Proposal COM(2022) 586 of 10 November 2022 for a **Regulation on type-approval of motor vehicles with respect to their emissions and battery durability (EURO 7)** and repealing Regulations (EC) No 715/2007 and (EC) No 595/2009

EURO 7 EMISSION STANDARDS FOR MOTOR VEHICLES

No. 5/2023

LONG VERSION

Authors: Dr. Martin Menner and Dr. Götz Reichert, LL.M. (GWU) | menner@cep.eu
cep | Kaiser-Joseph-Strasse 266 | 79098 Freiburg | Telephone +49 (0)761 38693-0 | www.cep.eu

A. Key elements of the EU proposal

1 Context and objectives

1.1 Context

- Exposure to air pollutants in the EU[1]
  - has declined significantly in recent decades;
  - "caused" statistically
    - approx. 412,000 "premature deaths" in 2018 and approx. 311,000 in 2020 due to emissions of particulate matter, nitrogen oxides (NO_x) and ozone;
    - 45% fewer "premature deaths" from particulate matter emissions in 2020 as compared with 2005.
- In this context, air pollutant emissions from motor vehicles in road transport "caused"[2]
  - approx. 64,000 "premature deaths" in 2018;
  - approx. 48,500 "premature deaths" in 2020.
- In 2020, road transport in the EU caused[3]
  - 9% (2018: 11%) of particulate matter emissions with a particle size smaller than 10 micrograms (PM_{10});
  - 9% of particulate matter emissions with a particle size smaller than 2.5 micrograms ($PM_{2.5}$);
  - 37% (2018: 39%) of nitrogen oxide emissions.
- Currently, the following limits apply to air pollutant emissions from motor vehicles:
  - since 2014, the EURO 6 standards for new cars and vans [Regulation (EC) No 715/2007];
  - since 2013, the EURO VI standards for new lorries and buses [Regulation (EC) No 595/2009].
- From entry into force of the EURO 6/VI standards until 2020 [SWD(2022) 359, p. 6]
  - NO_x emissions from cars and vans fell by 22% and from lorries and buses by 36%;
  - particulate emissions from cars and vans fell by 28% and from lorries and buses by 14%, of which slightly more than half came from exhaust gases and the rest from brake and tyre abrasion.
- Over the same period, thanks to lower NO_x and particulate matter emissions from road transport, the "external costs" of medical treatment and production losses due to illness and death fell by €97 billion across the EU [SWD(2022) 359, p. 6].
- As a result of more vehicles coming onto the market in the future, that meet the current EURO 6d/VI-E standards, it is expected that by 2035, compared to 2020,
  - NO_x emissions from all cars will fall by 68%, from cars and vans by 79%, from lorries and buses by 57% [IA Report[4]] and from diesel cars by 79% [Aeris study[5]];
  - $PM_{2.5}$ particulate matter emissions from all cars will fall by 32%, from cars and vans by 79%, from lorries and buses by 23% [IA Report] and from diesel cars by 79% [Aeris study].

1.2 Objectives of the EURO 7 Regulation

- With this proposal for a Regulation, the Commission wants [COM(2022) 586]
  - to incorporate the hitherto separate regulatory provisions on air pollutant emissions from cars and vans, on the one hand, and from lorries and buses, on the other, into a new EURO 7 Regulation in order to ensure their coherent alignment (Recitals 5 and 23);
  - to ensure that emission limits already in force [p. 12]
    - are set to the strictest EURO 6 limit values across all fuels for cars and vans, and
    - will be further tightened for lorries and buses;
  - to set new limits for cars and vans regarding previously unconsidered pollutants such as particulate matter from brake and tyre abrasion, N_2O and ammonia [Annex 3, Tables 1 and 2];
  - to test emissions under real-life conditions "with a minimum set of restrictions, boundaries and other driving requirements" [Recital 8].

---

1 EEA (2020), Air quality in Europe 2020 [AQE2020]; EEA (2022), Health impacts of air pollution in Europe 2022 [HEALTH 2022].

2 Figures for EU27 from AQE2020, HEALTH 2022, calculated using the same model as in SWD(2022) 359, p. 1.

3 SWD(2022) 359, p. 1; EEA (2022), Air quality in Europe 2022 [AQE2022].

4 EU Commission (2022), Euro 7 Impact Assessment Report [IA Report]. The IA Report does not take account of foreseeable stricter CO_2 limits for lorries and buses or of the resulting increased electrification of these vehicles.

5 Aeris Europe (2021), EURO 7 Impact Assessment: The outlook for air quality compliance in the EU and the role of the road transport sector. The Aeris study, commissioned by the Association of European Automobile Manufacturers (ACEA), in contrast to the IA study, models an expected higher proportion of e-vehicles due to stricter CO_2 limits for lorries and buses.

- In terms of environmental and health policy, the Commission wants to
  - "drastically" reduce the population's exposure to pollutant emissions from road transport [COM(2022) 586, p. 1-2];
  - contribute to reducing the number of "premature deaths" from pollutant emissions by 55% by 2030, as compared with 2005 [Zero Pollution Action Plan, Communication COM(2021) 400, see cep**PolicyBrief** 20/2021];
  - halve total NO_x emissions from cars by 2035, as compared with the scenario without EURO 7 standards; by comparison with 2018, this corresponds to a NO_x emission reduction [COM(2022)586, p. 12]
    - of more than 85% for cars and vans, and
    - of more than 80% for lorries and buses.
- In terms of industrial policy, the Commission is thus aiming to [SWD(2022) 359, p. 11]
  - be "ahead" of the pollutant emission limits that will apply – under different test conditions – in China from 2023 and in the US from 2025 [COM(2022)586, p. 11];
  - strengthen the international competitiveness of European car manufacturers and
  - keep research and development (R&D) for internal combustion vehicles in the EU.

2 Subject matter and scope

2.1 Subject matter of the legislation

- The EURO 7 Regulation lays down technical and administrative requirements for vehicle type-approval and market surveillance relating to [Art. 1 (1)]
  - CO_2 and pollutant emissions,
  - fuel and energy consumption and
  - battery durability.
- The EURO 7 Regulation also lays down requirements for [Art. 1 (2)]
  - the lifetime of emission reduction systems,
  - on-board monitoring systems,
  - security measures to limit tampering, cyber security measures, and
  - determining CO_2 emissions, electric range, fuel and energy consumption and energy efficiency.

2.2 Scope

The EURO 7 Regulation applies to [Art. 2 and 3 in conjunction with Regulation (EU) No. 2018/858, Art. 4]

- the following vehicle categories, components and trailers:
  - cars, vans, (categories M1, M2, M3),
  - lorries and buses (categories N1, N2 and N3),
  - systems, components and separate technical units (STUs) intended for such vehicles, and
  - trailers (categories O3 and O4);
- the following emissions:
  - exhaust emissions: nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM), hydrocarbons (HC), methane (CH_4), ammonia (NH_3) and formaldehyde (HCHO);
  - tyre and brake emissions: particles (PM).

