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EUROPE

Commission Publication of 'Fit for 55' Package

On 14 July 2021, the European Commission published its 'Fit for 55' Package. This covers several legislative proposals to achieve the overall goal of 55% CO_2 emission reductions by 2030 compared to 1990.

The revision of the Regulation setting CO_2 emission performance standards for new passenger cars and new light commercial vehicles is a key part of the package. The Commission is proposing to reduce average CO_2 emissions of new cars by 55% from 2030 and 100% from 2035 compared to 2021 levels. For vans, emissions are set to be reduced by 50% from 2030 and by 100% from 2035 compared to 2021 levels.

There is no mechanism proposed to take into account the potential contribution of renewable and low-carbon fuels to greenhouse gas reduction. Promoting the use of renewable and low-carbon fuels will be done through the revision of the Renewable Energy Directive, the emissions trading system and the Energy Taxation Directive.

By 31 December 2025, and every two years thereafter, the Commission shall report on the progress towards zero emission road mobility. This includes the potential contribution of innovation technologies and sustainable alternative fuels to reach climate neutral mobility among other items.

The Renewable Energy Directive (RED) will be amended to implement the ambition of the new 2030 climate target. This sets an increased target to produce 40% of EU energy from renewable sources by 2030. All Member States will contribute to this goal, and specific targets are proposed for renewable energy use in transport, heating and cooling, buildings and industry.

A revision of the Directive on deployment of alternative fuels infrastructure (AFID) will see it become a regulation. Regulations have binding legal force throughout every Member State and enter into force on a set date in all the Member States. The proposals require Member States to expand charging capacity in line with zero-emission car sales, and to install charging and fuelling points at regular intervals on major highways: every 60 kilometres for electric charging and every 150 kilometres for hydrogen refuelling.

To address the lack of emissions reductions in road transport and buildings, a separate new emissions trading system is set up for fuel distribution for road transport and buildings.

The Commission's press release can be found at ec.europa.eu/commission/presscorner/detail/en/ip_21_3541.
A 'Make Transport Greener' fact sheet is at ec.europa.eu/commission/presscorner/detail/en/FS_21_3665.

EP-ENVI Exchange with Commissioner Timmermans on Climate Package

On 14 July 2021, the European Commission Executive Vice-President Mr Frans Timmermans presented the upcoming legislative package on the climate to the Environment (ENVI) Committee of the European Parliament.

The package comprises legislative proposals regarding the EU Emissions Trading System, Land Use, Land Use Change and Forestry (LULUCF), Effort Sharing, emission standards for new cars, renewable energy and energy efficiency, as well as a new proposal on a Carbon Border Adjustment Mechanism (CBAM).

Mr Timmermans said that whatever the EC proposed today would only mean something if the Parliament and Council agree to turn it into legislation. He said the package being presented was the translation of the ambition into a roadmap on how to achieve the emissions reductions.

A question and answer session followed. MEP Liese (DE, EPP) said action is needed. He asked about incentives and the need to communicate them as well. He supported the ETS approach from the EC. Banning internal combustion engine (ICE) by 2035 is not the right choice.

MEP Guteland (SE, S&D) said this is a historic date and achievement, and that the Carbon Border Adjustment Mechanism (CBAM) as well as the phase out of ICE in 2035 are historic steps.

MEP Eickout (NL, Greens) congratulated Mr Timmermans, saying that the launch of the package is a historic moment. It is changing different sectors and will bring Europe to -55% by 2030. He added that the Greens will fight for those sectors where they see improvement is possible; cars is one of them.

Mr Timmermans mentioned that the legacy of the existing fleet of ICE cars will be there for the next 20 or 30 years. The dirtiest cars will be removed first, but the Commission does not want to end up in a situation where parts of Europe can afford electric vehicles and other parts not. He referred to a recent Bloomberg report, saying that although an electric vehicle is currently cheaper to run than an ICE but more expensive to buy, from 2026 the BEV could be cheaper to buy. Mr Timmermans added that this is a good thing for social justice and the climate. He referred to parts of the car industry that have announced ambitions that go beyond the EC's ambition to stop selling ICE cars before 2035, but others that will react very negatively.

