

**Proposal COM(2023) 451** of 13 July 2023 for a **Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles**, amending Regulations (EU) 2018/858 and (EU) 2019/1020 and repealing Directives 2000/53/EC and 2005/64/EC

## CIRCULAR ECONOMY IN THE AUTOMOTIVE SECTOR

cepPolicyBrief No. 4/2024

### LONG VERSION

<b>A. KEY ELEMENTS OF THE EU PROPOSAL .....</b>	<b>3</b>
<b>1 Context and objectives.....</b>	<b>3</b>
1.1 Targets .....	3
1.2 Context .....	3
<b>2 Scope .....</b>	<b>4</b>
<b>3 Circular vehicle design .....</b>	<b>4</b>
<b>4 Substances of concern .....</b>	<b>5</b>
<b>5 Minimum recycled content .....</b>	<b>5</b>
<b>6 Circularity strategy and information requirements .....</b>	<b>5</b>
<b>7 Circularity Vehicle Passport.....</b>	<b>6</b>
<b>8 Extended producer responsibility (EPR) .....</b>	<b>6</b>
<b>9 Export of vehicles.....</b>	<b>7</b>
<b>B. LEGAL AND POLITICAL CONTEXT .....</b>	<b>7</b>
<b>1 Legislative Procedure .....</b>	<b>7</b>
<b>2 Options for Influencing the Political Process .....</b>	<b>7</b>
<b>3 Formalities .....</b>	<b>8</b>
<b>C. ASSESSMENT.....</b>	<b>8</b>
<b>1 Economic Impact Assessment .....</b>	<b>8</b>
1.1 Objectives and Scope.....	8
1.2 Circular vehicle design .....	8
1.3 Substances of concern .....	9
1.4 Minimum recycled content: Plastic recyclates .....	9

- 1.5 Circularity strategy and information requirements..... 10
- 1.6 Circularity Vehicle Passport ..... 10
- 1.7 Extended producer responsibility (EPR) ..... 10
- 1.8 Export of vehicles..... 11
- 2 Legal Assessment ..... 12**
  - 2.1 Legislative Competence ..... 12
  - 2.2 Subsidiarity ..... 12
- D. CONCLUSION ..... 12**

## A. Key elements of the EU proposal

Unless otherwise indicated, article numbers refer to Commission Proposal COM(2023) 451.

### 1 Context and objectives

#### 1.1 Targets

- ▶ In order to gradually transform the “linear throwaway society” into a circular economy and thus decouple the use of resources from economic growth, the Commission has announced numerous measures in its “Circular Economy Action Plan” [COM(2020) 98, see [cepPolicyBrief 5/2020](#)].
- ▶ A circular economy aims to conserve resources, avoid or reduce waste wherever possible and channel materials back into the economic cycle throughout the entire lifecycle of a product – design, production, demand and use as well as waste management [Circular Economy Action Plan COM(2015) 614, p. 2–4, see [cepPolicyBrief 6/2016](#)].
- ▶ The production of vehicles is highly resource-intensive. The automotive sector accounts for 19% of steel demand and 10% of plastics consumption in the EU. There is also considerable demand for aluminium, copper, rubber and glass. Electromobility is also increasing the demand for copper and critical raw materials, used in permanent magnets of electric motors, as well as for plastic. [p. 1]
- ▶ The proposed Regulation aims to facilitate the transition to a circular economy in the automotive sector across the entire life cycle of vehicles. To this end, it will specify requirements for [Art. 1]
  - the reusability, recyclability and recoverability of vehicles as well as the use of recyclates, i.e. secondary raw materials recycled from waste;
  - information about and the labelling of parts, components and materials;
  - “extended producer responsibility” (EPR);
  - the collection and treatment of end-of-life vehicles;
  - the export of used vehicles from the EU to third countries.
- ▶ The proposed Regulation is intended to amend the existing Directives on end-of-life vehicles [2000/53/EC] and the type-approval of motor vehicles with regard to their reusability, recyclability and recoverability [2005/64/EC, hereinafter: “3R Type-Approval Directive”].

#### 1.2 Context

- ▶ The current End-of-Life Vehicles Directive [2000/53/EC]
  - lays down measures for the EU-wide prevention of vehicle waste and the reuse, recycling and recovery of end-of-life vehicles in order to protect the environment [End-of-Life Vehicles Directive, Art. 1];
  - “Reusability” means that parts or components of an end-of-life vehicle are used for the same purpose for which they were originally conceived [Regulation Proposal COM(2023) 451, Art. 3 (1) No. 4 and 5].
  - “Recyclability” means that parts, components or materials removed from end-of-life vehicles can be recycled, i.e. that waste materials can be reprocessed either for the original purpose or for another purpose [Regulation Proposal COM(2023) 451, Art. 3 (1) No. 6 in conjunction with the Waste Framework Directive 2008/98/EC, Art. 3 No. 17].
  - “Recoverability” means that parts, components or materials removed from an end-of-life vehicle “are put to a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function”, e.g. incineration for energy recovery [Regulation Proposal COM(2023) 451, Art. 3 (1) no. 7 in conjunction with the Waste Framework Directive 2008/98/EC, Art. 3 no. 15].
  - obliges Member States to take measures to ensure that, from 2015, for all end-of-life vehicles [End-of-Life Vehicles Directive, Art. 7 (2) (b)]
    - at least 95% of the average vehicle weight can be reused or recovered;
    - at least 85% of the average vehicle weight can be reused or recycled.