3 Manufacturers' obligations

3.1 Requirements for production

- Manufacturers must have EURO 7 type-approval for [Art. 4 (1)]
  - new vehicles sold, registered or put into service in the EU;
  - new components or separate technical units (STUs), including engines, traction batteries, brake systems and replacement pollution control systems, sold or put into service in the EU.
- Manufacturers must design, construct and assemble vehicles, components or STUs to comply with the EURO 7 requirements, including the emission limits, under specified test conditions [Annex I and III]. Such vehicles must be designated as "EURO 7 vehicles" [Art. 4 (2) and (4)].
- When checking the exhaust emission limits, the emissions must be divided by the "divisor for extended driving conditions" [Annex III, Tables 1 and 2] if the test is carried out under extended driving conditions [Art. 4 (3)];

► Emissions during the regeneration of pollution control systems must be included as a weighted average based on the frequency and duration of the regeneration processes [Art. 4 (3)].

3.1.1 EURO 7 emission limits

Annex I, Table 1: EURO 7 exhaust emission limits for cars and vans

Pollutant emissions	Cars			Vans							
	EURO-6		EURO-7	EURO-6						EURO-7	
				Reference mass (RM)						Motorisation	
				RM≤ 1305		1305< RM≤ 1760		1760< RM		normal	low[a]
	P[b]	D	P/D	P	D	B	D	P	D		
NO_x [in mg/km]	60	80	60[c]	60	80	75	105	82	125	60	75[c]
PM_{10} [in mg/km]	4.5		4.5	4.5		4.5		4.5		4.5	4.5
PN_{10} [Particle number/km]	6×10^{11}		6×10^{11}	6×10^{11}		6×10^{11}		6×10^{11}		6×10^{11}	6×10^{11}
CO [in mg/km]	1000	500	500	1000	500	1810	630	2270	740	500	630
THC[d] [in mg/km]	100	90	100	100	90	130	90	160	90	100	130
NMHC[e] [in mg/km]	68	–	68	68	–	90	–	108	–	68	90
NH_3 [in mg/km]	–	–	20	–	–	–	–	–	–	20	20

[a] Vans with a power-to-mass ratio below 35 kW/t.
[b] P = petrol engine, D = diesel engine.
[c] The respective emission budget for journeys of less than 10 km is the associated limit multiplied by a factor of 10.
[d] Total hydrocarbons (THC) = total hydrocarbons emitted from the tailpipe.
[e] Non-methane hydrocarbons (NMHC) = total hydrocarbons except CH4.

Annex I, Table 2: EURO 7 exhaust emission limits for lorries and buses

Pollutant emissions	Cold emissions per kWh		Hot emissions per kWh		Emissions budget for journeys < 3*WHTC[a] (long journey) per kWh	Idling emissions (optional [b]) per hour
	EURO-VI	EURO-7	EURO-VI	EURO-7	EURO-7	EURO-7
NO_x [in mg]	–	350	400	90	150	5000
PM_{10} [in mg]	–	12	10	8	10	–
PN_{10} [Particle number]	–	$5x10^{11}$	$6x10^{11}$	$2x10^{11}$	$3x10^{11}$	–
CO [in mg]	–	3500	4000	200	2700	–
NMOG [in mg] [c]	–	200	–	50	75	–
CH_4 [in mg]	–	500	–	350	500	–
NH_3 [in mg]	–	65	–	65	70	–
NH_3 [in ppm][d]	10	–	10	–	–	–
THC (Diesel) [in mg]	–	–	160	–	–	–
NMHC (Petrol) [in mg]	–	–	160	–	–	–

[a] WHTC = the worldwide harmonised transient driving cycle according to UN Regulation No. 49, Annex 4, paragraph 7.2.1.
[b] "Only if a system is not present that automatically shuts down the engine after 300 seconds of continuous idling operation (once the vehicle is stopped and brakes applied)."
[c] NMOG = non-methane organic gases.
[d] ppm = parts per million.

Annex I, Table 4: EURO 7 brake particle emission limits for cars and vans

Emission limits	until end 2034	as of 2035
PM_{10} [mg/km]	7	3
PN_{10} [Particle number]	–	–

3.1.2 Test conditions

Annex III, Table 1: Test conditions for cars and vans

Parameters	Normal driving conditions	Extended driving conditions[a]
Extended driving divider	–	1.6 (only applies to emissions measured while one of the conditions listed in this column is present)
Ambient temperature	0°C to 35°C	-10°C to 0°C or 35°C to 45°C
Maximum altitude	700 m	More than 700 m and below 1800 m
Maximum speed	Up to 145 km/h	Between 145 and 160 km/h
Towing/aerodynamic modifications	Not allowed	Allowed according to manufacturer specifications and up to the regulated speed.
Auxiliaries	Possible as per normal use	–
Maximum average wheel power during first 2 km after cold start	Lower than 20% of maximum wheel power	Higher than 20% of maximum wheel power
Trip composition for comparison: EURO 6[b]	Any between 90 and 120 minutes 34% city, 33% countryside, 33% motorway	–
Minimum mileage	10,000 km	Between 3,000 and 10,000 km

[a] "The same emission strategy shall be used when a vehicle is run outside those conditions, unless there is a technical reason approved by the type approval authority."
[b] Commission Regulation (EU) No. 2017/1151 of 1 June 2017 supplementing Regulation (EC) No. 715/2007, Annex IIIA, No. 6.10 and 6.6.

Annex III, Table 2: Test conditions for lorries and buses

Parameters	Normal driving conditions	Extended driving conditions[a]
Extended driving divider	–	2 (only applies to emissions measured while one of the conditions listed in this column is present)
Ambient temperature	-7°C to 35°C	-10°C to -7°C or 35°C to 45°C
Maximum altitude	1,600 m	From 1,600 to 1,800 m
Towing/aerodynamic modifications	Not allowed	Allowed according to manufacturer specifications and up to the regulated speed.
Vehicle payload	Higher than or equal to 10%	Less than 10%
Auxiliaries	Possible as per normal use	–
Load on combustion engine for cold start	Any	–
Trip composition for comparison: EURO 6[b]	As per usual use Four to eight WHTC cycles; division between city, countryside and motorway based on the vehicle category	–
Minimum mileage	5,000 km for <16t TPMLM[c] 10,000 km for > 16t TPMLM	between 3,000 km and 5,000 km for < 16 t TPMLM between 3,000 km and 10,000 km for > 16 t TPMLM

[a] "The same emission strategy shall be used when a vehicle is run outside those conditions, unless there is a technical reason approved by the type approval authority."
[b] Commission Regulation (EU) No. 582/2011 of 25 May 2011 implementing and amending Regulation (EC) No. 595/2009, Annex IIIA, 4.6.5 and 4.5.1-3.
[c] Technically permissible maximum laden mass.

