

NEWSLETTER

International Regulatory Developments

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EUROPE

Regulation on Type-Approval Requirements for NRMM Engines

On 24 August 2021, Commission Delegated Regulation (EU) 2021/1398 was published in the Official Journal of the European Union. It amends Delegated Regulation (EU) 2017/654 and supplements Regulation (EU) 2016/1628, and relates to the acceptance of approvals granted in accordance with UN Regulations Nos 49 and 96 of the Economic Commission for Europe of the United Nations (UNECE).

The new Regulation covers a number of areas that bring EU regulations in line with those of UNECE. Amongst these is the reduction in the number of operating hours for which no NOx control malfunction has been detected prior to resetting a frozen counter. Type-approvals granted in conformity with the 06 series of amendments to UNECE Regulation No 49 and the 05 series of amendments to UNECE Regulation No 96 should also be recognised as equivalent to the EU type-approvals granted and statutory marking required in accordance with Regulation (EU) 2016/1628. Additionally, type-approvals granted in conformity with the 00, 01, 02, 03 and 04 series of amendments to UNECE Regulation No 96 should be recognised as equivalent to the EC type-approvals granted and statutory marking required for Stages I, II, IIIA, IIIB and IV in accordance with Directive 97/68/EC and special purpose engines (SPE) EU type approvals granted in accordance with Regulation (EU) 2016/1628.

The Delegated Regulation refers to two instances where decision-making and/or approvals has been the responsibility of technical services. It states that the relevant decisions should now be the responsibility of type-approval authorities.

The EU Regulation states that the requirements set out in this Regulation are, from a technical point of view, irrelevant with regard to the emission performance of engines. It goes on to say that it is therefore appropriate that EU type-approvals of an engine type or engine family approved in accordance with Delegated Regulation (EU) 2017/654, in its version applicable on 23 August 2021 remain valid.

The new EU Regulation published in the Official Journal is at eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2021.299.01.0001.01.

French Climate and Resilience Law

On 24 August 2021, the French Ministry of Ecological Transition published the Climate and Resilience Law. The Ministry says that this marks a turning point for a society fully committed to the fight against climate change and the overconsumption of resources, for the benefit of the French. The law will in particular make it possible to improve the air quality in large cities, to consolidate the renovations of housing by supporting households, to fight against the concreting of land, and to integrate more vegetarian menus in canteens.

It aims to make citizens better informed, creating an eco-score to display the environmental impact of goods and services consumed by the French.

Advertising for fossil fuels will be banned from the second half of 2022. From 2028, advertising for the most polluting vehicles will also be banned, two years before the end of their sale. It will be mandatory to indicate the climate impact of products in advertisements, with immediate application in the automotive and household appliance sectors.

The press release states that air pollution, mainly linked to NOx emissions, 70% of which are generated by car traffic and in particular old diesel vehicles, is responsible for 40,000 deaths per year in France. All cities with more than 150,000 inhabitants will have to set up a low emission mobility zone (ZFE-m), which equates to 33 new ZFE-m. In the 10 metropolitan areas that regularly exceed air quality limit values, driving bans for Crit'air 5 vehicles in 2023, Crit'air 4 in 2024 and Crit'Air 3 in 2025 will be automatically scheduled. A zero-rate loan will be tested for two years, from 2023, to help the poorest households living in ZFEs to finance their change of vehicle, in addition to aid (conversion bonus, ecological bonus, etc.) already planned.

The sale of cars emitting more than 95 g/km CO₂ will be banned in 2030, thus setting a path towards 2040. The Ministry adds that this measure is also proposed by the European Commission as part of the Fit for 55 package. It will now be possible to scrap an old combustion engine vehicle and receive assistance for the purchase of an electric bicycle.

The press release on the law is available (in French) at ecologie.gouv.fr/promulgation-loi-climat-resilience#xtor=RSS-23.

National Emission Reduction Commitments Directive Reporting Status 2021

On 26 August 2021, the European Environment Agency (EEA) published a briefing on National Emission reduction Commitments (NEC) Directive reporting the status of 2021. EEA says this shows that while most Member States met their respective limits in 2019, further efforts are needed to achieve the reduction commitments set for the period 2020-29 and for 2030 and onwards.

Based on the latest national air pollutant inventories, all Member States respected their national emission ceilings for nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOCs) and sulphur dioxide (SO₂), while four Member States — Croatia, Czechia, Ireland and Spain — exceeded their limit for ammonia (NH₃). The report says that the lockdown measures implemented across Europe to reduce the transmission of COVID-19 and the subsequent reduced economic activity in 2020 can be expected to have had an impact on emissions of some pollutants. The impact of the measures on emissions in 2020 will only become clear once national air pollutant inventories for 2020 are reported in mid-2022.

