

Annual report on end-of-life vehicle reuse/recycling/recovery rates in Germany for 2012

pursuant to Art. 7 (2) of the End-of-Life Vehicles Directive 2000/53/EC

COM tables and Quality Report (description of data used) pursuant to

Articles 1 and 3 of Commission Decision 2005/293/EC on end-of-life vehicles
and the COM guidance document "How to report on end-of-life vehicles according to
Commission Decision 2005/293/EC"

0 General information

- **Country: Germany**

- Title: *"Description of the data submitted according to Commission Decision 2005/293/EC on the monitoring of the reuse/recovery and reuse/recycling targets on ELVs"*

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1 Tables pursuant to COM Decision 2005/293/EC for Germany 2012

Note: According to the guidance document "How to report on ELVs according to Commission Decision 2005/293/EC"¹, pages 9-10 and 22-23, **all** metals are to be entered in Table 2 if the "metal content assumption" is applied. To avoid double counting, Table 1 and Table 3 must therefore contain non-metals only.

Note: The COM tables are repeated in the **Appendix** to this Report, in this instance with allocation of the respective metals to Tables 1, 2 and 3.

Materials from de-pollution and dismantling (in tonnes per year) of end-of-life vehicles arising in the Member State and treated within the Member State

COM Table 1 (dismantling) for Germany, 2012 Non-metals only!! (see above)					
Materials from de-pollution and dismantling	Reuse	Recycling	Energy recovery	Total recovery	Disposal
	(A)	(B1)	(C1)	(D1=B1+C1)	E1
	[t]	[t]	[t]	[t]	[t]
Batteries ^{a)}	65	4,082	0	4,082	2
Liquids (excluding fuel)	89	2,859	581	3,440	867
Oil filters ^{a)}	0	0	53	53	5
Other materials arising from de-pollution (excluding fuel) ^{a)}	3	0	39	39	16
Catalysts ^{a)}	9	347	0	347	1
Metal components ^{a)}	0	0	0	0	0
Tyres	1,249	6,651	5,665	12,316	50
Large plastic parts	285	1,326	0	1,326	24
Glass	474	1,084	0	1,084	3
Other materials arising from dismantling ^{a)}	4,543	0	1,000	1,000	14
Total	6,717	16,349	7,338	23,687	983

Source: From Federal Statistical Office data, Tables 1 and 15 of the Waste Management Survey 2012.

a) Non-metal portion only. For metals see COM Table 2

¹ http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/documents/ELV_Guidance_052013.pdf

Materials from shredding (in tonnes per year) of end-of-life vehicles arising in the Member State and treated within the Member State

COM Table 2 (shredders) for Germany, 2012 Including <u>all</u> metals (see above)				
Materials from shredding	Recycling	Energy recovery	Total recovery	Disposal
	(B2)	(C2)	(D2 =B2+C2)	(E2)
	[t]	[t]	[t]	[t]
Ferrous scrap (steel)	299,941	0	299,941	471
Non-ferrous materials (e.g. Al, Cu, Zn, Pb)	48,913	0	48,913	0
Shredder light fraction (SLF)	65,555	57,642	123,197	5,538
Other	0	0	0	0
Total	414,410	57,642	472,051	6,008

Source: From Federal Statistical Office data, Table 15 of the Waste Management Survey 2012.

Explanation: The 471 t of metal scrap listed in the "Disposal" column originates from the metal portions of materials or components disposed of after dismantling.

Monitoring of (parts of) end-of-life vehicles arising in the Member State and exported for further treatment (in tonnes per year)

COM Table 3 (export) for Germany, 2012 Non-metals only!! (see above)					
Components / materials exported for further treatment	Total weight of end-of-life vehicles which are exported per country	Total recycling of (parts of) end-of-life vehicles exported	Total recovery of (parts of) end-of-life vehicles exported	Total disposal of (parts of) end-of-life vehicles exported	Remarks
Total weight, broken down by countries		(F1)	(F2)	(F3)	
	[t]	[t]	[t]	[t]	
1) End-of-life vehicles (WC 160104*)	0	0	0	0	No exports in 2012 according to the statistics on "Transboundary shipments of waste requiring notification" ^{a)}
Breakdown by countries: -- not applicable --					
2) Body shells from dismantling facilities (WC 160106)	6,147	1,537	2,689	3,458	Basic figures: 23,050 t body shells exported for recovery (assumption: 80%/85% thereof recycled/recovered), 26.7 % non-metals (= 100%-73.3% metal portion)
Breakdown by countries: -- unknown --					
3) Components from dismantling facilities	570	121	568	3	Batteries ^{o)} , tyres, large plastic parts, glass etc.
Breakdown by countries, where known ^{b)}					
WC	Waste	Destination countries for waste exports (total, not just from dismantling facilities), included in the waste export statistics:			
- 130208*	Engine etc. oils	To Belgium, the Netherlands, Switzerland			
- 160103	Waste tyres	To Bulgaria, Poland			
- 160601	Lead batteries	To Belgium, France, Slovenia, Spain, Czech Republic			
- 160807*	Catalysts	To Belgium, UK, USA			
- 170402	Aluminium	To Poland			
- 170403	Lead	To Poland			
- 170405	Iron and steel	To Poland			
- 170410*	Cables with haz. substances	To the Netherlands			
4) SLF from shredders	87	34	74	14	Total SLF exported: 191003*: 277 t, 191004: 0 t. Of which 31% from ELVs.
Breakdown by countries, where known ^{b)}					
WC	Waste	Destination countries for waste exports (total, not just from ELVs) according to waste export statistics			
- 191003*	Shredder light fraction	To Belgium, Canada			
Total	6,804	1,692	3,331	3,474	

