TABLE OF CONTENTS

EUROPE

Council Adoption of Targeted Amendment of CO_2 Regulation

On 7 May 2025, the European Council adopted its negotiating mandate on a targeted amendment to the regulation on CO_2 emission standards for new passenger cars and vans, that aims to provide car manufacturers with flexibility to meet their emissions targets for 2025. The Council position agrees with the proposal of the European Commission without modifications.

On 27 May 2025, the European Council adopted the targeted amendment. This is the last step in the decision-making procedure.

The amended regulation provides that compliance with car manufacturers' specific emissions targets as regards the three years 2025, 2026 and 2027 will be assessed based on an average of the performance of each manufacturer over these three years, instead of annually.

Following the Council's approval, the amended act was adopted.

The regulation will enter into force on the 20th day following its publication in the Official Journal.

The European Council press release on the adoption is at consilium.europa.eu/en/press/pressreleases/2025/05/27/co2emissionsincars-councilgivesfinalapprovaltoadditionalflexibility.

The Council press release on its position can be read at consilium.europa.eu/en/press/2025/05/07/co2-emissions-in-cars-council-adopts-position-on-ec-proposal-without-changes.

European Parliament Adoption of Targeted Amendment to CO_2 Targets

On 8 May 2025, the European Parliament adopted the Commission's proposed targeted amendment to Regulation (EU) 2019/631, introducing flexibility on compliance with emissions targets. The proposal was passed with 458 votes for, 101 against and 14 abstentions.

In order to speed up its adoption, MEPs also agreed on 6 May to use the 'urgent procedure' for this targeted change to CO_2 emission performance standards for new cars and vans.

In the debate on the proposal, held on 6 May, MEP Jens Gieseke (EPP, DE) expressed that introducing fines for missed emissions targets in 2025 would cause a lot of trouble for manufacturers who are already struggling with technological changes, restrictive policies and expected US tariffs. The EPP rejects pooling arrangements as a solution to avoid penalties, believing that flexibility will be key in keeping jobs and manufacturing in Europe. Mr Gieseke concluded his remarks by calling on the Parliament to approve the urgent procedure and, later, the Commission proposal. He explained his approval of the proposal, stating that the amendment would allow greater flexibility while preserving climate goals.

MEP Mohammed Chahim (S&D, NL) acknowledged that the S&D Group has not been uniformly welcoming of the Commission proposal. However, expected tariffs on motor vehicles, automotive parts and steel and aluminium products mean that the EU cannot wait when it comes to protecting the car industry. The S&D representative called on the Parliament to approve the urgent procedure, as this would recognise citizens' and automotive industry workers' fears. However, MEP Chahim further emphasised that this is the industry's final chance to take serious action towards decarbonisation targets.

Next, MEP Jordan Bardella (PfE, FR) opened his remarks by stating that the EU's green targets on the automotive sector are not in line with reality, and a three-year moratorium on penalties is not adequate in protecting the European industry from competition from Chinese manufacturers. The PfE representative stated that his group will vote in favour of the proposal but called on the Commission to listen to the industry, prioritise growth and abandon decarbonisation targets.

MEP Carlo Fidanza (ECR, IT) welcomed the intention behind the proposal to delay penalties for missed emission targets, however, the ECR representative stated that the targeted amendment does not go far enough. Specifically, he argued that the issue of fines is not sufficiently addressed, and the proposal does not take into account the extremely slow take-up of electric HDVs.

MEP Gerben-Jan Gerbrandy (Renew, NL) confirmed that the Renew group would vote in favour of the amendment. However, the Renew spokesperson criticised that both companies and governments have been reluctant to facilitate the crucial transition to electric vehicles, which has harmed the competitiveness of European manufacturers.

Next, MEP Kai Tegethoff (Greens/EFA, DE) expressed that the European automotive industry has fallen behind third-country competitors with regard to producing innovative, electric vehicles. Now is therefore not the time to introduce uncertainty in the sector, abandon an existing decarbonisation strategy and allow emissions to continue. MEP Tegethoff warned that the amendment would allow the European automotive sector to fall further behind its competitors and leave the market open for China to control the entire electric vehicle supply chain.

MEP Per Clausen (The Left, DK) criticised that the amendment undermines the EU's green policies and, therefore, the very basis of green investment. The Left's representative expressed his disapproval of the proposal and called on MEPs to vote against it.

Finally, MEP Siebert Droese (ESN, Germany) echoed the remarks of MEP Bardella, stating that green targets for the automotive sector are not realistic. Furthermore, he stated that the current rules are far too complicated for the average person to understand and should be vastly simplified. Therefore, the ESN representative called on the Commission to go further than the amendment by abandoning the Regulation entirely.

The press release on the urgent procedure vote is at europarl.europa.eu/news/en/pressroom/20250505IPR28240/co2-emissions-ep-fast-tracks-vote-on-flexibility-measures-for-oems; coverage of the debate can be seen at europarl.europa.eu/plenary/en/vod.htmlLanguage=EN&internalEPId=20170023747039&providerMeetingId=20250506-0900 and the European Parliament press release on the vote is at europarl.europa.eu/news/en/pressroom/20250502IPR28225/co2-emissions-ep-adopts-flexibility-measures-for-carmakers.

Climate Commissioner Dialogue with EP ENVI Committee Members

On 5 May 2025, the European Parliament's Committee on the Environment, Climate and Food Safety (ENVI) held a Structured Dialogue with Climate Commissioner Mr Wopke Hoekstra.

In his introductory remarks, Mr Hoekstra stated that the EU will continue with climate action, within Europe and globally, and that the EU is "well on track to achieve our 55% reduction objective by 2030". He went on to say that "We will only be successful if, ever more than before, we manage to bridge the domains of competitiveness, of climate action, and of independence", and that is what is at the heart of the Clean Industrial Deal.

Responding to Mr Hoekstra, MEP Peter Liese (EPP,DE) commented that a 2035 climate target is needed urgently. Looking at the proposed 90% target for 2040, he warned of the possibility of deindustrialisation.

MEP Heléne Fritzon (S&D, SE) said that cutting carbon emissions by 90% by 2040 is the "absolute minimum", and sees a 95% reduction as a guarantee that the EU can meet its 2050 goals.

MEP Jana Nagyová (PfE, CZ) said the Clean Industrial Deal focuses too much on renewables and lacks sufficient focus on technology neutrality.

MEP Alexandr Vondra (ECR, CZ) said the ECR group thinks a 90% reduction target is a "political fantasy" that does nothing for economy or science. He also questioned whether the EU's financial commitment is sustainable.