Nine Member States have already achieved cuts in emissions set for the period 2020-2029 for all five key pollutants, including fine particulate matter (PM_{2.5}). However, to reach the 2030 commitments, all Member States except Estonia need to reduce their NO_x emissions, 22 Member States need to reduce NH₃ emissions, and 18 Member States need to reduce NMVOCs emissions.

EU emissions of PM_{2.5} fell by 29 % from 2005 to 2019. Nevertheless, significant efforts are needed to achieve reduction commitments set for 2030 and onwards for this pollutant. In particular, three Member States — Czechia, Hungary and Romania — will need to reduce their emissions by more than 50% and 10 Member States by more than 30%.

EEA points out that road transport is the principal source of NO_x emissions, while changes in the energy sector will be crucial for meeting the PM_{2.5} reduction commitments for 2020-29 and 2030.

The EEA press release and briefing can be found at eea.europa.eu/highlights/eu-as-a-whole-stays?utm_source=EEASubscriptions&utm_medium=RSS.

French Government fined €10 Million for poor Air Quality

On 4 August 2021, the French Council of State, the top administrative court in France, fined the French Government €10 million for failing to reduce air pollution to acceptable levels. The Council of State will assess the Government's actions for the second half of 2021 at the beginning of 2022 and will decide whether the State will have to pay a new penalty.

Announcing the record fine, the Council of State, France's top administrative tribunal, said measures decided by the government were insufficient to improve air quality. Last year, the council ruled that the government had failed to implement a court order dating from 2017 to curb air pollution levels and gave it six months to take corrective action or face a €10 million fine every six months until air quality improves. With the six-month deadline having elapsed, the Council is now implementing its threat.

The court said that pollution by nitrogen dioxide was still excessive in five urban areas: Paris, Lyon, Marseille-Aix, Toulouse, and Grenoble. It also singled out Paris for persistently high levels of PM₁₀ micro particle pollution.

The decision of the Court is available to read at conseil-etat.fr/actualites/actualites/pollution-de-l-air-le-conseil-d-etat-condamne-l-etat-a-payer-10-millions-d-euros.

Swiss Government Plans for Net-Zero by 2050

On 11 August 2021, the Swiss Government presented plans to reduce greenhouse gas emissions to zero by 2050. The proposal is a counter-project to a people's initiative handed in by a broad alliance of climate organisations in 2019 and would seek certain exemptions.

The government says that it shares the aim of the initiative committee, but that it is crucial that the environment policy be accepted by the business community and society, notably people living in rural and remote areas. The proposal is intended to create a clear legal basis for the future and allow businesses to plan and invest in innovative technologies. It stops short of a strict ban on fossil fuels as foreseen by the initiative but allows for exceptions if no alternative energy sources are available.

Parliament still has to discuss the government proposal and the initiative before they are put to a nationwide vote next year or in 2023.

A report on the proposal is available to read at swissinfo.ch/eng/politics/swiss-government-aims-for-zero-emission-policy/46859598.

NORTH AMERICA

Biden Administration proposed new Limits on GHG Emissions

On 5 August 2021, President Biden signed an Executive Order that sets an ambitious new target to make half of all new vehicles sold in 2030 zero-emissions vehicles, including battery electric, plug-in hybrid electric, or fuel cell electric vehicles. The Executive Order also kicks off development of long-term fuel efficiency and emissions standards to save consumers money, cut pollution, boost public health, advance environmental justice, and tackle the climate crisis.

In addition, the Environmental Protection Agency (EPA) and U.S. Department of Transportation (USDOT) will announce how they are addressing the previous administration's rollbacks of near-term fuel efficiency and emissions standards

It is expected that these actions will strengthen American leadership in clean cars and trucks by accelerating innovation and manufacturing in the auto sector, bolstering the auto sector domestic supply chain, and growing auto jobs.

In particular, the Biden administration will be investing in: (1) installing the first-ever national network of electric vehicle charging stations, (2) delivering point-of-sale consumer incentives to spur U.S. manufacturing and union jobs, and (3) finance the retooling and expansion of the full domestic manufacturing supply chain and innovating the next generation of clean technologies to maintain US competitive edge.

The Biden administration expects that these announcements will set the US on track to reduce greenhouse gas emissions from new passenger vehicle sales by more than 60% in 2030 compared to vehicles sold last year and facilitate achieving the President's goal of 50-52% net economy-wide greenhouse gas emission reductions below 2005 levels in 2030.