Source: Federal Statistical Office Waste Management Survey 2012 and waste exports data

Explanatory comments:

WC = waste code

a) <http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/egabfstatvexport2012.pdf>, (No. 8.11) and <http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/ustatgexport2012.pdf> (waste code 16 01 04*). The 4,433 t "end-of-life vehicles" exported to Turkey shown under 16 01 04* do not refer to road vehicles. As such, these vehicles do not fall within the scope of the End-of-Life Vehicles Directive. They may be allocated to No. 8.12 "Other scrapped motor vehicles", but not to No. 8.11 "Scrapped passenger cars".

b) Sources:

b1) Waste exports from end-of-life vehicle dismantling facilities: "Erhebung über die Abfallentsorgung im Jahr 2012" (Waste Management Survey, 2012), Table 15, Federal Statistical Office.

b2) Total waste exports for Germany: "Abfallstatistik: Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen" (Waste statistics: Transboundary shipment of waste requiring notification), Federal Environment Agency, June 2013: <http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/ustatgexport2012.pdf>

c) Non-metal portion only. For metals see COM Table 2

Total reuse, recovery and recycling (in tonnes per year) of end-of-life vehicles arising in the Member State and treated within or outside of the Member State

COM Table 4 (rates) for Germany 2012					
From ...	Reuse (A)	Total recycling (B1 + B2 + F1)	Total recovery (D1 + D2 + F2)	Total reuse and recycling (X1=A+B1+B2+F1)	Total reuse and recovery (X2=A+D1+D2+F2)
	[t]	[t]	[t]	[t]	[t]
Tab 1: Dismantling (A,B1,D1) (non-metals only)	6,717	16,349	23,687	23,066	30,404
Tab 2: Shredders (B2, D2) (incl. <u>all</u> metals)		414,410	472,051	414,410	472,051
Tab 3: Export (F1, F2) (non-metals only)		1,692	3,331	1,692	3,331
Total	6,717	432,450	499,069	439,167	505,786
				Recycling and recovery rates 2012	
W (total number of end-of-life vehicles)	476,601	vehicles		92.3%	106.3%
W1 (total vehicle weight)	475,719	tonnes		X1/W1	X2/W1

2 Quality report: Description of the data submitted according to Commission Decision 2005/293/EC on the monitoring of the reuse/recovery and reuse/recycling targets on ELVs

2.1 Chapter A) Information according to Article 1(1) – Description of data used to determine ELV recycling/recovery rates for Germany, 2012

2.1.1 Section 1: Sources of information

The data used as a basis for determining end-of-life vehicle recycling and recovery rates in accordance with the End-of-Life Vehicles Directive 2000/53/EC consists of the waste statistics collected for the whole of Germany from ELV treatment facilities (dismantling facilities and shredder facilities) by the Statistical Offices of the Länder and the Federal Statistical Office under the Environmental Statistics Act (*Umweltstatistikgesetz*)² (Section 3 (1) No. 1). Tables 1.1, 14 and 15 of the "Waste Management Survey 2012" were used.

At the end of each reporting year, the ELV treatment facilities (more than 1,200 dismantling facilities and several dozen shredding facilities) enter their operational input and output quantities for the waste management survey in the statistical survey sheets DBA (dismantling facilities)³ and SHR (shredder facilities)⁴. These are then analysed, anonymised and summarised by the Statistical Offices of the Länder and subsequently by the Federal Statistical Office (see Figure 1). From the aggregated data, the Federal Environment Agency (*Umweltbundesamt*) determines the national recycling and recovery rates for end-of-life vehicles.

² http://www.gesetze-im-internet.de/bundesrecht/ustatg_2005/gesamt.pdf

³ Example: Form AE/DBA for Bavaria for 2013:
https://www.statistik.bayern.de/medien/statistik/erhebungen/abfallwirtschaft/dba_s18_20140704.pdf

⁴ Example: Form AE/SHR for Bavaria for 2013:
https://www.statistik.bayern.de/medien/statistik/erhebungen/abfallwirtschaft/shr_s18_20140407.pdf