MEP Pascal Canfin (Renew, FR) confirmed the Renew is strongly supportive of the 90% target. He also expressed surprise that Mr Hoekstra had said the EU is on track to meet its 2030 target.

MEP Lena Schilling (Greens/EFA, AT) appealed to Mr Hoekstra to not "buy away EU's responsibility" and asked when the proposal will come. She also asked how Europe would be able to lead on climate diplomacy if it is sending out a different signal.

MEP Jonas Sjöstedt (Left, SE) said many investors are hesitating to invest in Europe because of uncertainty, and asked how the EU will regain confidence that it will stick to its plans and decarbonise according to the timetables already set out.

MEP Anja Arndt (ESN, DE) asked the Commissioner to consider a report that she claimed said a very small number of scientists believe humans are partly responsible for climate change.

In reply to the MEPs' comments and questions, Commissioner Wopke Hoekstra said the EU's target will be science-based and not political. He added that two prerequisites will be competitiveness for EU industry, as well as a just and fair transition for EU citizens. The Commissioner agreed that a majority will be needed to achieve a "political landing zone" for proposals. He is therefore talking with the different parliamentary groups as well as Member States. He is confident he will be able to come forward with a proposal before the summer. Detailed work will have to follow.

Mr Hoekstra's opening comments are at ec.europa.eu/commission/presscorner/detail/en/speech25_1140 and the video of the meeting is at multimedia.europarl.europa.eu/en/webstreaming/committees_20250505-1930-COMMITTEE-ENVI.

Competitiveness Council Discussion on Action Plan for Automotive Industry

On 22 May 2025, the Competitiveness Council discussed the Action Plan for the European Automotive Industry. Contributions were made by several EU Member States.

Czechia opposed the 2035 ban on internal combustion engine (ICE) cars and mandatory electric vehicle (EV) purchases for private companies, instead advocating for a more flexible approach over strict regulation. They said that instead, positive incentives could be used to promote zero-emission vehicle (ZEV) adoption.

Italy welcomed the upcoming CO_2 review for LDVs as a move towards greater pragmatism. Specifically, Italy stressed that without flexibility in emissions calculations after 2025, only EVs would be available – despite their high costs and limited charging infrastructure. It also pointed to a lack of clear reference in both the 2025 emissions calculations and in the Action Plan to technology neutrality, especially regarding EVs. Italy also encouraged efforts to reduce strategic dependencies on batteries and charging infrastructure, calling for new partnerships, such as the European Battery Alliance, which are backed by dedicated funding.

Germany asked for careful and detailed implementation of battery booster concepts and incentives around production, as it described these measures as being unclear.

France emphasised the need for a quick rollout of the EU Automotive Action Plan, particularly highlighting the battery value chain (especially European-based battery production and factory development and asked for a support mechanism by 2025 to support this), and stressed the importance of decarbonising corporate fleets.

Slovenia, Romania and Slovakia agreed with this position (10% of Slovenia's GDP is generated by the automotive industry).

Spain also called for stimulating the demand for EVs across the EU.

Sweden expressed concern about the Action Plan's provisions for HDVs. More widely, Sweden also put forward the need to develop sustainable and competitive EU-based battery production in order to reduce dependencies.

Overall, EU Commission Executive Vice-President Mr Séjourné said that early preparations for CO_2 standards were underway with consultations having begun for decisions to be taken in 2026. He also stressed ongoing efforts to secure additional financing for batteries via the Innovation Fund and emphasised the importance of integrating "made in Europe" concepts into legislation to target support for manufacturers who need it.

The Competitiveness Council session can be viewed at video.consilium.europa.eu/event/en/27945.

EC Vice-President Séjourné Response to Parliamentary Question on Approvals

On 25 April 2025, European Commission Executive Vice-President Mr Séjourné responded to a parliamentary question on harmonised individual vehicle approval (IVA) of American pickup trucks.

MEP David Cormand (Greens, FR) had asked when actual emissions of vehicles imported into the EU under the IVA system would start being tested, and how the Commission would ensure that these vehicles comply with Regulation (EU) 2017/1151 and Regulation (EC) No 715/2007.

He also asked when the Commission would ensure that CO_2 emissions from vehicles imported under the IVA system are included in the average CO_2 emissions of large-volume vehicle manufacturers, as per Regulation (EU) 2019/631. MEP Cormand's final request was to ask if the Commission is considering a detailed roadmap and time frame for both addressing the gaps in the IVA system and ensuring that the vehicles concerned comply with EU standards.

Vice-President Séjourné responded that the Commission has launched a discussion with Member States and stakeholders in the Motor Vehicle Working Group with the aim of tightening the safety and environmental requirements for individually approved vehicles under Regulation (EU) 2018/858. He said the proposals under discussion include requirements for each vehicle to be subject to pollutant emission testing, including for real-driving emissions, in accordance with Regulation (EU) 2017/1151 and to ensure that the CO_2 emissions of those vehicles are calculated or measured in accordance with that regulation. The legislative amendments under discussion are expected to be adopted by the end of 2025.

Mr Séjourné added that individually approved new passenger cars and light commercial vehicles have to be reported by Member States as part of the annual CO_2 monitoring under Regulation (EU) 2019/631, and that once the type-approval requirements have been updated, the Commission may take further steps to take the CO_2 emissions data for these vehicles into account for the purpose of calculating the manufacturer's CO_2 emission performance.

MEP Cormand's question can be found at europarl.europa.eu/doceo/document/E-10-2025-000757_EN.pdf and Mr Séjourné's response is at europarl.europa.eu/doceo/document/E-10-2025-000757-ASW_EN.html.

Presentation of Roadworthiness Proposal in TRAN Committee

On 14 May 2025, the European Commission presented the proposal revising Directives 2014/45/EU and 2014/47/EU on roadworthiness testing to MEPs in the Parliament's Transport and Tourism (TRAN) Committee.

Mr Kristian Schmidt, Director of Land Transport in DG MOVE, started his presentation by noting that whilst there was a 3% drop in road fatalities, more progress is necessary. He reflected that there is a safe system approach to look at the behaviour behind the wheel, infrastructure, post-crash care, and vehicles.

The Road Worthiness package will be a combination of three Directives, which cover all road vehicle fleets. The reasoning behind this decision is due to new testing methods for new car systems, including electric vehicles.

Mr Schmidt focused on health when driving. Moreover, he highlighted how improving rule enforcement for cross-border traffic, emissions tampering, and automotive fraud are areas of focus, as well as more frequent and targeted inspections, and sharing car data among Member States.