A fact sheet on the announcements can be found at whitehouse.gov/2021/08/05/president-biden-announces-steps-clean-cars-and-trucks/.

US EPA Proposals for GHG Standards for Light-duty and Heavy-Duty Vehicles

On 5 August 2021, following President Biden’s Executive Order on vehicle greenhouse gas (GHG) emissions, the US Environmental Protection Agency (EPA) released a Notice of Proposed Rulemaking (NPRM) for model year (MY) 2023 to 2026 light-duty vehicle GHG emission standards, and outlined its plans to initiate a subsequent rulemaking to set standards for model year (MY) 2027 and beyond that will accelerate the transition of the light-duty vehicle fleet towards a zero emissions future.

The recommended proposal would establish more stringent standards for each model year starting in 2023. The proposal sets approximately 10% lower CO₂ emissions for MY 2023 vehicles compared to 2022 and then approximately 5% yearly reduction in CO₂ emissions for MY 2024 to 2026 as shown in Table 1 below. This results in an EPA-projected fleet-wide combined CO₂ emission standard of 171 grams per mile in MY 2026 (approximately 52 mpg), which in turn corresponds to a real-world label value of 38.2 mpg.

EPA is also requesting comment on MY 2026 standards that would result in fleet average levels that are 5-10 g/mile (approx. 6%) more stringent than the (MY 2026) levels shown below. As with EPA’s previous light-duty GHG programmes, the agency is proposing standards expressed as footprint-based curves for both passenger cars and trucks.

Table 1. Projected Industry Fleet-wide CO₂ Compliance Targets (grams/mi)

Category	2022	2023	2024	2025	2026
Cars	180	165	157	149	142
Trucks	260	232	221	210	199
Combined	220	199	189	180	171
Car Share	*	50.0%	49.9%	49.7%	49.7
Truck Share	*	50.0%	50.1%	50.3%	50.3%

*Values not provided

During the four-year ramp-up of the stringency of this proposed programme, EPA analyses show compliance can be met with a combination of advanced internal combustion engine vehicles, hybrid electric vehicles, and gradually increasing sales of electric vehicles as listed in Table 3. The projected 8% of EV penetration in MY 2026 compares with a share of about 2% of the new vehicle market in MY 2019.

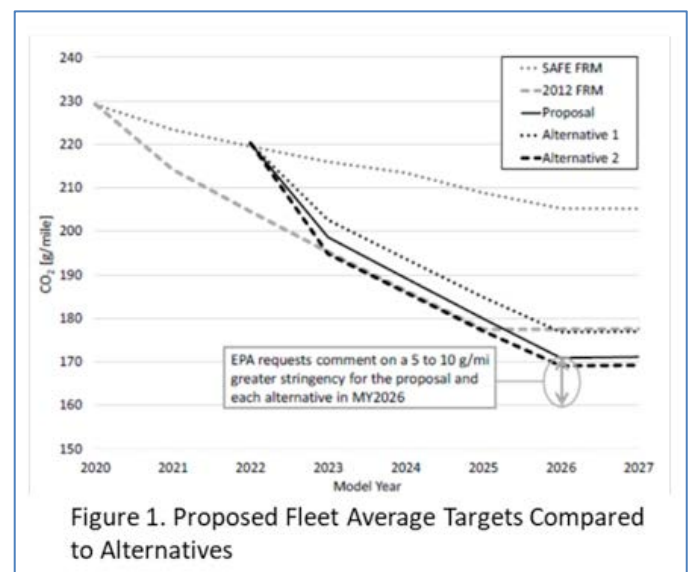
Table 3. Forecasted Technology Penetrations for MY 2026

Technology	New LDV Fleet Penetration
Advanced High Efficiency Engines	56%
8 speed and other advanced transmissions	64%
Mild Hybrid	2%
Strong Hybrid	5%
Battery Electric and Plug-in Hybrid Vehicles	8%

The proposal also presents analyses for both less stringent and more stringent alternatives. For the less stringent alternative (Alternative 1), EPA used the coefficients in the California

Framework for the 2.7% effective stringency level as the basis for the MY 2023 stringency level and the 2012 rule’s MY 2025 standards as the basis for the MY 2026 stringency level, with linear year-over-year reductions between the two points for MYs 2024 and 2025. EPA views the California Framework as a reasonable basis for the least stringent alternative since it represents a level of stringency that five manufacturers have already committed to achieving.