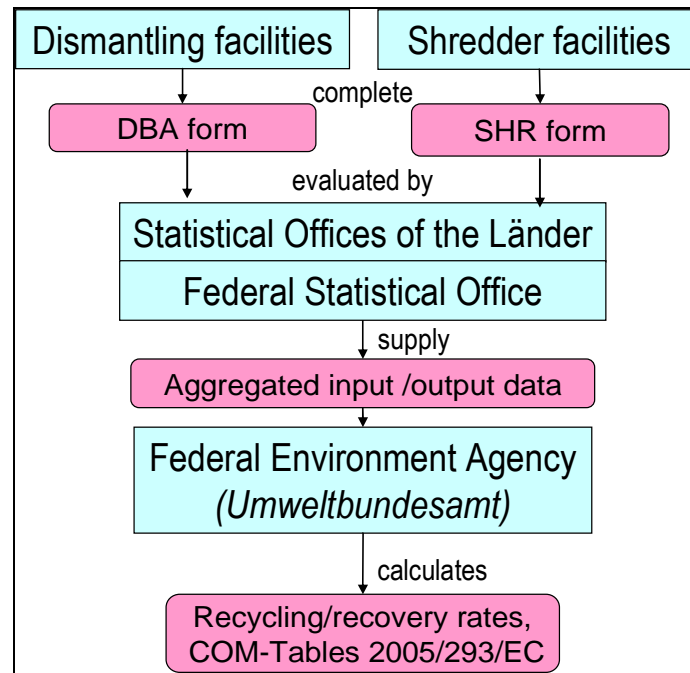


Figure 1 Data streams for determining recycling/recovery rates under the ELV Directive

The statistical questionnaires differentiate the output of the facilities on the following basis:

- For recycling/recovery in Germany,
- For recycling/recovery abroad,
- For disposal in Germany,
- For disposal abroad,
- For transfer to treatment facilities, secondary materials recovered and products.

In the case of shredder light fraction, the statistical questionnaires also request information as to whether the shredder light fraction sent for recovery is ultimately recycled as material, recovered as energy or disposed of.

In the case of dismantling facilities, only waste types originating from the end-of-life vehicles (excluding fuel) are included in the rate calculation.

The treatment of waste containing metals in shredder facilities produces both metallic and non-metallic fractions (shredder light fraction). Since shredder facilities also treat other metal waste apart from end-of-life vehicle body shells, the fractions produced were split into one portion originating from body shell treatment, and one portion originating from other input fractions. Only the portion originating from body shell treatment is incorporated into calculation of the ELV reuse/recycling/recovery rates.

- Metals: The quantity of recovered/recycled metals originating from body shells is included in the "metal content assumption".
- Non-metals: The quantity of shredder light fraction originating from body shells was determined as follows:

The shredding of body shells produces approximately 75 % metallic fraction and approximately 25 % shredder light fraction. Consequently, a shredder light fraction portion (waste code numbers 191003* and 191004) totalling 25 % of the weight of the

body shells (from within Germany) treated in the shredder was allocated to ELV treatment and therefore entered in COM Table 2.

After-effects of the Environmental Premium

In Germany, the year 2009 was heavily influenced by the effects of the Environmental Premium (see previous years' Reports). This led to a quadrupling in the incidence of end-of-life vehicles as a one-off effect. Some of the ELVs were initially placed in interim storage by the dismantling facilities and their treatment postponed until subsequent years. Around 330,000 ELVs from 2009 were recovered and recycled in 2010 and 2011 - see previous year's Report. A further 55,000 or so of these ELVs were recovered or recycled in 2012, see Figure 2.

2.1.2 Section 2: Quality of information sources

Coverage: The data was collected from the whole of Germany from all 1,235 dismantling facilities for end-of-life vehicles and 62 shredder facilities with body shell treatment. The level of completeness is correspondingly high.

Data quality:

Since 2012 is now the ninth reporting year based on the same methodology, it may be assumed that the data collection process is now working well. The quality of the data is considered to be good.

The survey yields plausible figures for average vehicle weight, and the figure of 998 kg is roughly on a par with the previous year's figure of 1,005 kg.

In relation to the empty vehicle weight of ELVs in 2012, almost the same percentage of materials (20.4 %) was dismantled by the dismantling facilities as in 2011 (20.8 %), when 116,000 ELVs (corresponding to 25 % of the ELVs in 2011) were dismantled and treated after having been postponed from the Environmental Premium era. By contrast, in 2012 the figure was only 55,000 ELVs (corresponding to 12 % of the ELVs in 2012).

There are no new findings regarding the quality of on-site data collection by the facilities. We would therefore refer you to the statements in the Report for 2009⁵.

The breakdown of the dismantled components and materials into recycling and energy recovery is based on material types and a knowledge of the customary recovery paths in Germany. For example, 85 % of the waste oil incurred in Germany in 2012 was recycled, and 15 % recovered as energy⁶. Based on the findings of a December 2013 report by the Federal Environment Agency on the recovery and recycling of waste tyres, the breakdown of waste tyre recovery has been updated to 54 % material recycling and 46 % energy recovery.

⁵ See Quality Report on end-of-life vehicle reuse/recycling/recovery rates in Germany for 2009 English version:

http://www.bmub.bund.de/fileadmin/Daten_BMU/Download_PDF/Abfallwirtschaft/jahresbericht_altfahrzeuge_2009_en_bf.pdf

⁶ BMUB website, "Waste oil" (Altöl) section, last updated June 2014: <http://www.bmub.bund.de/themen/wasser-abfall-boden/abfallwirtschaft/statistiken/altoel/>

Various waste types consist of both metals and non-metals. The metal components were deducted due to application of the "metal content assumption". Average figures were therefore calculated or estimated for the metal content of the relevant waste types.

Imports: In the statistical questionnaires, the end-of-life vehicle treatment facilities state whether the vehicles accepted come from outside of Germany or within Germany. Of the 478,369 tonnes of end-of-life vehicles accepted, they indicated that 2,650 t (0.55 %) came from outside Germany. The 475,719 tonnes of end-of-life vehicles accepted for treatment from within Germany were entered as W1 (total vehicle weight). In view of the extremely low import share of less than one percent, it was decided to dispense with a "correction factor" for the output, since this would make a difference of only 0.04 % to the rate calculated.

