FEAD
European Waste Management Association

12 April 2022, Brussels

FEAD feedback on ELV stakeholder workshop

During the workshop, consultants presented the information collected, the measures under consideration for the future legislation of vehicles and the first results of the impact assessment analysis that they have performed of these measures.

The European Commission is now investigating options to revise the current EU rules on:

- **ELV Directive 2000/53/EC**
- **3R type-approval Directive 2005/64/EC**

FEAD, the European Federation for Waste Management and Environmental Services, representing the private waste and resource management industry across Europe, welcomes the Revision of Directive 2000/53/EC on end-of-life vehicles and • 3R type-approval Directive 2005/64/EC.

The waste management sector is crucial towards sustainability. Among different waste flows, ELVs are one of the most interesting ones in terms of yearly generated volumes, growth rates, embedded valuable raw materials, environmental issues and illegal markets.

The evolution that has taken place in the vehicle sector in recent years has involved several changes: from the type of materials to make vehicles lighter, more efficient and less polluting, to the breakthrough of electric vehicles.

In order to contribute to the challenging work being carried out by the European Commission, the Joint Research Centre and the consultancies involved, FEAD sets out below its observations, comments and proposals separately according to the issues addressed during the workshop.

All comments are written in red and the answers to the proposed questionnaire are highlighted in green.

Objective 1: ensure a comprehensive coverage of the sustainable production and dismantling of all relevant vehicles by the ELV Directive

Not all vehicles are in scope of ELV Directive.

1. **Can you provide data on the typical/average material composition of the vehicles not in scope of to complement the available information on the composition of individual models? If yes, send it by mail**
    a. • Yes, for L-type approved vehicles
    b. • Yes, for trailers.
    c. • Yes, for lorries
    d. • Yes, for busses
    e. • No such data does not exist at all.
2. **With regards to the development of the fleet: is a linear increase of the number of vehicles realistic?**

	2019	2025	2030
Trailers and semi-trailers	18 250 515	22 908 112	26 644 603
Motorcycles*	22 296 012	25 125 986	27 514 518

a. Yes
b. No
c. I don't know

End of life treatment of motorcycles:

- Almost no motorcycle end up at recyclers
- L-type approved vehicles have no "chassis"
- Imported motorcycles are not designed for circularity
- There is no statistic on motorcycles right now

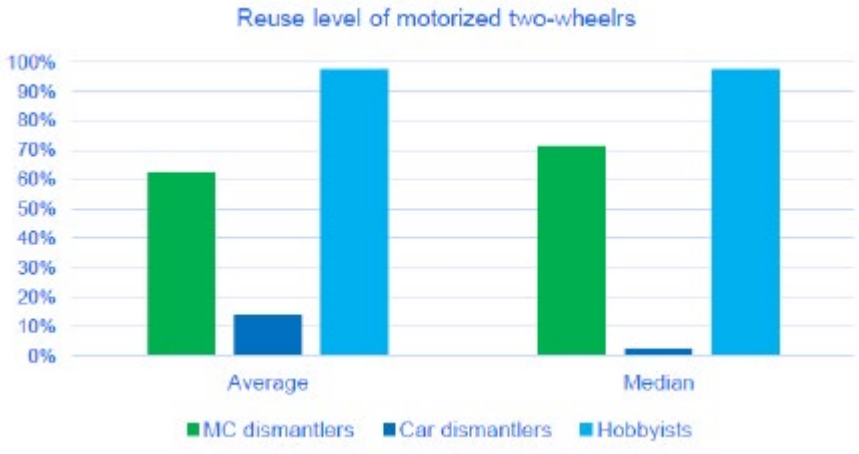


Figure 1 - Reuse level of motorized two wheelers in Finland based on 720 motorised two-wheelers dismantled in 11 motorcycle and 20 car dismantling facility, 1 builder, 1 motorcycle club

FEAD COMMENT: The above graph cannot be considered representative of the European situation and cannot serve as an example for the evaluation of possible measures and targets, for the following reasons:

- the use and wear of a motorcycle varies from one country to another, also because of climatic conditions: this affects the possibility of reusing components.
- the number of vehicles in southern European countries is greater and the types of vehicles are also different
- the cost of treatment is certainly higher than the car's (in relative terms)

3. **For L-type approved vehicles, what is the most common scenario after a vehicle reaches the end-of-life?**
   a. The majority (> 50%weight) is exported to non-EU-country (as a second-hand vehicle).
   b. The majority (> 50%weight) is dismantled for reuse.
   c. The majority is dismantled for recycling (> 50%weight).
   d. Small number of components is dismantled, the majority (> 50%weight) of the vehicles is shredded.

Dismantling of lorries & heavy duty vehicles:

- Different materials, other recycling and dismantling processes & tools (e.g., a H2/O2 flame to cut steel)
- National ELV legislations oblige dismantlers and recyclers already today to pre-treat (de-pollute) those HDV ELV's
- Lorry recycling infrastructure is different in different EU MS: 25-30 ATFs (Authorised Treatment Facilities) exist that treat ELV lorries in Spain. Except for Spain, the countries Lithuania, Estonia, Latvia also have a strong business
- An ATF that can manage the lorry can also manage the trailers.
- In the UK, 50% of all heavy vehicles reaching their end-of-life are reused or resold in other countries with major refurbishment; 43% are remanufactured to extend their lifespan in the UK
- Redistribution of second-hand components is a profitable business
- In 2012 Caterpillar's remanufacturing programme took back over 2.2 million end-of-life units for remanufacturing, representing 73,000 tons of materials
- More than 93% of all materials in a standard DAF lorry can be reused

COMMENT on the **Irish** state-of-the-art:

The main focus on recycling ELV's in Ireland has focused upon vehicles weighing less than 3.5 tonnes and many reputable and skilled dismantling businesses have grown from this model. It is a noticeable trend in Ireland that small bespoke dismantling operations are beginning to establish themselves with the purpose of focusing upon lorries and HDV's only. For some of the more established treatment facilities specializing in this market place already, it is reported that the vehciles are dominantly broken down to export reusable parts to non-OECD countries with non-reusable parts sent to local metal recycling facilities for recycling. While it is known that some facilities focus upon repairing and refurbishing crashed HDV's for suitable use on Irish roads. In more recent times, Irish National statistics teams are trying to accumulate data on the processing of HDV's but it is worth noting that Certificates of Destruction for these kinds of vehicles are not yet digitalized in the same way as those vehicles weighing under 3.5 tonnes and the information with regards to how many ELVs occur each year may not be fully representable. The dominant elements of truck parts that arrive for processing at metal recycling facilities are chassis, wheel rims and damaged driver cabs that cannot be re-used In order for a greater emphasis to be placed upon the recovery/recyclability of used lorries and HDV's in Ireland, there will be a need for a government approved and suitably funded EPR scheme and through this mechanism it will allow greater clarity to either confirm or dispute the reliability of the above listed items.

4. **For lorries, what is the most common scenario after a vehicle reaches the end-of-life?**
   a. The majority (> 50%weight) is exported to non-EU-country (as a second-hand vehicle).
   b. The majority (> 50%weight) is dismantled for reuse.
   c. The majority is dismantled for recycling (> 50%weight).
   d. Small number of components is dismantled, the majority (> 50%weight) of the vehicles is shredded.

5. **For trailers, what is the most common scenario after a vehicle reaches the end-of-life?**
   a. The majority (> 50%weight) is exported to non-EU-country (as a second-hand vehicle).
   b. The majority (> 50%weight) is dismantled for reuse.
   c. The majority is dismantled for recycling (> 50%weight).
   d. Small number of components is dismantled, the majority (> 50%weight) of the vehicles is shredded.

6. **For busses, what is the most common scenario after a vehicle reaches the end-of-life?**
   e. The majority (> 50%weight) is exported to non-EU-country (as a second-hand vehicle).

f. The majority (> 50%weight) is dismantled for reuse.
g. The majority is dismantled for recycling (> 50%weight).
h. Small number of components is dismantled, the majority (> 50%weight) of the vehicles is shredded.

The study focusses on expanding the scope of the ELV legislation to the following type-approved road vehicles:

- L vehicles, type approval regulation for the motor vehicles through REGULATION (EU) No 168/2013
- Type approval regulation through REGULATION (EU) No 2018/858
  - M vehicles,
  - N vehicles
  - O vehicles

Not assessed to expand the scope of ELV:

- Non-type approved e-bikes
- Ships,
- Planes,
- Trains,
- Agricultural and non-road mobile machinery (T-approved)
- Military purposes & space.

- Stakeholders reported reuse being more important for L-type approved vehicles, lorries and busses. Reuse is calculated 15% for M1 and N1 vehicles. Reuse rates for other vehicles are thus estimated as 30% (today, 2025) and 40% (2030).
- Rates were used for all vehicles analysed (busses, lorries, L-type-approved v., trailers)
- No disposal considered, but losses.