For the more stringent alternative (Alternative 2), EPA used the 2012 rule standards as the basis for MY 2023-2025 targets, with the standards continuing to increase linearly at the same stringency, year-over-year, until MY 2026.



EPA also announced plans to reduce GHG emissions and other harmful air pollutants from heavy-duty trucks. The agency is working on a series of major rulemakings over the next three years. The first rulemaking, to be finalised in 2022, will apply to heavy-duty vehicles starting in MY 2027. That action will set new standards for criteria pollutants for the entire sector as well as targeted upgrades to the current “Phase 2” GHG emissions standards for that model year.

More details on the proposals can be found at [epa.gov/newsreleases/epa-overhaul-pollution-standards-passenger-vehicles-and-heavy-duty-trucks-paving-way](https://www.epa.gov/newsreleases/epa-overhaul-pollution-standards-passenger-vehicles-and-heavy-duty-trucks-paving-way).

US NHTSA Analysis of New CAFE Standards for 2024-2026

On 10 August 2021, the US National Highway Traffic Safety Administration (NHTSA) released its analysis to amend the corporate average fuel economy (CAFE) standards set in 2020 for passenger cars and light trucks manufactured in model years (MYs) 2024-2026. Statutory 18-month lead time requirements mean that the earliest model year that can currently be amended in the CAFE programme is MY 2024. EPA does not have the same lead time requirements as NHTSA and is thus able to amend MY 2023 in addition to MYs 2024-2026 (see above).

The proposed amended CAFE standards would increase in stringency from MY 2023 levels by 8% per year, for both passenger cars and light trucks over MYs 2024-2026, resulting in roughly 48 miles per gallon (mpg) on an average industry fleet-wide basis in MY 2026. NHTSA is proposing these standards because that is what NHTSA has tentatively concluded is maximum feasible in those model years, under the Energy Policy and Conservation Act (EPCA) factors and is confident that industry would still be able to build a single fleet of vehicles to meet both the NHTSA and EPA standards.

NHTSA projects under these proposed standards, required technology costs would increase by \$79.6 (€68) billion over the lifetimes of vehicles through MY 2029. If those costs are passed on to consumers, NHTSA estimates new vehicles would increase by roughly \$1 000 (€855), on average; but it says that concurrently, fuel savings for those vehicles would increase significantly, by roughly \$1 200 (€1 025), on average.

The NHTSA analysis documents are available at [nhtsa.gov/laws-regulations/corporate-average-fuel-economy](https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy).

Funding for Zero and Low Emission Buses in US Infrastructure Deal

On 28 July 2021, President Biden and the bipartisan group announced agreement on the details of a 'once-in-a-generation' investment in infrastructure, to be taken up in the Senate for consideration.

The Bipartisan Infrastructure Deal intends to tackle the climate crisis and includes \$2.5 (€2.12) billion for zero emission buses and the same amount for low emission buses.

On 17 August, The Washington Post reported that the Senate infrastructure bill has been approved with a provision that for at least a quarter of spending in the agreed \$5.6 (€4.75) billion programme, the secretary of transportation shall "only consider eligible projects related to the acquisition of low or no emission buses or bus facilities other than zero emission vehicles and related facilities."

The newspaper says that the provision followed lobbying to shape the programme by the natural gas industry.

The bipartisan group announcement is at [whitehouse.gov/briefing-room/statements-releases/2021/07/28/fact-sheet-historic-bipartisan-infrastructure](https://www.whitehouse.gov/briefing-room/statements-releases/2021/07/28/fact-sheet-historic-bipartisan-infrastructure).

The Washington Post report can be read in full at [washingtonpost.com/transportation/2021/08/17/infrastructure-polluting-buses-mandate/](https://www.washingtonpost.com/transportation/2021/08/17/infrastructure-polluting-buses-mandate/).

CARB Public Workshop on Advanced Clean Cars II Regulation

On 11 August 2021, the California Air Resources Board (CARB) held remotely a public workshop on the development of the Advanced Clean Cars II (ACC II) regulations that will seek to reduce criteria and greenhouse gas (GHG) emissions from new light- and medium-duty vehicles beyond the 2025 model year. The key items on the workshop agenda included the Zero Emission Vehicle (ZEV)

regulation and the Low-Emission Vehicle IV (LEV IV) emission standards for criteria pollutants.

Under California Governor's Executive Order N-79-20, 100% of in-state sales of new passenger cars and trucks are to be zero-emission by 2035. The ACC II regulation will include a number of updates to the California ZEV programme to achieve this goal. The changes include an extended driving range of 200 miles measured over two test cycles (equivalent to ~150 miles label range), up from the current 50 miles, and a larger on-board charger of 5.76 kW (currently 3.3 kW).