A video recording of the exchange is available at multimedia.europarl.europa.eu/en/committee-on-environment-public-health-and-food-safety_20210714-1700-ENVI_vd.

Publication of European Climate Law in Official Journal

On 9 July 2021, Regulation (EU) 2021/1119 establishing the framework for achieving climate neutrality and amending

Regulations (EC) 401/2009 and (EU) 2018/1999 ('European Climate Law') was published in the Official Journal of the European Union.

Article 1 sets out the scope of the Regulation, establishing a framework for the irreversible and gradual reduction of anthropogenic greenhouse gas emissions by sources and enhancement of removals by sinks regulated in Union law. It sets out a binding objective of climate neutrality in the Union by 2050 in pursuit of the long-term temperature goal set out in the Paris Agreement and also sets out a binding Union target of a net domestic reduction in greenhouse gas emissions for 2030.

Article 2 confirms that Union-wide greenhouse gas emissions and removals regulated in Union law shall be balanced within the Union at the latest by 2050, thus reducing emissions to net zero by that date, and the Union shall aim to achieve negative emissions thereafter.

Article 3 relates to scientific advice on climate change, stating that the European Scientific Advisory Board on Climate Change shall serve as a point of reference for the Union on scientific knowledge relating to climate change by virtue of its independence and scientific and technical expertise.

Under Article 4, intermediate climate targets are set for a domestic reduction of net greenhouse gas emissions (emissions after deduction of removals) by at least 55% compared to 1990 levels by 2030.

Other Articles cover adaptation to climate change, assessment of progress and measures, provisions on Commission assessment and public participation.

The Regulation is published at eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2021.243.01.0001.01.

Research for TRAN Committee on HDV Alternative Fuel Infrastructures

On 14 July 2021, the European Parliament's Policy Department for Structural and Cohesion Policies published a report for the Transport (TRAN) Committee on alternative fuel infrastructures for heavy-duty vehicles (HDVs). The report was produced by researchers at CE Delft.

The report's authors say that because of their greenhouse gas (GHG) emission reduction potential, alternatively fuelled low and zero emission trucks will play a major role in realising the EU Green Deal and the 55% GHG reduction target for 2030. It is therefore essential that there is sufficient and widespread recharging and refuelling infrastructure available.

CE Delft researchers say that for trucks the Alternative Fuels Infrastructure Directive (AFID) is geared mainly to alternative fuels like CNG and LNG. Given the Green Deal decarbonisation target, the report states that the AFID should shift its focus to creating refuelling infrastructure for battery electric trucks and hydrogen fuelling infrastructure. It does also say that the decarbonisation potential of renewable fuels (biofuels and e-fuels) in diesel engines should not be overlooked and that additional actions focussing on feedstock mobilisation and realisation of supply chains should be taken.

The report can be found at europarl.europa.eu/RegData/etudes/STUD/2021/690888/IPOL_STU(2021)690888_EN.pdf.

Public Consultation on End-of-Life Vehicles

On 20 July 2021, the European Commission launched a public consultation on the End-of-Life Vehicle (ELV) Directive.

The Commission says that it has completed an evaluation of Directive 2000/53/EC on end-of-life vehicles in 2021 and has identified various shortcomings. Following up on the evaluation, the European Commission is now working on an impact assessment in support of a possible revision of the ELV Directive. In view of the links between the ELV Directive and the "3R type-approval" Directive 2005/64/EC on reusability, recyclability and recoverability, a joint review of both Directives will be carried out.

The consultation is open for comment until 26 October 2021.

The EC's consultation on EVV can be found at ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12633-End-of-life-vehicles-revision.

TRAN Exchange on the Transport Priorities of the Slovenian Presidency

On 13 July 2021, the TRAN Committee welcomed the incoming Slovenian Presidency. Mr. Jernej Vrtovec, Minister for Infrastructure and Mr. Zdravko Počivalšek, Minister for Economic Development and Technology presented to the Members the priorities of the Slovenian Presidency in the field of transport and tourism.