Main changes proposed with the revision were the adaption of periodical, technical inspections, new tests on electronic safety systems for software integrity, new emission test methods for fine particles and nitrogen oxide emissions, annual emissions testing for light commercial vehicles with a risk based approach, particles remote sensing using new technologies, and autometer readings at national databases.

Mr Schmidt outlined that new testing methods combined with mandatory periodical inspections for motorcycles, mandatory inspections of cargos and vehicles older than 10 years, and access to vehicle technical information are all aspects within the package.

MEP Jens Gieseke (EPP, DE) urged for more communication with citizens and criticised the cost intensiveness and lack of proportionality of the proposal. He also asked for better, earlier coordination.

MEP Johan Danielsson (S&D, SE), MEP Tilly Metz (Greens/EFA, LU), MEP Elena Kountoura (GUE/NGL, EL), and MEP Volker Schnurrbusch (ESN, DE) asked for clarification on the measure requiring annual checks on vehicles over ten years.

MEP Elena Kountoura (GUE/NGL, EL) also asked for annual checks to be implemented for cars of six years and above instead to increase safety. She asked if the package includes motorbikes under 100 cm^3 and how the effective

implementation of the new rules for lorry inspection will be ensured.

MEP Johan Danielsson (S&D, SE) supported the obligatory checks on roadside inspection and appropriate training of drivers, and also asked what measures the Commission will put in place to ensure the proposal is put into practice.

MEP Phillipe Olivier (PfE, FR) asked how increased regulation makes measures less binding and adds to administrative and financial burdens.

MEP Jan Christophe Oetjen (Renew, DE) highlighted the role of small and medium-sized enterprises (SMEs), and asked what the contribution of the individual measures is to meet the targets within the package.

Mr Schmidt concluded the debate by responding to the questions surrounding the annual checks for older vehicles by explaining that older vehicles are twice as likely to get into crashes than new vehicles, and highlighted how 16 Member States already have these inspections in place. He stated that the measures are vital for the zero fatality goal. Moreover, he also outlined that annual checks are more important to prevent meter tampering.

The video of the TRAN meeting is at multimedia.europarl.europa.eu/en/webstreaming/committees_20250514-1000-COMMITTEE-TRAN.

Feedback on Roadworthiness Package

On 23 May 2025, the European Commission announced a feedback period on its adoption of the new roadworthiness legislative package.

Feedback is possible until 22 July, although the period is being extended every day until this adopted proposal is available in all EU languages.

The details are at ec.europa.eu/info/law/betterregulation/haveyoursay/initiatives/13132-Vehicle-safety-revising-the-EUroadworthinesspackage_en.

Strategic Dialogue on Future of Chemical Industry

On 12 May 2025, EU Commission President von der Leyen hosted the first Strategic Dialogue on the future of the Chemical Industry in Europe with representatives of the sector. The Dialogue was also attended by Executive Vice-President Séjourné and Commissioner Roswall.

The objective of the Strategic Dialogue is to jointly identify priority measures to deliver on the Commission's commitment to support the chemicals industry's competitiveness, while ensuring sustainability, security and safety.

The President recalled the Commission's commitment to boosting the competitiveness of the European industry, including by supporting innovation. In this context, she underlined the role of the Clean Industrial Deal – Europe's roadmap for decarbonization and competitiveness - as well as its focus on four key pillars: mitigating high energy costs; improving access to capital; addressing the skills gap; and simplification, as well as thee need to diversify supply chains.

Representatives of the sector asked for the fast implementation of the Competitiveness Compass, the Clean Industrial Deal, and the Affordable Energy Action Plan. The participants to the Dialogue also exchanged views on topics of high relevance for the sector, such as high energy costs, unfair trade practices, the impact of US tariffs, and support to the sector in its digital and green transition. Industry representatives also addressed the complexity of the regulatory framework.

To maintain EU leadership in the field of chemical safety, the President announced the Commission's commitment to present by summer an Action Plan for the chemical sector, a sector-specific Omnibus, as well as a Chemicals Industry Package by the end of the year. In all these initiatives, the Commission's approach is to ensure consumer protection and competitiveness go hand in hand.

The Commission's read-out of the meeting is at ec.europa.eu/commission/presscorner/detail/en/read_25_1198.

Member States' Progress Towards 2030 Climate and Energy Targets

On 28 May 2025, the European Commission published an assessment of EU Member States' National Energy and Climate Plans (NECPs). It says EU countries have substantially improved their plans following Commission recommendations in December 2023. As a result, the EU is closing in collectively on a 55% reduction in greenhouse gas (GHG) emissions, as committed in the European Climate Law, and reaching a share of at least 42.5% of renewable energy.

The Commission's assessment shows that the EU is currently on course to reduce net GHG emissions by around 54% by 2030, compared to 1990 levels, if Member States implement fully existing and planned national measures and EU policies. In the current geopolitical context, this demonstrates that the EU is staying the course on its climate commitments, investing with determination in the clean energy transition

and prioritising the EU's industrial competitiveness and the social dimension.

The press release adds that strategic initiatives such as the Clean Industrial Deal and the Affordable Energy Action Plan will complement NECPs in mobilising investments in industrial decarbonisation and clean technology.

The Commission says its assessment provides a solid foundation for discussions on the next steps in the EU's decarbonisation journey towards 2040 and reaching climate neutrality by 2050. The Commission confirms it will intensify work with EU Member States to close the remaining gaps and implement additional guidance, set out in this assessment.

The Commission press release can be found at ec.europa.eu/commission/presscorner/detail/en/ip_25_1337.

Commission Adoption of Acts under Net-Zero Industry Act

On 23 May 2025, the European Commission adopted four new pieces of secondary legislation and a communication relating to the Net-Zero Industry Act (NZIA), which are intended to help the EU's industry to become more resilient, competitive and reduce their carbon footprint. These rules clarify which manufacturing projects can benefit from specific provisions in the Act, such as on permitting, strategic project status and on non-price criteria. The Commission says they will help scale up the manufacturing of net-zero technologies that reduce greenhouse gas emissions, and leverage the competitive advantage of the EU's clean tech industry.

The Commission's press release states that the act clarifies the scope of NZIA through listing specific components for which the NZIA requirements will apply.

The act also provides more detailed parameters to help harmonise how Member States apply these rules to ensure better visibility for businesses, while allowing some flexibility.