3.1.3 Installed devices

- Manufacturers are not allowed to design, construct or assemble vehicles with defeat devices or defeat strategies [Art. 4 (5)].
  - A "defeat device" [Art. 3 No. 40] means any software or hardware that senses temperature, vehicle speed, engine speed, transmission gear, manifold vacuum or any other parameter to activate, modulate, delay or deactivate the operation of any part of the pollution control system, with the purpose of reducing the effectiveness of the pollution control system when the vehicle is driven;
  - A "defeat strategy" [Art. 3 No. 41] is intended,
    - to reduce the effectiveness of pollution controls under ambient or engine operating conditions during vehicle operation or outside the type-approval test procedures, or
    - to falsify the data related to sensors, fuel or energy consumption, electric range or battery durability.
- Manufacturers must equip their vehicles with [Art. 4 (6)]
  - "on-board diagnostic systems" (OBD systems) [Art. 3 No. 37 in conjunction with Regulation (EU) 2018/858, Art. 3 No. 49] capable of detecting malfunctioning systems which lead to emission exceedances, and communicating that information over the air via the OBD port "in order to facilitate repairs";
  - "on-board monitoring systems" (OBM systems) [Art. 3 No. 38], capable of detecting emissions above the emission limits due to malfunctions, increased degradation or other situations, in real time, as well as communicating them over the air via the OBD port;
  - devices for monitoring the state of health [Art. 3 No. 70] of the traction battery and the emission systems;
  - driver warning systems for excessive emissions and low reagent levels (e.g. AdBlue).
- Manufacturers must
  - design, construct and assemble vehicles in such a way as to minimise vulnerabilities, arising in all phases of their life-cycle, that may lead to tampering with [Art. 4 (7)]
    - the fuel and reagent injection system,
    - the engine and engine control units,
    - traction batteries,
    - pollution control systems;
  - prevent the possibility of exploiting these vulnerabilities;
  - having found such a vulnerability, remove it by software update or other appropriate means [Art. 4 (8)];
  - ensure the secure transmission of data related to emissions and battery durability by taking cybersecurity measures in accordance with UN Regulation UNECE R155 [Art. 4 (9)].
- Manufacturers must ensure that OBD and OBM devices and anti-tampering measures installed in their vehicles comply with the provisions of the EURO 7 Regulation as long as the vehicle is in use [Art. 6(3)].
- The OBM systems installed by the manufacturer must be capable of performing the following functions [Art. 6 (6)]:
  - registering the magnitude and duration of all emission exceedances;
  - communicating the data of the emission behaviour of the vehicle, including pollutant sensor and exhaust flow data, via the OBD port and over the air, including for the purpose of roadworthiness tests and technical roadside inspection;
  - "Triggering repair of the vehicle" when the driver warning system indicates significant emission exceedances.
- For vehicles, systems, components and STUs presenting a serious risk or non-compliance with the requirements of the EURO 7 Regulation [Art. 6 (8)],
  - the manufacturer must immediately take the necessary corrective measures, including repairs or modifications;
  - the manufacturer or other economic operator must withdraw the vehicle from the market or recall it;
  - the manufacturer must immediately inform the type-approval authority of the non-conformity with appropriate details.

3.2 Lifetime requirements

- Manufacturers must ensure that (Art. 6 (1), (2) and (5)]
  - during the service life of the vehicle as referred to in Annex IV, Table 1,
    - the emission limits are complied with as determined under normal and extended driving conditions [Annex III], whereby for the "additional lifetime" of cars, vans and minibuses [Annex IV Table 2] a durability multiplier of 1.2 applies to air pollutant emissions;
    - the limits for CO_2 emissions, fuel and energy consumption and energy efficiency are met;
  - the minimum requirements for battery life are met [Annex II].
- Manufacturers must ensure that OBD and OBM devices and anti-tampering measures comply with the EURO 7 Regulation as long as the vehicle is in use [Art. 6(3)].

Annex IV, Table 1: Lifetime requirements for vehicles, engines and replacement pollution control devices

Type of lifetime	Cars, vans, minibuses	Lorries <16 t, buses < 7.5 t	Lorries > 16 t, buses > 7.5 t
Main lifetime	up to 160,000 km or 8 years, whichever comes first	300,000 km or 8 years, whichever comes first	700,000 km or 15 years, whichever comes first
Additional lifetime	after main lifetime and up to 200,000 km or 10 years, whichever comes first	after main lifetime and up to 375,000 km	after main lifetime and up to 875,000 km

Annex II, Table 1 and 2: Lifetime requirements for batteries in cars and vans

Minimum performance requirements according to vehicle type	Vehicle since registration **≤ 5 years** or **≤ 100,000 km**, whichever comes first	Vehicle since registration **> 5 years** or **> 100,000 km** and **≤ 8 years** or **≤ 160,000 km**, whichever comes first
Plug-in hybrid car	80%[a]	70%[a]
Pure electric car	80%	70%
Plug-in hybrid van	75%	65%
Pure electric van	75%	65%

[a] Entries in the column correspond to the proportion of the battery capacity existing at the time of registration, that is still available.

3.3 Requirements for emission type-approval

- To demonstrate compliance with the EURO 7 provisions [Art. 7 (1)]
  - the manufacturer must perform the specified tests [Annex V] during the emission type-approval;
  - vehicles, components and STEs must be selected at the manufacturer's premises by the type-approval authority or the manufacturer in order to verify conformity of production;
  - in-service conformity must be verified for specified periods [Annex IV, Table 1].
- Manufacturers are only required to provide the type-approval authority with a signed declaration of conformity regarding RDE, OBD systems and OBM, the durability of the pollution control system and battery, continuous or periodic regeneration and anti-tampering [Art. 7 (2) in conjunction with Annex V].
  - "Real Driving Emissions" (RDE): the emissions of a motor vehicle under normal and extended driving conditions [Art. 3 No. 42 in conjunction with Annex III, Tables 1 and 2];
  - "On-board diagnostic" (OBD) system: a system that can generate and communicate on-board diagnostic (OBD) information as defined in Regulation (EU) 2018/858 [Art. 3 No. 49] via the OBD port and wirelessly ("over the air") [Art. 3 No. 37];
  - "On-board monitoring" (OBM) system: a system on board a vehicle that is capable of detecting either emission exceedances or when a vehicle is in zero emission mode if applicable, and capable of indicating the occurrence of such exceedances by means of information stored in the vehicle, and of communicating that information via the OBD port and over the air [Art. 3 No. 38].

4 Emission type-approval and market surveillance

4.1 Obligations of the Member States

- National approval authorities must put in place measures to grant emission type-approvals to vehicles, components and STUs and to perform tests, checks and inspections for verifying whether the manufacturers comply with the requirements for conformity of production and in-service conformity in accordance with Annex V [Art. 10 (1)].
- National market surveillance authorities must perform market surveillance checks in accordance with Art. 8 of Regulation (EU) 2018/858 and Annex V [Art. 10 (2)].
- Where a manufacturer so requests, the national approval authorities shall not [Art. 10 (3)]
  - refuse to grant EU emission type-approval or national emission type-approval for a new type of vehicle or engine;
  - prohibit the registration, sale or entry into service of a new vehicle that meets the EURO 7 requirements.