Mr Vrtovec mentioned that on Transport the Presidency has two goals: sustainability and resilience. Transport is one of the key sectors to achieve our climate and energy goals. On the other hand, transport is one of the sectors which has been hit hardest during the pandemic. The Slovenian Minister said that e-mobility and alternative fuels are the Presidency's main priorities. The informal meeting of transport ministers to be held on 22-23 September in Ljubljana will touch on these two subjects. These priorities are linked to the "Fit for 55" package. He said the Presidency will devote plenty of time to concrete proposals, particularly those for the aviation and maritime sectors.

There were questions from MEPs, mostly covering the Emission Trading System (ETS). MEP Oetjen (Germany, REG) asked specifically about the CO_2 target regulation for cars and vans which is based only on tailpipe emissions, Minister Vrtovec mentioned this was a technical question and would consult with his technical team.

A video recording of the exchange is available at multimedia.europarl.europa.eu/en/committee-on-transport-and-tourism_20210713-0900-COMMITTEE-TRAN_vd.

European Commission Refers Greece to Court of Justice over Poor Air Quality

On 15 July 2021, the European Commission has today decided to refer Greece to the Court of Justice of the European Union for poor air quality caused by high levels of nitrogen dioxide (NO_2).

The EC says that Greece has continually and persistently exceeded the annual NO_2 limit value in Athens. It has also failed to adopt appropriate measures to keep the exceedance period as short as possible. The Commission therefore considers that efforts by the Greek authorities have to date been unsatisfactory and insufficient and is referring Greece to the Court of Justice of the European Union.

The Commission's press release is at ec.europa.eu/commission/presscorner/detail/en/IP_21_3402.

UK Transport Decarbonisation Plan

On 14 July 2021, the UK Government published its Transport Decarbonisation Plan. It says this is "not about stopping people doing things: it's about doing the same things differently".

The Plan states that the Government will consult on regulatory options, including zero emission vehicle mandates, to deliver petrol and diesel phase-out dates for new vehicles. It will also consult this year on a phase-out date of 2035, or earlier if a faster transition appears feasible, for the sale of new non-zero emission powered two and three wheelers (and other L category vehicles).

The government says that it will lead by example with 25% of the Government car fleet ultra-low emission by December 2022 and 100% of the Government car and van fleet zero emission by 2027.

For heavy goods vehicles (HGVs), the UK Government is consulting on phase-out dates for the sale of all new non-zero emission HGVs. Under the Plan, sales of all new medium sized trucks (up to and including 26t) to be zero emissions from 2035, with the heaviest (>above 26t) zero emission by 2040.

On the subject of low carbon fuels, the Transport Decarbonisation Plan says that the Government will develop a strategy, from now until 2050, to set a clear signal about its vision for the sector.

The Transport Decarbonisation Plan can be found at assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002285/decarbonising-transport.pdf.

NORTH AMERICA

White House Climate Advisor Comments on Fuel Economy Rules

On 13 July 2021, White House National Climate Advisor Ms Gina McCarthy commented on the next round of US fuel economy rules.

She said that the Administration is looking at developing a rule that catches up with California, developing a rule that goes further out and it is also going to continue to talk to the car companies "who themselves have said everywhere from 40% to 60%" in emissions cuts by 2035.

Ms McCarthy said that automakers are strongly motivated to improve fuel efficiency and that the federal government should also make sure supply chains are in place to allow them to build new fleets in the US.

The report of Ms McCarthy's comments is at spglobal.com/platts/en/market-insights/podcasts/platts-future-energy/070821-electrification-biofuels-brazil-ethanol-electric.

ASIA PACIFIC

Analysis of China IV Non-Road Emission Standards

On 16 July 2021, the International Council on Clean Transportation (ICCT) published an analysis of the China IV non-road emission standards, updated in December 2020.

The update sets new requirements for particle number (PN) limits, the use of Global Positioning System (GPS) tracking systems, and portable emissions measurement system (PEMS) testing for improved real-world compliance. The updated China IV standards will phase in from December 2022 for all diesel non-road equipment with engine sizes smaller than 560kW, for diesel three-wheeler trucks, and for waterway vessels with diesel engines smaller than 37 kW.

ICCT comments that as 56% of the particulate matter (PM) emitted by all mobile sources came from non-road equipment, the government's decision to tighten emissions controls on non-road equipment is consequential for reducing emissions nationwide.