The Commission adopted an act listing net-zero technology final products and their main specific components. This list helps identify which products may trigger the mandatory application of the non-price criterion of "resilience." This means that, in certain public procedures, contracting authorities must consider supply chain resilience alongside price when selecting technologies or suppliers, i.e. contracting authorities in these cases should not simply select the cheapest option. This criterion must be applied in public procurement, renewable energy auctions, and other forms of public intervention, when there is excessive dependency on a single source of supply for one of these products. This includes solar, wind, battery, heat pump, hydrogen biogas, Carbon Capture and Storage, electricity grid, nuclear and renewable energy technologies. Listed as specific components are catalysts for catalyst coated membranes for electrolysers and fuel cells.

Additionally, the Commission adopted a Communication providing information on where the EU's supply of net-zero technologies comes from, highlighting third country dependencies for specific technologies.

The NZIA allows net-zero technology manufacturing projects to apply for "strategic project" status. Strategic projects benefit from 'priority status' at national level, which ensures rapid administrative treatment and financial advice.

Details of the adopted legislation are at ec.europa.eu/commission/presscorner/detail/en/ip_25_1324.

Commission Letter of Notice to Italy on Transposition of IED

On 7 May 2025, the European Commission decided to send an additional letter of formal notice to Italy (INFR(2013)2177) for failing to fully and correctly transpose the Industrial Emissions Directive (Directive 2010/75/EU).

Italy has also failed to comply with some of the provisions of this Directive as regards the Acciaierie d'Italia installation (ILVA steel plant) in Taranto. The Directive aims to prevent, reduce and as far as possible eliminate pollution arising from industrial activities to protect human health and the environment. According to the judgment of the Court of Justice of the European Union of 25 June 2024 (C-626/22), Italy's legislation is not in line with the Industrial Emissions Directive. In particular, it fails to consider the impact of installations on human health. It also does not take into account all harmful pollutants emitted from the installation when authorising permits. And it fails to suspend an installation's operation when a breach of the permit conditions poses an immediate danger to human health or the environment.

Italy now has two months to respond and address the shortcomings raised by the Commission.

Details of the Commission's decision are at ec.europa.eu/commission/presscorner/detail/en/inf_25_982.

NORTH AMERICA

US President Executive Order on 'Gold Standard Science'

On 23 May 2025, US President Trump signed an Executive Order (EO) titled 'Restoring Gold Standard Science'. The EO says it is to "restore a gold standard for science to ensure that federally funded research is transparent, rigorous, and impactful, and that Federal decisions are informed by the most credible, reliable, and impartial scientific evidence available."

The EO orders EPA and other agencies to collaborate with the White House Office of Science and Technology Policy to draw up scientific integrity policies, which will be enforced by a politically appointed science official housed within each agency.

In addition, the EO requires that within 30 days all agencies must publicly release all "data, analyses, and conclusions associated with scientific and technological information produced or used by the agency that the agency reasonably assesses will have a clear and substantial effect on important

public policies or important private sector decisions." Agencies must also release "the models and analyses . . . the agency used to generate such influential scientific information."

Enforcement of EPA's integrity policy will fall to a political appointee selected by Administrator Lee Zeldin. That appointee will "provide for taking appropriate measures to correct scientific information in response to violations" consistent with provisions of the Information Quality Act, the EO says. The official will also "forward potential violations to the relevant human resources officials for discipline."

The Executive Order is available to read at whitehouse.gov/presidential-actions/2025/05/restoring-gold-standard-science.

Repeal of EPA Waivers for California

In May 2025, the US Congress voted to revoke three waivers of pre-emption issued by the Environmental Protection Agency (EPA) for the California Air Resources Board (CARB).

The first permitted CARB to implement the Advanced Clean Cars II (ACC II) regulation. The ACC II package includes the zero-emission vehicle (ZEV) requirements for model year 2026 and later—which mandate that 100% of new light-duty vehicles sold in California from 2035 be ZEVs (with a 20% allowance for eligible plug-in hybrids)—as well as the LEV IV emission standards for criteria pollutants.

The second waiver permitted CARB to implement the Advanced Clean Trucks (ACT) rule. The ACT rule introduces a mandatory schedule for the sales of zero-emission trucks, which would require that 55% of new Class 2b-3 vehicles, 75% of new Class 4-8 vehicles, and 40% of new Class 7-8 tractors sold in California be ZEVs by 2035.

The third waiver permitted CARB to implement the Heavy-Duty Low NOx Omnibus Regulation (House vote 225-196). The Omnibus rule requires a further 90% reduction of NOx emissions from heavy-duty on-road engines, to be phased-in over 2024-2031, and introduces a number of other requirements such as a new low load test cycle and extended emission durability periods.

The three Congressional resolutions were adopted by the House of Representatives on 30 April and 1 May, and by the US Senate on 22 May. Now, after the Senate vote, the resolutions must be signed by President Trump to become law.

On 22 May, CARB issued a statement rejecting the Congress vote as illegal and unconstitutional, saying it will "pursue every available remedy to challenge these actions and defend our right to protect the public from dangerous air pollution."

The statement adds that "Turning the clock back on both cleaner combustion engine requirements and zero-emission technology is an attack on clean air", and that the move is a "strike against the long-term competitiveness of the U.S. auto industry in a global market that is rapidly advancing toward cleaner combustion technology as well as zero-emission vehicles."

Details of the Senate votes are at senate.gov/legislative/LIS/roll_call_lists/vote_menu_119_1.htm. and CARB's statement can be found at content.govdelivery.com/accounts/CARB/bulletins/3e1b5ad.

GENERAL

Study on Potential Health Benefits of Transport Emissions Policies

On 19 May 2025, a global study was published that reveals that smart policies addressing road transport emissions could save 1.9 million lives and prevent 1.4 million new children's asthma cases worldwide by 2040. This translates to preventing 310 premature deaths and 230 new children's asthma cases per day over the next 15 years.

The research – "Global health benefits of policies to reduce on-road vehicle pollution through 2040" – conducted by the International Council on Clean Transportation (ICCT), the George Washington University, and University of Colorado Boulder, provides a detailed analysis of how different policies could improve health outcomes across more than 180 countries and 13 000 urban areas.

The study assesses health impacts from various policy measures, including Euro 6/VI-equivalent emission standards, Euro 7-equivalent standards, an accelerated transition to electric vehicles, and accelerated fleet renewal. Researchers also examined how combining these policies with clean electricity generation for electric vehicles would maximise benefits.

One key finding is that road transport emissions are responsible for an estimated 252 000 new asthma cases in children in 2023, representing about one-fifth of all new asthma cases in children linked to nitrogen dioxide pollution.