	Reuse* rate Baseline & measure b (2025)	Reuse* rate measure c (2030)
	30%	40%
Material	Recycling rate Baseline & measure b (2025)	Recycling rate measure c (2030)
Steel	99%	99%
Aluminium	85%	90%
Iron	99%	99%
Copper	85%	90%
Glass	0%	45%
Plastic	30%	35%
Rubber	0%	0%
Misc.	0%	0%

Figure 2 – Assumptions for reuse and recycling rates

7. **It is understood that dismantling for reuse is more important than for M1 and N1 vehicles. Please estimate the %weight of reuse for these vehicles (and provide data to support your estimation)**

L-type	Lorries	Trailers	Busses
10-20%	10-20%	10-20%	10-20%
20-30%	20-30%	20-30%	20-30%

30-40%	30-40%	30-40%	30-40%
Above 40%	Above 40%	Above 40%	Above 40%
I don't know	I don't know	I don't know	I don't know

Measure addressing objective 1:

a) Requirements for economic operators to provide data for vehicles out of scope on the design and end-of-life treatment of vehicles they put on the market

Measure	Effectiveness	Risks / Burden	Strength / Benefits
i. Obligation for **economic operators involved in production and EoL treatment** of L-type approved vehicles, lorries and buses to provide information on the design, production and EoL treatment of their vehicles within one year of entry into force of the new rules	Small / medium	1- OEMs & ATFs: Proprietary information cannot be provided. 2- OEMs & ATFs: Costs for providing information without direct benefits (as no legislation is foreseen under this measure)	1- Information is provided by those stakeholders that have the best overview.
ii Obligation for **the Commission** to investigate the potential for the circular economy to include additional vehicles covered by type approval legislation into the future legislation for ELVs		1- The information provided may not cover relevant questions identified while drafting the future legislation for ELV out of scope of ELVD. 2- The EC to commission a study.	1- Responsibility of a central body with cross-sectoral expertise in circular economy can create linkages
General		1- No direct benefits expected. 2- Postponing the decision of how to regulate vehicles for which end-of-life is not yet regulated specifically. 3- Stakeholder dialogue and effort for working on the legislation will be duplicated in future legislation process.	1- Better informed choices

b) Expanding the scope of ELV legislation to all type-approved L, M, N and O vehicles with applicability of a basic set of requirements shortly after and review clauses

Measure	Effectiveness	Burden	Benefits
i. **Hazardous substance** requirements (based on Art. 4 ELVD) to apply	Strong	1- for OEMs: Conduct a supply chain survey to check the presence of hazardous substances. 2- for OEMs: Apply for exemptions where needed. → Considered little burden as suppliers might be similar as for passenger cars (i.e., many applications no longer rely on prohibited substances), → and exemption can be applied for by associations where needed, reducing individual effort for OEMs. 3- for authorities: Manage exemption requests (assessments, decisions)	1- Benefits from stricter heavy metal restrictions, i.e., - less emissions from waste management, - less pollution by substandard vehicles treatment in non-EU countries
ii. **Obligation that vehicles are dismantled in ATFs** (based on Art. 5 & 6 ELVD)	Strong	1- MS competent authorities have more inspections to make → little burden as they are expected to already exist with a narrower scope 2- MS: Difficulties of enforcement, i.e., identification of illegal operators once the obligation is in place	1- New opening of ATFs (either certification of existing ATFs or new ones) incl. investment opportunities for ATFs and shredders; 2- Change in dismantling revenues (through enabling of reuse, sinks for pre-treated fractions) 3- Less illegal operations, e.g, benefits from depollution of vehicles; 4- improvement in environmental performance of waste management facilities in tons of avoided emissions 5- Social benefit: Jobs at (new) ATFs created or transferred to the formal sector

Measure	Effectiveness	Burden	Benefits
iii Reporting obligations for OEMs: all type-approved L, N, M,O vehicles will be obliged to **report on fleet** of new vehicles in scope	Medium	1- Administrative burden on SMEs for monitoring and reporting; 2- National authorities: Administrative burden on MS for reporting	1- allow conclusions on intra-EU ELV and second-hand vehicle stream for vehicles; 2- combination effects for national authority reporting if this measure is applied for multiple vehicle categories; 3- Identification of the dimension of the problem of unknown whereabouts for vehicles other than cars
iv Reporting obligations for MS: all type-approved L, N, M,O vehicles will be obliged to **report on the end-of-life treatment** of new vehicles in scope	Medium	1- ATFS: Costs, i.e., administrative burden on SMEs for monitoring and reporting; 2- National authorities: Administrative burden on MS for reporting; 3- Costs for EC to commission a study to assess the information reported	1- Establish harmonised reporting and data collection 2- Decrease dependency on voluntary investigations and data delivery 3- Establish a database for informed decisions
v When the new ELV legislation comes into force, no further rules will apply (e.g., Reuse and Recovery targets according to Art. 7 etc.), but similar provisions will be proposed later through a **review clause**	*shifted*	1- For regulator: develop, propose and discuss amendments based on review clause	1- Gain time to collect data & to investigate unknowns while at the same time having an obligatory follow-up (automatically prioritized over voluntary measures) 2- transparency for stakeholders about timeline of upcoming legislation to be expected → time for the stakeholders to initiate processes well ahead

c) Extension of scope with full application of new commitments

Measure	Effectiveness	Risk/Burden	Benefits
i. Reuse and recycling target	unknown	1- Establish and maintain a mechanism that controls the targets; 2- It could be that achieving the M1/N1 RRR targets for new vehicles in scope will lead to adverse costs, i.e., if reaching this level in practices results in more costs for the sector than they have a benefit	1- Environmental benefits from (reuse and) recycling; 2- Incentive for taking into account circularity at the design phase of vehicles; 3- less (hazardous) waste
ii. 3R Type approval / Recyclability Calculation based on ISO (in the current form)**	unknown	1- OEMs: Obligation to perform 3R type approval; 2- For national competent type approval autorities: increase in work load; 3- For regulator: 3R Directive to be amended to apply to new vehicle categories /coherence with UN ECE 133 needs to be checked	1- Methodology for calculation already exists and can be used right away; 2- Incentive for taking into account circularity / recyclability at the design phase of vehicles
New provisions introduced to ELV legislation through the current revision, e.g., to limit the number vehicles of unknown whereabouts	*No assessment*		

8. **The reporting obligation on end-of-life in measure b) aims at collecting data to be able to conclude as to additional provisions necessary for new vehicles in scope. According to the logic of the measure b), these provisions shall be implemented through a review clause. What indicators to you consider appropriate to collect data for such purpose?**
   - Establish a baseline national overview for each EU country on the infrastructure currently available to treat new vehicles in scope at ATF Networks;
   - Recycling and recovery rates from dismantling activities and after shredding;
   - Establish how much material can be treated in each country and how much must be exported for final treatment;
   - Establishing online (digitalized) processing of Certs of Destruction for all vehicle types while formulating how best to differentiate from each vehicle type when recording data i.e. reduce the burden already on ATF's;

9. **Objective 1, measure b) proposes expanding the scope of ELV legislation to all type-approved L, M, N and O vehicles with applicability of a basic set of requirements shortly after and review clauses. Which requirements do you consider should apply shortly after the legislation comes into force (i.e., the basic set) per vehicle type?**

	L-type	Lorries	Trailers	Busses
Only: Obligation that vehicles are dismantled in ATFs	X	X	X	X
Only: Hazardous substance prohibitions (same as for cars)				
Only: Reporting obligations on the fleet				
Only: Reporting obligations on the end-of-life (EoL) treatment				
A bundle of 2: Reporting on EoL + obligation to dismantle in ATFs				
A bundle of 2: Reporting on the fleet + reporting on EoL				
A bundle of 3: Reporting on the fleet + reporting on EoL +obligation to dismantle in ATFs				
All of the four suggested requirements				
All of the four suggested requirements + more (please specify)				

The data situation does not allow a differentiated calculation for different reuse - recycling - recovery rates of different vehicle types (L & M2,3 & N2,3 & O).

The calculations of the consulting companies are based on the material composition of one vehicle model:

	L-type approved [1] (93.6 kg)	Lorries [2] (5.1 tons)	Bus [3] (12 tons*)	
Steel	48.5 kg	3204.8 kg	49%	5.88 t
Aluminium	14.2 kg	152.3 kg	16%	1.87 t
Iron	0	400.0 kg	14%	1.72 t
Glass	0	159.1 kg	5%	0.55 t
Plastic	25.0 kg	728.5 kg	5%	0.62 t
Rubber	2.8 kg	280.7 kg	4%	0.46 t
Copper	1.3 kg	119.3 kg	1%	0.12 t
Other	1.5 kg	88.7 kg	6%	0.73 t

*assumption; in Bouter et al. (2020)[3], primary data is shown in weight%.

10. Please, comment and provide us with your data on the material composition of different vehicle types and also on the reuse, recycling and recovery rates.

No such trials have been conducted, but the quantity of copper in lorries seems a little excessive and would need some further investigation.

Objective 2: Improve circularity in the design, production and end-of-life treatment of vehicles

Description of the problem:

- **The potential of vehicles on the EU to contribute to the circular economy is not exploited**. Examples:
  - Glass removed from ELVs (ca. 30 kg or 3% of the vehicle weight) is often "lost" as filling materials instead of being recycled into new glass.
  - Even though around 90% of the average 150 kg of aluminium used in a vehicle are recycled, this is done after the shredder resulting in a mix that can only be used for cast alloy applications due to the level of impurities.
  - The recycling of materials, used in significant amounts in ICEs and expected to increase in use in EVs, is not always optimal. In some cases, this results in a lesser quality of recyclates like aluminium and glass, in lower recovery of materials like copper and aluminium due to losses to the steel fraction.
- **Vehicles currently placed on the market are not easier but rather more difficult to dismantle and recycle than they were in 2000**
- **The changes are observed in the manufacturing of vehicles: increased use of plastics and new materials for which recycling capacities do not yet exist, complicating the dismantling of vehicle parts, batteries and materials**

Problem drivers:

- The definition of recycling under the ELV Directive has a lower ambition level than the definition in other waste legislation
- Removal of components for re-use or recycling before the shredding of ELVs is not profitable for many components
- Insufficient information provided by vehicle manufacturers to dismantlers:
  - on presence, localisation, composition and re-use potential of parts / components in ELVs,
  - on presence, localisation of (hazardous) materials hampering high quality recycling
- Post shredder treatment is not always profitable, advanced shredders for high quality recycling are not available in all MS
- Different EPR regimes for ELV in different MS causes a lack of incentives for the car producers to optimise vehicles for end-of life treatment towards high re-use and recycling of materials and parts
- Cumulative reporting of reuse and recycling disincentivises the avoidance waste

FEAD COMMENTS:

FEAD believes that the problem analysis carried out by the consultants in relation to the recovery and valorisation of all the materials of a vehicle, is correct.