It says the more stringent emission limits and in-use compliance requirements will lead to the use of improved emission control technologies in the non-road sector. The added PN limits will require adoption of diesel particulate filters (DPFs), particularly for equipment with engine size between 37 kW and 560 kW, which is expected to increase

costs by 10-15%. The technology upgrade for equipment with engine size smaller than 37 kW is relatively minor, with minimal cost increases expected.

Table 1. Timeline of China's regulatory regime for non-road tailpipe emissions standards

Regulatory standards	Date of implementation	Equivalent standards
Limits and Measurement Methods for Exhaust Pollutants from Diesel Engines of Non-Road Mobile Machinery (China I and II) (GB20891-2007)	October 2007 for China I	EU Stage I
	October 2009 for China II	EU Stage II
Limits and Measurement Methods for Exhaust Pollutants from Diesel Engines of Non-Road Mobile Machinery (China III and IV) (GB 20891-2014)	October 2014 for China III	EU Stage IIIA
	China IV scheduled for December 2022 in amendment	EU Stage IIIB for limits, and some other requirements from EU Stage V

ICCT's view is that the new China IV non-road standards are expected to help reduce overall tailpipe emissions, even as the market grows. If China IV is implemented as scheduled in December 2022, NOx and PM levels from non-road vehicles are expected to fall by 12.5% and 19.3%, respectively by 2025, and by 35.0% and 46.8%, respectively, by 2030 when compared with current standards (China III).

The ICCT policy update is available to read at theicct.org/sites/default/files/publications/china-iv-non-road-emission-standards-jul2021.pdf.

Estimates of Electric Two-Wheeler Costs in India to 2030 and beyond

On 28 July 2021, the International Council on Clean Transportation (ICCT published a working paper on the potential consumer costs of electric two-wheelers (E2W) in India versus conventional combustion engine two-wheelers.

The analysis was conducted by first apportioning the 2020 upfront costs of top-selling conventional two-wheelers and electric two-wheelers into component-level direct manufacturing costs and indirect costs, including manufacturer and dealer margins. All costs were then projected into the future to estimate full-vehicle upfront costs to the consumer beyond 2020. The authors further assessed the 5- and 10-year total cost of ownership (TCO) for both electric and conventional models in 2020 and beyond. All cost estimates are projected for short-, mid-, and long-range electric models, and under two different electrification scenarios, one assuming 100% of new two-wheeler sales will be electric by 2035 and the other that assumes 100% electric for new sales by 2047.

ICCT says that results show that the battery cost reduction schedule and the availability of key government incentives are the main factors influencing the upfront price of electric two-wheelers. The study shows that the larger the battery pack (i.e., the longer the range), the later parity is reached in upfront cost, 5-year TCO, and 10-year TCO with central government incentives.

E2W upfront cost parity is expected between 2027 and 2034 in an ambitious electrification scenario, provided FAME-II (Faster Adoption of Hybrid and Electric Vehicles) and preferential GST (Goods and Services Tax) benefits continue until that time. Short-range models achieve parity faster than long-range models, and state-level direct incentives such as in Delhi can accelerate upfront parity by 4 to 7 years.

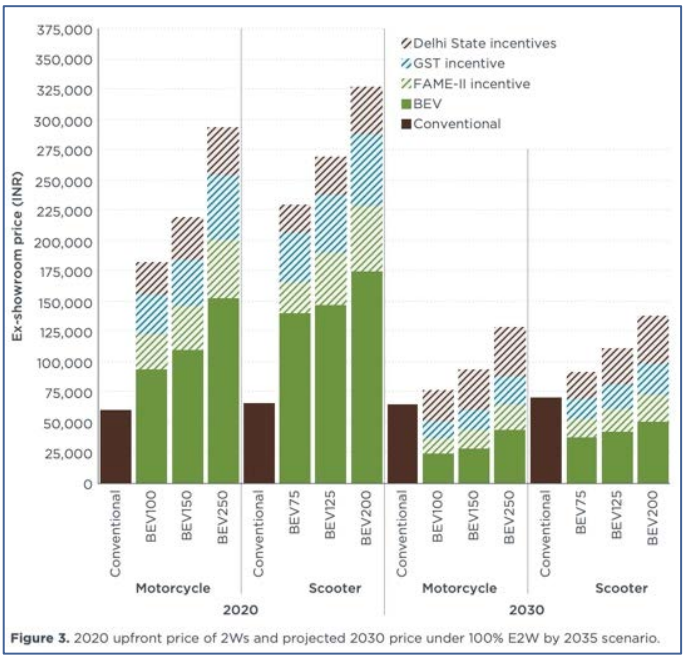


Figure 3. 2020 upfront price of 2Ws and projected 2030 price under 100% E2W by 2035 scenario.