The study says that without further policy action, health disparities across regions will widen significantly. The study projects premature deaths, years of life lost, and new asthma cases in children from road transport emissions will approximately double in the least developed countries from 2023-2040, while decreasing in the most developed countries.

According to the study, combining Euro 6/VI standards with electric vehicle policies is highly complementary, avoiding an additional 323 000 premature deaths and 419 000 new asthma cases in children globally compared to focusing on electric vehicles alone.

The research also finds that ensuring electric vehicles do not increase electricity grid emissions could prevent an additional 212 000 premature deaths and 98 000 new asthma cases in children compared to implementing vehicle-related policies alone.

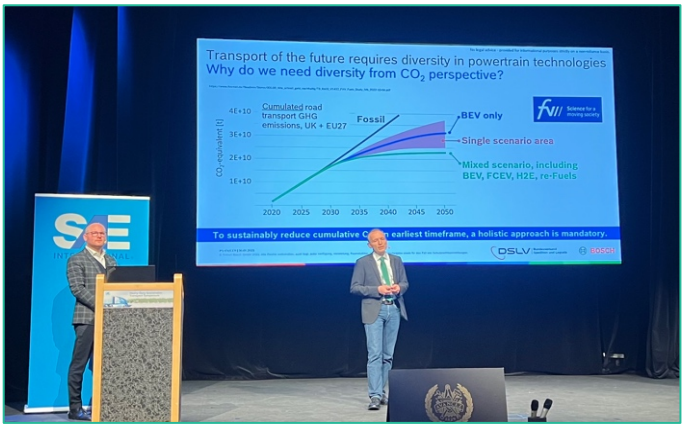
The ICCT press release is at theicct.org/policies-targeting-road-transport-emissions-could-save-1-9-million-lives-globally-by-2040-new-study-finds.

SAE Heavy-Duty Sustainable Transport Symposium

The 2025 SAE Heavy-Duty Sustainable Transport Symposium was held in Gothenburg, Sweden on 7 and 8 May 2025. The event covered the global legislative framework, electrification, aftertreatment for internal combustion engines (ICEs), for hydrogen ICE in particular, and renewable fuels.

In the keynotes, Lars Stenqvist (Volvo Group) reminded the transformation to fossil-free transport will rely on three powertrains: BEV, FCEV and ICE. He listed all prerequisites to be fulfilled simultaneously for successful uptake of BEV, including product offering, total cost of ownership, infrastructure, fossil-free energy and supply network. For hydrogen, infrastructure will be built due to demand from other sectors. Less than 10% will be available for transport but it will enable FCEV and H_2 ICE to play a role. Mr Stenqvist said that in general, ICE will remain an important corner stone, noting a record investment on ICE development within Volvo Group in 2024. 20% fuel consumption reduction has been achieved over the past years, having a much bigger effect on the climate than the already sold BEVs. A variety of renewable fuels will be used. The HPDI fuel injector is the preferred solution for H_2 ICE.

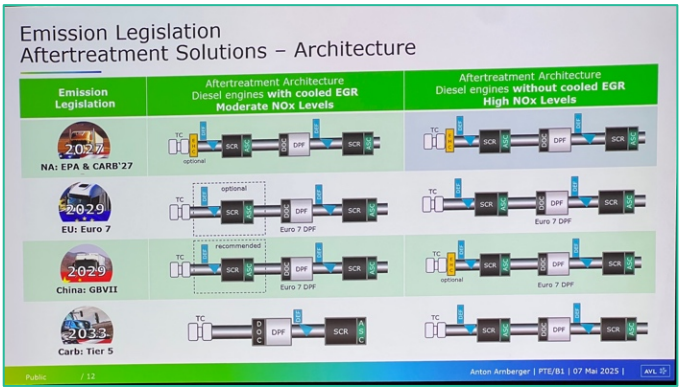
Andreas Kufferath (Robert Bosch) and Simon Brück (DSLV) jointly made the case that the transport of the future requires a diversity in powertrain technologies, including fuel cell and ICE with H_2 and other CO_2-neutral fuels alongside a main path being battery electric. A mixed scenario gets society to net-zero CO_2 emissions faster than with a BEV-only scenario. LCA calculations support the call for a mixed scenario with all powertrains resulting in similar emissions when relying on renewable electricity, energy or fuel. Simon Brück shared experiences from logistic operators. BEV is the preferred solution if depot and high-power highway charging is available. Such high-power charging infrastructure will however not be possible for the entire fleet. And there are other use cases with e.g. a two-shift operation that will require alternative solutions.



In the Q&A session it was discussed that overnight charging based on renewable electricity will only work with an energy carrier like hydrogen.

MECA's Rasto Brezny provided an overview of US regulations, covering CARB and EPA HDV MY27+ pollutant standards, Phase 3 greenhouse gas emissions standards and CARB NRMM Tier 5 draft standards. He noted it is currently an evolving landscape with uncertainty around reconsideration of this under the Trump administration and potential court challenges. The expectation is that GHG standards will be looked at first, mainly targeting the ZEV mandates. Reconsideration of pollutant emission standards depends on the outcome. A debate in Congress is also ongoing about the rescission of EPA waivers to California for Advanced Clean Cars II, Advanced Clean Trucks and HD Omnibus, which might have consequences for CARB standards in general.

Other regulatory overviews were presented by Ameya Joshi (MobilityNotes) and Anton Arnberger (AVL). Anton Arnberger also showed potential emission control technologies to meet these requirements.



Jenny Westlund and Karin Kjellin (Volvo Group) presented investigations into H_2 ICE emissions with LPDI and HPDI injection system. The main challenges for engine design are high laminar flame speed (high NOx tendency), wide flammability range (enables lean operation to mitigate NOx) and high auto-ignition temperature (knock and pre-ignition). They showed results from a 17l LPDI demonstrator engine, noting a Euro V emission control system could potentially be used for Euro VII requirements. Stephan Schraml (MAN) presented a H_2 ICE truck for a zero-impact emission concept that will be launched as a small series in the next weeks. Euro VI could be achieved without emission control system. MAN uses an SCR on filter to allow higher transient emissions, improved fuel efficiency and to demonstrate Euro VII readiness.