4.2 Refusal of emission type-approval

- National authorities must (Art. 10 (4) – (7)]
  - from 1 July 2025 for new cars and vans,
  - from 1 July 2027 for new lorries, buses and trailers,
  - from 1 July 2030 for new cars and vans produced in small volumes,
  - from 1 July 2031 for new lorries and buses produced in small volumes,

  which, in each case, do not comply with the EURO 7 Regulation,
  - consider certificates of conformity as invalid for the purposes of registration
  - and therefore, prohibit the registration, sale or entry into service of such vehicles “on grounds relating to CO_2 and pollutant emissions, fuel and energy consumption or battery durability”.
- The sale or installation of a system, component or STU which is not of the type approved to be fitted into a motor vehicle approved under this Regulation is prohibited – in the case of [Art. 11 (1) – (2)]
  - cars or vans from 1 July 2025 and
  - lorries or buses from 1 July 2027.

4.3 Market surveillance by the Commission or third parties

- The Commission or third parties may perform in-service conformity and market surveillance checks to verify the compliance of vehicles, components and separate technical units with this Regulation [Art. 13 (1) in conjunction with Annex V and Regulation (EU) 2018/858], Art. 9 and Art. 13 (10)].

5 Subsequent legislation: Implementing and delegated acts

5.1 Procedures and tests

- The Commission can adopt detailed rules in implementing acts [Art. 17 (2)], inter alia, on
  - procedures, tests and methodologies to verify compliance with the requirements for production [Art. 4 (10)];
  - requirements, tests, methods and corrective measures related to lifetime requirements [Art. 6 (9)];
  - testing and compliance verifications as well as procedures related to emission type-approval, conformity of production, in-service conformity, declaration of conformity [Art. 7 (5)],
  - the administrative and technical elements required for performing tests, checks and inspections for the purposes of verifying production and in-service conformity and for market surveillance [Art. 10 (8)].

- The Commission can adopt detailed requirements, by means of implementing acts, for all phases of the emission type-approval process, including in-service conformity, conformity of production and market surveillance, inter alia, regarding [Art. 14 (4)]:
  - the methods
    - to measure exhaust emissions in the laboratory and on the road, including random and worst-case RDE test cycles, the use of portable emission measurement systems for verifying real driving emissions and idle emissions;
    - to measure brake particle emissions, including methods for lorries, for real driving emissions and for regenerative braking;
    - to measure tyre abrasion in order to monitor tyre abrasion rates;
    - to evaluate compliance with minimum performance requirements of battery durability;
  - OBD and OBM systems, including compliance thresholds, performance requirements and tests, methods to ensure performance of sensors and over the air communication of data recorded by these devices and systems.

5.2 Adaptation to technical progress

- The Commission can adopt delegated acts to take account of technical progress and to amend, inter alia, the following [Art. 15 (1) in conjunction with Art. 16]:
  - Annex III, as regards the test conditions
    - for lorries and buses based on data collected when testing EURO 7 vehicles;
    - based on data collected when testing EURO 7 brakes or tyres;
  - Annex V as regards the test conditions and declarations based on technical progress.
- The Commission can adopt delegated acts to supplement this Regulation, in order to take account of technical progress, by setting out [Art. 15 (2) in conjunction with Art. 16]
  - brake particle emission limits [in accordance with UNECE WP29],
  - abrasion limits for tyre types [in accordance with UNECE WP29],
  - minimum performance requirements for batteries [in accordance with UNECE WP29].

B. Legal and political context

1 Legislative Procedure

10 November 2022 Adoption by the Commission

Open Adoption by the European Parliament and the Council, publication in the Official Journal of the European Union, entry into force

2 Options for Influencing the Political Process

Directorates General:	DG Internal Market, Industry, Entrepreneurship and SMEs
Committees of the European Parliament:	Environment, Public Health and Food Safety (ENVI, lead), Rapporteur: Alexandr Vontra (ECR, CZ)
Federal Ministries:	Environment, Nature Conservation, Nuclear Safety and Consumer Protection (lead), Digital Affairs and Transport
Committees of the German Bundestag:	Environment, Nature Conservation, Nuclear Safety and Consumer Protection (lead), Transport
Decision-making mode in the Council:	Qualified majority (acceptance by 55% of Member States which make up 65% of the EU population)

3 Formalities

Legislative competence:	Art. 114 TFEU (Internal Market)
Form of legislative competence:	Shared competence (Art. 4 (2) TFEU)
Procedure:	Art. 294 TFEU (ordinary legislative procedure)

C. Assessment

1 Economic Impact Assessment

1.1 Air quality and limits on exhaust pollutants

Improved air quality in the EU is partly the result of reductions in transport emissions, which "caused" just under one seventh of statistically calculated "premature deaths" from pollutant emissions in 2018 and 2020. The percentage of pollutant emissions caused by transport will continue to fall in the future – despite increasing traffic volumes[6] – mainly due to the existing fleet being replaced by new lower-emission vehicles – cars, vans, lorries and buses – from the EURO 6d/VI categories, and an increasing number of electric vehicle registrations. The need for further tightening of emission limits is therefore questionable.

Accordingly, the Aeris study concludes firstly that widespread compliance with the current air quality limits for NO_2, $PM2_{2.5}$ and PM_{10} ("immission limits[7]") will be achieved by 2025 with the measures that are currently already in place. Secondly, that all the scenarios involving stricter emission limits for motor vehicles, examined in the study, have negligible impact on compliance with these immission limits.[8] Consequently, compliance with planned stricter immission limits must be achieved by reducing emissions from other emission sources – such as buildings, commercial combustion plants and agriculture – or selectively through local measures.[9] Thirdly, all scenarios examined involving possible EURO 7 emission limits - including reducing exhaust emissions of NO_x and PM to zero in diesel vehicles – show "only marginal benefits" compared to the expected replacement of the fleet while maintaining the current EURO 6/VI limits, and the impact of the planned introduction of stricter CO_2 emission limits for lorries and buses ("baseline scenario").[10] Furthermore, the benefits of accelerating the replacement of older lorries and buses by scrapping them early are about 10 to 25 times greater per vehicle for NO_X emissions and 10 to 35 times greater for $PM_{2.5}$ emissions than introducing a "Euro VII" standard with zero exhaust emissions of NO_x and PM for diesel vehicles – and the benefits of faster fleet replacement occur much sooner.[11] The monetary value of the environmental damage saved is 10 times higher with early replacement than with this Euro VII standard, the cost of which would be higher than the environmental damage saved.[12] By contrast, due to the shorter lifespan of cars, the monetary value of the environmental damage saved is too low to justify the high incentives required for a "cash for clunkers" scheme.[13]

Therefore, an important goal of the EU should be to modernise the entire vehicle fleet as quickly as possible by replacing old vehicles with new low-emission vehicles of the current EURO 6/VI classes. In order for this to succeed, new vehicles coming onto the market should not be made more expensive by the high cost of compliance with requirements for the greatest possible reduction in pollutants – with only marginal environmental benefits in terms of exhaust emissions – resulting in old vehicles – that emit many times more pollutants – being used for far longer than usual for cost reasons. This would significantly reduce or even eliminate the intended reduction effect of stricter EURO 7 limits, which only apply to new vehicles, and would therefore be counterproductive for air pollution control overall. Instead, in order to accelerate fleet replacement, one option would be to have greater differentiation between the road-use charges for lorries based on EURO categories [see cep**PolicyBrief** 24/2017] – for example with higher maximum rates for usage charges and higher reference values for the external cost charges for each of the EURO categories 0 to IV. If state funds are in any case used for clean mobility in road transport, a staggered "cash for clunkers" reward for older lorries and buses when buying a EURO VI vehicle would quickly have major benefit at manageable cost. If the purchase price of e-vehicles were to fall, a "cash for clunkers" scheme would then provide an incentive to purchase them too.

