ELV Directive review

Additional data for the impact assessment for the EU end-of-life vehicles (ELV) and 3R type-approval Directives revision

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Contents

Summary

As a follow-up of the European Stakeholder Workshop in the context of the impact assessment for the revision of the end-of-life vehicles Directive and the corresponding Directive on 3R type-approval, we are pleased to share with you key highlights of ECOS recommendations for these review focusing on:

- what are the benefits of merging the two Directives into a single Regulation;
- how legislation coherence can be better ensured;
- what are the conditions for developing a reliable recycling rate calculation;
- why vehicle carbon and environmental footprints should be minimised;
- which substances and techniques should be banned from vehicles;
- what are the conditions for setting trustworthy recycled content targets in vehicles;
- why the digital vehicle passport should be made mandatory;
- how to reduce microplastics release from tyres.

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Single merged Regulation

A **Regulation** has the potential to set harmonised rules across the single market, reduces the risks of fragmented national implementation, and will apply to all vehicles placed on the EU market. This will have similar benefits than for the revision of the EU Batteries Directive into a Regulation[1].

In addition, **merging the 3R type-approval and ELV Directives** will help ensure vehicle circular design, incorporating recycled material and facilitating the reuse, repurposing, remanufacturing and ultimately recycling. It will also support transparent communication and tracking of performance across these criteria and on material / chemical contents to end users and supply chain actors.

EU legislation coherence

The definition of recycling in the new EU Vehicle Regulation should be **aligned with the definition in the EU** Waste Framework Directive so as to increase its level of ambition by excluding "energy recovery [with or without heat recovery] and the reprocessing into materials that are to be used as fuels or for backfilling operations". Similarly, the definitions of 'reuse' and 'preparation for reuse' should be aligned for further legal certainty.

As reuse is higher up in the waste hierarchy than recycling, it seems logical to **split the targets** set for reuse and recycling of ELVs, while giving priority for reuse through accompanying measures in car repair shops to support used/remanufactured component repair, and insurance companies to offer discounted policies.

As for 'remanufacturing', its definition should be **aligned with the new Battery Regulation**, for which the European Parliament has proposed to introduce the following definition in first reading: "'remanufacturing' means any operation of disassembly, restoring, replacing components of used battery packs, battery modules and/or battery cells to return a battery to a level of performance and quality equivalent to that of the original battery, for the original or a different purpose".

To complement the new Battery Regulation, car batteries should be **readily removable** by qualified independent operators not only at the car end-of-life, but also at the car design stage in case the battery has a shorter lifetime than the vehicle it is used in. Removability before shredding should similarly be ensured for key car components, especially those containing critical raw materials[2] to facilitate 'urban mining', considering the current geopolitical context and EU dependence on third countries.

[1] NGOs' paper (2019) Europe needs an ambitious regulatory framework to guarantee sustainability of batteries.
[2] See also the deliverables from H2020 CEWASTE project.

Reliable recycling rate calculation

Among the measures envisaged to address the objective 2.1 'Improve design and production of vehicles to support reuse and recycling', it is welcome that the recyclability rate is revised to consider the technology readiness level (TRL) of recycling technologies.

However, the recycling rate is never 100% as there will always be process losses and some level of material quality degradation. The **minimum TRLs** to be considered towards reuse/recycling targets should also be **TRL 6 or TRL 7**, as technologies only validated in laboratories should not yet be valued (i.e. TRLs 4 and 5). This is especially important to differentiate the TRLs of chemical recycling technologies[3].

In addition, chemical recycling technologies should only be explored as a complement to mechanical recycling, if their environmental performance is higher than for virgin material processing, and if the process yield is high enough. For this, the calculation of the recycling rate should discount any fuel purposes, process losses, and any further treatment step to repolymerise the polymers so that they "do not undergo further processing before their use in a final product"[4].

Reduced carbon and environmental footprints

Vehicles should not only be designed and manufactured to optimise their performance, durability and safety, but also to **minimise their carbon and environmental footprints**, as defined in the recent proposal for a Regulation on ecodesign requirements for sustainable products. Focusing on their carbon footprint would indeed not be enough to consider their overall environmental impacts.