Reza Torbati (NGK) showed optimised filter technology for H_2 ICE, as well as test results on the AVL demonstrator engine. A high PN10 to PN23 ratio of 5 was observed for engine-out PN emissions. WHTC resulted in the highest emissions during the campaign and a large test-to-test variability was observed due to sporadic combustion of oil particles. Urea-based particles further increase raw emissions. Filtration

efficiency of >87% was demonstrated for different filter technologies with tailpipe PN10 results well below Euro 7 limits. Evaluation of complete exhaust systems showed that the lowest PN10 result was achieved with an SCR + filter system, but also an SCR on filter system met the Euro 7 limit with packaging advantages. In Q&A an OEM asked about the possibility of partial filter solutions based on the comment that a system without a filter is preferred if it is not needed, as it does not give the customer value. It was commented this is not the preferred pathway because we should not look at only meeting current limits but should deliver a zero-impact solution in the longer term and avoid any unnecessary discussions around the technology with NGOs. Mikaela Wallin (Johnson Matthey) presented an overview of an emission control system for H_2 ICE. A variation in engine-out NOx is reported. Even the lowest NOx concepts require an emission control system to meet Euro 7 and especially zero-impact, which was illustrated with measurement results. She highlighted the need for an oxidation catalyst to capture peaks of unburnt H_2. She presented detailed insights into H_2 and H_2O effects on some catalyst formulations but none on others, with the overall summary that catalysts show good performance, enabling robust and timely introduction. She also showed catalyst deSOx strategies in case they are needed. Suhao He (Corning) presented advanced filter solutions for robust Euro 7 PN10 control on diesel ICE. He showed that a base filter material can be used with various coating technologies. He also showed that a secondary filter is a viable technical back-up solution and presented durability demonstration insights. In the Q&A it was commented that there are also engine developments towards Euro 7, so future component requirements should not be defined based on existing engine-out emissions.

Alain Mathuren (FuelsEurope) introduced the work of the Working Group on Monitoring Methodologies (WGMM) for CO_2-neutral fuels. During Q&A he added that the vehicle category on CO_2-neutral fuels will need to be inserted in Euro 7 for both LDV and HDV following the compromise agreed in the previous legislative term. We first need a proper definition for CO_2-neutral fuels that is broad enough. Matthías Olafsson (eFuel Alliance) presented on the potential contribution of eFuels for carbon-neutral transportation. He presented a calculation of what is expected based on the Renewable Energy Directive (RED) target of 29% renewables by 2030 and explained the specific use case for NRMM. He said the RED is not a sufficient investment signal, although Member States might still set more ambitious national targets. Specific delegated acts in the RED are furthermore challenging for project viability and road transport should not be excluded as a key market. Teemu Sarjovaara (Neste) explained work being carried out on turning feedstocks into renewable fuel. He showed all solutions are needed to combat climate change, replacing today's 2 600 Mtoe per year. Biofuels have the potential to replace up to 1 000 Mtoe of fossil fuels by 2040, whereas electrification is expected to cover 550 Mtoe. The remaining amount should be covered by H_2 and eFuels. He highlighted a 60% gap between stated biofuel policies and required amounts to reach pledges, with the absence of a roadmap beyond 2030. Thomas Körfer (FEV) showed how the mature diesel engine technology is transferring to efficient multi-fuel operation, addressing different global directions. He presented detailed insights into combustion concept impacts. Adrian Velaers (Concawe) reminded about the available HDV LCA tool on the Concawe website.

Joanna Dickson (Johnson Matthey) presented the impact of critical minerals availability on propulsion technology evolution in the commercial vehicle sector. She said predicted market deficits will not happen in reality. Instead, material prices will go up and some low-volume applications like HDV might not be able to access certain materials. She concluded that there is no silver-bullet solution, so technology-neutral legislation should be adopted. Jurn Terpstra (Cellcentric) and Mircea Gradu (Ballard Power Systems) talked about fuel cell applications, including a TCO comparison with H_2 ICE and BEV.

Vienna Motor Symposium

From 15 to 16 May 2025, the Vienna Motor Symposium was organised by the TU Wien. In the opening address, prof. Bernhard Geringer of the TU Wien called for technology openness to meet road transport climate targets.

In the keynote sessions, Markus Heyn (Robert Bosch) talked about Asia's new role in the automotive industry. He gave insights in BEV, HEV and FCEV trends in China for LDV and HDV, highlighting fast development processes of newest technology like the Bosch eAxle and Fuel Cell module. He said in India H_2 ICE is more likely to succeed than FCEV, whereas BEV is expected to stay a niche due to lack of infrastructure.

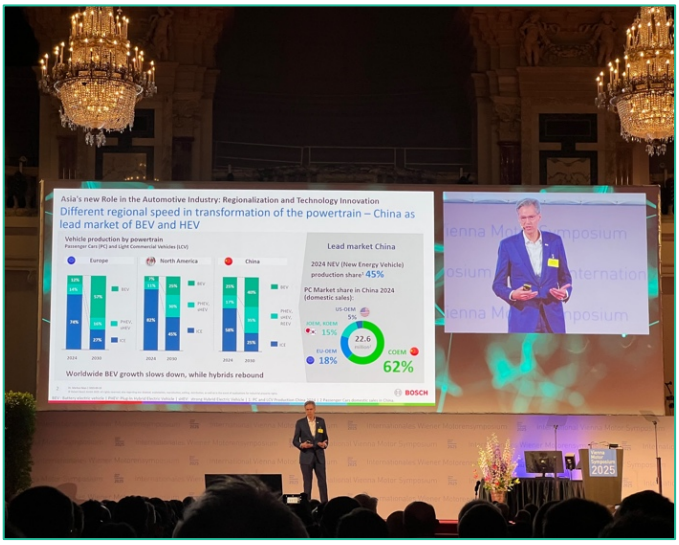
Matias Giannini (Horse) challenged the assumption there is only one solution in the drive toward net-zero. He introduced Horse/Aurobay and its commitment to hybrid powertrain development to complement BEVs addressing market needs.

Torsten Eder (Mercedes-Benz) started with a historical overview of drive system design before explaining the future ones to reach the internal carbon-neutrality target by 2039. He covered performance (BEV and V8 ICE), efficiency (plug-in hybrid and several BEV range and charging record drives) and flexibility (different body types, scalability across

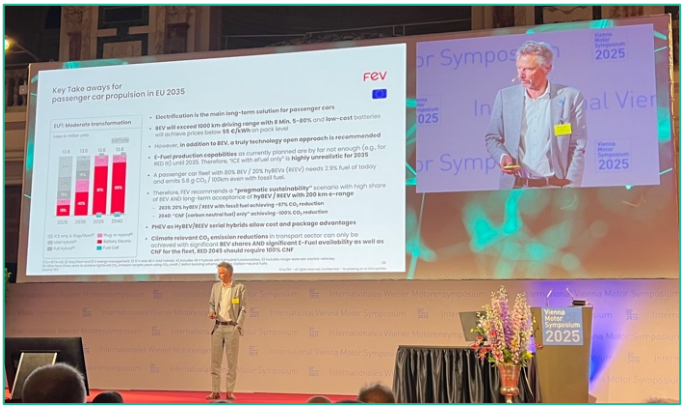
architectures, rear-wheel and all-wheel drive, BEV and HEV drive trains) as key design criteria.