- ▶ The current Type Approval Regulation [(EU) 2018/858]
  - regulates administrative provisions and technical requirements for the type approval and placing on the market of all new vehicles, systems, components and separate technical units as well as for individual vehicle approvals [Type Approval Regulation, Art. 1 and Art. 3 No. 1; see also Proposal for a Regulation COM(2023) 451, Art. 3 (2) (b)];
  - is supplemented by the requirements for circular product design so that the requirements can be checked and enforced as part of type approval [Art. 54].
- ▶ The current 3R Type-Approval Directive [2005/64/EC]
  - is closely linked to the End-of-Life Vehicles Directive;
  - regulates “administrative and technical provisions” for the type approval of vehicles in order to take account of the reusability, recyclability and recoverability of components and materials as early as the vehicle development stage, without jeopardising safety or the environment [3R Type Approval Directive, Art. 1];
  - stipulates that passenger cars and vans must be manufactured in such a way that [3R Type Approval Directive, Annex I No. 1]
    - at least 95% of the average vehicle weight can be reused or recovered;
    - at least 85% of the average vehicle weight can be reused or recycled.

## 2 Scope

- ▶ The proposed Regulation applies to the following vehicle categories [Art. 2 (1) in conjunction with the Type Approval Regulation, Art. 4 (1) (a)–(c) and Regulation (EU) 168/2013, Art. 4 (2) (c)–(g)], whereby certain provisions – e.g. on recyclability, materials and minimum recycled content – are excluded for individual vehicle categories [Art. 2 (3)–(6)]:
  - initially to cars (category M<sub>1</sub>: max. eight seats) and vans (category N<sub>1</sub>: max. 3.5 tonnes);
  - 60 months after entry into force, also to
    - minibuses (category M<sub>2</sub>: more than eight seats and standing room if necessary, max. 5 tonnes) and
    - buses (category M<sub>3</sub>: more than eight seats and standing room if necessary, over 5 tonnes);
    - lorries (category N<sub>2</sub>: over 3.5 tonnes up to max. of 12 tonnes; class N<sub>3</sub>: over 12 tonnes);
    - trailers (categories O<sub>1-4</sub>: from max. 0.75 tonnes to over 10 tonnes);
    - two, three and four-wheeled motor vehicles, e.g. motorbikes (categories L<sub>3e</sub>, L<sub>4e</sub>, L<sub>5e</sub>, L<sub>6e</sub> and L<sub>7e</sub>).
- ▶ The End-of-life Vehicle Regulation does not apply to e.g. [Art. 2 (2)]
  - special purpose vehicles such as ambulances;
  - vehicles produced in small series;
  - classic vehicles.

## 3 Circular vehicle design

- ▶ Cars and vans that are type-approved 72 months after entry into force must be [Art. 4 (1)]
  - 85% by mass reusable or recyclable;
  - 95% by mass reusable or recoverable.
- ▶ For this the manufacturers must [Art. 4 (2)]
  - record all “necessary” data along the supply chain, in particular the nature and mass of all materials used for construction;
  - verify the correctness and completeness of the information received from suppliers;
  - keep all other “appropriate” vehicle data required to calculate reusability, recyclability and recoverability rates;
  - manage and document the breakdown of materials.
- ▶ 35 months after entry into force, the Commission will adopt a new method for calculating and verifying the rates of reusability, recycling and recoverability by means of an implementing act. Until then, manufacturers must calculate the rates in accordance with ISO standard 22628:2002. [Art. 4 (2) (e) and (3) in conjunction with Annex II]
- ▶ 72 months after entry into force, every car and van must be constructed so as
  - not to hinder the removal of certain parts and components – e.g. the engine, windscreen, directly accessible parts of the infotainment system including the sound system and mono-materials made of metal or plastic weighing more than 10 kg [Art. 7 (1) in conjunction with Annex VII Part C];

- to enable the connecting, fastening and sealing elements of batteries and drive motors of the electric vehicle to be removed and replaced easily and without causing damage, by authorised recycling facilities or repair and maintenance companies during and at the end of its service life [Art. 7 para. 2].
- ▶ The Commission is authorised to extend, by means of delegated acts, the list of parts and components that can be removed and replaced, taking into account technical and scientific progress [Art. 7 (3)].