Vehicle technical documentation should thus include a carbon and environmental footprint declaration. This declaration should cover the Product Environmental Footprint Category Rules (PEFCR) for vehicles counting in **upstream emissions** (related to material extraction and refining) and incentivising the use of **renewable energy** across the vehicle life cycle (extraction, production, use, and recycling). The system boundaries should thus include upstream, use and end-of-life phases. Considering vehicle **life cycle environmental impacts**, the declaration should also cover other environmental impacts, such as biotic resource depletion and indirect effects (e.g. indirect Land Use Change (iLUC) impacts).

For example, the environmental impacts associated with recycled tyre use, in road asphalt and school playgrounds should be investigated.

Substance and technique prohibition

Substances that meet the CLP ('Classification, Labelling and Packaging') and SVHC ('Substances of Very High Concern') criteria under REACH should be banned, except for essential uses and where no alternative exists, in line with the European Chemicals Strategy for Sustainability. This should also be the case for substances and techniques impeding the reuse of vehicle parts / components and recycling of vehicles, including of tyres.

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[3] RPA Europe report for ECHA (2021) Chemical Recycling of Polymeric Materials from Waste in the Circular Economy.

[4] Commission Implementing Decision (EU) 2019/1004 laying down rules for the calculation, verification and reporting of data on waste in accordance with Directive 2008/98/EC, Annex I.

The use of hazardous substances in vehicles should thus be restricted in order to protect human health and the environment and to reduce the presence of such substances in ELVs, e.g. by restricting the exemptions for lead, mercury, cadmium and hexavalent chromium in vehicle materials and components.

This would encourage manufacturers to innovate in new materials and techniques. Coupled with the development of the Safe and Sustainable by Design methodology – meant to be used in R&I projects – and learnings from LCAs at the product level, such bans have the potential to trigger real ecodesign progress, beyond a specific substance or techniques. Rather than replacing a substance by a substance, this should be meant as a way to trigger a rethinking of the overall design, eventually removing the need for a substance.

Moreover, the European Commission and ECHA should systematically review hazardous substances in vehicles to identify potential risks to human health or the environment. This assessment should consider to what extent the use of a hazardous substance is necessary for health, safety or is critical for the functioning of society, as well as the availability of suitable alternatives that help lower risks for human health and the environment.

Manufacturers should finally pass on information on vehicle components and materials, the presence, location and concentration of hazardous substances, related safety instructions, as well as information relevant for disassembly, throughout the vehicle life cycle – i.e. including to repair, preparing for-reuse and reuse, treatment and recycling operators – so as to enable their tracking, as proposed in the draft Regulation on ecodesign requirements for sustainable products.

Mandatory and trustworthy recycled content targets

The new European Vehicle Regulation should follow the objectives set in the European 2020 Circular Economy Action Plan and set recycled content targets for key components as a driver for the uptake of secondary raw materials, especially for plastic waste. Higher recyclate quality, hence recycled content, will be fostered by **systematic dismantling** of key components and parts before shredding, as well as **banning of substances that meet the CLP and SVHC criteria** *(see previous section)*.

Recycled content targets for vehicles should first only target **post-consumer waste**, as the inclusion of pre-consumer plastics waste in the accounting method for recycled content has a perverse effect: it gives incentives to wasteful and inefficient production processes, since waste can then be considered as recycled even if they have never reached consumers.

Secondly, it is crucial to ensure the recycled content is **allocated in a proportionate way**, while discounting process efficiency losses and fuel use, as per the very definition of recycling in the EU Waste Framework Directive. The reasons are multiple[5]:

- Proportional allocation, discounting efficiency losses, enables to maintain a level playing field between small companies with production lines limited to few product types and big ones producing several hundreds of product types out of the same production line. Indeed,

[5] ECOS and RPa (2021) Cooking the plastic books: EU must avoid opening the door to widespread use of creative accounting in recycled plastic content.

free allocation will only benefit those big companies that will be able to allocate a small portion of recycled content to their desired output(s).

- The 'dilution factor' of recycled content into virgin content is particularly high for chemical recycling, where current processes usually blend a small fraction of recycled content (maximum 5%) into massive quantities of virgin content. Only a proportional approach can reflect this and make the recycled content trustworthy! It can also help reflect value retention for each output type, in line with the circular economy.