Several amendments are being considered to tighten the LEV emission standards for criteria pollutants. For light-duty vehicles, the proposed changes include removing ZEVs from the NMOG+NOx fleet average and requiring 0.030 g/mile fleet average for NMOG+NOx for non-ZEVs. Emission certification bins LEV160 and ULEV125 are to be eliminated and intermediate bins ULEV60, ULEV40, and SULEV25 to be added, along with a cleaner bin SULEV10 and/or SULEV15.

There will be a phase-in to 3 mg/mile PM on US06 cycle emission standards and new requirements to regulate cold-start emissions for all soak durations, to control cold-start emissions for early drive-away, and to regulate PHEV aggressive driving cold-start emissions.

The LEV amendments would also tighten the requirements for emissions from medium-duty vehicles, and for evaporative emissions.

Another ACC II workshop is planned for later in 2021, and the regulation is to be considered at a CARB hearing in June 2022.

Full details of the CARB workshop are available at [arb.ca.gov/events/public-workshop-advanced-clean-cars-ii-0](https://www.arb.ca.gov/events/public-workshop-advanced-clean-cars-ii-0).

ASIA PACIFIC

Launch of India Automobile Scrappage Policy

On 13 August 2021, Indian Prime Minister Narendra Modi launched the Vehicle Scrappage Policy that seeks to phase out unfit vehicles to reduce vehicular pollution. The scrappage policy is a government-funded programme to remove old vehicles from roads. It is expected to reduce pollution, create job opportunities and boost demand for new vehicles.

The proposed policy introduces several incentives for scrapping old vehicles and buying new ones. Among these, vehicle manufacturers can give up to 5% discount for buying new vehicles; governments can offer zero new registration fee; scrap value equivalent of 4-6% of ex-showroom price of new vehicles can be introduced; and states can give up to 25% and 15% rebate on road tax for personal and commercial vehicles, respectively.

There are disincentives for keeping old vehicles, too. For instance, states can levy an additional 'green tax,' hike renewal of registration fee for private vehicles, increase renewal of fitness certification for commercial vehicles and automatically deregister unfit vehicles.

The vehicles to be exempt are: hybrids and electric vehicles, vehicles using alternative fuels such as CNG, ethanol and LPG; and farm and agricultural equipment such as tractors, tillers and harvesters.

The milestones set in the draft policy require the rules for fitness tests and scrapping to be in place by 1 October 2021. All government and PSU-owned vehicles older than 15 years will be scrapped by 1 October 2022.

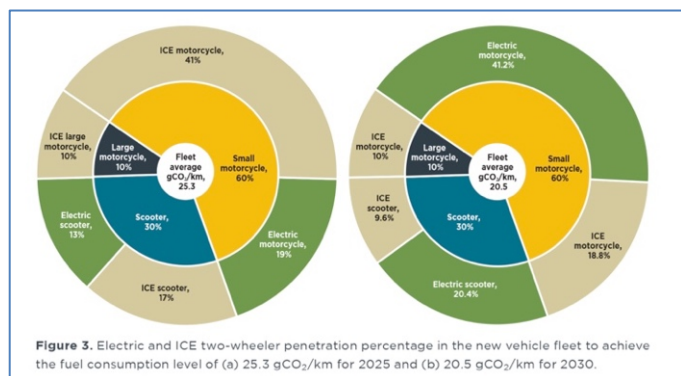
A report on the announcement is available to read at thefederal.com/news/nitin-gadkari-wants-to-make-road-trips-smoother-heres-what-he-plans/.

Fuel Consumption Standards for new Two-Wheeler Fleet in India

On 9 August 2021, the International Council on Clean Transportation (ICCT) published a briefing on fuel consumption standards for the new two-wheeler fleet in India.

ICCT says that the shift to fuel injection in two-wheelers that has come with India's implementation of Bharat Stage VI emission standards brings with it the opportunity to adopt several modern internal combustion engine (ICE) technologies from the passenger car, limited only by cost-bracket considerations and vehicle size. It adds that these incremental technologies can unlock opportunities for significant efficiency benefits and setting corporate average fuel consumption standards for the new two-wheeler fleet would be an effective way to both spur the adoption of modern ICE technologies and accelerate electrification.