#### 4 Substances of concern

- ▶ The presence of “substances of concern” [future Ecodesign Regulation, Art. 2 No. 28] in the parts and components of vehicles must be reduced as far as possible [Art. 5 (1)].
- ▶ In addition to the restrictions in the Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals [(EC) No. 1907/2006 (REACH Regulation)], the Persistent Organic Pollutants Regulation [(EU) 2019/1021 (POP Regulation)] and the Batteries Regulation [(EU) 2023/1542], cars and vans that are type-approved 72 months after entry into force must not contain lead, mercury, cadmium or hexavalent chromium, although there are exceptions [Art. 5 (2) in conjunction with Annex III].
- ▶ The Commission will be empowered to adopt delegated acts to amend Annex III in order to adapt it to scientific and technical progress by [Art. 5 (4)]
  - establishing concentration values up to which the presence of the four substances in specific parts, components and homogeneous materials of vehicles is to be tolerated;
  - exempting certain parts, components and homogeneous materials of vehicles from the ban on the presence of the four substances if
    - the use of those substances is unavoidable;
    - the socio-economic benefits demonstrably outweigh the risk to human health or the environment arising from the use of those substances;
    - there are no suitable alternative substances or technologies.

#### 5 Minimum recycled content

- ▶ 25% of the plastic content in cars and vans that are type-approved 72 months after entry into force must consist of recycled plastic from “post-consumer plastic waste”, of which 25% must come from end-of-life vehicles [Art. 6 (1)].
- ▶ 23 months after entry into force, the Commission will adopt an implementing act laying down the methodology for the calculation and verification of the share of recycled plastic from post-consumer plastic waste or end-of-life vehicles contained in a vehicle type [Art. 6 (2)].
- ▶ The Commission is empowered to set a minimum share of steel recycled from post-consumer waste that must be present in vehicle types [Art. 6 (3)].
- ▶ To this end, the Commission will finalise a feasibility study 23 months after entry into force, taking into account, among other things [Art. 6 (3)]
  - the current and forecast availability of steel recycled from post-consumer waste;
  - the current share of steel from post-consumer waste used in vehicles;
  - the demand for steel from post-consumer waste in the automotive sector compared to that of other sectors;
  - the economic viability and technical and scientific progress of steel recycling, including changes in the availability of recycling technologies.
- ▶ Within 35 months of entry into force, the Commission will examine the possibility of establishing minimum levels of recycled content for other post-consumer waste, including aluminium and magnesium as well as neodymium, dysprosium, praseodymium, terbium, samarium and boron, which are used in permanent magnets for electric vehicles [Art. 6 (4)].

#### 6 Circularity strategy and information requirements

- ▶ For each car or van that is type-approved 36 months after entry into force, manufacturers must develop a “circularity strategy”. This must describe the actions they will take to comply with the requirements for circular product design and the rules on the share of recycled materials [Art. 9 (1) and (2)].
- ▶ The strategies and any updates to them will be made publicly available, except for confidential information [Art. 9 (6)].
- ▶ For cars and vans that are type-approved 36 months after entry into force, the share of recyclates in the respective vehicle types must be specified, and a distinction made between recyclates from “pre-consumer

waste” – i.e. waste generated by the manufacturer before the finished product is purchased by the consumer – and “post-consumer waste”. This applies to [Art. 10 (1)]

- neodymium, dysprosium, praseodymium, terbium, samarium and boron in permanent magnets in electric drive motors;
  - aluminium and its alloys;
  - magnesium and its alloys;
  - steel.
- ▶ 36 months after entry into force, with respect to all vehicles covered by the Regulation, manufacturers must provide waste management operators and repair and maintenance companies, via “communication platforms”, with unrestricted standardised and non-discriminatory access to the information enabling access to and safe removal and replacement of [Art. 11 (1) and (2) in conjunction with Annex V]
    - electric vehicle batteries incorporated in the vehicle;
    - e-drive motors incorporated in the vehicle;
    - parts and components classified by the Commission as critical raw materials at the time of type approval of the vehicle.
  - ▶ Manufacturers may collect charges from authorised recovery, repair and maintenance operators to cover the administrative costs of providing the necessary information via the communication platforms [Art. 11 para. 2].
  - ▶ The Commission may adopt delegated acts to include additional parts, components and materials and to amend the scope of the information that manufacturers must provide [Art. 11 (3)].

## 7 Circularity Vehicle Passport

- ▶ 84 months after entry into force, a “Circularity Vehicle Passport” must be issued for all vehicles placed on the market, which must be aligned with other vehicle-related environmental passports issued under EU law and integrated where possible. The aim of the circularity passport is to provide information on the removal and replacement of parts, components and materials in vehicles, digitally and free of charge. [Art. 13 (1) and 2 in conjunction with Art. 11]
- ▶ The circularity passport must be retained for at least six months after a certificate of destruction for the corresponding end-of-life vehicle has been issued [Art. 13 (5)].
- ▶ The Commission will adopt implementing acts on the precise design of the circularity passport and ensure a “high level of security and privacy”. The technical requirements for the design and use of the circularity passport will contain provisions on, among other things [Art. 13 (6)]
  - the compatibility of the circularity passport with other passports required under EU law;
  - the storage and processing of information contained in the circularity passport;
  - the introduction, modification and updating of information in the circularity passport by third parties.