ICCT says that short-range E2Ws on the market today are already cheaper to own and operate; additionally, in an ambitious electrification scenario with central government incentives, long-range E2Ws are expected to reach 10-year TCO parity between 2023 and 2024.

ICCT concludes that it is 'vital that India implement stringent fuel efficiency standards and/or electric vehicle mandates for two-wheelers'.

The working paper can be found at theicct.org/sites/default/files/publications/E2W-cost-2030-India-jul2021.pdf.

GENERAL

EU Automotive Industry's Initial Reactions to Europe's Climate Plans

On 14 July 2021, the European Automobile Manufacturers' Association (ACEA) published its initial response to the European Commission's Fit for 55 package.

The trade association says that banning a single technology is not a rational way forward at this stage – especially when Europe is still struggling to get the right enabling conditions in place for alternatively-powered vehicles. It says the proposed CO_2 reduction target for cars of 55% by 2030 (based on 2021 levels) will be very challenging, and certainly requires a corresponding binding target for Member States to build up the required charging and refuelling infrastructure.

ACEA goes on to say that all options – including highly efficient internal combustion engines, hybrids, battery electric and hydrogen vehicles – must play their role in the transition to climate neutrality. It adds that it is not the internal combustion engine that is detrimental to the environment, but fossil-based fuels. Without the availability of renewable fuels, it says a 100% reduction target in 2035 is effectively a ban of the internal combustion engine.

ACEA says it is pleased to note that the package includes binding targets for the deployment of charging and refuelling infrastructure, addressing the requirements of all vehicle types. It is however concerned that the targets fall far short of what is required, with a 'worrying' reference to 3.5 million charging points by 2030. ACEA points out that according to recent Commission calculations a further decrease of car CO_2 emissions to -50% in 2030 would require some 6 million publicly available charging points.

The full press release is at
acea.auto/press-release/fit-for-55-eu-auto-industry-initial-reaction-to-europe-climate-plans.

On the same day CLEPA, the European Association of Automotive Suppliers, responded to the proposals by saying that the Commission had missed an opportunity to promote the uptake of renewable fuels to reach climate neutrality in an inclusive way, and that Europe stands to give up on a strategic technology as a result.

CLEPA says that although direct electrification will contribute significantly to reducing emissions, for some transport needs it is not or not yet the right solution. Plug-in hybrids bridge the gap between zero-emission and long-distance or heavy goods transport. It adds that the EC's proposal leaves electrification as the only option, regardless of whether it fits the need or not, is affordable or not, or if there is green energy and the infrastructure to charge it or not. It states that this is the opposite of technology neutrality.

CLEPA's statement finishes by saying that the approach favoured by the European Commission does not provide a solution for emissions from the vehicles with a combustion engine which are already on the roads or will enter service in the coming years. Sustainable renewable fuels would reduce their emissions immediately, without the need to wait for fleet renewal.

The CLEPA press release can be found at
clepa.eu/mediaroom/renewable-fuels-and-electricity-make-transport-climate-neutral-not-a-ban-on-technology.

Fuel Industry Response to Fit for 55 Package

On 15 July 2021, branches of the fuel industry published responses to the Commission's Fit for 55 Package.

FuelsEurope says that it is concerned by the lack of recognition of the contribution of sustainable and renewable fuels in the vehicle CO_2 regulation and the weakening of the carbon leakage protection for the EU industries. It states that recognising the contribution of renewable sustainable fuels in this regulation would support the production at scale of renewable fuels for the mitigation of GHG emissions from the existing car fleet. It would ease EU's ability to reach its climate neutral transport objectives while leaving no one behind.

It adds that the implementation of a transport and buildings ETS will generate a cost for fuels customers on top of existing fuels taxation which will need careful judgement.