Frederik Zohm (MAN Truck & Bus) explained how to reach zero emissions based on a 'BEV first' pathway (75%), but also relying on H_2 ICE/FCEV (25%) and e-fuel (15%). He presented the readiness and advantages of the BEV powertrain (energy recuperation, dynamic pricing, bidirectional charging, grid stabilisation, CO_2 and noise emission reduction, etc.). He noted infrastructure is a challenge and a task for everyone.

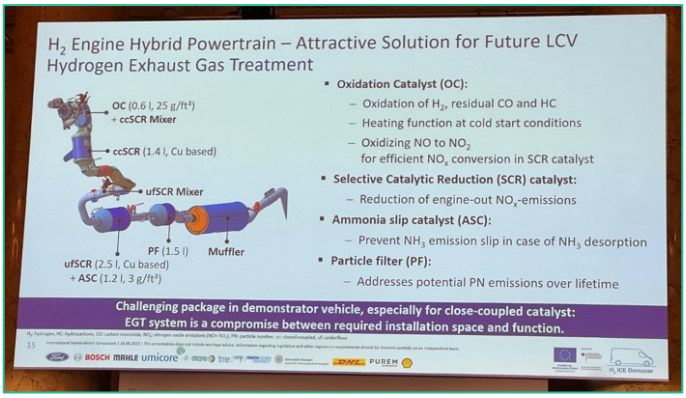
Todd Anderson (Phinia) explained the company strategy to support automotive decarbonisation relying on sustainable renewable fuels, with a stepwise evolution from fossil fuels over CO_2-reduced and CO_2-neutral to CO_2-free fuels. He showed fuel systems exist for the entire range of fuels, including HVO, ethanol, methanol, hydrogen and e-fuels etc.



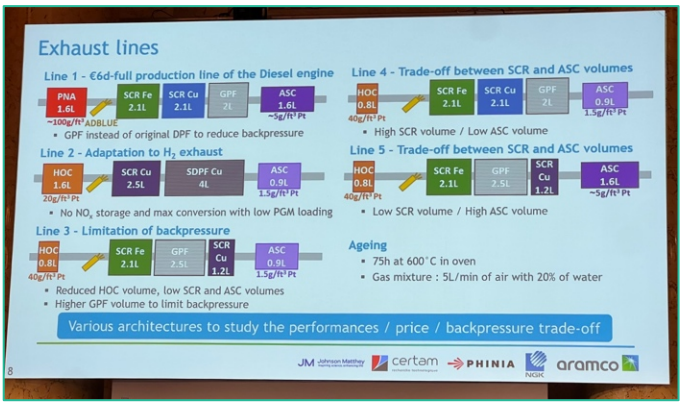
Hakan Björnsson (Aurobay) and Rolf Brück (Emitec Technologies) jointly presented the design of cost-effective engine and emission control for worldwide application. They elaborated on the issue of inconsistency between legislative targets based on tailpipe emissions vs. actual CO_2 emissions reduction and market reality. They showed the advantage of a PHEV over pure ICE for CO_2 and engine-out pollutant emissions, explaining the Miller engine concept. Such concept increases the challenge for catalyst activation under low load due to reduction in exhaust temperature which can be handled by emission control system design. Lower HC and NOx was demonstrated with new substrate channel and 'belt-mantel' design, allowing to achieve more stringent pollutant emission legislation or enabling reduction in washcoat and PGM loading, while targeting a more compact design.



Several sessions covered H_2 ICE papers. Christian Barba (Daimler Truck) showed a prototype H_2 ICE as a complementary ZEV technology with unique characteristics for high load operation. Zero-impact emissions were claimed when using a diesel emission control system without changes. Klaus Springer (Ford) and Jan Geiler (Robert Bosch) jointly presented a van H_2 ICE demonstrator vehicle based on a PHEV donor vehicle. It was developed by a consortium including Umicore and Purem for the emission control system. A 1.0 litre ecoboost engine with low pressure direct injection is operated above lambda 2.5 to reduce engine-out NOx emissions. An emission control system with OC, dual-SCR and PF is used. The close-coupled components have a reduced volume due to package constraints. Emissions on WLTC were below 1-2% (CO, THC, PN10) and 9% (NOx) of the Euro 7 limits in a first development step. NOx was further reduced to be below 4% of the Euro 7 limit.



Christophe Chaillou (Aramco) gave insights into the optimisation of the emission control system for an H_2 ICE LCV to meet Euro 7 together with project partners that include Phinia, Johnson Matthey and NGK. A total of 5 emission control systems were evaluated. Tests were conducted on WLTC, RDE RTS95 and TfL cycles. CO_2 emissions measured on WLTC were 3.2-3.8 g/km, including a contribution of 2 g/km from the intake air CO_2. A full overview of pollutant emission results was presented on all tests, e.g. with NOx remaining below 10 mg/km. A particulate filter was shown to be necessary to meet Euro 7 limits. The optimal emission control system was identified to be line 5. An additional sensitivity study was done to check trade-off between NOx and H_2 consumption.



RESEARCH SUMMARY

Effects of Emissions and Pollution

Brain iron accumulation in neurodegenerative disorders: Does air pollution play a role? Jithin George, et al.; *Particle and Fibre Toxicology* (2025), Vol. 22:9, doi: 10.1186/s12989-025-00622-z.

Research on the path of atmospheric pollutants and greenhouse gas cooperative control in megacities - A case study of Chengdu, Zihang Zhou, et al.; *Atmospheric Pollution Research* (in press), doi: 10.1016/j.apr.2025.102587.

Acute health effects of ambient air pollution including ultrafine particles in a semi-experimental setting in young, healthy individuals, Elisabeth Folwarczny, et al.; *Part Fibre Toxicol* (2025), Vol. 22, 14, doi: 10.1186/s12989-025-00628-7.

Air Quality, Sources and Exposure

Assessing capability of Copernicus Atmosphere Monitoring Service to forecast PM2.5 and PM10 hourly concentrations in a European air quality hotspot, Giovanni Gualtieri, et al.; *Atmospheric Pollution Research* (August 2025), Vol. 16, Issue 8, 102567, doi: 10.1016/j.apr.2025.102567.