## 8 Extended producer responsibility (EPR)

- ▶ 36 months after entry into force, producers must bear the disposal costs for all vehicles covered by the Regulation which they make available on the market for the first time within the territory of a Member State (“extended producer responsibility”, EPR).
- ▶ Producers can fulfil their EPR themselves or commission an authorised EPR organisation to fulfil the EPR on their behalf, whereby producers and waste management operators must have “fair representation” in the governing bodies of every EPR organisation [Art. 18 para. 1 and 4].
- ▶ In addition to the general requirements of the Waste Framework Directive [2008/98/EC, Art. 8 and 8a], producers must in particular ensure that [Art. 16]
  - end-of-life vehicles are collected via the collection systems to be set up by them or the EPR organisations [Art. 23],
  - end-of-life vehicles are professionally treated by treatment facilities [Art. 27],
  - the waste management operators fulfil the targets for reuse, recycling and recovery [Art. 34] and
  - they generally bear the costs, in particular for the collection and recovery of end-of-life vehicles [Art. 20 (1)].

- ▶ The financial EPR contributions of producers (“EHV fee”) include, among other things [Art. 20 para. 1]
  - the costs of collection and treatment of end-of-life vehicles, insofar as these are not covered by the revenue of waste management operators from the sale of used spare parts and components and recycled materials from end-of-life vehicles;
  - the costs of information campaigns to improve the collection of end-of-life vehicles;
  - the costs of gathering data and reporting to the competent authorities.
- ▶ The EPR organisation must ensure that EPR fees take the following into account [Art. 21 (1)]:
  - the weight of the vehicle;
  - the type of drivetrain;
  - the rate of recyclability and reusability of the vehicle type in accordance with Art. 4;
  - the share of materials and substances preventing a high-quality recycling process such as adhesives, composite plastics or carbon-reinforced materials;
  - the percentage in the vehicle of recyclates of plastic, neodymium, dysprosium, praseodymium, terbium, samarium and boron, aluminium and its alloys, magnesium and its alloys and steel;
  - the presence and amount of lead, mercury, cadmium and hexavalent chromium.
- ▶ The Commission will be empowered to adopt delegated acts establishing detailed rules on the application of the aforementioned criteria [Art. 21 (2)].

## 9 Export of vehicles

- ▶ Used vehicles may only be exported if they [Art. 38 (3)]
  - are not irreparable end-of-life vehicles [Art. 3 (1) No. 2] and
  - are considered roadworthy in the Member State in which they were last registered.
- ▶ When selling a used vehicle, the vehicle owner must be able to demonstrate to any person interested in purchasing the vehicle concerned, or to the competent authorities, that it is not an end-of-life vehicle [Art. 37].
- ▶ The Commission will develop an electronic system (“MOVE-HUB”) for the exchange of [Art. 45 (1)]
  - Vehicle Identification Numbers,
  - information on vehicle registration and the roadworthiness status of vehicles, between the national vehicle registers,
  - information on the electronic systems on roadworthiness in the Member States and for interconnection with the “EU Single Window Environment for Customs”, where necessary for controls and requirements.
- ▶ Before used vehicles can be exported, customs must verify “electronically and automatically”, on the basis of the Vehicle Identification Number, whether the vehicle is roadworthy. If the information submitted to the customs authorities does not correspond to the national vehicle registers or the national roadworthiness systems, the vehicle will not be authorised for export by the customs authorities [Art. 39].

## B. Legal and political context

### 1 Legislative Procedure

13 July 2023      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 Environment

Committees of the European Parliament: Environment, Public Health and Food Safety (ENVI, leading), Rapporteur: Jens Gieseke (EPP, DE)

Federal Ministries:                      Environment, Nature Conservation, Nuclear Safety and Consumer Protection (lead)

Committees of the German Bundestag: Environment, Conservation and Nuclear Safety (leading)

Decision-making mode in the Council: Qualified majority (acceptance by 55% of Member States which make up 65% of the EU population)

### 3 Formalities

Legal 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 Objectives and Scope

The EU is rightly pursuing the goal of creating a circular economy. This will enable resources to be conserved, waste avoided or at least reduced, secondary raw materials recovered through recycling and fed back into the economic cycle and the need for new primary raw materials, the extraction and procurement of which sometimes leads to environmental pollution and dependence on imports from supplier countries outside the EU, will be reduced. The circularity principle requires us to consider the various phases of the entire life cycle of products – design, production, demand and use as well as waste management. In principle, therefore, it is appropriate for the Commission proposal to aim for a holistic and harmonised approach to the automotive sector in this regard and to gradually include other vehicle categories into the process. When it comes to the individual detailed provisions, however, there are difficult compromises to be reached and conflicts of interest to be taken into account.