---

6 Aeris study, p. 19.

7 Air Quality Directive 2008/50/EC.

8 Aeris study, p. 4. According to the authors, this would be true even if the current $PM_{2.5}$ annual mean limit was reduced to the WHO guide value.

9 Ibid., p. 4 f.

10 Ibid., p. 61.

11 Ibid., p. 26.

12 Cost-Benefit Analysis of a Range of EURO-7/VII Scenarios and Pre-EURO-6/VI Scrappage Scenarios, p. 24 f.

13 Ibid., p. 26 f.

1.2 Industrial policy dimension of exhaust pollutant limits

The Commission stresses what it sees as the important role of stricter emission limits for the international competitiveness of the European automotive industry but it is wrong about the sales markets in China and the USA and about the emerging markets.

Firstly, the Commission is wrong to assume that the future emission standards in the USA and China – although nominally lower – are effectively stricter than the current EURO 6/VI standards, because the test boundary conditions and conversion factors for transferring RDE measurements to test bench measurements are less stringent in both cases. By international standards, therefore, the EU's proposed EURO 7 Regulation would go beyond the emission standards of its biggest competitors and largest sales markets. The EU car industry's competitive advantage, if any, would therefore be limited to the EU market, and that is going to shrink considerably for internal combustion vehicles – due to the de facto ban on internal combustion engines for cars and vans from 2035[14], as well as the obligation for electric city buses from 2030 and the planned stricter CO_2 limits for lorries and intercity buses [Proposal COM(2023) 88]. In addition, stricter EURO 7 requirements will reduce the variety of offers, especially in the case of small cars, as they will be disproportionately affected by the higher cost of pollution control.[15]

The Commission's Impact Assessment is also questionable with regard to emerging countries: "At the same time, the EU automotive industry could maintain its competitive position on the global market of internal combustion technologies that will still play a role in several third markets for which a slower transition to zero-emission cars/vans is expected, such as India, South-East Asia, Brazil or South Africa, and in the lorries/buses segment, where internal combustion engines will prevail for longer."[16] This assumption is unrealistic in two respects. For one thing, emerging countries in particular will only be persuaded to base their own pollutant limits on the new EURO 7 standards if the EU sets cost-effective limits and test conditions. And for another, cost-intensive EU requirements will make EU vehicles too expensive, especially in these markets. Against this background, it will not be possible – as the Commission suggests – to keep research and development (R&D) for internal combustion vehicles in the EU: "By accelerating investments in zero-emission technologies, the EU automotive value chain should not put at risk its know-how on more traditional technologies that will continue to be important for countries with slower transitions."[17] While moralising, the Commission fails to recognise that it is precisely EU legislation that is forcing manufacturers to focus on rapid electrification, and that the part of the EU automotive value chain that is based on combustion technology will no longer have a future in the EU precisely because of the combustion ban and much stricter EURO 7 standards. Thus, value creation and R&D are being pushed closer to future sales markets.

Overall, the Commission's industrial policy arguments do not support stricter vehicle emission standards.

1.3 Test conditions

Exhaust tests are carried out to quantify the pollutant emissions from motor vehicle exhaust gases. The measurement of real driving emissions (RDE), which is also prescribed in the proposed EURO 7 Regulation, has been in force since the EURO 6d/VI Regulation came into effect. However, it is only through the definition and combination of the specific conditions under which these tests are carried out ("test boundary conditions") – such as payload, ambient temperature, test duration, trip composition (urban, rural and motorway driving), maximum idling time – that the specified pollutant limits take on their concrete meaning. Hence, the emission limits must always be considered in conjunction with the test boundary conditions because a specific pollution control system may easily meet a given limit, for example, where the ambient temperature is 7°C and the engine is warm, whereas it may not meet it in the case of a cold start in sub-zero temperatures. The specific conditions in which more pollutants are emitted are most notably extreme cold, long idling periods, short driving distances,

[14] Proposal COM(2021) 556 for a Regulation amending Regulation (EU) 2019/631 as regards strengthening the CO2 emission performance standards for new passenger cars and new light commercial vehicles [see cep**PolicyBrief** 6/2022], having already been approved by the European Parliament, has also now been formally accepted by the Council as of 28 March 2023, so the new Regulation can come into force.

[15] Auto-Motor-Sport online of 13 March 2023, EURO-7 killt Kleinwagen.

[16] IA Euro-7, p. 11.

[17] Ibid.

stop-start traffic, high acceleration, driving with a trailer, driving uphill and driving at high altitudes.[18] Depending on the combination of these individual conditions, far from realistic extreme situations can arise in which emissions shoot up. The challenge is therefore to establish realistic test conditions that can mimic and represent normal real driving emissions. To stay realistic, extreme cases that are not statistically relevant for the environment, and abusive driving behaviour, should be excluded.

In this regard, consumer organisations such as the *Allgemeiner Deutscher Automobil Club* (ADAC) are rightly calling for future tests to take greater account of journeys involving high speeds and acceleration levels, as are common on motorways. The ADAC, for example, already conducts tests that include a corresponding motorway component.[19] ACEA, the umbrella organisation for European car manufacturers, also sees "scope for improvement" in making tests more realistic but an "anything goes" approach to RDE test conditions is not acceptable to manufacturers for reasons of legal certainty.[20]

That, however, is precisely what the EURO 7 Commission Proposal would allow. Thus, for cars and vans – in contrast to lorries and buses –, the basic requirement for tests to correspond to "normal use" and thus to be representative is being dropped.[21] Thus, EURO 7 compliance could be legally challenged if a vehicle exceeds the limits in tests conducted by third parties that specifically combine a number of unfavourable situations and minimise or even exclude "normal" driving situations. In order for manufacturers to be able to guarantee compliance with the EURO 7 limits with legal certainty, after the tests have been carried out, the test boundary conditions, in particular, must be precisely defined with regard to the trip composition, including minimum test duration. The Commission's proposal, however, has done the opposite and completely abandoned the test boundary conditions for trip composition and minimum test duration. In relatively short tests, omitting a minimum test duration prevents occasional higher pollutant values from being counterbalanced by lower values during phases of normal driving by averaging. This would lead to non-representative measurement results which could nevertheless justify non-compliance with the EURO 7 standard. Overall, therefore, rather than allowing "any" driving patterns, tests should continue to be designed for "normal use", also as regards trip composition for cars and vans, and should also provide for a sufficient minimum test duration.

