can be found at ersnet.org/news-and-features/news/ers-epha-and-partners-call-for-immediate-implementation-of-euro-7-emissions-standards.

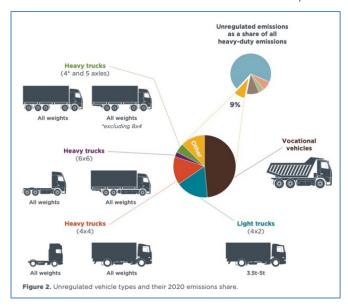
ICCT Analysis of Europe's Heavy-Duty CO₂ Standards

On 22 May 2023, the International Council on Clean Transportation (ICCT) published a briefing on the revision of Europe's heavy-duty CO_2 standards.

ICCT says the recent proposal to revise the European Union's heavy-duty CO_2 standards – which sets a 45% reduction target in 2030, 65% in 2035, and 90% in 2040 – is one of the most ambitious standards introduced in any major vehicle market for trucks and buses. If adopted, the standards would accelerate zero-emission technology uptake and significantly reduce CO_2 emissions from the sector. It adds however, that the projected emission reductions fall short of the levels necessary to comply with Europe's long-term climate commitments – a 90% reduction across all transport by 2050 relative to 1990.



ICCT says the proposed standards are projected to reduce cumulative emissions from trucks and buses by 1.8 billion tons of CO_2 by 2050, amounting to a 64% reduction in annual emissions by 2050 relative to 1990. Increasing the targets to align with the upper ambition of the impact assessment – a 50% target in 2030, 70% in 2035, and 100% in 2040 – increases the annual emission reductions to 79% by 2040.





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The NGO goes on to say the scope of the standards could also be expanded to include vocational vehicles, which would increase the coverage of the standards from 83% to 89% of sales.

ICCT's briefing document can be downloaded from theicct.org/publication/europe-heavy-duty-vehicle-co2-standards-may23/.

RESEARCH SUMMARY

Effects of Emissions and Pollution

Long-term exposure to ultrafine particles and natural and cause-specific mortality, Femke Bouma, et al.; *Environment International* (May 2023), Vol. 175, 107960, doi: 10.1016/j.envint.2023.107960.

Placental-fetal distribution of carbon particles in a pregnant rabbit model after repeated exposure to diluted diesel engine exhaust, Eva Bongaerts, et al.; *Particle and Fibre Toxicology* (2023), Vol. 20, doi: 10.1186/s12989-023-00531-z.

Association between $PM_{2.5}$ exposure and the outcomes of ART treatment: A prospective birth cohort study, Yifan Wang, et al.; *Science of The Total Environment*, 164099, <u>doi: 10.1016/j.scitotenv.2023.164099</u>.

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Nonlinear and lagged effects of VOCs on SOA and O_3 and multi-model validated control strategy for VOC sources, Ruipeng Wang, et al.; Science of The Total Environment, 164113, doi: 10.1016/j.scitotenv.2023.164113.

Organic aerosol sources in the Milan metropolitan area – Receptor modelling based on field observations and air quality modelling, K. Daellenbach, et al.; *Atmospheric Environment* (August 2023), Vol. 307, 119799, doi: 10.1016/j.atmosenv.2023.119799.

Emissions Measurements and Modelling

Optimal energy management of hybrid electric vehicles considering pollutant emissions during transient operations, Alexis Benaitier, et al.; *Applied Energy* (August 2023), Vol. 344, 121267, doi: 10.1016/j.apenergy.2023.121267.

Estimating individual vehicle emission factors from near-road measurements in India, Nagendra Raparthi, et al.; *Atmospheric Environment* (in press), doi: 10.1016/j.atmosenv.2023.119869.

Estimating vehicular emission factors and vehicle-induced turbulence: Application of an air quality sensor array for continuous multipoint monitoring in a tunnel, Han Song, et al.; *Atmospheric Pollution Research* (July 2023), Vol. 14, Issue 7, 101799, doi: 10.1016/j.apr.2023.101799.

Measurement of road traffic brake and tyre dust emissions using both particle composition and size distribution data, David Beddows, et al.; *Environmental Pollution* (in press), doi: 10.1016/j.envpol.2023.121830.

Detailed hydrocarbon speciation and particulate matter emissions during cold-start from turbocharged and naturally aspirated trucks, Melanie De

Busk, et al.; *Fuel* (October 2023), Vol 350, 128804, <u>doi:</u> 10.1016/j.fuel.2023.128804.