Overall, the reuse, recycling and recovery rates for vehicles are very high compared to other products. In 2020, 94.6% of end-of-life vehicles in the EU were reused or recycled. Slovenia achieved the highest value in the EU, with a rate of 117.2%, while Latvia brought up the rear with 84.6%. The EU average recycling and reuse rate is 89.1%. Only three Member States are just below the target rate of 85%: Latvia (84.6%), Finland (84.7%) and Italy (84.9%).<sup>1</sup> Admittedly, not all of the materials obtained are reused directly by the automotive sector. In fact, there is a lot of down-cycling, i.e. the recycled materials obtained are of lower quality than the original primary raw materials.<sup>2</sup> This does not necessarily have to be a problem however: Overall, an open cycle in which the recyclates are used in products from different sectors with lower quality requirements can also conserve resources and avoid waste. The counterpart to this is a closed cycle in which the recycled materials obtained in one sector are also reused there. However, in the case of downcycling, the recyclates are often unsuitable for a further cycle in the recycling process and are incinerated to generate energy (“energy recovery”). This should be avoided in a circular economy because recycled material should be used “as long, as often and as efficiently as possible” in the sense of cascade utilisation and should only be used for energy recovery at the end of their life cycle.<sup>3</sup>

#### 1.2 Circular vehicle design

In order to achieve the goals of the circular economy – conservation of resources, avoidance or reduction of waste and the return of materials to the economic cycle – not only is it important to ensure high-quality treatment of vehicles during the waste phase at the end of their life, but also to ensure that they have a long service life beforehand, which can be achieved through e.g. repairs. In both cases, the design of the vehicle itself at the start of the cycle is of fundamental importance. In principle, circular vehicle design makes it easier to repair and recycle vehicles and avoid waste.

Thus, vehicle design needs to ensure that the substances and materials used can be easily separated at the end of their service life in order to obtain high-quality recycled material. Recyclability must therefore be taken into account as early as the product development stage.<sup>4</sup> This is especially important for electric vehicles which require the use of critical raw materials and rare earths. With regard to raw material extraction in particular, recycling can both improve the environmental balance and reduce dependence on imports, thereby minimising third-

<sup>1</sup> Eurostat (2023), [End-of-life vehicles – reuse, recycling and recovery, totals](#).

<sup>2</sup> Sachverständigenrat für Umweltfragen (2017), [Umsteuern erforderlich: Klimaschutz im Verkehrssektor](#), Sondergutachten November 2017 [hereinafter: SRU (2017)], p. 148.

<sup>3</sup> Voßwinkel, J. S. / Reichert, G. / Schwind, S. / Jousseume, M. (2020), Circular Plastics Economy for Non-food Packaging, [cepStudy](#), p. 5.

<sup>4</sup> SRU (2017), p. 148.



country-related procurement risks.<sup>5</sup> It therefore makes sense to specify which vehicle components should be easy to remove for repair or recycling.

In principle, an EU-wide standardised calculation of reusability, recyclability and recoverability rates could create a level playing field and make it easier to check compliance with the Regulation. However, the requirement that all “necessary” data and all other “appropriate” vehicle data must be collected is very vague. As the Commission will not adopt an implementing act to define the exact methodology for calculating the rates until 35 months after the Regulation comes into force, a detailed assessment is not currently possible. When defining the methodology, care should be taken to ensure that the administrative burden is not disproportionately high.

### 1.3 Substances of concern

A blanket exclusion on the use of certain “substances of concern” in vehicles is not always justified. The Commission has rightly therefore defined exceptional cases in which vehicles may contain lead, mercury, cadmium or hexavalent chromium. This makes sense because, where certain substances are banned, consideration simply has to be given to the inherent substance properties, which has the advantage that the tests are faster and less time-consuming and lead to clear results. Blanket bans on substances, on the other hand, can have unintended consequences if, for example, they are essential for the manufacture and/or functionality of a vehicle and an alternative is either unavailable or significantly more expensive. They can also hold back the ability to innovate. However, EU law on chemicals already consists of around 40 pieces of legislation centring on the REACH Regulation. Therefore, any regulation of substances should, if necessary, be included there and not repeated in the End-of-Life Vehicles Regulation, in order to avoid duplicate regulation or, in the worst case, even regulatory contradictions. This will ensure legal clarity and minimise the burden for all players in the value chain.

In addition, a ban on certain substances or groups of substances – as is currently being discussed for PFAS<sup>6</sup> – not only restricts design, but also recycling. If certain substances that are currently in use are banned in the future and can no longer be returned to the material cycle, it may also be the case that vehicle components containing these substances are no longer recyclable. This should also be taken into account when calculating reuse and recycling rates. Where appropriate, the vehicle parts that are no longer authorised for recycling should be deducted as a proportion of the whole vehicle and the recycling rate only calculated based on the vehicle parts that are still authorised.

### 1.4 Minimum recycled content: Plastic recyclates

EU-wide standardised obligations for minimum proportions of recycled plastics in products create uniform competitive conditions in the EU internal market. However, it must then also be ensured that companies have de facto equal access to the corresponding recycled plastics on the EU internal market. Otherwise, companies that have poorer access due to their location may suffer a competitive disadvantage.