Furthermore, a pollution control system that functions adequately under all conceivable combinations of conditions – if this is technically feasible at all – would be so costly that it would increase the price of vehicles far beyond the additional costs estimated by the Commission. These costs would have to be borne by all vehicle buyers even though emissions in extreme situations – to be used as a basis for the design of the system – would make hardly any statistically relevant contribution to the total emissions. At the same time, the expenditure on research and development would be disproportionate to the environmental benefit – especially in view of the steady fall in the percentage of pollutant emissions from road transport, the increasing proportion of e-vehicles and EU-legislation to end cars with combustion engines.

Up to now, the discussion about test boundary conditions has been dominated by another issue concerning the combination of test situations that fall under the "extended driving conditions".[22] The Commission considers extended driving conditions to be unproblematic, since its EURO 7 proposal for a Regulation [Annex III, Tables 1 and 2] provides for a divisor of 1.6 to be applied to pollutant emissions measured on test stretches subject to at least one of the extended test conditions listed, allowing pollutant emissions on these stretches of road to be 60% higher.[23] However, the divisor is only applied once each time, even if several of these aggravating conditions coincide. In general, it is easy to cause the limits to be exceeded by an appropriate combination of extended test conditions. Should the Commission not have intended that any combination of extended test conditions be permitted, this should be quickly clarified in the current legislative process. Otherwise, type approval will provide no legal certainty, even with regard to the extended driving conditions.

---

18 CLOVE (2020), Preliminary findings on possible Euro-7 emission limits for LD and HD vehicles, Online AGVES Meeting 27 October 2020, Slide 43.

19 ADAC (2022), Euro-7-Abgasnorm: Die geplante Reform im ADAC Check.

20 ACEA (2021), ACEA Proposal for Euro-7, p. 4-5

21 The Commission thus follows the recommendations of the advisory CLOVE consortium, see CLOVE (2020), Online AGVES Meeting 27 October 2020: Preliminary findings on possible Euro-7 emission limits for LD and HD vehicles; ACEA (2020), ACEA Position Paper – Views on proposals for Euro-7 emission standard.

22 EU Commission – Representation in Germany (2023), Press release, 9 February 2023: Neue Abgasnorm Euro-7: Saubere Luft und erschwingliche Autos; Berliner Zeitung, 6 February 2023, Autopreise, Jobrisiken, Elektro-Wende - Zoff um EU-Abgasnorm.

23 EU Commission - Representation in Germany (2023), Press release, 9 February 2023.

1.4 Pollutant limits on exhaust gases from cars and vans

Although the EURO 7 Regulation proposal refrains from a nominal tightening of the limits on exhaust pollutants from petrol cars, in future, these limits will apply now across all fuel types. This means, for example, a 25% reduction in the limits on NO_x emissions from diesel cars – from 80 to 60 mg/km. In view of the challenges facing the automotive industry resulting from the transition to new methods of propulsion, as well as high energy and raw material prices and supply bottlenecks due to the current geopolitical situation, the Commission has refrained from imposing additional burdens by way of stricter limits.[24] The Commission also considers this strategy to be environmentally justified in view of the "combustion engine ban" for cars and vans applicable from 2035.[25] However, these limits can only be complied with under realistic test conditions with justifiable effort, without making vehicles much more expensive and thereby preventing a rapid replacement of the vehicle fleet with lower-emission vehicles. This will not be achieved by abandoning necessary test boundary conditions and allowing "any" trip composition in emission tests [see above Section C.1.3].

In contrast, car manufacturers have already proposed keeping the test boundary conditions basically in line with the current EURO 6/IV requirements with just a few modifications (see above), and in return to tighten the limits on NO_x to 35 mg/km and on particulate matter to 3 mg/km, across all fuels.[26] It is highly regrettable that the EURO 7 Regulation proposal would in the end de facto accelerate the phasing out of the internal combustion engine via the opaque diversions of indeterminate test conditions. Aligning van limits with those for cars means these limits cannot be met by higher weight categories even under more realistic test boundary conditions, so it will not be possible for many of the commercial vehicles, that are so important for distribution transport and for use by tradesmen, to be offered economically as internal combustion models.

The EU should therefore specify realistic test boundary conditions and then, based on a new impact assessment, set cost-effective pollutant limits for cars and various types of vans, that take sufficient account of future improvements in air quality based on the expected fleet replacement and any measures to promote it, in addition to the impact of the CO_2 limits and the combustion ban applicable from 2035.

Finally, adequate lead time must be allowed between the subordinate legislation defining the details of the EURO 7 Regulation and the entry into force of the new limits so that manufacturers have sufficient time to implement the requirements. The proposed EURO 7 Regulation fails in this respect by planning to allow less than a year for development, conversion of production, modification of test benches and test procedures, and type approval. This situation is exacerbated by the fact that – contrary to the current sensible practice – firstly, the deadline for complying with the new type-approval rules is the same for vans as for cars rather than one year later, and secondly, type-approval for all new vehicles can no longer take place one year later than type-approval for new models. This unnecessarily increases the pressure on scarce resources to implement the regulation in companies and authorities. Therefore, the introduction of the EURO 7 standards should at least be staggered as before, as well as starting two years later for cars and a further year later for vans.

1.5 Pollutant limits on exhaust gases from lorries and buses

A further tightening of the pollutant limits on exhaust gases is planned for lorries and buses. This is a different approach to that applicable to cars and vans which the Commission justifies based on the expected longer use of combustion engines in lorries and buses.[27] This is precisely the reason why, first of all, compliance with the limits must be verified under realistic test boundary conditions to which, certainly, the provision that "any" load on the combustion engine should be permissible for cold starts does not belong.

It is only under realistic test boundary conditions that limits can be assessed. However, even if the current EURO VI test boundary conditions – which have led to the realistic measurement of emissions in the RDE tests required since the introduction of the EURO VI standards – were retained, the proposed limits are not proportionate. This is particularly true of the 77.5% reduction in nitrogen oxide limits because the Commission's impact assessment fails to take into account that (1) the planned tightening of CO_2 fleet limits will require increased electrification of lorries and buses and (2) manufacturers are therefore already bringing more e-models onto the market. What is highly unacceptable in this regard, however, is the fact that the Commission's impact

[24] COM(2022) 586, p. 11.
[25] COM(2022) 586, p. 12.
[26] ACEA (2022), ACEA proposal for EURO -7.
[27] COM(2022) 586, p. 12.

assessment on EURO 7 of November 2022 only indicates a market penetration of 10.5%[28] for battery-electric or fuel cell lorries by 2030, while the more recent impact assessment of February 2023, on its proposal for a regulation on CO_2 limits for heavy-duty lorries, indicates a figure more than three times as high – namely 35%[29]. Based on this striking discrepancy, the Council and the European Parliament should not accept the Commission's proposal on exhaust emission limits for lorries and buses in the EU legislative process. Before a tightening of EURO VI standards can be considered on the basis of robust evidence, it is imperative that a careful impact assessment first be carried out taking adequate account of this higher market penetration.