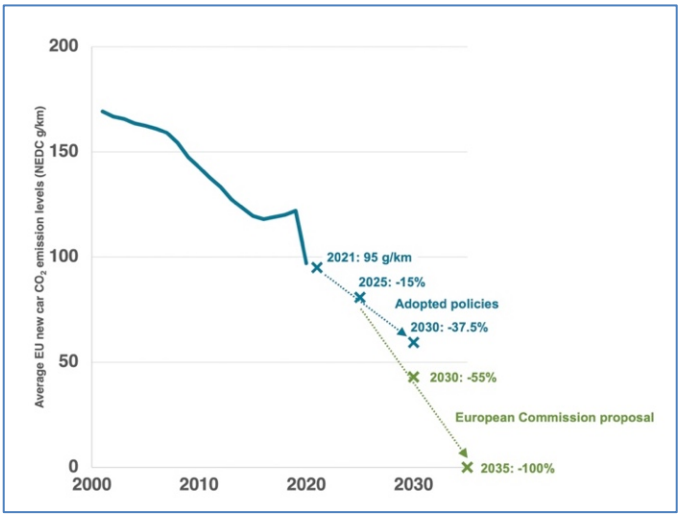
The eFuel Alliance says that the package "clearly does not make the EU fit enough for a climate-neutral future". It goes on to say that the European Commission is missing a huge opportunity to accelerate the energy transition and help renewable energies in the form of electricity, hydrogen or eFuels equally make a breakthrough. Much more investment in renewables from around the world is needed if the ambitious climate targets are really to be achieved.

The FuelsEurope press release is available to read at
fuelseurope.eu/mediaroom/the-transition-to-climate-neutrality-will-be-very-challenging.
and the eFuel Alliance statement at
efuel-alliance.eu/fileadmin/Downloads/PM__Un_Fitfor55_ENG.pdf.

NGO Response to Commission's Fit for 55 Package

On 15 July 2021, the International Council for Clean Transportation (ICCT) and Transport & Environment (T&E) responded to the European Commission's release of its Fit for 55 Package.

The ICCT blog says that the 2030 CO_2 target reductions for cars and vans were areas where "the European Commission gave in to some extent", as its own research shows that a reduction of at least 70% by 2030 is required if there is a chance of meeting the economy-wide goals.



It does say however that the 100% reduction target for 2035 is a victory for Vice-President Timmermans, and that the vehicle manufacturers themselves assisted with the decision, because over the past weeks and months, a

number of manufacturers voluntarily announced a phase-out of the sales of new combustion engine vehicles in Europe.

ICCT says that the Alternative Fuels Infrastructure Directive (AFID) could give an indication of how successful the Commission will be in pushing the Member States into action. The responsibility for this infrastructure is in the hands of the EU Member States, and ICCT says it hopes that, when it comes to providing the infrastructure necessary for the widespread adoption of battery and fuel cell electric vehicles needed to decarbonise the transport sector, Member States "finally jump through the hoops and take responsibility".

T&E says that the EU's plan to sell 100% emissions-free cars in 2035 will democratise electric vehicles in Europe. It says interim CO_2 targets from 2025 will be needed to ensure carmakers ramp up production of emissions-free vehicles earlier, driving down costs and generating more consumer buy-in. T&E warns however, that a "weak CO_2 target of -50% for van makers in 2030 will do little to drive electrification of the fastest growing road polluter".

ICCT's blog response can be found at theicct.org/blog/staff/european-commission-fitfor55-jul2021. with the T&E statement at transportenvironment.org/press/eu-climate-plan-will-make-emissions-free-cars-accessible-all.

ICCT Report on Air Quality and Health Impacts of HDVs in G20 Economies

On 22 July 2021, the International Council on Clean Transportation (ICCT) published a report analysing the health and climate impacts associated with projected diesel heavy-duty vehicle (HDV) exhaust emissions in G20 economies under four scenarios: currently adopted policies, expanded adoption of Euro VI-equivalent standards, potential next-generation emission standards, and accelerated fleet renewal programmes.

ICCT says that expanded implementation of world-class standards (Euro VI-equivalent) in G20 economies in the 2023–2025 timeframe would reduce NOx by 45%–85% over the next two decades. Likewise, in G20 countries that have adopted these standards, ICCT calculates that black carbon emissions are projected to fall by 85%–99% over the next two decades compared with 2020 levels.