Metal content assumption: The metal content of the vehicles and the breakdown into ferrous and non-ferrous metals are calculated based on extensive data from German and foreign vehicle manufacturers; see Section 2.2. The quality of this estimate can therefore be rated as very good. For the reporting year 2012, the "metal content assumption" was updated for the first time in six years using data from vehicle manufacturers. The assumed portion of metal content recovered from vehicles remains on the safe side, at 97 %.

Shredder light fraction: While end-of-life vehicles accounted for 20 % of the input of large shredder facilities in 2009 due to the Environmental Premium, this figure is now falling again as the backlog placed in interim storage is gradually being cleared (2010: 13.9 %, 2012: 12.7 %). The most important additional input materials of the 62 ELV shredders in 2012 were iron and steel (61 %), ferrous metals (11 %) and others (15 %). The fact that the shredder facilities handled other input materials in addition to the body shells was taken into account when allocating the shredder light fraction, in that only part of the shredder light fraction amounting to 25 % of the weight of the treated body shells was allocated to ELV recovery/recycling - see section 2.1.1. Consequently, of the 515,000 t (approximate figure) of body shells (accepted from Germany and) shredded in 2012, some 128,800 t of shredder light fraction was produced, equating to 31 % of the 409,000 t (approximate) of shredder light fraction incurred in total; see also pages 28/29.

2.1.3 Section 3: Determination of the weight

In the statistical survey, the dismantling facilities state the total vehicle empty weights in accordance with Section 2 (1), no. 23 of the German ELV Ordinance (*AltfahrzeugV*). For a definition of the vehicle empty weight in accordance with Section 2 (1), No. 23 of the *AltfahrzeugV*, refer to the Report for 2009.

2.1.4 Section 4: Recycling or recovery of exported ELVs respectively parts of ELVs

Recycling or recovery of exported end-of-life vehicles: No end-of-life vehicles were exported in 2012, refer to comments on COM Table 3 in Section 1.

In terms of quantity, exports of body shells and ELV parts from Germany play only a minor role: Exports of non-metals account for only 0.7 % of the overall recovery rate.

Recycling or recovery of exported body shells: The quantities of body shells exported abroad for recovery can be taken from the statistics. No information is available concerning body shell components that are ultimately recycled abroad. As in Germany, a metal content assumption of 73.3% is used for calculation purposes, together with an overall minimum recovery rate of 80 % / 85 %, in accordance with the targets of the ELV Directive.

Recycling or recovery of exported components/materials from dismantling facilities: For each type of dismantling facility output, the statistics show whether recovery/recycling or disposal took place in Germany or abroad. The breakdown into recycling and energy recovery is made in the same way as for recovery within Germany (see Section 2.1.5 c)).

Recycling or recovery of exported shredder light fraction: The statistics show the quantity of shredder light fraction recycled/recovered outside Germany. They also differentiate the "recovered" shredder light fraction on the basis of "ultimate fate" into recycled, recovered as energy, and disposed of. When calculating the rates, this breakdown is applied to disposal both within Germany and abroad.

2.1.5 Section 5: Other comments

a) Explanations on export of shredder output in COM Table 2

As a result of the metal content assumption, COM Table 2 – as detailed in the guidance document – contains all metals recovered, i.e. including those recovered abroad. In the case of the shredder light fraction, COM Table 2 contains only the shredder light fraction disposed of within Germany. The shredder light fraction disposed of abroad is included in COM Table 3.

b) Description of actions undertaken by the country to avoid double counting of ELVs and components

In accordance with Section 4 of the German ELV Ordinance (*AltfahrzeugV*), end-of-life vehicles pass through a two or three-stage disposal process in the following order:

(→ optional: acceptance or collection facility,)

→ dismantling facility for pre-treatment,

→ shredder facility.

By following this predetermined treatment sequence, we can assume that the nationwide statistical surveys do not include any double counting of the end-of-life vehicles and components reported.

For the entries in COM Tables 1 to 4, care has been taken to ensure that no double counting takes place: All metals (in line with the metal content assumption) are entered in lines 1 and 2 of COM Table 2, and COM Tables 1 and 3 contain only non-metals; this is also true of the reuse column (A). As far as non-metals are concerned, COM Tables 1 and 2 contain only output for Germany. All outputs of non-metals destined for other countries are covered by COM Table 3.

As an alternative, the data from COM Tables 1 and 3 has also been presented in such a way that it includes the metal portions. The resultant representation of COM Tables 1 to 4 may be found in the Appendix to this Report. This alternative grouping leads to the same final outcome.

c) Description of estimations/calculations conducted (e.g. factors based on ELV treatment and recovery trial, data provided by manufacturers)

There are various points at which calculations were performed or assumptions made.

As mentioned above, the statistics do not provide any breakdown of the metallic fraction of the dismantled components and materials or the recovery path (recycling or energy recovery). It was therefore necessary to make certain assumptions. For many materials, the breakdown follows from the type of material (e.g. glass and metal not recoverable as energy). For the remaining waste types, the breakdown is made on the basis of customary recovery paths in Germany - see Section 2.1.2 and further examples in the Report for 2009.