Positive impact of the introduction of low-emission zones in Antwerp and Brussels on air quality, socio-economic disparities and health: a quasi-experimental study, Luk Bruyneel, et al.; Environment International (May 2025), Vol. 199, 109515, doi: 10.1016/j.envint.2025.109515.

Impact of the 2050 carbon-neutral emission scenario on air quality in South Korea, Hyungah Jin, et al.; *Journal of Environmental Management* (June 2025), Vol. 385, 125653, doi: 10.1016/j.jenvman.2025.125653.

Low emission zone and inequalities: car restriction and reduction of air pollution exposure in the Paris region, Alexis Poulhès, et al.; *Sustainable Cities and Society* (June 2025), Vol. 128, 106469, doi: 10.1016/j.scs.2025.106469.

Emissions Measurements and Modelling

Real-time analysis of NOx emissions in heavy-duty diesel vehicles: Impact of speed and variations across vehicle groups, Luis Fhernando Mendonça da Silva, et al.; *Atmospheric Pollution Research* (September 2025), Vol. 16, Issue 9, 102572, doi: 10.1016/j.apr.2025.102572.

A decade of monitoring on-road vehicle emissions using remote sensing technology, Hanxin Zhang and Meng Chen; *International Journal of Hydrogen Energy* (May 2025), Vol. 130, pp 605-614, doi: 10.1016/j.ijhydene.2025.04.297.

Investigation of Fuel Injector Orientation Effects on Nitric Oxide (NO) Formation and Emission in a Compression Ignition Engine, M. Ahmed, et al.; *Engine. Emiss. Control Sci. Technol.* (2025), Vol. 11, 12, doi: 10.1007/s40825-025-00263-w.

Two Simulated Bench Driving Cycles Based on RDE Test with High Load Conditions, *Emiss. Control Sci. Technol.* (2025), Vol. 11, 13, doi: 10.1007/s40825-025-00265-8.

Numerical methodology for assessing greenhouse gas emissions in hydrogen-fueled internal combustion engines for road transport, Francisco Tinaut, et al.; *International Journal of Hydrogen Energy* (in press), doi: 10.1016/j.ijhydene.2025.05.235.

Emissions Control, Catalysis, Filtration

Enhanced Performance and Cost-Effectiveness of Pd-Based Catalysts with Cu, Ni, and Co Promoters for CO and NOx Conversion in Flue Gas Emission, Owais Al-Aqtash, et al.; *Atmospheric Pollution Research* (in press), doi: 10.1016/j.apr.2025.102579.

The State-of-the-Art in Catalyst Performance Evaluation for Automobile Emission Control in China, X. Liu, et al.; *Emiss. Control Sci. Technol.* (2025), Vol. 11, 11, doi: 10.1007/s40825-025-00261-y.

Characteristics of inland ship and the effect of combined diesel oxidation catalyst (DOC) and diesel particulate filter (DPF) aftertreatment system on their pollutant emissions, Thi-Hieu Le, et al.; *Environmental Pollution* (in press), doi: 10.1016/j.envpol.2025.126460.

Simulations of the SCR catalyst in ammonia-biodiesel fuelled CI engine using virtual test bench with detailed chemistry, Reddy Siddareddy, et al.; *Renewable Energy* (in press), doi: 10.1016/j.renene.2025.123169.

A comprehensive review of emission characteristics and mitigation strategies for non-road small spark-ignition engines, Peiyong Ni, et al.; *Renewable and Sustainable Energy Reviews* (August 2025), Vol. 218, 115833, doi: 10.1016/j.rser.2025.115833.

Effect of the combined hydrogen- and urea-selective catalytic reduction configuration on the deNOx temperature window for a hydrogen-internal combustion engine, Kyungseok Lee, et al.; *Fuel* (November 2025), Vol. 400, 135713, doi: 10.1016/j.fuel.2025.135713.

A review of Techno-Economic Analysis and Density Functional Theory modeling of hydrogen fuel cells with Platinum-Based Catalysts for effective deployment in long-range electric vehicles, Thomas Yap, et al.; *International Journal of Hydrogen Energy* (June 2025), Vol. 137, pp. 603-621, doi: 10.1016/j.ijhydene.2025.05.057.

Efficient preparation of CuCe-SAPO-34 catalyst and its NH_3-SCR performance, Bohui Cai, et al.; *Microporous and Mesoporous Materials* (August 2025), Vol. 394, 113684, doi: 10.1016/j.micromeso.2025.113684.

FORTHCOMING CONFERENCES

SIA Powertrain 2025
11-12 June 2025, Port Marly, France
sia.fr/evenements/376-powertrain-SIAPowertrain2025

ETH Nanoparticles Conference
16-19 June 2025, Zurich, Switzerland
npc25.scg.ch/?idU=2

XI International Congress on Combustion Engines
23-25 June 2025, Katowice, Poland
congress.ptnss.pl

CLEPA Materials Regulations and Sustainability Event
25-26 June 2025, Frankfurt, Germany
clepa.eu/events/clepa-materials-regulations-and-sustainability-event-2025

Stuttgart International Symposium
2-3 July 2025, Stuttgart, Germany
fkfs-veranstaltungen.de/en/events/stuttgart-symposium

International Conference on Electrolysis
25-29 August 2025, Freiburg, Germany
ice2025.eu/?utm_source=newsletter

International Conference on Engines & Vehicles for Sustainable Transport
14-17 September 2025, Capri, Italy
ice-conferences.org

Aachen Colloquium Sustainable Mobility
6-8 October 2025, Aachen, Germany
aachener-kolloquium.de/en

Non-Road Powertrain & Fuels
7-8 October 2025, Munich, Germany
conferences.emissionsanalytics.com/nonroad-eu25/index.html

Transport and Pollution International Conference 2025
4-6 November 2025, Paris, France
tapconference.org

Sustainable Energy & Powertrains
25-26 November 2025, Stuttgart, Germany
fkfs-veranstaltungen.de/veranstaltungen/sustainable-energy-powertrains/program/program

Transport and Pollution International Conference
4-6 November 2025, Rueil-Malmaison, France
tapconference.org

POLIS Annual Conference
26-27 November 2025, Utrecht, Netherlands
polisnetwork.eu/2025-annual-polis-conference

Fifth EU Clean Air Forum
1-2 December 2025, Bonn, Germany
environment.ec.europa.eu/events/fifth-eu-clean-air-forum-2025-2025-12-01_en

International Automotive Recycling Congress
25-27 March 2026, Hamburg, Germany
events.icm.ch/event/IARC2026/iarc-2026