- Proportional allocation will be even more crucial for consumers if companies associate such method with their individual product claims: recyclers should not arbitrarily allocate the recycled content to the product which would benefit the most from having a sustainability label from a marketing perspective[6].

- The proportional method can also help ensure a level-playing field with the mechanical recycling technologies, which apply segregation or controlled blending in their chain of custody. Discounting process efficiency losses – that are at least 60%[7] – and fuel use in chemical recycling processes will finally support this level-playing field.

Considering these points plus the low TRL / cost-efficiency of most chemical recycling technologies, as well as the high process share of energy recovery, we welcome that only the **mechanical recycling route** will be considered at this stage.

Thirdly, strong third-party certification schemes should ensure the same conditions apply across different recycling technologies and for recyclate from both the EU and imported into the EU. It is notably worrying that recyclates from third countries could be imported without such traceability requirements, e.g. no proof that the plastic recyclate actually contains a certain percentage of recycled content.

Digital Vehicle Passport

As proposed in the draft Regulation on ecodesign requirements for sustainable products, the new European Vehicle Regulation should require cars to be placed on the market together with a **digital vehicle passport** to improve traceability across their value chain, linked to the vehicle identification number.

All information included in the vehicle passport should be **open**, i.e. without any prior approval or any specific request, available **free of charge** and in a **standardised format**. The information should be adapted to the targeted user and be interoperable[8].

The vehicle passport should also support the circular design of vehicles, long product lifetime, and improved material recovery, for example thanks to details on spare parts availability, repair history and a full list of chemical contents. It should also include due diligence and information on the conditions in which cars are manufactured.

[6] BFFP, ECOS, RPa and ZWE (2021) Recycled content in plastics: The mass balance approach infographics.
[7] Daria Frączak (2021) Chemical Recycling of Polyolefins (PE, PP): Modern Technologies and Products.
[8] See also the deliverables from the ongoing H2020 CircThread project.

Such ambitious information requirements could create an incentive to make more sustainable choices, starting at the vehicle design stage and finishing at end-of-life.

Minimum requirements for tyres

As provided for in the European 2020 Circular Economy Action Plan, the new European Vehicle Regulation should also be coherent with the recent efforts to **tackle microplastics** coming from different sources, namely **tyres**.

Tyres are in fact the main contributors to the unintentional release of microplastics into the environment, leading to 250,000 to 500,000 tonnes of microplastics pollution every year in the EU alone[9]. Most of these microplastics are released as the vehicles run, due to tyre abrasion. This can be addressed in the new Regulation through **a legal threshold for tyre wear to exclude the most polluting tyres from the EU market.**

More specifically, the European Vehicle Regulation should aim to:

- introduce **mandatory minimum requirement on tyre abrasion** included in the new EVR with threshold limits for microplastic release from tyres, to be increased over time.
- **set microplastic emission limits for car and truck tyres** and mandate that tyres exceeding these be removed from the EU market.
- fund research for **alternative tyre designs** that help to reduce abrasion and release of microplastics into the environment.
- consider retreated tyres only an option if SVHC free, which is not currently the case.
- add **tyre abrasion on tyre labelling** without delay and establish a suitable test method at the latest **by 2023**.
- address **tyre design**, such as tread patterning, carcass, tread stiffness and tread area, and investigate tyre tread material, such as polymer, filler and additive types and concentrations. At a later stage, the toxicity of the released particles should be integrated in the tyre abrasion rating on the tyre label as well.
- **progressively ban problematic chemicals** in tyres such as zinc, cadmium, benzothiazole, chlorinated paraffins, bisphenols, PAH and 6PPD, etc. and promote alternatives.
- broaden the measures to capture **additional sources such as emissions brake, brake pad dust and road abrasion** with specific prevention steps[10].

[9] Boucher, J., & Friot, D. (2017). Primary microplastics in the oceans: a global evaluation of sources. Gland, Switzerland: IUCN; Hann, Simon, et al. (2018) Investigating options for reducing releases in the aquatic environment of microplastics emitted by (but not intentionally added in) products.

[10] Further recommendations for curbing microplastics pollution can be found in this ECOS article.