Fixed targets for the minimum proportion of recycled plastic in each vehicle type is a relatively easy standard to monitor. However, these targets are unnecessarily rigid for manufacturers which leads to unnecessary burdens and creates new hurdles in the market for recyclates. More flexibility would be possible in several directions. The proposal that a certain proportion of recycled plastic should come from end-of-life vehicles is apparently based on practical considerations.<sup>7</sup> The Commission is evidently aiming for a closed cycle of materials from end-of-life vehicles. On the one hand, this is understandable for at least two reasons: Manufacturers will be incentivised to use recyclable components; meanwhile recycling companies will know that there is a long-term demand for high-quality plastic recyclates in the automotive sector and will actually be able to produce high-quality recyclate. On the other hand, high-quality plastic recyclate can also come from areas other than the automotive sector, and plastic recyclate from the automotive sector can likewise be used in other branches of industry. The dominant recycling technology at present is mechanical recycling in which the plastic waste is reprocessed into plastic products using technical processes such as shredding and melting.<sup>8</sup> However, this can damage the polymers,

<sup>5</sup> Wolf, A. / Reichert, G. (2023), Critical Raw Materials, [cepPolicyBrief 8/2023 Long Version](#), p. 9.

<sup>6</sup> Germany and four other countries have applied to the EU Chemicals Agency ECHA for an EU ban on perfluorinated and polyfluorinated alkyl substances (PFAS). PFAS comprises a group of over 10,000 substances that are virtually non-degradable (“forever chemicals”). As the manufacture, placing on the market and use of PFAS is to be comprehensively restricted and transitional periods are only planned for a few applications, most substances would be banned after 18 months. The EU Member States will decide on this on a proposal from the EU Commission. On this Reichert, G. (2023), PFAS-Verbot, [cepDossier 2/2023](#).

<sup>7</sup> Maury, T. et al. (2023), [Towards recycled plastic content targets in new passenger cars and light commercial vehicles](#), Publications Office of the European Union, p. 68.

<sup>8</sup> Voßwinkel, J. S. / Reichert, G. / Schwind, S. / Jousseume, M. (2020), Circular Plastics Economy for Non-food Packaging, [cepStudy](#), p. 8.

which can become shortened, and thus lead to a reduction in quality.<sup>9</sup> It therefore makes sense to cascade utilisation across different sectors allowing raw materials to be used for as long as possible. If a sector has lower standards for the plastic used, an open cycle is appropriate. Excessively restricting the proportion of plastic recyclates to those from closed loops can dampen innovation. There is not yet a sufficiently large market for high-quality plastic recyclates in the automotive sector. But this may evolve as a result of the Commission's proposals. However, if overly rigid guidelines are immediately imposed again, it could once more impede free development. In the long term, there should therefore be fewer different, compartmentalised material sub-streams and associated markets, resulting in unnecessary shortages. Instead, it would make sense to have as liquid a market as possible for recyclates of different types, each with different quality requirements. Therefore, the proposal that 25% of the plastic recyclates used should come from end-of-life vehicles is not conducive to the actual goal of achieving a circular economy across all sectors. The recycling companies themselves can agree on the specific quality of plastic recyclates with their customers – the material streams from which these originate would be of secondary importance.

### 1.5 Circularity strategy and information requirements

The circularity strategy being required of vehicle producers has no added value. Producers already have to explain<sup>10</sup>, among other things, how they intend to become more circular, as part of their sustainability reporting. As they already have to document the standards for recyclable product design and the specifications for the proportion of recycled materials, it is unclear why they also have to publish a strategy on how they intend to implement their obligations in concrete terms. The extra bureaucracy will simply generate huge costs for both companies and the Commission.

Irrespective of this, it is logical that the proportion of recycled material must be specified for all substances in order to check, among other things, whether the targets for plastics are being met. Precise documentation also helps to identify obstacles. The additional obligation to document production waste increases the incentive for manufacturers to reduce waste as early as the production phase.

### 1.6 Circularity Vehicle Passport

A circular economy – characterised by a long service life and high-quality recycling – can only be created if the vehicles themselves are already designed to be recyclable. A circularity passport may close existing information gaps: Transparency along the value chain may provide repair companies and waste management operators with relevant information about appropriate handling of vehicles with circularity in mind, which is currently often lacking. The aim was to ensure that the circularity passport could be generated and used in an unbureaucratic manner. Coordination with other vehicle-related environmental passports and, ideally, their integration into the circularity vehicle passport reduces the bureaucratic burden for all players along the value chain, as multiple documents do not have to be created and checked. However, which data is relevant for the players along the value chain still needs to be determined.

A complicated and confusing circularity passport may be rejected by users. The pre-selection of information and the presentation will be crucial in this regard but, since the Commission intends to define the exact structure of the circularity passport by means of an implementing act, a precise assessment is not yet possible. However, the Commission has not even set a timetable for the adoption of the implementing act. The exact details of the design should be defined promptly to give manufacturers sufficient time to implement the requirements.