Finally, the envisaged timetable for implementing pollutant standards is far too tight – given the duration of the legislative process, including the subordinate legislation that is necessary, as well as the time needed for development, adaptation of measurement methods and type approval. Manufacturers must therefore be given several years' lead time after all the necessary legal requirements have been established.

All of this is the prerequisite for the European commercial vehicle industry to remain competitive on world markets in the coming decades, while at the same time driving forward the decarbonisation of its vehicles. The extent to which the limits are technically feasible, and the Commission's cost estimates realistic, cannot be assessed in detail without precise information on future test boundary conditions. EU legislators should therefore focus on a realistic and cost-effective definition of the limits and test conditions for lorries, during the legislative process, in order to avoid unnecessary burdens for the European automotive industry. At the same time, a cost-effective EURO 7 standard, based on only slight modifications to test conditions under the EURO VI standard, together with the use of alternative fuels, would represent a more affordable, environmentally friendly alternative to more expensive battery or hydrogen-powered commercial vehicles, for transport companies – at least for the foreseeable future. As with cars and vans, the possible effect of replacing the fleet with EURO VI vehicles, and corresponding measures to promote them, must be taken into account.

1.6 Particulate emissions from brakes and tyres

By comparison with the likely decline in exhaust gas emissions, particulate emissions from brake or tyre abrasion will have increasing significance for traffic-related air pollution. For example, the Aeris study predicts that in 2025 about 75% of all $PM_{2.5}$ emissions from road transport will come from sources other than exhaust gases, and that this proportion will rise to 87% by 2030 and 91% by 2035.[30] On that basis, it is generally appropriate to establish standards for emissions from brake or tyre abrasion. However, it is questionable whether this should be done within the framework of the EURO 7 Regulation and with the deadlines that are envisaged.

1.6.1 Particulate emissions from brakes

In preventing particulate emissions due to brake abrasion, it is crucial to bear in mind that brakes are very important components in terms of vehicle safety. When setting limits, therefore, an overall consideration must not only take account of environmental and health aspects, but also give the necessary priority to road safety. In-service conformity and market surveillance tests relating to particulate emissions from brake abrasion should also be assessed only with regard to road safety. It therefore seems more appropriate for the provisions to come under the Regulation on type-approval for vehicles as regards their general safety [(EU) 2019/2144]. This would take brake abrasion out of the focus of a discussion on emission tests that only relates to pollutant emissions. As there is not yet an international UNECE standard for measuring fine particulate emissions from brakes, the regulation of limits by the EU is premature and should only take place in separate EU legislation following a new impact assessment.

1.6.2 Particulate emissions from tyres

The proposed EURO 7 Regulation itself does not yet specify concrete limits for particulate emissions from tyres. The Commission will define these later by way of delegated acts, in the Annex to the EURO 7 Regulation. Establishing the limits within the framework the EURO 7 Regulation makes the vehicle manufacturer solely responsible for compliance with the limits. Even if the manufacturer is able to optimise its vehicles for minimum tyre abrasion emissions using technical measures for vehicle weight, wheel suspension, wheel alignment and, possibly, an abrasion extraction system that is yet to be developed, and can equip them with low-abrasion tyres, it is ultimately the vehicle owners who will decide which tyres to use in the future. Vehicle manufacturers cannot

[28] SWD(2022) 359, Figure 7 b), p. 27.
[29] SWD(2023) 89, Table 3, p. 33.
[30] Aeris study, p. 21.

therefore be held solely responsible for compliance with the particulate emission limits for tyres; tyre manufacturers must also be included. In addition to environmental and health aspects, road safety must be given the necessary priority when setting the limits. Overall, therefore, regulation in separate EU legislation, in conjunction with Regulation (EU) 2019/2144, is more appropriate. This would extend the scope to tyres for vehicles that are not subject to the EURO 7 standard – such as second-hand vehicles.

1.7 Installation of on-board systems

The OBD systems under the OBD-II standard, which are now mandatory, already enable the detection of malfunctions in the pollution control system and report this to the driver via a warning light. Now, however, the Commission wants to go beyond that with the proposed OBM systems that record emissions in real time by sensors. It justifies this with the possibility that vehicles emit significantly more than permitted: An OBD system "does not detect accurately or timely the malfunctions and neither does it sufficiently and timely force repairs"[31]. The data will thus be communicable both via the OBD port and wirelessly. On the other hand, OBD systems will no longer be subject to a test during type approval.

This approach is problematic in several respects. Firstly, it will be a major encroachment on the rights of vehicle users if, after determining that pollutant emissions have been exceeded – possibly only temporarily – due to special conditions, the OBM forces a repair or a trip to the workshop when the warning light comes on. Secondly, wireless transmission capability is mandatory, although during the stakeholder consultation only one Member State and two suppliers were in favour of this whilst the remaining stakeholders considered a readout of the data during the regular inspection to be sufficient.[32] However, according to the considerations of the CLOVE consortium advising the Commission, wireless transmission is intended to enable cloud-based big-data analysis that will identify high emitters, ensure "timely" repair, and select vehicles for in-service compliance checks.[33] The data to be transmitted by the OBM system will include vehicle identification, sensor-measured exhaust and particulate emissions, exhaust flow and information required to assess the validity of OBM trips to verify compliance with emission limits.[34] This will make real emission measurements possible beyond all test boundary conditions. However, it could automatically bring users, who make several journeys in conditions associated with above-average emissions - such as journeys with trailers in low temperatures in mountainous areas, even if these conditions are excluded in testing –, into the focus of the authorities without consideration for the circumstances.

This potential surveillance represents major interference with civil liberties. Thirdly, despite prescribed cyber security measures, the bidirectionality of data transmission during remote retrieval may open up a security gap that could jeopardise road safety by allowing the external manipulation of the engine control system ("hacking").

Finally, "meeting the intended continuous emissions monitoring represents the dominating challenge" for complying with the forthcoming EURO 7 standards[35]. Therefore, the obligation to install OBM systems will further increase the cost of vehicles, although their benefit is questionable. Mandatory installation of OBM systems should therefore be limited to lorries, provided that the systems can be of significant help to detect tampering with pollution control systems because this unlawfully distorts competition in the transport sector and leads to considerable additional pollutant emissions from the affected vehicles.