Emissions Control, Catalysis, Filtration

Design of effective catalysts for the aftertreatment of CNG-fueled vehicle exhaust by doping 1% Pt/Ce $_{0.4}$ Zr $_{0.5}$ La $_{0.05}$ Y $_{0.05}$ -xO $_{1.95}$ +x with niobium, Yu Chen, et al.; *Fuel* (September 2023), Vol. 348, 128568, <u>doi:</u> 10.1016/j.fuel.2023.128568.

Experimental study on the emission characteristics and performance of PNA coupled aftertreatment system with different catalyst loading, Lulu Kang, et al.; *Fuel* (September 2023), Vol. 348, 128597, doi: 10.1016/j.fuel.2023.128597.

Improvement of flow field uniformity and temperature field in gasoline engine catalytic converter, Xiaomei Yang, et al.; *Applied Thermal Engineering* (July 2023), Vol. 230, 120792, <u>doi: 10.1016/j.applthermaleng.2023.120792</u>.

Recent progress in novel zeolite catalysts for selective catalytic reduction of nitrogen oxides, Anqi Guo, et al.; *Catalysis Today* (October 2023), Vol. 422, 114212, doi: 10.1016/j.cattod.2023.114212.

Simulating Catalytic Reaction and Soot Oxidation in Coated Particulate Filters: a Simplified Modelling Framework Including Diffusion Effects, Timothy Watling; *Emiss. Control Sci. Technol.* (2023), <u>doi:</u> 10.1007/s40825-023-00226-z.

An Experimental Study on the Conversion of CaO to CaSO₄ During Diesel Particulate Filter Regeneration, Kotaro Tanaka, et al.; *Emiss. Control Sci. Technol.* (2023), doi: 10.1007/s40825-023-00227-y.

Transport, Climate Change & Emissions

Recovery of spent SCR denitration catalyst: A review and recent advances, Yuxuan Wei, et al.; *Journal of Environmental Chemical Engineering* (June 2023), Vol. 11, Issue 3, 110104, doi: 10.1016/j.jece.2023.110104.

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Emissions redistribution and environmental justice implications of California's clean vehicle rebate project, Jaye Mejía-Duwan, et al.; *PLOS Clim* 2(5): e0000183, doi: 10.1371/journal.pclm.0000183.

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Extraction of precious metals by synergetic smelting of spent automotive catalysts and waste printed circuit boards, Zhe Wang, et al.; *Process Safety and Environmental Protection* (July 2023), Vol. 175, pp. 554-564, doi: 10.1016/j.psep.2023.05.066.



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FORTHCOMING CONFERENCES

SIA Powertrain 2023 14-15 June 2023, Paris, France sia.fr/evenements/302-sia-powertrain-2023

ETH Conference on Combustion-Generated Nanoparticles 20-22 June 2023, Zurich, Switzerland nanoparticles.ch/

Stuttgart International Symposium 4-5 July 2023, Stuttgart, Germany fkfs-veranstaltungen.de/en/events/stuttgart-symposium

6-7 September 2023, Millbrook, United Kingdom cenex-lcv.co.uk

International Conference on Engines and Vehicles for Sustainable Transport 10-14 September 2023, Capri, Italy ice2023.info

FISITA World Congress 2023 12-15 September 2023, Barcelona, Spain fisita.com/diary/fisita-world-congress-2023

International Transport and Air Pollution Conference 25-26 September 2023, Gothenburg, Sweden ivi.se/tapase

Aachen Colloquium Sustainable Mobility 9-11 October 2023, Aachen, Germany aachener-kolloquium.de/en/attend/speaker/call-for-papers.html

FEV Zero CO₂ Mobility Conference 7-8 November 2023, Belin, Germany fev-live.com/zero-co2-mobility

Deadline for abstracts 16 June 2023

Heavy-Duty, On- and Off-Highway Engines 7-8 November 2023, Nuremberg, Germany atzlive.de/en/events/heavy-duty-on-and-off-highway-engines/

European E-fuels Conference 8-9 November, Dusseldorf, Germany wplgroup.com/aci/efue4-mkt-agenda/

POLIS Annual Conference 29-30 November 2023, Leuven, Belgium polisnetwork.eu/2023-annual-polis-conference/

IMechE Powertrain Systems for a Sustainable Future conference 2023 29-30 November 2023, London, United Kingdom

events.imeche.org/ViewEvent?code=CON7568#msdynttrid=P31DYp9_uO9BcgMpB1eDYE_yyLahi1N1sHvWz0Zd1JU

International Engine Congress

27-28 February 2024, Baden-Baden, Germany

atzlive.de/en/events/international-engine-congress/information/information-for-speakers/call-for-papers/

Deadline for abstracts 12 June 2023