It is also still unclear how modifications to the vehicle itself, e.g. by repair companies, should be handled. It is doubtful whether small companies, such as private repair businesses, will have the capacity to record all relevant information in the circularity passport. In this case, the accuracy of the data beyond the time of purchase cannot be guaranteed. Responsibility for correct provision of data should be precisely clarified.

### 1.7 Extended producer responsibility (EPR)

As the cost allocation within the framework of extended producer responsibility (EPR) is based on the recyclability of the respective vehicles, it could provide strong incentives for a circular vehicle design (“eco-modulation”). Thus, the EPR fee is, on the one hand, appropriate for achieving the Commission's circular economy objectives

<sup>9</sup> Agora Industrie / Systemiq (2023), [Resilienter Klimaschutz durch eine zirkuläre Wirtschaft: Perspektiven und Potenziale für energieintensive Grundstoffindustrien](#), p. 54.

<sup>10</sup> Eckhardt, P. / Harta, L. (2021), Sustainability Reporting, [cepPolicyBrief 21/2021](#); Eckhardt, P. (2023), Die neuen EU-Berichtspflichten zur Nachhaltigkeit, [cepAdhoc 2/2023](#).

and, on the other, for giving producers the flexibility to deal with conflicting objectives. As long as this EPR fee is roughly the same in all Member States or – as proposed by the Commission – is at least based on the same criteria, a systematic steering effect could be achieved to support circular vehicle design. A higher EPR fee for less recycling-friendly vehicles also has the advantage over mandatory requirements that manufacturers could decide for themselves on a decentralised and case-by-case basis how to design their products. Depending on the type of vehicle, manufacturers may prefer to pay higher EPR fees as this will allow them to customise vehicles to customer needs and expectations. Nevertheless, manufacturers retain responsibility for their products beyond production. In addition, the negative effects of non-circular vehicle design will be priced into product design (“internalisation of negative external effects”). Higher revenues for companies in the waste management sector could also make more labour-intensive recycling worthwhile again. This way of pricing is therefore also more sensible than banning certain practices. It is not always possible to achieve all goals – less material usage, longevity, reparability and recyclability – at the same time<sup>11</sup>, so pricing offers manufacturers the opportunity to take these trade-offs into account.

The Commission is already planning to take the proportion of recycled plastics into account in the EPR fee. If the EPR fee is sufficiently high, manufacturers have an incentive to achieve at least the target set by the policy. At the same time, they remain flexible regarding the design of the individual vehicle types. This may support the achievement of the 25% target for recycled content and at the same time offers more room for manoeuvre than a fixed rate. As the exact structure of the EPR and the amount of the EPR fee are actually unknown, it is currently impossible to say whether the contributions paid will have a substantial impact on the proportion of recycled material.

However, it must be borne in mind – both when pricing the plastic and setting targets for the proportion of recycled material – that automotive is not the only sector in which the Commission is setting targets for the use of recycled plastic.<sup>12</sup> This could lead to conflicts, at least in a transitional phase. In the end, neither the pricing of primary raw materials nor rigid targets will help if there are simply not enough recyclates available. The Commission has yet to show how a mere obligation to increase the proportion of recycled material will actually ensure that recycled plastic is available in sufficient quantity and quality, promptly, and without limiting other types of reuse<sup>13</sup>.

## 1.8 Export of vehicles

It is estimated that in 2019 the whereabouts of around 3.4 million cars and vans in the EU – i.e. around a third of vehicles – were unknown.<sup>14</sup> Of the approximately 2.8 million vehicles decommissioned in Germany in 2020, only 406,044 were recycled in Germany. The majority of the remaining almost 2.4 million vehicles were exported to other EU countries as used cars. Exports to non-EU countries are estimated at just under 200,000 vehicles, while the whereabouts of 150,000 German vehicles cannot be verified.<sup>15</sup> Overall, in the Commission's view, the current End-of-Life Vehicles Directive [2000/53/EC] has failed to achieve the objective of ensuring that all end-of-life vehicles are treated in accordance with the requirements of the Directive.<sup>16</sup>

Better control over the export of used vehicles may close this gap. If vehicles that are deemed unroadworthy by EU Member States are no longer exported, this may ensure that important raw materials are kept within the EU and can be recycled and reused. This could help to reduce the depletion of raw materials and dependence on imports.<sup>17</sup> Particularly in the case of electric vehicles, for which recycling capacities first need to be expanded, regulation may send a signal that more recycling will take place in the future and encourage investment in recycling technologies.

---

<sup>11</sup> In general on this: Schwind, S. / Stockebrandt, P. / Reichert G. (2023), European Right to Repair, [cepPolicyBrief 10/2023 Long Version](#), p. 8 et seq.