1.8 Durability requirements

The fact that exhaust emissions are permitted to increase by 20% after the main lifetime of a vehicle – by applying the lifetime multiplier of 1.2 – is justified by the normal wear and tear to the pollution control system. Requirements regarding the lifetime of traction batteries on the one hand lead to higher production costs and presumably higher purchase prices but, on the other hand, they reduce the total cost over the lifetime of the vehicle, if the planned period of use is less than the statutory minimum lifetime and thus no costs are incurred for components to be replaced. Prescribing a longer lifetime also helps to conserve resources and reduce waste.

---

31 COM(2022) 586, Recital 16.

32 SWD(2022) 359, PART 2/3. P. 18.

33 Kontses, D. (2021), OBM, Sensors and Geofencing, Online AGVES Meeting 8 April 2021, Slide 10.

34 EU Commission (2021), Technical studies for the development of Euro-7: Testing, Pollutants and Emission Limits, p. 205.

35 Müller, V. et al. (2022), On-Board Monitoring to meet upcoming EU-7 emission standards – Squaring the circle between effectiveness and robust realization, Transport Engineering 10 (2022) 100138, p. 1.

2 Legal Assessment

2.1 Legislative Competence

Unproblematic. The EU is empowered to issue environmental measures to protect air quality, human health and the climate (Art. 191 f. TFEU). In addition, EU-wide standard rules on motor vehicle type-approval ensure the functioning of the internal market (Art. 114 TFEU).

2.2 Subsidiarity

Unproblematic. EU-wide standard rules on motor vehicle type-approval can only be adopted at EU level.

2.3 Compatibility with EU Law in other Respects

The authorisations allowing the Commission to set the specific limits for particulate emissions from tyres only by delegated act, violate the concept of reserving essential elements for the EU legislator [Art. 290 TFEU]. The whole purpose of empowering the Commission to adopt "non-essential elements" by means of delegated acts is to ensure that the EU legislator – i.e. the EU Parliament and the Council – is not overburdened by detailed technical provisions, during the complex ordinary legislative procedure, and to facilitate fast and flexible adaptation to new developments.[36] However, under the EURO 7 Regulation, as a basic legislative act, the EU legislator may delegate power to the Commission to adopt "non-legislative acts of general application" only to "supplement or amend" certain "non-essential elements" [Art. 290 (1) para. 1 TFEU]. On the other hand, the "essential elements of an area [...] shall be reserved for the legislative act [...] and accordingly shall not be the subject of a delegation of power" [Art. 290 (1) para. 2, TFEU]. The concept of reserving "essential elements" for the EU legislator aims to safeguard the institutional balance between the EU organs and prevent the primary task of the EU Parliament and the Council, as the EU legislator, from being eroded by the transference of legislative power to the Commission.[37] This arises from the principle of democracy which states that essential decisions should be made by the directly and democratically elected legislator and not by the executive.

Setting the specific limits on particulate emissions from tyres is also an "essential" regulatory element which must be determined by the EU legislator itself in the EURO 7 Regulation and cannot be delegated to the Commission. This is also apparent from the fact that the specific limits on exhaust emissions are going to be regulated in the EURO 7 Regulation and no delegation of power is envisaged in this respect.

D. Conclusion

The percentage of pollutant emissions caused by transport will continue to fall in the future – despite increasing traffic volumes – mainly due to the existing fleet being replaced by new lower-emission vehicles from the EURO 6d/VI categories, and increasing numbers of electric vehicle registrations. There is therefore no need for further tightening of emission limits because, even with stricter EURO 7 standards, the effect on improving air quality will be marginal; most notably, however, the effect will be smaller and less efficient than carrying out a rapid fleet renewal by replacing old high-pollution vehicles with EURO 6/VI vehicles. Nor do the Commission's questionable industrial policy arguments justify stricter limits.

Dropping all test boundary conditions for trip composition indirectly results, in the case of cars and vans, in drastically stricter EURO 7 limits. Ultimately, since the limits must also be met in tests with "any" trip composition, in non-representative extreme situations, manufacturers will not be able to guarantee them with any legal certainty. This is not technology-neutral but brings about an unnecessary early phase-out of the combustion engine by the back door. The limits for cars and vans would only in fact be reasonable if their introduction were accompanied by realistic test conditions and an adequate lead time. Heavy vans, however, will not be able to comply with the limits, which means that many vehicles, that are important for distribution and for use by tradesmen, will no longer be economically viable if they have internal combustion engines. The EU should therefore specify realistic test boundary conditions – along the lines of the EURO 6 standard – and then set cost-effective pollutant limits, based on a new impact assessment, for cars and different types of vans. These must take adequate account of future improvements in air quality due to the expected fleet replacement and any measures to promote it, in addition to the impact of the CO_2 limits and the combustion ban applicable from 2035.

---

[36] Gellermann, M. in: Streinz, R. (2018), EUV/AEUV, 3rd Edn., Art. 290 TFEU, para. 1.

[37] Ibid., para. 7 citing further references.

Technically, the limits for lorries and buses are almost unachievable, even under realistic test conditions. They are too strict and not cost-effective as the reduction in pollutant emissions resulting from electrification will be greater than that allowed for by the Commission in the impact assessment. In order to ensure legal certainty in verifying EURO 7 conformity, the test conditions for cold starts must specify realistic loads on the combustion engine. Here too, a new impact assessment is required for setting limits which adequately takes account of the forced electrification arising from the new CO_2 limits. The transposition deadline must be extended.

In preventing particulate emissions due to brake abrasion, consideration must be given to the fact that brakes are very important components in terms of vehicle safety. When setting limits, an overall assessment must be made which, in addition to health-related environmental aspects, also gives the necessary priority to road safety. Therefore, regulating brake abrasion should come under type-approval provisions regarding general safety [(EU) 2019/2144].

The establishment of future limits on particulate emissions from tyres in the EURO 7 Regulation, by the Commission in delegated acts, violates the concept of reserving essential elements for the EU legislator [Art. 290 TFEU]. In addition, it makes the vehicle manufacturer solely responsible for compliance with the limits. Even if the manufacturer optimises its vehicles for minimum tyre abrasion emissions and equips them with low-abrasion and safe tyres, it is ultimately the vehicle owners who will decide which tyres to use in the future. In addition to the vehicle manufacturers, therefore, tyre manufacturers must also be made responsible for compliance with the limits.

Onboard monitoring systems (OBM) make small cars in particular considerably more expensive. If emissions data is transmitted to authorities wirelessly – as envisaged – for big data analysis, to enable real emission measurements “beyond all testing boundary conditions”, this may bring users with above-average emissions – e.g. those with trailers in mountainous areas – into the focus of the authorities. Like the automatic enforcement of repairs in the event of excess emissions, this constitutes disproportionate interference in the rights of vehicle owners.

After the main service life of the car, normal wear and tear justifies a 20% increase in exhaust emissions. Requirements regarding the lifetime of the traction battery on the one hand lead to higher production costs and purchase prices but, on the other hand, they reduce waste and the use of resources as well as the total cost over the lifetime of the vehicle, if the planned period of use is less than the statutory minimum lifetime and thus no costs are incurred for components to be replaced.