The NGO says that its prior analysis showed that achieving fleet average fuel efficiency improvement for two-wheelers beyond 23% from the current level is more expensive if using ICE technologies alone. Beyond this threshold, it is cost-effective to increase the market share of electric two-wheelers. According to ICCT, for a fleet average fuel consumption level of 25.3 gCO₂/km in 2025, it is cost-effective to have a market share of 19% for electric motorcycles and 13% for electric scooters.



If the two-wheeler fuel consumption standard were to be set at a level equal to or below 20.5 gCO₂/km for 2030, as shown on the right, that would likely ensure that at least 60% of new two-wheeler sales are electric that year. This fleet average CO₂ level

would correspond to a nearly 50% reduction from the current fleet average CO₂ level.

The ICCT briefing can be downloaded from theicct.org/publications/fuel-consumption-2w-india-aug2021.

UNITED NATIONS

UN Climate Change Report

On 9 August 2021, the United Nations Environment Programme published "Climate Change 2021: the Physical Science Basis", the Working Group I contribution to the Sixth Assessment Report, assessing the physical science basis of climate change. The report provides the latest assessment of scientific knowledge about the warming of the planet and projections for future warming and assess its impacts on the climate system.

The report says that the on-road and off-road transportation sectors have a net warming impact on climate over all time scales. Looking at short-term effects, it says that one year pulse of present-day emissions has a small net global temperature effect on short time scales, predominantly driven by CO₂ and black carbon (BC) warming offset by NO_x-induced cooling through methane lifetime reductions.

It describes the vehicle tailpipe emission profiles of diesel and gasoline as being distinctly different. Diesel air pollutant emissions are dominated by BC and NO_x whereas petrol air pollutant emissions are dominated by CO and NMVOCs.

The report says there is a consensus that on-road transportation sector emissions, including gasoline and diesel, are important anthropogenic contributors to elevated surface ozone and PM_{2.5} concentrations. It goes on to say that it is now well established that real world diesel NO_x emission rates are substantially higher in all regional markets than in laboratory tests, worsening air quality and contributing to slightly larger warming on the scale of years and smaller warming at the decadal scale. In summary, the report states the present-day global land-based transport pulse emissions cause a net global warming on all time scales (high confidence) and are detrimental to air quality (high confidence).

The report is available to read at ipcc.ch/report/ar6/wg1/#FullReport.

Announcement of End of Sale of Leaded Petrol

On 30 August 2021, the United Nations Environment Programme announced the end of the use of leaded petrol, following a 19-year campaign by UNEP and its partners. Algeria is the final country to stop selling leaded petrol.

UNEP says that the end of leaded petrol is expected to support the realisation of multiple Sustainable Development Goals, including good health and well-being (SDG3), clean water (SDG6), clean energy (SDG7), sustainable cities (SDG11), climate action (SDG13) and life on land (SDG15). It also offers an opportunity for restoring ecosystems, especially in urban environments, which have been particularly degraded by this toxic pollutant.

In 2002, 117 countries were still using leaded petrol.....



Finally, UNEP says that it marks major progress ahead of this year's International Day of Clean Air for blue skies on the 7th of September.

UNEP is now encouraging stakeholders to “take inspiration from this enormous achievement to ensure that now that we have cleaner fuels, we also adopt cleaner vehicles standards globally – the combination of cleaner fuels and vehicles can reduce emissions by more than 80%.”

The UNEP announcement can be found at [unep.org/news-and-stories/press-release/era-leaded-petrol-over-eliminating-major-threat-human-and-planetary](https://www.unep.org/news-and-stories/press-release/era-leaded-petrol-over-eliminating-major-threat-human-and-planetary).

International Day of Clean Air for Blue Skies 2021

Emphasising the need to make further efforts to improve air quality to protect human health, the United Nations General Assembly has designated 7 September as the International Day of Clean Air for blue skies.

Last year, the first-ever International Day of Clean Air for blue skies with the rights-based theme of ‘Clean Air for All’ was launched. The theme for this year’s International Day of Clean Air for blue skies 2021 is “Healthy Air, Healthy Planet” which emphasises the health effects of air pollution, particularly during the COVID-19 pandemic. The Day aims to prioritise the need for healthy air for all while keeping conversations broad enough to encompass other critical issues such as climate change, human and planetary health as well as the Sustainable Development Goals. The UN says that it serves as a rallying call to action to collectively align efforts and claim the right to clean air.

More information on this is available at [unep.org/events/un-day/international-day-clean-air-blue-skies-2021](https://www.unep.org/events/un-day/international-day-clean-air-blue-skies-2021).