The manual dismantling of **glass** in an end-of-life vehicle is time-consuming and at the end of the process it is deposited in a container, where it breaks. The same result is obtained when separation is carried out destructively. In this case, however, collecting all the fragments can be more difficult and losses increase. It must also be taken into account that the glass used in a vehicle changes depending on whether it is for: the side windows, the front or the rear windscreen.

There are technologically more advanced systems that can achieve better results, but these technologies can only be afforded by large plants capable of processing a large number of vehicles (> 10,000 per year), and thus amortise the investment costs. Most Authorised Treatment Facilities (ATFs), however, are Small Medium Enterprises (SMEs) and work in a completely different way and with smaller equipment.

The recycling of an even higher percentage of **aluminium** can be achieved only with **post- shredding**-treatment plant. Again, these technologies can only be afforded by large plants capable of processing a large number of vehicles (> 10,000 per year). So, further development and implementation of Post-Shredding Technologies (PSTs) for material extraction and sorting should be boosted by economic incentives.

Vehicles currently placed on the market are more difficult to dismantle and recycle than they were 20 and 30 years ago, because the need to make vehicles lighter, and at the same time increase their safety performance, has changed the materials used.

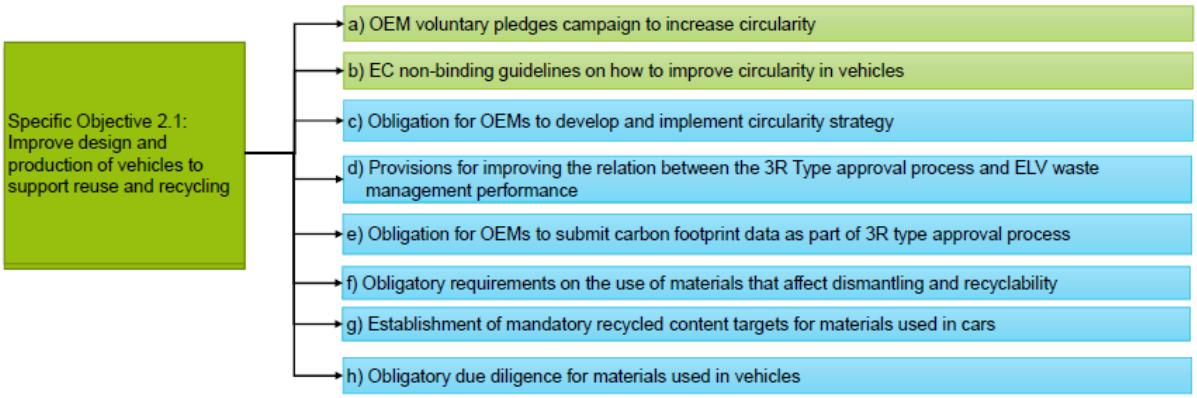
The vehicle manufactures should provide the **dismantling information** and the content of Substances of Concern for each new type of new vehicle put on the market.

Taking into account that the average lifespan of a car in use is roughly between 12 and 15 years, legacy substances will also be a main issue. An update is needed by the producers as a new substance becomes of concern.

As a general rule, less use of SVHC in products will cause less problems and reduce down-cycling when the product becomes waste.

Furthermore, we call for a coherence between the ELV Directive and other EU legislations (Waste Framework Directive, Batteries Directive, Directive on Restrictions of certain Hazardous Substances, REACH, EU rules on type-approval and on registration of vehicles…).

Specific Objective 2.1: Improve design and production of vehicles to support reuse and recycling



FEAD supports the improvement of vehicle design and production. The ELV directive has generated numerous efforts to encourage eco-design but more efforts are still needed, for example:

- reducing the number of different polymers present in a vehicle. Despite of the fact that most polymeric materials in vehicle can be recycled with simple mechanical processes if correctly separated, the presence of many different polymers is a serious challenge to recycling (there are currently 39 different types of basic plastics and polymers used to make an automobile[1])
- the presence of resins, additives and fillers such as glass fibre, carbon fibre and glass beads makes the plastics difficult, if not impossible, to recycle. These should be used only if not avoidable for the sake of safety, but otherwise substitution with recyclable materials should be explored
- favour easy dismantling of the automotive parts to increase reuse and recycling
- favour recovery of plastics and other materials from ASR

[1] (The Plastics Industry Trade Association, 2016)

- provide incentives, such as mandatory recycled content, to encourage an increased demand of recycled plastics in the automotive sector, with differentiated specifications according to the respective materials. The most ideal recipient for uptake of recycled plastics from cars should be new cars

With reference to **measure d)**, there is no systematic monitoring or studies that compare between the targets reported in type approval declarations of OEMs for specific vehicle models and between their actual performance at end-of-life.

1. **One of the objectives of the 3R Directive is to prevent safety and environmental hazards through restrictions on re-use of certain component parts (e.g., airbags, seat belt assemblies). Has this objective been achieved in your view?** (In case no, please explain)
    a. Yes
    b. No
    c. I don't know

2. **Since its adoption in 2005, do the economic and environmental benefits achieved by the 3R Directive in your view outweigh the cost of its implementation?**
    a. Yes, benefits are high
    b. Yes, costs are low
    c. Yes, benefits are high and costs are low
    d. No, benefits are too low
    e. No, costs are too high
    f. No, costs are too high, while benefits are too low.

3. **How high do you estimate the added value of having EU harmonised rules for vehicle reusability, recyclability and recoverability, compared to what could have been achieved at merely national level?**
    a. – Significantly higher.
    b. – Somewhat higher
    c. – The same.
    d. – Somewhat lower.
    e. – Significantly lower.

4. **For the purpose of obtaining an EU Whole Vehicle Type Approval, a certificate in accordance with UN Regulation 133 is accepted as alternative to Directive 2005/64/EC. How important is it to keep such equivalence with UN ECE legislation and why?**
    a. Very important
    b. Somewhat important
    c. Not important

    Comments: Equivalence should be maintained so that any changes are implemented at the same time in both legal systems.

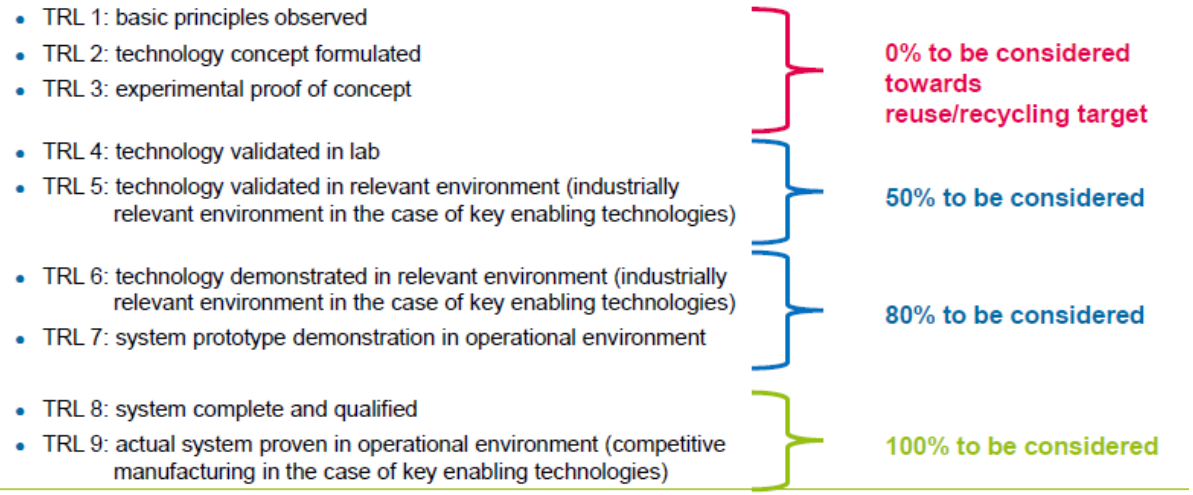
5. **In your view, does it make sense to move away from a type approval Directive on vehicle reusability, recyclability and recoverability to a type approval Regulation on vehicle reusability, recyclability and recoverability?**
    a. Yes
    b. No

c. I don't know

In the ISO, OEMs use a list of "proven recycling technologies". In line with the ISO, technologies that have been successfully tested on a laboratory scale or above are considered to be "proven". However there is no guarantee that a material with a recycling technology readiness level of 4 (laboratory scale) at the time of 3R Type approval will be recyclable by the time it reaches EoL. Therefore, when a material is considered recyclable (level 4 and above), its full amount is counted towards recycling.

Consultants' proposals:

- The recyclability rate (Rcyc) calculation is to be revised, introducing additional elements to those required under the ISO Standard 22628 EN. To be considered recyclable, a component part or material would be linked to a proven recycling technology. The amount of material to be considered toward fulfilling the recycled target would depend on the TRL of the recycling technology (see next slide). For some materials where the actual recycling rate is far from 100%, a reduced share may also be prescribed for the calculation (e.g., tyres).
- In the specification of reusability and recyclability of materials and components removed at the dismantling stage (mD), the calculation would include a break down into components and materials that can be dismantled to be reused and/or recycled (see respective list in Annex 0). For such components information will need to be provided on weight, composition, fastening technology, dismantling method and time
- Where the 3R targets are calculated as non-achievable, type approval could consider where carbon footprint data (see 2.1.e) shows that materials that hinder recycling (TRL<8) provide benefits during use that set-off such losses. For more information on the trade off between CO2 savings in use phase versus recyclability please refer to Annex 2.