Next-generation standards are also key to sustaining NOx emission reductions from HDVs. These standards could bring NOx levels down by 60%–95% from 2020 levels in 2040, compared with the 40%–80% projected under Euro VI-equivalent standards. ICCT estimates that implementation of next-generation standards in G20 economies could avoid more than $5 trillion of health damages over the next three decades.

Next-generation standards coupled with accelerated fleet renewal policies would achieve the greatest benefits by a wide margin, according to the NGO. Cumulative avoided premature deaths attributable to diesel HDV emissions in G20 economies from 2020 to 2050 would total 4 million under a next-generation with 16-year fleet renewal scenario. This is four times the number under the expanded world-class plus 16-year renewal scenario.

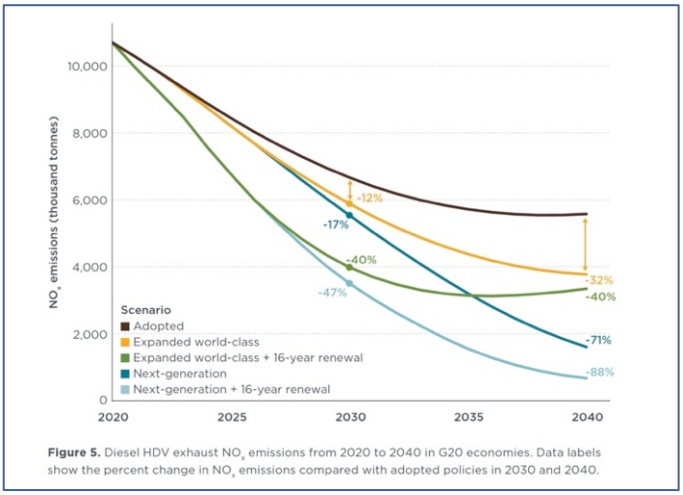


Figure 5. Diesel HDV exhaust NO_x emissions from 2020 to 2040 in G20 economies. Data labels show the percent change in NO_x emissions compared with adopted policies in 2030 and 2040.

ICCT says that these findings highlight the scale of the opportunity at hand to expand adoption of filter-forcing standards, develop cleaner next-generation emission standards, and couple these standards with accelerated fleet renewal programmes to remove vehicles with older technologies.

The full ICCT study can be found at theicct.org/sites/default/files/publications/g20-hdv-impacts-jul2021_0.pdf.

International Transport Forum Report on Resilient Technology Transition

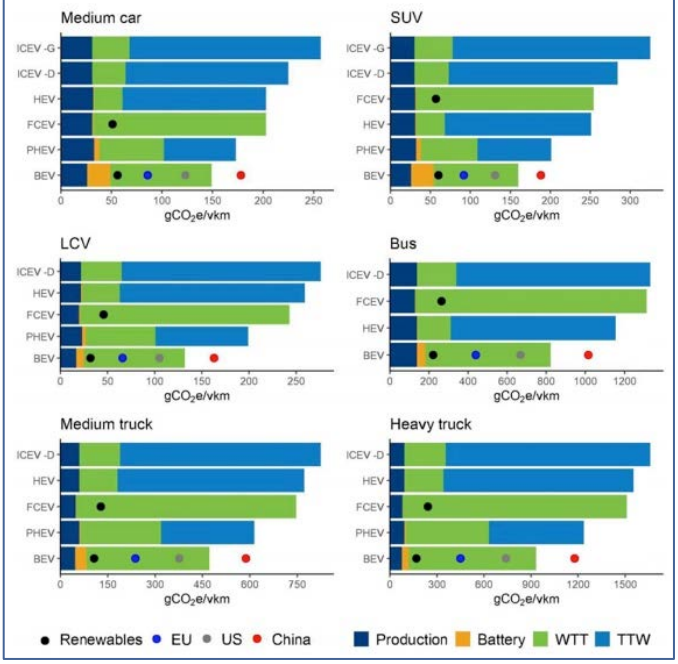
On 21 July 2021, the International Transport Forum (ITF) published a report on 'Achieving a Resilient Technology Transition' to cleaner vehicles. The report evaluates policies for transitioning to clean vehicles and clean energy for road transport. It analyses technologies for clean passenger cars, light commercial vehicles, buses and trucks, and identifies solutions that deliver the greatest benefits. The report focuses on large vehicle markets and major economies, namely China, Europe, Japan, Korea and the United States.