Regarding the realistic assumption that the shredder light fraction originating from end-of-life vehicles amounts to 25 % of the body shell input, see the remarks in Section 2.1.2.

For the "metal content assumption", see Section 2.2. In line with the guidance document, only non-metals are entered in COM Table 1 and COM Table 3. Accordingly, all metals are shown in COM Table 2 in accordance with the "metal content assumption".

d) Description of missing mandatory information; what measures are taken to provide all mandatory information in future?

One item is incomplete from the mandatory information in COM Tables 1 to 4: Information is incomplete regarding the destination countries in COM Table 3 (Exports).

Since no end-of-life vehicles (waste code number 160104*) have been exported since these records began, the question of the destination countries is not relevant here. In the body shells category, the percentage of body shells exported is once again very low, at 4.8 % of the total vehicle weight W1. The same is true of exported components and materials from dismantling (4,300 t, i.e. 0.9 % in relation to W1) and the shredder light fraction (87 t, 0.02 %).

For some of the exported dismantled fractions and for the shredder light fraction, we were able to specify destination countries; see COM Table 3. Although the statistics used⁷ do not provide any ELV-specific export data, they do indicate the total quantities exported from Germany for selected waste fractions (generally considerably more than the quantities exported by the ELV treatment facilities) and the destination countries.

e) Description of validation process: how do you establish the validity of the data?

⁷ See COM Table 3 in Chapter 1 or directly at:
<http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/ustatgexport2012.pdf>

The statistical questionnaires are checked for plausibility by the Statistical Offices of the Länder and the Federal Statistical Office using established statistical test routines (e.g. input/output comparison, anticipated waste types, comparison with the previous year). The Federal Environment Agency checks the information from a technical perspective, e.g. on the basis of the quantities to be expected as a result of vehicle composition. See Section 2.1.2 above, remarks on plausibility.

f) Description of changes in methodology relative to the previous data delivered

The methods used for calculating recycling and recovery rates remain unchanged against the previous year. The breakdown of waste tyre recovery into material recycling and energy recovery has been updated; see section 2.1.2. The "metal content assumption" has been updated, see Section 2.2.

g) Description of the discrepancy between the number of ELVs with and without CoD and measures to be taken in order to improve the situation

Under Section 4 of the German ELV Ordinance (*AltfahrzeugV*), end-of-life vehicles must be transferred to a dismantling facility (or alternatively an acceptance or collection facility, which passes the ELV on to the dismantling facility). Dismantling facilities issue Certificates of Destruction (CoD) for the end-of-life vehicles accepted, and are required to treat the end-of-life vehicles in accordance with the provisions of the Ordinance. Thus legally speaking, CoDs must be issued for all end-of-life vehicles.

There are no indications that end-of-life vehicles are being disposed of in dismantling facilities without a Certificate of Destruction being issued.

2.1.6 Input-output balance

The recommended mass balance $X2+E1+E2+F3 = W1$ revealed the following for 2012:

X2 =	505,786 t	(Total reuse and recovery)
E1 =	983 t	(Disposal from dismantling, excluding metals)
E2 =	6,008 t	(Disposal of shredder light fraction and disposal of metals)
F3 =	3,474 t	(Disposal by export, excluding metals)
<hr/>		
Total	516,251 t	(Total output)

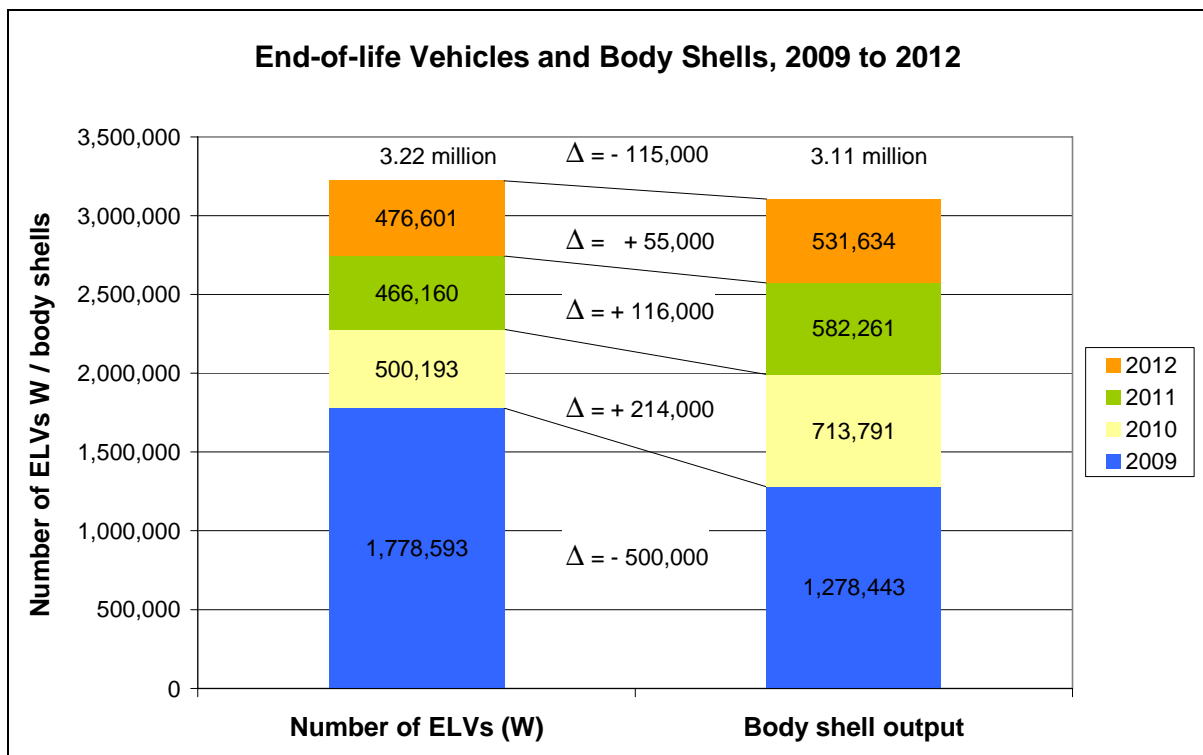
Comparison with number of end-of-life vehicles $W1 = 475,719$ t: Difference = 40,532 t = 8.5 %.