- The 3R Type Approval would cover all stages of multi-stage vehicles type approval (e.g., N1, trucks, motor caravans), with responsibilities for OEM or other economic operators placing a vehicle on the market
- To support the enforcement of the 3R Type approval, and in particular the technical know-how of 3R Type approval authorities, the Commission could require dismantling and shredding tests to be carried out on a certain minimum number of vehicles (e.g. 5 vehicles per annum, randomly selected among different vehicles type approved in that year). Such an activity could be introduced as part of Conformity of Production, In-service Conformity or Market Surveillance

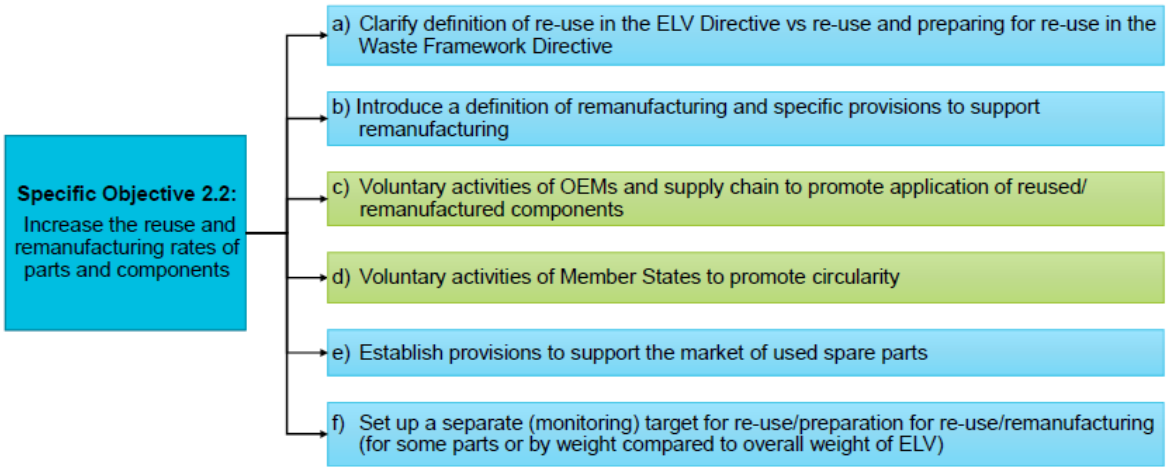
6. **Please indicate whether or not to consider inclusion of the following vehicles for RRR type-approval, as currently these are exempt (article 3):**

Special Purpose Vehicles	Yes	No	I don't know
Multi-stage-built vehicles (base vehicle/incomplete vehicles/completed vehicles/complete vehicles)	Yes	No	I don't know

Small-series vehicles	Yes	No	I don't know

7. **Is it correct to assume that including multi-stage built vehicles in the scope of the 3R Type Approval would allow ensuring that they can achieve the 3R Targets, having a positive impact on the design and circularity of such vehicles?**
   a. Yes
   b. No
   c. I don't know

Specific Objective 2.2: Increase the reuse and remanufacturing rates of parts and components



Measure a): 'Re-use' means:

- According to the WFD: any operation by which products or components that are not waste are used again for the same purpose for which they were conceived (Art. 3(13))
- According to the ELVD: any operation by which components of end-of life vehicles are used for the same purpose for which they were conceived (Art. 2(6))

It is suggested to assess the possibility to introduce a special customs code for re-used and/or remanufactured goods, so as to remove trade barriers and improve global movement of remanufactured and directly reused vehicle components

Measure b): The Commission would introduce a definition of **remanufacturing** into the future legislation. This definition would be in the line with ISO standards and definitions converged by the automotive sector, referring to the general process steps that remanufacturing can include and to a minimum warranty period to be complied with by remanufactured components.

Measure c): The vehicle production sector would be encouraged to develop a clear classification of such components into the five following groups, based on the identity of the manufacturer, process specifications and the quality specification:

- newly manufactured OEM components,
- newly manufactured supplier (not OEM) components,
- remanufactured components,
- refurbished components,
- reused components processed by an ATF

Measure d): the Commission would encourage Member States to adopt measures such as the introduction of:

- incentives or financial benefits (e.g., reduction of VAT rate on labor costs for employees or reduction of taxes) for vehicles that contain remanufactured components or for remanufacturing operations,
- criteria into green public procurement guidelines that promote the use of reused and remanufactured components

Measure e): to increase the demand for used components on the market by:

- Introducing an obligation in the future legislation of ELVs that car repair shops must provide customers with an offer to repair a vehicle with used/remanufactured components alongside offers to repair the vehicle with new components
- Introducing an obligation for insurance companies to offer car owners discounted policies if they agree that repairs are performed with reused/remanufactured parts when these are available

To address the problem of sales (esp. online sale) of used parts/components stemming from illegal dismantling operations:

- Enable traceability of the origin of reused components by introducing an obligation for retailers (including online sales) to provide the vehicle identification number (VIN) together with the components details at the point of (online) sale
- Set an obligation to provide the registration number of the dismantler together with the components details at the point of (online) sale.

Measure f): Instead of the current joint reuse and recycling target, two provisions would be considered:

- Adding an annex with a list of components that are relevant for reuse and remanufacturing (in the obligatory provision of information by OEMs)
- A yearly reporting obligation of a list of removed spare parts together with a declaration as to the shares (total number per part and respective shares of operation) of these parts which were sold for reuse or remanufacture or recycled in that year.

FEAD COMMENTS:

FEAD supports the idea of implementing measures that may favour the reuse and remanufacturing of particular components, but is against the introduction of targets.

The introduction of the proposed measures to increase the demand for used components on the market are of fundamental importance. In particular:

- Introducing an obligation in the future legislation of ELVs that car repair shops must provide customers with an offer to repair a vehicle with used/remanufactured components alongside offers to repair the vehicle with new components
- Introducing incentives or financial benefits (e.g., reduction of VAT rate) for the sale of used/remanufactured components
- Introducing measures to allow remanufactured components to be installed in new vehicles

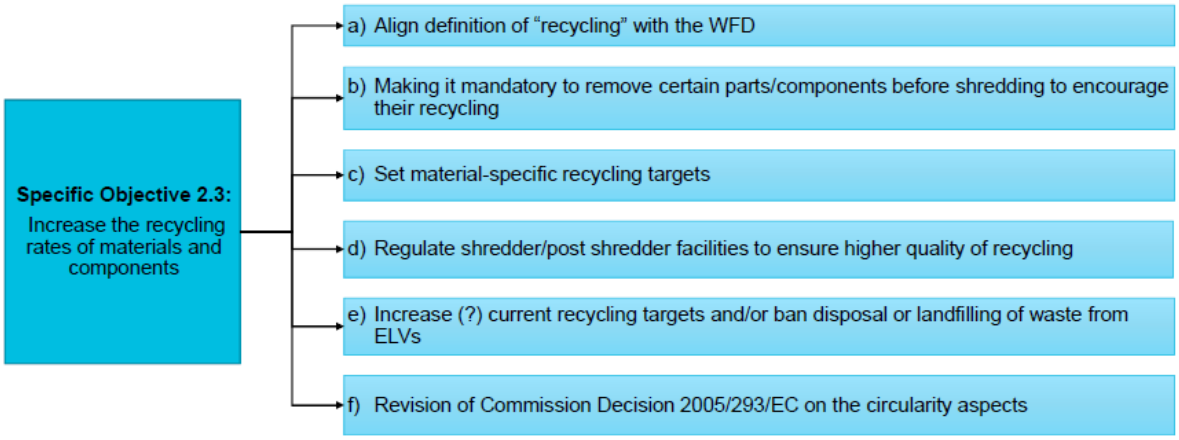
FEAD also supports the measure to prevent illegal dismantling operations and the on-line sale of used components. Any part or component put back on the market must be accompanied by a document certifying its history, with reference to the vehicle from which it was derived and the ATF from which it was dismantled.

8. **Is there a market for reuse of windows?**
    a. There is a market for reuse of front and rear windows
    b. There is a market for reuse of side windows
    c. There is a market for reuse of all windows
    d. Windows are not reused
    e. I don‘t know

9. **Is there a market for the reuse of the wiring harness?**
    a. Yes
    b. No (It takes a lot of time to dismantle them)
    c. I don't know

10. **Is there a market for reuse of the fuel tank?**
    a. Yes
    b. No
    c. I don't know

Specific Objective 2.3: Increase the recycling rates of materials and components



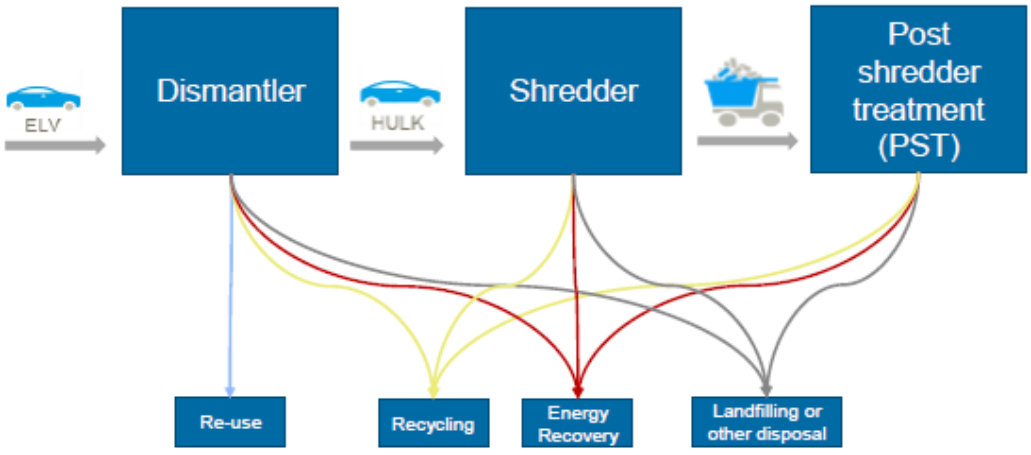


Figure 3 – Stage of the ELV waste management.