GENERAL

ICCT Overview of CO₂ Emissions from New Passenger Cars in Europe

On 31 August 2021, the International Council on Clean Transportation (ICCT) published a briefing paper with an overview of CO₂ emission levels of new passenger cars in the European Union in 2020. This is based on a preliminary dataset recently

released by the European Environment Agency. The dataset shows that new cars sold in the EU in 2020 had average CO₂ emissions of 108 g/km, 14 g/km lower than in 2019, as measured over the New European Driving Cycle (NEDC). Including flexible compliance mechanisms, such as super-credits and phase-in provisions, lowers average NEDC CO₂ emissions to 96 g/km.

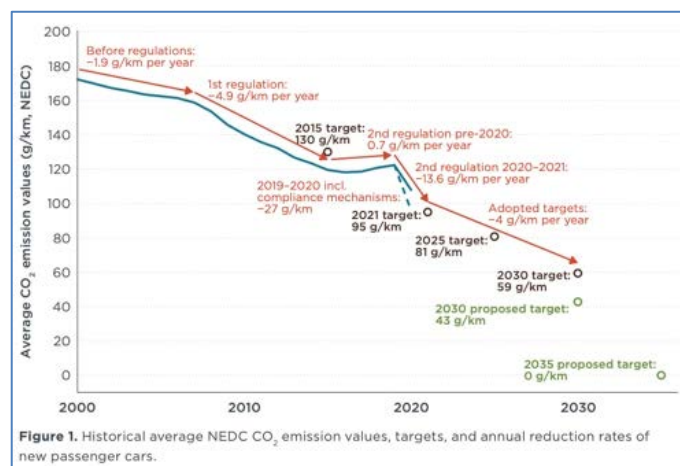


Figure 1. Historical average NEDC CO₂ emission values, targets, and annual reduction rates of new passenger cars.

ICCT says that all manufacturer pools relied on one or more of the flexible compliance mechanisms afforded by EU regulations to meet their targets. According to the NGO, reliance on compliance mechanisms means that roughly half of the CO₂ reductions in 2020 were only achieved on paper. Compliance mechanisms and increasing electric vehicle market shares also allowed average CO₂ emission levels from combustion engine vehicles to remain at approximately 2016 levels.

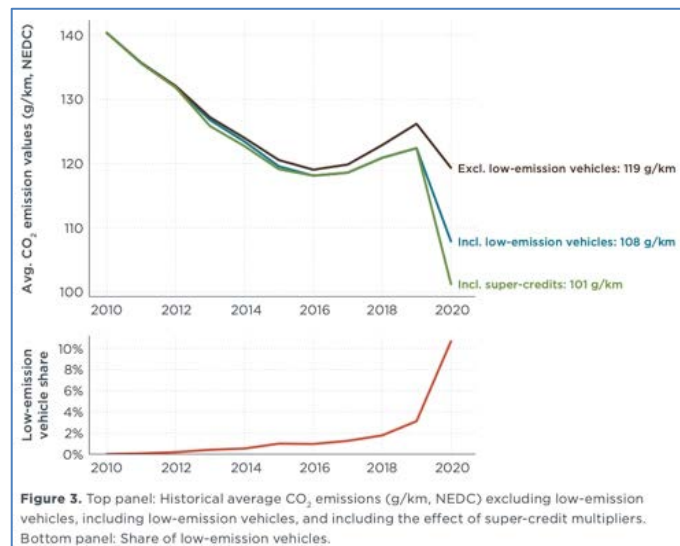
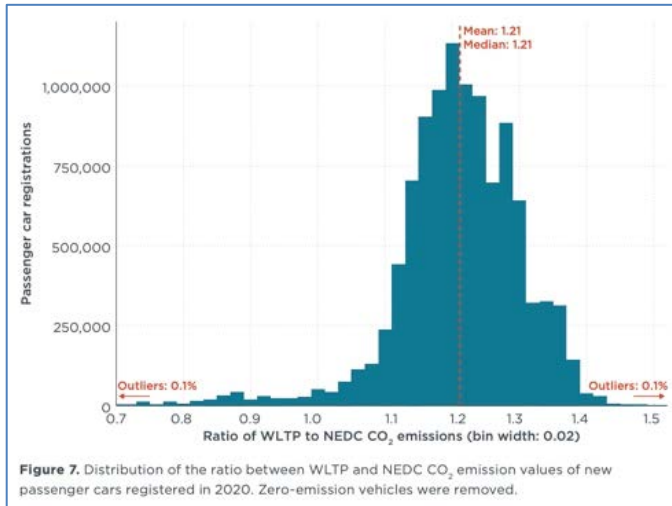


Figure 3. Top panel: Historical average CO₂ emissions (g/km, NEDC) excluding low-emission vehicles, including low-emission vehicles, and including the effect of super-credit multipliers. Bottom panel: Share of low-emission vehicles.