In other words, the sum total of output flows is more than 8 % greater than the ELV input $W1$. This is plausible as an after-effect of the Environmental Premium in 2009.

Because the volume of ELVs quadrupled in 2009, some of them were placed in interim storage at the dismantling facilities. For this reason, the output side of the balance sheet for

2009 was 9 % lower than the ELV input W1. Between 2010 and 2012, almost the entire backlog has since been cleared: In addition to the 480,000 or so ELVs incurred for 2012, about 55,000 ELVs from 2009 were also treated and recovered, see Figure 2. The quantity treated was therefore around 12 % higher than the ELV input in 2012. This explains why the output side of the balance sheet is higher than the input side in 2012.

In mathematical terms, as in 2010 and 2011, the postponed treatment and recovery of stockpiled ELVs as an after-effect of the Environmental Premium leads to an overall recovery rate of more than 100 % for 2012 (see COM Table 4), because the ELVs arising in the year of reporting are used as the reference value.



Source: Federal Statistical Office, Table 1 of the Waste Management Survey, 2009 to 2012

Figure 2 Balance sheet of ELVs (accepted from within Germany, W) and body shells from dismantling facilities, 2009 to 2012

Figure 2 tracks the levels of ELVs in interim storage in the form of a balance sheet comparing the ELV input and body shell output of the dismantling facilities from 2009 to 2012. According to the statistics, around 385,000 of the ELV backlog has since been cleared.

2.2 Chapter B) Information according to Article 1(2) - Metal content assumption

According to COM Decision 2005/293/EC, the "metal content assumption" is based on data relating to

- a) the percentage of metal content of the vehicles and
- b) the percentage of reuse, recovery and recycling of this metal content.

a) Metal content of the vehicles

a) What investigations / data have been used (sources / quality / coverage) to derive the metal content?

From the reporting year 2006 onwards, the metal content of ELVs was calculated based on the metal content of newly registered vehicles in 1995. In the reporting year 2012, the metal content was updated using figures from the base year 2000.

Assuming an average ELV age of around 14 to 15 years (see Table 4), these figures can easily be applied to the ELV arising in 2014 and 2015. As the average metal content of new vehicles changes only very slowly over time, we are planning to use the calculated data over a 5 year period, from the reporting year 2012 to the reporting year 2016.

The data for recalculating the metal content is based on the new M1 and N1 vehicles registered in Germany in the year 2000 and their metal contents by manufacturer (anonymised), weighted with the respective registration volume (see Table 1). The year 2000 is the average year of first-time registration for ELVs arising in the years 2014/2015.

Table 1 Average metal contents of vehicles, new registrations M1 and N1 in Germany in 2000, anonymised, arranged in ascending order.

Vehicle manufacturer	Metal content	Vehicle manufacturer	Metal content
Manufacturer 1	77.0%	Manufacturer 6	75.0%
Manufacturer 2	76.8%	Manufacturer 7	74.9%
Manufacturer 3	76.1%	Manufacturer 8	74.8%
Manufacturer 4	76.1%	Manufacturer 9	74.2%
Manufacturer 5	75.2%	Manufacturer 10	74.1%
		Weighted average	75.6 %

The quality of data is considered as very well, since it was supplied by manufacturers from metal contents for models in the year 2000, and obtained for example from dismantling studies. The vehicle manufacturers only agreed to forward this data to EU Commission provided it remained anonymous.

According to the vehicle manufacturers, the data supplied by all seven German vehicle manufacturers and three international manufacturers covers 71 % of the total vehicle registration volume in the year 2000 (2,538,682 out of a total of 3,576,206 new registrations).

For the next reporting year, we are aiming to increase the coverage rate by incorporating additional manufacturers. Given the minimal differences between manufacturers, at best this is expected to have a marginal influence on the average metal content.

Following on from the previous assumed metal content of 75.9 %, the update produces an **average metal content of 75.6 %**. Overall, the change in metal content over five years has been extremely minimal.

a1) Breakdown into ferrous and non-ferrous metals

In accordance with the EU Commission's guidance document on the Quality Report (as of 6 May 2013, pages 6 and 10), the recycling/recovery of metals in COM Table 2 should also be broken down into ferrous and non-ferrous metals when applying the "metal content assumption".