The report highlights a combination of factors that has increased interest in, and the deployment of, clean vehicles. First, policies have stimulated innovation in clean vehicle and clean energy technologies. Second, recent developments allow cost reductions and productivity improvements, especially in battery and renewable energy technology. Third, policy makers have become increasingly aware of these dynamics.

According to the authors, COVID-19 has further accelerated the deployment of clean vehicles, especially electric vehicles, as many governments put in place economic stimuli aiming to drive a recovery subject to lower financial, climate and sustainability risks. The decarbonisation targets announced by governments and non-state actors include a complete transition to low- and zero-emission vehicles for new passenger cars by 2035 and buses and trucks by 2040. This herald a significant acceleration in the pace of adoption of clean mobility. The report adds that policy action encouraging the adoption of clean, connected, and autonomous vehicles will likely accelerate due to falling costs and opportunities from continued technological improvements.

Based on lifecycle greenhouse gas emissions and energy efficiency analysis, the report recommends supporting the adoption of clean vehicles with targeted policy action and by increasing transparency of their carbon footprint, prioritising a transition to direct electrification of vehicles and renewable energy.

Figure 1. Lifecycle GHG emissions intensity of new vehicles in 2020, by vehicle type and technology



It also points out that technological progress for low-carbon technologies other than direct electrification is still in need of a boost to reach greater readiness levels. Accelerating progress for bringing low-carbon hydrogen, synthetic fuels and other forms of carbon-neutral fuels as well as some low-carbon sustainable biofuels to market can help to decarbonise legacy vehicles. They may also be necessary in cases that are most challenging to electrify in long-haul trucking. According to the report, support efforts should focus on the low-carbon technologies with the strongest sustainability impact and the highest potential to compete on cost with direct electrification.

The report is available to read at itf-oecd.org/sites/default/files/docs/cleaner-vehicles-technology-transition.pdf.

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Particle Size-Dependent Filtration Efficiency and Pressure Drop of Gasoline Particle Filters with Varying Washcoat Volumes, Xiangxiao Kong, et al.; *Emiss. Control Sci. Technol.* (2021), Vol. 7, pp. 105–116, doi: 10.1007/s40825-021-00193-3.

Evaluation of a Catalyzed Diesel Particulate Filter Coated by a Novel Silver-Based Catalyst Using Mining Diesel Engines, Lioudmila Nossova, et al.; *Emiss. Control Sci. Technol.* (in press), doi: 10.1007/s40825-021-00186-2.

Scaling-up of the catalytic stacked wire mesh filters for the abatement of diesel soot, M. L. Godoy, et al.; Catalysis Today (in press), doi.org/10.1016/j.cattod.2021.07.010

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Taxes, tolls and ZEV zones for climate: Synthesizing insights on effectiveness, efficiency, equity, acceptability and implementation, Jonn Axsen and Michael Wolinetz; *Energy Policy* (September 2021), Vol. 156, 112457, doi: 10.1016/j.enpol.2021.112457.

Why is the world not yet ready to use alternative fuel vehicles? Meisam Ghadikolaei, et al.; *Heliyon* (in press), doi: 10.1016/j.heliyon.2021.e07527.

On the sustainability of electric vehicles: What about their impacts on land use? Francesco Orsi; *Sustainable Cities and Society* (March 2021), Vol. 66, 102680, doi: 10.1016/j.scs.2020.102680.

FORTHCOMING CONFERENCES

ICE 2021 - 15th International Conference on Engines & Vehicles
12-16 September 2021, Naples, Italy
drive.google.com/file/d/1ZXsA9F8fI8OP_2gOesDhLCC_4PzEsAem/view
AECC will make a presentation.

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.

30th Aachen Colloquium Sustainable Mobility
4-6 October 2021, Aachen, Germany
aachener-kolloquium.de/en/?idU=1
AECC will make a presentation.

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 CO_2 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.

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