Measure a): The ELVD definition for recycling excludes energy recovery but does not exclude backfilling, as is the case under the Waste framework Directive (WFD). This results is that some MS include shredder heavy fraction (SHF) used for backfilling operations in the accounting to show compliance with the ELVD reuse and recycling target. This is not in line with the WFD definition and results in an unfair comparison on the achieved targets between MS. It also means that there is an

untapped recycling potential in the MS that report backfilling in this context.

Measure b): Preliminary list of components for removal before shredding:

- Engines (combustion and electric)
- Rear and front lights
- Bumpers (plastic, aluminium)
- Fenders
- Mono-material aluminium, requiring the separate collection and treatment of cast and wrought aluminium, e.g., bumpers, doors, engine block
- NdFeB magnets when the engine is not prepared for reuse/remanufacturing
- Electric and electronic components above a certain size (some copper and precious metals)
- Gear box
- Clutch
- High voltage management systems
- Fuel tank
- Main wiring harness (copper)

Measure c): Mandatory material-specific targets are being considered for the following materials: aluminium, copper, glass, plastics (polymers in general) and possibly rubber (critical raw materials (CRMs) are also under consideration).

Proposed steps:

- Introduction of 'calculation point' definition
- Together with the newly introduced targets, include a provision defining the quality of obtained recycled material (especially for glass)
- a calculation approach on how to allocate the input materials that enter shredder facilities to their outputs to assess the weight of materials sent to recycling operations
- adjustment of the existing reporting scheme

Measure d): As demonstrated in several studies untreated shredder light fraction (SLF) contains several percent of residual metals. A mandate could be introduced to establish:

- minimum operation requirements for shredder plants
- better control of the facilities' operation
- minimum requirements for PST plants
- national reporting obligations on national capacities of PST and input/output flows, including data on final use and indication of input materials coming from Auto Shredder Residues (ASR)
- if PST is not economically viable, operators would have the option:
    - to sell fraction to recyclers
    - to request the EPR Scheme to take care of the output materials

Measure e): 3 possible scenarios:

- increase current targets
- decrease current targets as the definition of the calculation point makes it impossible to achieve the current target
- keeping the targets unchanged

Introduction of the 'calculation point', which means that recycled targets are applied at the recyclates level, could make achieving the current re-use and recycling targets more challenging for MS once the new calculation rules are applied. Thus, there might be a need to set up several targets (with transition period), among them some would refer to the 'calculation point' and other not (status-quo).

Ban on the disposal of ELV post shredder fractions to landfills and a ban on material recycling of these fractions for:

- the entire shredder light fraction SLF, if not sent for further treatment to PST
- the output fractions of PST with a specific weight of > 1.3 (or 1.2) g/cm3.

Measure f): Commission Decision 2005/293/EC could be revised as follow:

- Introduce a common methodology for the calculation of the reuse and recycling targets across the EU
- Revision of the existing common methodology on how to perform a shredder campaign
- Provision of a definition of Post Shredder Treatment (PST) including minimum quality requirements for certain output streams and reporting
- Reporting requirements for new requirements
- Reporting on vehicle fleet and annual registrations and de-registrations

11. **Is it correct to assume that aluminium is used in 50% of bumper carrier frames?**
    a. Yes
    b. No (please, send supporting data) (at this moment we are not able to send supporting data, but we could try to collect them, after more indications and details)
    c. I don't know

12. **Is it correct to assume that 10% of aluminium from components recycled after the shredder is lost to the steel fraction?**
    a. Yes (It is necessary to specify that it is not "lost" in the steel fraction because it is valued, since you always need to add some aluminium to the steel fraction to remelt it. In this sense, it does not account as "recycled aluminium" but in the weight, it counts as recycled metal anyway)
    b. No (please, send supporting data)
    c. I don't know

13. **LCA date for recycled wrought aluminium and recycled cast aluminium is the same in relation to environmental impacts. Are you aware of data that differentiates environmental impacts for such alloys?**
    a. Yes (please, send supporting data)
    b. No
    c. I don't know

14. **Is it correct to assume that separate recycling of steel components (prior to shredder) would have a small impact on the quality of steel (less impurities)?**
    a. Yes (at this moment we are not able to send supporting data, but we could try to collect them, after more indications and details. For example, in Germany big shredder plants are modern and are able to reach high level quality of steel)
    b. No (please, send supporting data)
    c. I don't know

Various technologies can be applied as part of **shredder operations** or as PST operations to improve **the treatment of aluminium recycling**:

- Shredding technologies to improve separation of Al from other shredded fractions: Eddy, current floatation, X-ray transmission → to reduce losses of Al to steel and reduce impurities in Al fractions (zorba, twitch)
- Technologies that can be applied to differentiate cast and wrought Al: X-RAY sorting and laser sorting technology → to separate between alloys in shredded fraction

15. **Is it correct to assume that such technologies are not commonly applied?**
    a. Yes
    b. No (please, send supporting data)
    c. I don't know

16. **Is there data on the costs of applying technologies for separating between cast and wrought alloys at the PST stage (additional cost per tonne)?**

    _____

17. **Is "hand-picking" performed by shredders to sort out large parts of wrought alloy?**
    a. Yes (please, send supporting data) ((at this moment we are not able to send supporting data, but we could try to collect them, after more indications and details)
    b. No
    c. I don't know

Glass windows

18. **Is it correct to assume that there are no technical limitations to recycling the front and rear windows into container glass (or equivalent)?**
    a. Yes (please, send supporting data) (at this moment we are not able to send supporting data, but we could try to collect them, after more indications and details)
    b. No
    c. I don't know

19. **Is it correct to assume that the rate of loss when glass windows are dismantled destructively (i.e., window broken out and collected as opposed to complete removal) is around 20%?**
    a. Yes
    b. No (please, send supporting data)
    c. I don't know

20. **Is data available as to the differences in glass dismantling costs for destructive dismantling and complete removal?**
    There is no data on this, but it can be said that the costs are completely different and that the value of glass is insignificant compared to all the other materials in a vehicle.

Heat exchanger

21. **Is there data on the typical weight of heat exchangers in kg?**

22. **Is there data on the typical composition of heat exchangers?**

23. **Is it correct to assume that dismantling off all vehicle heat exchangers within 10 minutes is realistic (for example if dismantling is performed for the most part anyway due to dismantling of other components?)**
    a. Yes (please, send supporting data) (at this moment we are not able to send supporting

data, but we could try to collect them, after more indications and details)

b. No (please, send supporting data)

c. I don't know

Fuel tank

Life cycle (LCA) studies performed around 20 years ago suggest that negative environmental impacts of solvents used to remove fuel residues from fuel tank plastics set-off the positive impacts of fuel tank recycling.

24. **Is it correct to assume that the fuel tank is usually dismantled and sent to separate treatment to remove fuel residues?**

    a. Yes

    b. No

    c. I don't know

25. **Is there new data as to such technologies and their environmental impacts?**

Electric and electronic components

The OKRAM report identified profitability for dismantling the following electric components:

- Engine components: heating fan and generator,
- Controller components: the engine/gear control, inverter, drive control, start-stop-control
- Sensor components: oxygen sensor.

26. **Are you aware of other EEC for which dismantling would be profitable? (both in conventional ICE vehicles and in electric vehicles EV)**

    Wiring and control units, and batteries in EV.

27. **Is it correct to assume that larger printed circuit boards removed and sent to separate recycling (WEEE PCBs) would improve the recyclability of resources contained in these components?**

    a. Yes (please, send supporting data)

    b. No (please, send supporting data)

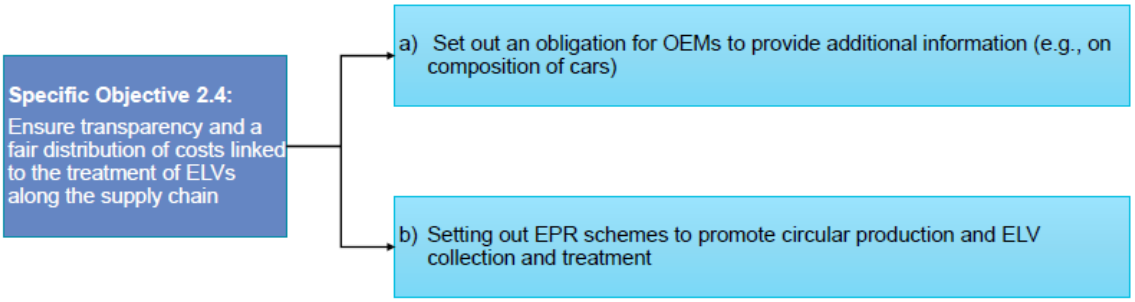
    c. I don't know

Recycling targets

Material	Recycling efficiency of shredder/PST
Steel	99%
Wrought Aluminium	85%
Cast Aluminium	85%
Copper	85%

28. **Is it correct to assume the following recycling rates for materials obtained after shredder/PST, i.e., for: steel, wrought and cast aluminium, copper (please refer to the table below and answer question separately for each material)?**
    a. Yes (please, send supporting data) (at this moment we are not able to send supporting data and it can be difficult to collect them. Clarification on copper: if it is too fine and light, with a weight similar to plastic parts, it may not be intercepted and separated and, consequently, get lost)
    b. No (please, send supporting data)
    c. I don't know

Specific Objective 2.4: Ensure transparency and a fair distribution of costs linked to the treatment of ELVs along the supply chain



Measure a): the legislation shall detail types of information that OEMs shall be obliged to make accessible to ATFs:

- The legislation would specify for which types of information it is obligatory for OEMS to provide data and would include elements as to the harmonisation of the format in which data is to be provided: OEMs could decide how to provide information
- All relevant information shall be submitted by OEMs and their suppliers to operators of a digital product passport for vehicles and made accessible to relevant actors

Information on the additional aspects:

- dismantling time and dismantling method of components to be provided free of cost and in a harmonised way
- digital keys and information on the dismantling of respective components
- in the case of a substance/material that "hinders" efficient waste management, information on the substance content and location in vehicle components is to be made accessible to ATFs "upon request", free of cost and in a harmonised way

29. **Could data that needs to be accessible to ATFs be included in the Certificate of Conformity?**
    a. Yes
    b. No
    c. I don't know

30. **Is it correct to assume that information on the brand and specific model in which a certain OEM (used) spare part can be used (backwards search) can be made available, i.e., in which brands and models it is safe to use the same component)?**
    a. Yes

b. No

c. I don't know

31. How do you think that data on the vehicle and its components should be made available to the various actors in the future?

a. Through a new centralised system (like a digital passport) gathering all necessary information related to a vehicle model and its components and making it accessible to the relevant stakeholders

b. Through the existing systems (IDIS, IMDS, RMI etc.), making changes to solve existing limitations and ensure better availability and use of data

Explain why: _____

32. What could be included in the EU legislation to allow for such improvements?

33. What would be the impacts of applying the systems for the provision of data? How do you estimate benefits for ATFs and the waste management sector?