In order to determine these figures, the ten vehicle manufacturers broke down their figures on the average metal content of their new registrations in the year 2000; see anonymised manufacturer data in Table 2.

Table 2 Breakdown of metal content into ferrous and non-ferrous metals for various vehicle manufacturers and their new vehicles in the year 2000 in Germany, anonymised, arranged in descending order according to ferrous metal content.

Vehicle manufacturer	Ferrous metal content	Non-ferrous metal content
Manufacturer A	69.4%	7.4%
Manufacturer B	67.9%	9.1%
Manufacturer C	67.7%	7.2%
Manufacturer D	66.0%	9.2%
Manufacturer E	65.5%	8.7%
Manufacturer F	65.2%	8.9%
Manufacturer G	65.1%	11.0%
Manufacturer H	65.0%	10.6%
Manufacturer I	59.3%	16.8%
Manufacturer J	58.6%	16.4%
Weighted average	65.0 %	10.6 %

The quality of data is likewise considered as very well, since it was supplied from manufacturers based on the metal contents of models in the year 2000, obtained for example from dismantling studies.

According to the manufacturers, the figures supplied by the ten vehicle manufacturers cover 71.0 % of the total vehicle registration volume in the year 2000 (2,538,682 out of 3,576,206 new registrations).

Weighting produces a **breakdown of metal content** in vehicles (total 75.6 %) **of 65.0 % ferrous metals and 10.6 % non-ferrous metals (average)**.

Unlike the overall value, which has changed only minimally from 75.9 % to 75.6 %, this indicates a relevant shift within metal content away from ferrous metals (1995: 68.3 %, 2000: 65.0 %) in favour of a growing proportion of non-ferrous metals (1995: 7.6 %, 2000: 10.6 %).

b) Recovery and recycling of the metal content

b) What investigations / data / calculations have been used to derive the assumed percentage of reused, recycled and recovered metals?

As before, reuse/recycling/recovery of the metal content was estimated at 97 %, as outlined in the explanatory memorandum to the German ELV Ordinance (*AltfahrzeugV*) of 2002.

b1) "Metal content assumption"

Using the formula

"metal content assumption" = metal content of ELVs * recycling/recovery of metal content
--

produces the following figure for metal content recycled/recovered in Germany:

"Metal content assumption" in Germany = 75.6 % * 97 % = 73.3 %

Allowing for 97 % recycling/recovery of the metal content, the breakdown yields 65.0 % [*corrigendum: 63.0 %, the translator*] ferrous metals and 10.6 % [*corrigendum: 10.3 %, the translator*] non-ferrous metals recycled/recovered, in relation to the vehicle empty weight, see Table 3.

Table 3 "Metal content assumption", broken down into ferrous and non-ferrous metals

Metal content	Total metals	Ferrous metals	Non-ferrous metals	Remarks
Average metal content of vehicles	75.6 %	65.0 %	10.6 %	Statement on metal content valid for 71 % of the German vehicle market, 2000
Allowing for a yield of 97 %				
"Metal content assumption"	73.3 %	63.0 %	10.3 %	Metal content recycled/recovered

c) Coverage rate

c) How does the Member State ensure that they meet the required coverage of 95%?

As previously mentioned, the figures on metal content assumption cover 71 % of new registrations in the year 2000. For the next reporting period 2013, we will endeavour to supplement the data with figures from additional manufacturers.

d) How have these data been broken down for COM Tables 1 to 3?

In line with the guidance document on the Quality Report (page 10 and pages 20-21), all recycled/recovered metals resulting from the "metal content assumption" calculation are entered in COM Table 2. COM Tables 1 and 3 contain information about non-metals only.

Notes on the Appendix to this Quality Report: As an alternative, the data from COM Tables 1 and 3 has also been presented in such a way that it includes the metal portions. The resultant representation of COM Tables 1 to 4 may be found in the Appendix to this Report. In this instance, COM Table 2 only contains metals from the shredder output, calculated as the difference between the "metal content assumption", less the metal contents reused and recovered from dismantling and exports, see COM Tables 1 (dismantling) and 3 (exports).

2.3 Chapter C) Information according to Article 1(3) – Vehicle market, exports

2.3.1 Section 1: Information on the national vehicle market

Compared with 2011, the number of new passenger car registrations in 2012 fell by 3 %. The number of ELVs increased slightly by 2 % against 2011, and once again remained below the half million level. The number of exported used cars likewise increased by around 2 % to 1.35 million passenger cars.