The briefing paper also looks at the transition from NEDC to the Worldwide harmonised Light vehicle Test Procedure (WLTP). The mean and median ratio were both 1.21 in 2020, virtually identical to the central tendencies recorded in 2018 and 2019. The vast majority of 2020 passenger cars (99.8%) had a ratio between 0.7 and 1.5. Average ratios ranged from 1.12 to 1.29 per manufacturer pool. ICCT says that differences between manufacturer pools are

partly explained by varying shares of plug-in hybrid-electric vehicles, which generally have considerably lower WLTP-NEDC ratios (mean: 1.02; median: 0.97) than other vehicles (mean: 1.22; median: 1.22). Eight of the ten manufacturer pools saw higher WLTP-NEDC ratios for diesel vehicles than for petrol vehicles.



ICCT concludes that CO₂ standards led to a dramatic decrease in average NEDC CO₂ emissions from 2019 to 2020.

The briefing paper can be downloaded from theicct.org/publications/eu-co2-pvs-performance-2020-aug21.

RESEARCH SUMMARY

Effects of Emissions and Pollution

Cytotoxicity analysis of biomass combustion particles in human pulmonary alveolar epithelial cells on an air-liquid interface/dynamic culture platform, Shaorui Ke, et al.; *Part Fibre Toxicol* (2021), Vol. 18, 31, [doi: 10.1186/s12989-021-00426-x](https://doi.org/10.1186/s12989-021-00426-x).

Air Quality, Sources and Exposure

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Transport, Climate Change & Emissions

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FORTHCOMING CONFERENCES

ICE 2021 - 15th International Conference on Engines & Vehicles

12-16 September 2021, Naples, Italy

drive.google.com/file/d/1ZXsA9F8f18OP_2gOesDhLCC_4PzEsAem/view

AECC will make a presentation.

49th European Transport Conference

13-15 September 2021, Online

aetransport.org

FISITA World Congress

14-16 September 2021, Online

go.fisita.com/fisita2021/

18th FAD Conference “Challenge – Exhaust Aftertreatment”

15-16 September 2021, Dresden, Germany

fad-diesel.de/event/18-fad-konferenz-herausforderung-abgasnachbehandlung

Cenex-LCV

22-23 September 2021, Millbrook, UK and online

cenex-lcv.co.uk

SAE Powertrains, Fuels & Lubricants Digital Summit

28-30 September 2021, Online

sae.org/attend/virtual-events/pfl

AECC will make a presentation.

Symposium on International Automotive Technology

29 September – 1 October 2021, Online

siat.araiindia.com/site/siat-2021/1030?redirect=1

30th Aachen Colloquium on Sustainable Mobility

4-6 October 2021, Aachen, Germany

aachener-kolloquium.de/en/?idU=1

AECC will make a presentation.

ASME Internal Combustion Engine Fall Conference

13-15 October 2021, Online

event.asme.org/ICEF?utm_source=dieselnets_directory&utm_medium=display&utm_campaign=06_24_icef

EU Sustainable Energy Week

25-29 October 2021, Online

eusew.eu

FVV Autumn Conference

8-9 November 2021, Nürburg, Germany

fvv-net.de/en/events/fvv-autumn-conference-2021/

5th International FEV Conference Zero CO₂ Mobility

15-17 November 2021, Aachen, Germany

cevolver.eu/5th-int-fev-conference-zero-co2-mobility/

POLIS Annual Conference

1-2 December 2021, Gothenburg, Sweden

polisnetwork.eu/2021-annual-polis-conference

Powertrain Systems for Net-Zero Transport

7-8 December 2021, London, UK

events.imeche.org/ViewEvent?code=CON7242

AECC will make a presentation.

SAE WCX World Congress

5-7 April 2021, Detroit, USA and Online

[sae.org/attend/calls-for-papers](https://www.sae.org/attend/calls-for-papers)

Catalysis and Automotive Pollution Control (CAPoC12)

6-8 April 2022, Brussels, Belgium

capoc.ulb.ac.be

CITA International Conference

1-2 June 2022, Amsterdam, Netherlands

citainsp.org/cita-conferences

8th International MinNOx Conference

Spring/Summer 2022, Berlin, Germany (postponed from June 2021)

iav.com/en/events/minnox