Measure b): obligation for all MS to establish national EPR schemes with the objective to contribute financially to the collection, treatment and recycling of ELVs.

This might include ***inter alia***:

1. EPR to cover cost for setting up and running IT system for ATFs to report digitally to the PRO on the number of ELVs that they dismantle and their characteristics (like Febelauto does in Belgium) and provide IT access to information on vehicles composition via a joint / common interface, making it efficient to ATFs to access this information	EPR fees for similar aspects e.g.: • ARN (NL): 25 € for each vehicle placed on the market (one-time payment). • ELVES (Ireland): From 2023, the fees will be 20 € per unit (one-time payment). • Suomen Autokierrätys Oy (Finland): yearly payment of 3.19 € • State Environmental Fund (Czech Republic): for each **used** vehicle when first registered with Emission limits Euro 2: 3000 CZK (122 €) Emission limits Euro 1: 3000 CZK (203 €) below Euro 1: 10 000 CZK (406 €)
2. EPR scheme to manage possible refund deposit schemes with a fee collected upon registration of a vehicle and a fee awarded to the last owners when handing over an ELV to an ATF	
3. EPR to provide training for ATFs on dismantling (e.g. for (P/H)EV batteries) or the efficient use of IT systems for access on information	

FEAD COMMENTS:

One of the main issues in the removal of car components such as bumpers, dashboards or fluid containers is the economical sustainability of the action, as no indication is given on who is responsible of the unavoidable cost of dismantling.

Solutions for a better dismantling and an increase in recycling rates require to:

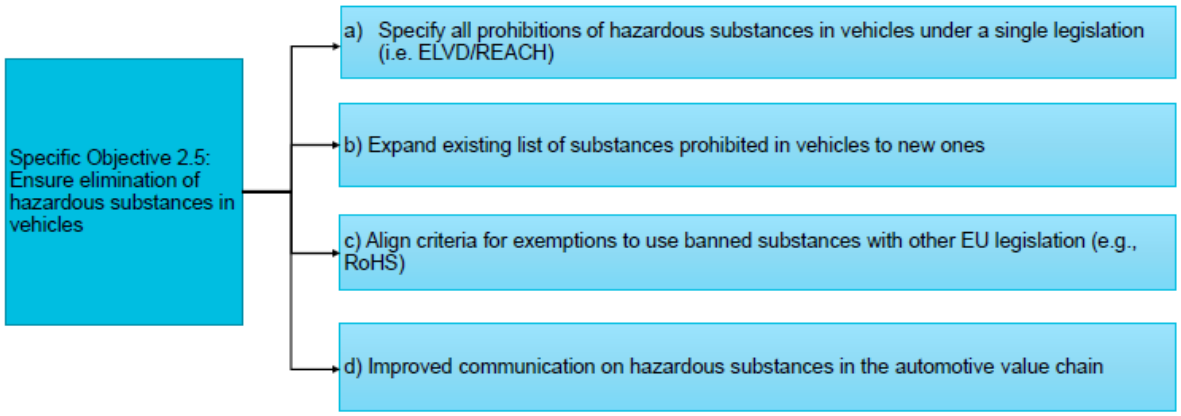
- clarify that car manufacturers bear the responsibility and the costs for the waste stage of a car's life cycle
- provide incentive on proper dismantling and depollution through EPR schemes
- boost the market of secondary raw materials, through mandatory recycled contents in the automotive sector.

FEAD would like to see the adoption of an effective EPR system for producers to be carried out through effective assistance and communication with ATFs to ensure the proper dismantling of ELVs. The possible establishment of a deposit or incentive system for the delivery of vehicles to ATFs could be considered as an EPR system, as it would not be borne by the producer but by the State or the supply chain.

Today there is no need for economic intervention by producers to support ELVs processing activities because of the high trend in raw material prices. With the advent of electromobility, vehicles will certainly

have a lower intrinsic value and, at the same time, a greater burden for their dismantling, which may require the financial support of manufacturers. For these reasons it is necessary to consider the role and involvement of manufacturers.

Specific Objective 2.5: Ensure elimination of hazardous substances in vehicles



Measure a): Provisions on hazardous substances in vehicle components are distributed over different legal pieces of legislation (ELV, REACH, POP's, …). Specifying all prohibitions of hazardous substances in vehicles under a single legislation:

- Sub-scenario 1: All prohibitions under REACH
- Sub-scenario 2: ELV

Measure b): Further substance prohibitions could be relevant as a prerequisite for the overall objective of a toxic free environment.

- No method or criteria for including prohibitions of new substances is defined in ELVD
- Need for a methodology for the assessment of the list prohibited substances, also specifying the frequency of revision of the list
- Process based on the precautionary principle (RoHS) or mainly risk based (REACH)?

Measure c): Coherence check with other waste related legislation (i.e., RoHS) which are understood to have a similar focus to ELV in terms of ensuring that the presence of hazardous substances does not result in negative impacts in the waste phase

Measure d): improved communication and documentation on the content of substances in components and materials available to treatment facilities.

- Information on the substance content should be linked to single parts / components, their location in the vehicle combined with dismantling information, and safe use and safe dismantling instructions.
- information needs to be documented and stored for a minimum period of time, e.g., 20-30 years, by the OEM
- Information to be specific for the vehicle type and model
- Information needs to be accessible to the treatment facilities upon request: linkage possible in some cases to the VIN number.

34. **Is it correct to assume that OEMs document data on the content of GADSL substances in vehicles and components though the parts list of the vehicle (i.e., linked to the VIN)?**
    a. Yes
    b. No
    c. I don't know

35. **How long do OEMs store data on the parts list of a vehicle (including data on substance content) after vehicle manufacture of a certain model has been discontinued?**
    a. 10 years
    b. – 11-15 years
    c. – 15-20 years
    d. – Above 20 years

NdFeB magnets

Permanent magnets, composed by elements such as neodymium or dysprosium, are being applied in large quantities to manufacture hybrid or fully electric powertrains.

95 % of EVs use rare earth magnets containing traction motors; quantities required worldwide will grow from 5,000 tonnes in 2019 to up to 70,000 tonnes per year by 2030. Considering the European EV automotive market, in 2020 1.4 million cars were put on the market, requiring 2,000 ton of NdFeB, with an average of 1.5 kg of NdFeB per car. In 2030, when it is estimated that 7,3 million cars will be placed on the market, 10,400 ton of NdFeB will be required.

Rare earth elements (REEs) are very reaction friendly. Even if there is a dependence on China for its extraction, there should be enough REEs to keep running a linear model. The recovery and recycling of REEs is difficult. It can react to radioactive substances. Current techniques do not really succeed, and would even less at an industrial scale. Unless the design changes dramatically, there is no possible solution to the recovery of magnets

36. **Assuming magnets would be dismantled from vehicles, what volume of magnets (e.g., in tonnes) would need to be available on an annual basis to justify their separate treatment in the EU (i.e., the operation of a magnet recycling plant)?**

37. **Considering the numbers of magnet-containing vehicles put on the market, by when would you expect it to be possible to collect the above volumes through dismantling of such components from ELVs?**
    a. 2030
    b. 2035
    c. Other: Only when new technologies will be developed

38. **There are developments in the direction of reducing the REE content of magnet, potentially making REE-free magnets an option for the future. Do you consider that the REE content of magnets in vehicles put on the market in the next 20 years will justify developing magnet recycling capacities?**
    a. Yes
    b. No
    c. I don't know

One of the measure of the Specific Objective 2.1: Improve design and production of vehicles to support reuse and recycling is **"Establishment of mandatory recycled content targets for materials used in cars".**

JRC focused on the recycled plastic content targets in new passenger cars.