<sup>12</sup> European Commission (2022), Communication COM(2022) 677 of 30 November 2022 for a Regulation on packaging and packaging waste -Packaging Regulation, see [cepPolicyBrief 3/2023](#); European Commission (2022), Communication COM(2022) 142 of 30 March 2022 for a Regulation establishing a framework for setting ecodesign requirements for sustainable products, see [cepPolicyBrief 10/2022](#).

<sup>13</sup> See Schwind, S. / Reichert, G. (2022), Ecodesign of Products, [cepPolicyBrief 10/2022 Long Version](#), p. 13.

<sup>14</sup> European Commission, Directorate-General for Environment (2023), [Study to support the impact assessment for the review of Directive 2000/53/EC on end-of-life vehicles – Final report](#), Publications Office of the European Union, p. 151 and 157.

<sup>15</sup> Umweltbundesamt (2023), [Altfahrzeugverwertung und Fahrzeugverbleib](#).

<sup>16</sup> European Commission, Directorate-General for Environment (2020), [Supporting the evaluation of the Directive 2000/53/EC on end-of-life vehicles](#), Publications Office, p. 39.

<sup>17</sup> Wolf, A. (2023), Recycling Green Technologies of the Future, [cepInput 10/2023](#).

However, there may also be trade-offs: A circular economy is not only characterised by recycling. In fact, the focus is on the longer use of products since both recycling itself and the production of new products are energy-intensive. However, around 80% of exported vehicles do not meet the Euro 4 emission limits for motor vehicles, and most of them are no longer roadworthy. Most of the vehicles exported to African countries, for example, are more than ten years old which also contributes to local air and environmental pollution and reduces road safety.<sup>18</sup> Another disadvantage of extending the utilisation phase by exporting vehicles is that when they finally become end-of-life vehicles outside the EU, they will not be reused, recycled or otherwise recovered in the EU. There may even be no proper waste treatment at all, which can result in hazardous substances being released into the environment.

The fact that the Commission is planning to introduce an EU-wide, digital inspection of vehicles is to be welcomed. This will facilitate verification within the EU and by customs authorities.

## 2 Legal Assessment

### 2.1 Legislative Competence

Unproblematic. The EU can establish uniform requirements aimed at the creation of a circular economy for vehicles throughout the EU, in order to ensure the free movement of goods in the EU internal market, and to prevent its fragmentation and the distortion of competition resulting from national requirements [Art. 26 and 114 TFEU]. It can also adopt environmental measures for the “prudent and rational” use of natural resources and for waste management [Art. 192 TFEU]. Finally, within the framework of common EU transport policy, the Commission is also authorised to issue requirements for the type approval of vehicles [Art. 90 and 91 TFEU].

### 2.2 Subsidiarity

Unproblematic. Uniform requirements for the circular economy and type approval, which apply across borders to all vehicles placed on the market or put into service in the EU internal market, can only be adopted at EU level [Art. 5 (3) TEU].

## D. Conclusion

The EU is rightly pursuing the goal of a circular economy in the automotive sector. Designing vehicles with circularity in mind can fundamentally help to conserve resources, avoid or at least reduce waste and return recovered secondary raw materials to the economic cycle by way of recycling. This in turn may also reduce the need for primary raw materials, the extraction and procurement of which can lead to considerable environmental pollution and dependence on imports from supplier countries outside the EU.

In the future, open rather than closed material cycles should be prioritised. Fixed targets for the minimum proportion of recycled plastic in vehicles are unnecessarily rigid and could lead to new barriers in the market for recyclates. Instead, the aim should be for the market for different types of recyclates, each with different quality requirements, to be kept as liquid as possible. This would promote an open cycle of materials from end-of-life vehicles and reduce barriers to innovation. “Extended producer responsibility” (EPR) is, on the one hand, a suitable framework for achieving the circular economy objectives, and on the other, for giving producers the flexibility to deal with conflicting objectives. As the EPR fees are based on the circularity of vehicles (“eco-modulation”), they could provide strong incentives for circular vehicle design. Attaching a higher fee to vehicles that are less recycling-friendly would also have the advantage over mandatory requirements that manufacturers could decide for themselves on a decentralised and case-by-case basis how to design their products. However, it may also lead to conflicts with other sectors – at least in a transitional phase – if sufficient quantities of high-quality recyclates are not available when needed. In addition, bans on certain chemicals may affect recycling. Vehicle parts containing these chemicals can no longer be recycled, as the chemicals can no longer be returned to the material cycle. This should be taken into account when calculating reuse and recycling rates.

---

<sup>18</sup> European Commission, Directorate-General for Environment (2023), [Study to support the impact assessment for the review of Directive 2000/53/EC on end-of-life vehicles – Final report](#), Publications Office of the European Union, p. 155.

The circularity passport could be an important tool for promoting the circular economy and closing existing information gaps by providing transparency along the value chain. However, its exact form and the timetable for adoption of the relevant implementing act should be clarified as soon as possible. Better control over the export of used vehicles could also support the goal of using a larger proportion of the resources that are built into vehicles in the EU.