State of play:

	Current ELVs	Current cars - ICE	Current cars - BEV
Average weight (kg)	1100	1300	1600
Average plastic composition	12% (132 kg)	16% (208 kg)	13%

Scope
Thermoplastics (PP, PA, PE, ABS, PET…)
Polyurethane foams (PUR)

Recycled plastic content: *[8-20%] of the plastics mass but mainly Pre-Consumer (ca. 80%)*

Post-Consumer*: from 2-3% in current cars (up to 6% used by front-runner OEMs)*

Policy objective: Higher uptake of recycled plastics in new passenger cars (Increase of recyclates demand through policy intervention in the automotive sector will trigger higher quantity and better quality of recyclates)

Strengths	**Weaknesses**
• Front-runners can integrate **up to 20%** of recycled plastics • Value chain **partnerships** already exist • **Technological maturity** of the mechanical recycling (low R&D expenses for recycling)	• On average, **only 2,5% of post-CR** integrated in cars *(4kg vs 120 kg plastics waste entering in the shredder)* • **Stringent requirements** for automotive applications (lifespan, performance, safety…) imply **time for adaptation**
Opportunities	**Threats**
• Post-consumer **plastic waste** from different sectors is **available in high volumes** *(recycling is still limited <35%)* • Higher plastic recycled content will **ensure end-market for recyclers, securing investments** to produce **better quantity and quality**	• **Limited design for recycling** practices, including integration of new composite materials with very low recyclability • **Volatility of the market**: competitive **price** of recycled plastics vs virgin is highly dependant of the oil price which may hinder investments

1. **Regarding the recycled content target for plastics, is a 25% closed loop from ELV suitable to improve the circularity of the automotive value chain?**
   a. Yes, but more than 25% is feasible
   b. Yes, 25% is suitable
   c. Yes, but 25% is too ambitious
   d. No, 0% closed loop
   e. No (please send your motivated feedback) _____

   The recycled content target could only serve to stimulate the development of suitable technologies and increase investment in the sector. The closed loop would guarantee a market for recyclates and a virtuous circle would be established that would increase the circular economy also in the vehicle sector.

2. **Should import of recyclates from third countries be included to achieve the targets?**
   a. Yes, with strong certification schemes
   b. Yes, but some market distortions to be expected (particularly if not enough EU sourced material available)
   c. No, strong certification schemes are not feasible
   d. No, too much market distortions could happen
   e. Others (please send your motivated feedback) _____

Proposal of the policy options:

Criteria	*Recommended features for the targets*
Type of recyclates	Only Post-CR should be considered in the calculation
Recyclates origin (Closed/Open-loop)	Both closed-loop and open loop recycled plastics should be considered, a minimum share of *e.g.* 25% closed-loop recycled plastics (from ELV) should however be considered
Recycling technologies	Levels of the targets should be based on potentials of currently mature recycling technologies available at full industrial scale, i.e. mechanical recycling
Import of recycled	Import of recyclates or of parts made of recycled plastics should be accounted for in the target, only if certified.
Type of polymers and feedstock	All kind of thermo-plastics and polyurethane foams should be accounted for in the target. The numerator of the target should not account for plastic coming from biobased feedstock, unless of course if they are recycled.
Scope of application	A target applying at vehicle level should facilitate the verification of the measure.
Unit of the target	The target should be expressed as a % of recycled plastics compared to the total mass of thermo-plastics and polyurethane foams.
Temporal scope	A testing / monitoring period could be implement during several years, if possible coupled with economic incentives. An entry into force of T_0 +7 years of ambitious mandatory targets is recommended.

Summary of the proposed policy options to increase the uptake of recycled plastics in new passenger cars

Ambition	**Policy option**	**Description of the policy instruments**	**Timing** (T_0: adoption of the policy instrument)
Business as usual	**Option 0:** No policy change	n/a	n/a
Encourage the use of plastic recyclates on a voluntary basis in the automotive sector	**Option 1:** "Soft regulation"	**Sectorial voluntary pledge** and initiation of standardisation activities will ensure minimum end markets for recyclers with an expected limited growth of recyclate demand.	Implementation starts as soon at the instrument is adopted
Enhance the quick uptake of plastic recyclates in the automotive sector	**Option 2:** Legally binding rules (associated if possible with economic incentives) **2.a. Mandatory declaration** of recycled plastic content - or - **2.b. Low level mandatory minimum target** (2%) for all vehicles to be put on the market	**2.a**: A **mandatory declaration** by OEMs will prepare the ground for audit and traceability schemes, letting time to adapt to a most ambitious regulatory measure **2.b**: A **2% recycled content target** will ensure a minimum demand for recyclates at short-term, letting time to adapt to a most ambitious regulatory measure. **Accompanying measure:** For both sub-options, extended producer responsibility (EPR) fee modulation to reward front-runners should be investigated.	Recommended timing: T_0 + 2 years

Ambition	Policy option	Description of the policy instruments	Timing (T_0: adoption of the policy instrument)
Generalise the uptake of significant quantities of recyclates by suppliers and OEMs for new vehicles	**Option 3:** Legally binding rules based on high recycled plastics content mandatory targets **3.a. Medium ambition targets** [first threshold at **6% of min rec. content** then **10%** five year after the first target] *- or -* **3.b. High ambition targets** [first threshold at **15% of min rec. content** then **20%** five year after the first target] *- or -* **3.c. Very high ambition targets** [first threshold at **25% of min rec. content** then **30%** five year after the first target]	**3.a:** Medium ambition targets reflect the frontrunner's current practices which are already in line with a 6% recycled content value. The second target (10% would require limited effort for OEMs) **3.b:** High ambitious target will represent significant effort for OEMs to supply recycled plastics **3.c:** Very high ambitious targets would represent substantial efforts for OEMs as well as for recyclers to supply the increased demand. No accompanying measures are expecting after potential entry into force of mandatory targets. However, these policy options can be preceded by a transition/initialization period to implement effective audit and traceability schemes.	Recommended timing: **T_0 + 7 years** for the first tier and then **T_0 + 12 years** for the second tier (in the case of an EU instrument adopted in 2023, first tier should hence be met in 2030, the second in 2035) A **review clause** in the legislation would be necessary during the transition period after the adoption of the policy instrument (e.g. in 2028).

3. **Is the timing of implementation for policy option 3.a, 3.b or 3.c appropriate?**
   a. No, not quick enough
   b. Yes, but a transition period (with Option 2.a) would help
   c. Yes, appropriate
   d. No, too quick
   e. I do not know

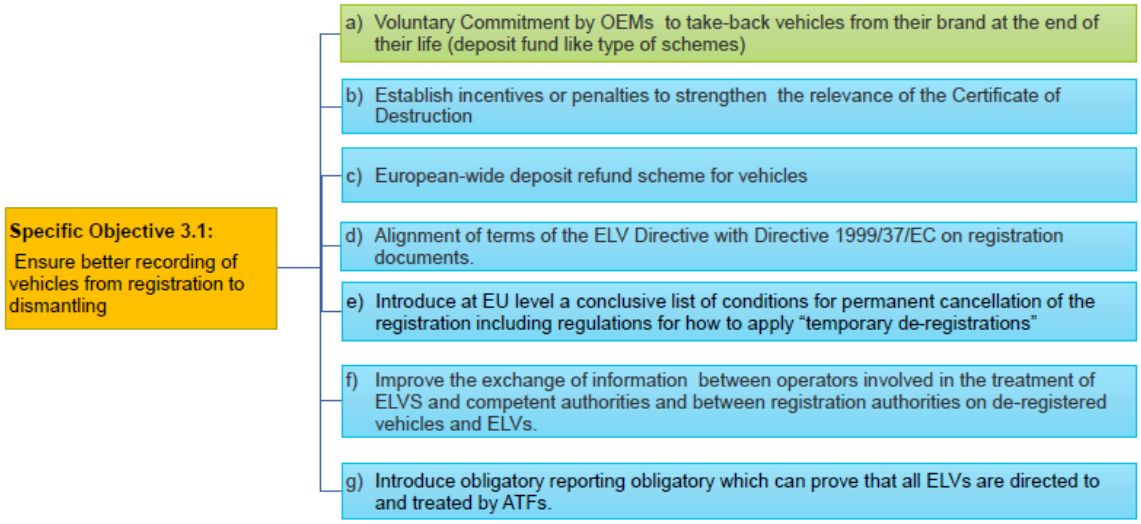
4. **Do you have a proposal for another policy option related to recycled content mandatory measures?**
   a. Yes, a more ambitious policy option seems feasible (please explain) _____
   b. Yes, another set of measures may be investigated (please explain) _____
   c. No, the scope is comprehensive
   d. I do not know

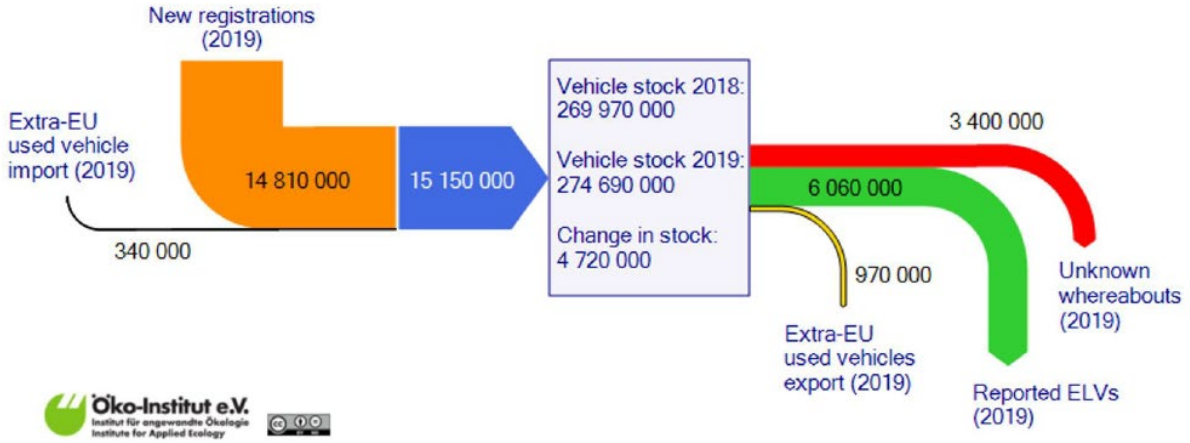
Objective 3: Ensure that all ELVs are treated in accordance with the requirements of the ELV Directive

Description of the problem:

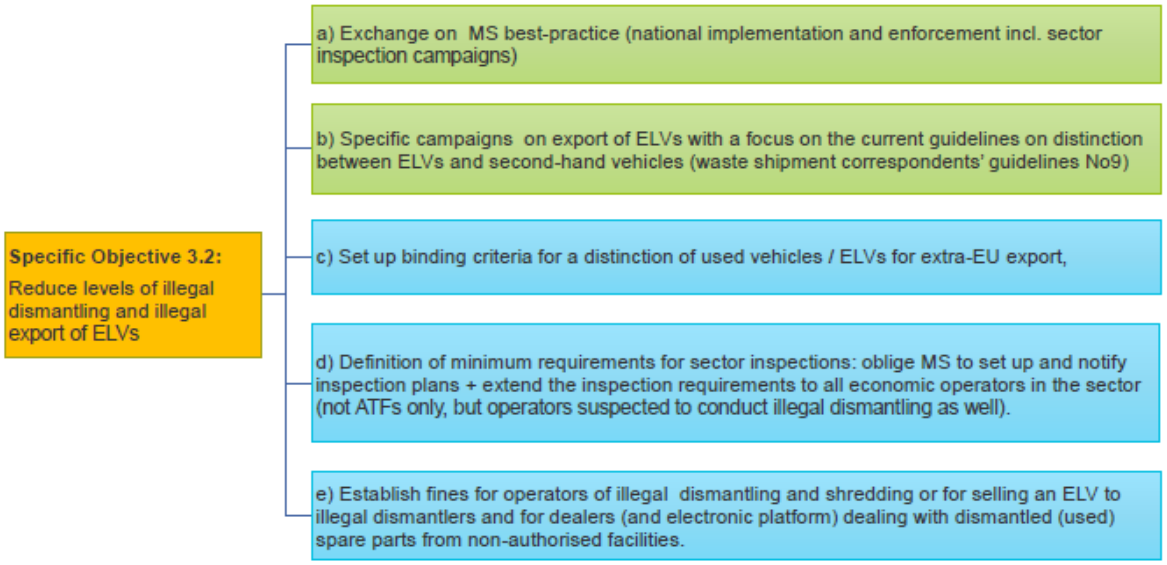
- Recording of vehicles from registration to dismantling, including export, is uncomplete
- Many ELVs bypass the ATFs and are illegally treated
- Distinction of ELVs and used vehicles by customs services is often difficult and time consuming
- Many countries of destination for used vehicles established rules for the import of used vehicles
- EU is not supporting these countries in their effort to ensure less air pollution, less hazardous waste and increase the level of road safety

Specific Objective 3.1: Ensure better recording of vehicles from registration to dismantling

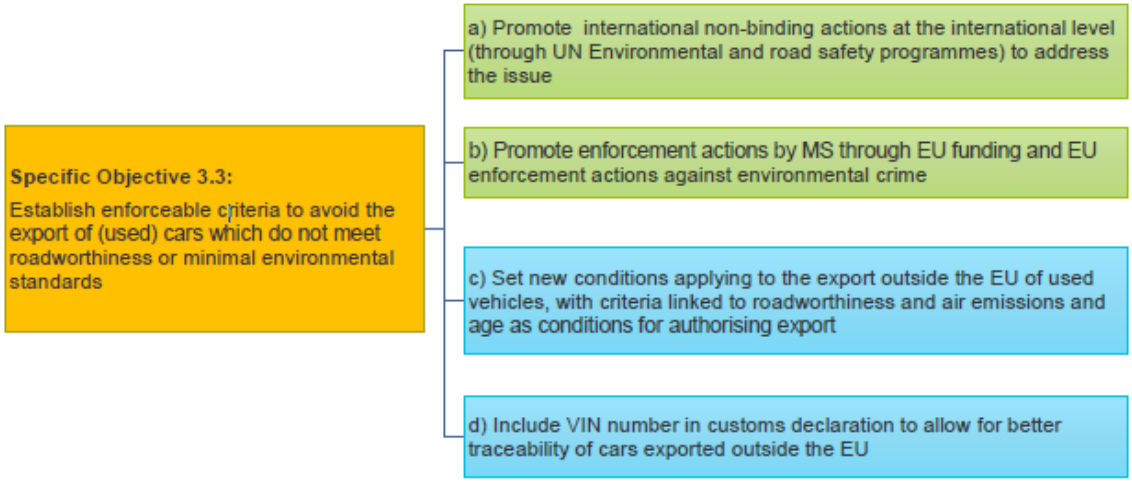




Specific objective 3.2: Reduce illegal dismantling and illegal export of ELVs



Specific objective 3.3: Enforceable criteria to avoid the export of (used) cars



1. **Are there measures which are not mentioned and should also be considered to address the problem of missing vehicles?**

Export is a significant outflow for end of life vehicles. It is also worth mentioning that automotive trade is also a quite important flow to be considered.

Significant export flows of ELVs as second-hand cars are estimated from EU countries towards non-EU countries. Higher profits to sell these used cars in comparison with their uses as spare-parts and materials in the EU can explain this phenomenon.

The collection of ELV can be improved through a harmonized European legal framework with the following measures:

- Create incentives to deliver a vehicle to authorized treatment facilities which deliver a Certificate of Destruction (avoid 'unknown whereabouts' (vehicles that are deregistered but without a Certificate of Destruction (CoD))
- Strengthen the relevance of the Certificate of Destruction (CoD)
- Implement a harmonised and easy vehicle registration and de-registration system within the

EU through the constitution of a common European vehicle register, which includes a constantly updated database of ATFs

- Define the minimum requirements and elements of such common European vehicle register
- Provide for the deregistration of a vehicle from a national register only on condition that it is registered in another register
- Remove the 'temporary deregistration' from the Directive. In case a vehicle is temporarily not usable, provide only for the suspension of obligations arising from registration (e.g. vehicle ownership tax and/or insurance)
- Set conditions to the export of used vehicles, linked to roadworthiness and air emissions
- Taxing the export of vehicles according to their age and weight: the older they are the higher the taxes, the heavier they are the higher the taxes
- Make a clear distinction between used cars and ELVs
- Enforce legislation to avoid illegal online and retailing sales of valuable spare parts from ELVs cars such as catalytic converters, engines and electric batteries
- Define specific requirements for online and retailing sellers of the above mentioned spare parts.

2. **Please provide – if available – additional data or evidence related to the environmental, economic and social impacts of the proposed measures**

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3. **Among the measures proposed, what are the most effective ones to address the problem of missing vehicles?**

Voluntary measures	Most effective	Effective in a bundle with others
3.1.a) Voluntary commitment by OEMs to take-back vehicles from their brand at the end of their life and fund a premium of e.g. 300 € per ELV.		X
3.2.a) Exchange on MS best-practice (national implementation and enforcement incl. sector inspection campaigns).	X	
3.2.b) Specific campaigns on export of ELVs with a focus waste shipment correspondents' guidelines No9 regards the distinction between ELVs and second-hand vehicles.		
3.3.a) Promote international non-binding actions at the international level (through UN Environmental and road safety programmes) to address the issue.		
3.3.b) Promote enforcement actions by MS through EU funding and EU enforcement actions against environmental crime.	X	

4. **Among the measures proposed, what are the most effective ones to address the problem of missing vehicles?**

Measures	Most effective	Effective in a bundle with others
3.1.b) Establish incentives or penalties to strengthen the relevance of the	X	

Certificate of Destruction		
Option A) Link the (end of the) payment of insurance schemes to provision of CoD, establish requirements for (reduced) payment during temporary deregistration. → Possibly to be implemented via amendment of DIRECTIVE 2009/103/EC on civil liability for the use of motor vehicles.	X	
Option B) New EU legislation sets out the principle that incentives should be delivered (by an OEM?) but leaves it up to the MS to decide on the form (premium/pay out/links with insurance payment) that this incentive would take.		
Option C) New EU legislation sets out the principle that incentives should be delivered by an OEM as part of EPR schemes that MS would need to put in place.		
3.1.c) European-wide deposit refund scheme for vehicles		
3.1.d) Alignment of terms of the ELV Directive with Directive 1999/37/EC on registration documents (+ new definition of temporary deregistration).	X	
3.1.e1) Regulations for how to apply “temporary de-registrations”		
i. Require the owner of a vehicle to report changes in ownership to the registration authority during temporary deregistration (or (indefinite) off-road notification).		
ii A monthly administrative fee (at minimum to recover the related administrative effort) is charged for the entire duration of the temporary deregistration (or (indefinite) off-road notification), with the aim to motivate the owner either to apply for a permanent cancellation or to sell the vehicle.	X	
iii Prohibition of “automatic” permanent cancellation of the registration after a certain period of temporary deregistration (or (indefinite) off-road notification).	X	
3.1.e2) Introduce at EU level a conclusive list of conditions for permanent cancellation of the registration	X	
3.1.f) Improve the exchange of information between operators involved in the treatment of ELVs and competent authorities and between registration authorities on de-registered vehicles and ELVs.	X	
3.1.g) Introduce mandatory reporting to demonstrate that all (or at least 95%) of all end-of-life vehicles are transferred to and treated by ATFs.	X	
3.2.c) Set up binding criteria for a distinction of used vehicles / ELVs for extra-EU export		X
3.2.c1) Transformation of the Waste Shipment Correspondents’ Guidelines No 9 on waste vehicles into a binding document (such as an Annex to the ELV Directive)		X
3.2.c2) Explicitly define (e.g. in the context of the definition of ELVs) that a vehicle that is considered an economic total loss (in the country of origin) or technical total loss is considered waste.		X
3.2.d) Definition of minimum requirements for sector inspections: oblige MS to set up and notify inspection plans + extend the inspection		X

requirements to all economic operators in the sector (not ATFs only, but operators suspected to conduct illegal dismantling as well).		
3.2.e) Establish fines for: • owners selling ELV to non-ATF, • operators of illegal dismantling and shredding • for selling an ELV to illegal dismantlers and for dealers (and electronic platform) dealing with dismantled (used) spare parts from non-authorised facilities.		X

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