Table 4 Information on the national vehicle market

National vehicle market Germany	Unit	Reference year 2012
<i>Motor vehicles newly registered in 2012, total⁸</i>	<i>Number</i>	3,581,547
<i>thereof passenger cars</i>		3,082,504
<i>Vehicles registered^{9, 10} in Germany, total</i>	<i>Number</i>	51,735,177
<i>thereof passenger cars</i>		42,927,647
<i>Average age of fleet (motor vehicles^{11, 10}, total)</i>	<i>Years</i>	9.8
<i>thereof passenger cars</i>		8.5
<i>Passenger cars, taken out of service¹² in 2012, (deregistrations and temporary layups)</i>	<i>Number</i>	8,020,227
<i>Final de-registrations in 2012, passenger cars</i>		approx. 3,200,000 ¹³

⁸ Federal Motor Transport Authority: *Neuzulassungen von Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 1950 bis 2013 nach Fahrzeugklassen* (New registrations of motor vehicles and trailers, 1950 to 2013, by vehicle class)

http://www.kba.de/DE/Statistik/Fahrzeuge/Neuzulassungen/FahrzeugklassenAufbauarten/n_fzkl_zeitreihe.html?nn=652406

⁹ Federal Motor Transport Authority: *Fahrzeugklassen und Aufbauarten – Bestand in den Jahren 1955 bis 2014 nach Fahrzeugklassen* (Vehicle classes and configurations – Fleet size, 1955 to 2014, by vehicle class)

http://www.kba.de/DE/Statistik/Fahrzeuge/Bestand/FahrzeugklassenAufbauarten/b_fzkl_zeitreihe.html?nn=652402

¹⁰ Reference date 1.1.2012, only registered vehicles excluding temporary layups/off-road notifications.

¹¹ Federal Motor Transport Authority: *Bestand an Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 2005 bis 2014 nach ausgewählten Fahrzeugklassen mit dem Durchschnittsalter der Fahrzeuge in Jahren* (Motor vehicle and trailer fleet, 2005 to 2014, by selected vehicle classes, showing the average vehicle age in years).

http://www.kba.de/DE/Statistik/Fahrzeuge/Bestand/Fahrzeugalter/b_alter_kfz_z.html?nn=645784

¹² Federal Motor Transport Authority: *Außerbetriebsetzungen von Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 2007 bis 2013 nach Fahrzeugklassen* (Motor vehicles and trailers taken out of service, 2007 to 2013, by vehicle class).

http://www.kba.de/DE/Statistik/Fahrzeuge/Ausserbetriebsetzungen/FahrzeugklassenAufbauarten/a_fzkl_zeitreihe.html?nn=664274

¹³ Final deregistrations have not been recorded in the statistics since 2007, as there are now only "off-road notifications". These include both temporary and final deregistrations. Based on incidents that could still be differentiated prior to 2007, a deregistration rate of approximately 40 % of all cars finally taken out of service has been ascertained under the framework conditions existing at that time (data source: Federal Motor Transport Authority, see Report for 2009, footnote 13). In the absence of more recent parameters, the same rate was applied to the present Report to estimate the number of finally deregistered passenger cars in the year of reporting.

<i>CoDs issued in Germany</i>	<i>Number</i>	476,601
<i>ELVs arising in the Member State</i>	<i>Number</i>	476,601
<i>Average age of ELVs</i>	<i>Years</i>	approx. 14 to 15

The waste statistics do not provide any information about the average age of end-of-life vehicles. The average age of ELVs in 2009 for which an Environmental Premium was granted was 14.1 years; see Report for 2009. In 2011, the average age of ELVs shown in the Central Vehicle Register (ZFZR) of the Federal Motor Transport Authority (KBA) was 14.3 years for passenger cars, 13.9 years for HGVs, and 14.3 years for motor vehicles overall ¹⁴. According to these statistics, the average age of ELVs in Germany has increased by 1.0 years since 2008.

As described in Section 2.1.5 g), dismantling facilities are required to issue a Certificate of Destruction (CoD) for every end-of-life vehicle in accordance with the German ELV Ordinance (*AltfahrzeugV*).

2.3.2 Section 2: National market information on export of used vehicles, ELVs and de-polluted body shells

Exports to EU States:

The number of used cars exported from Germany to other EU Member States was determined from the number of vehicles formerly registered in Germany that have been re-registered in other Member States. These re-registrations are recorded by the Federal Motor Transport Authority (KBA). The data originates from an information exchange between Member States regarding the re-registration of motor vehicles previously registered in another EU Member State, on the basis of Directive 1999/37/EC on the registration documents for vehicles. On this basis, 949,232 used cars were exported to other EU Member States. For 2012, figures were available for all 26 other EU Member States. Overall, this figure should be seen as a minimum.

Additionally, foreign trade statistics were also consulted where higher export figures were indicated; overall, there is statistical evidence of 959,251 exports of used vehicles into EU Member States.

This quantity remained virtually unchanged against 2011, with 970,857 documented exports of used cars into EU Member States, see Table 5.

¹⁴ Federal Motor Transport Authority: Average age of ELVs listed in the ZFZR. Personal communication dated 9 July 2012.

Table 5 Exports of used cars from Germany, 2012.

Calculated from two sources: Notifications to the Federal Motor Transport Authority (KBA) concerning vehicles formerly registered in Germany ("KBA") and foreign trade statistics ("FTS")¹⁵

New EU Member States (accession from May 2004)		Number 2012	Old EU Member States		Number 2012
	Source			Source	
Poland	KBA	394,311	Finland	KBA	16,664
Czech Republic	KBA	60,890	Denmark	KBA	4,129
Slovakia	KBA	20,418	Sweden	KBA	8,663
Hungary	KBA	25,398	United Kingdom	KBA	896
Lithuania	KBA	69,038	Ireland	KBA	19
Latvia	KBA	23,102	France	KBA	31,984
Estonia	KBA	15,040	Netherlands	KBA	46,674
Slovenia	KBA	5,391	Belgium	KBA	21,024
Romania	KBA	117,848	Luxembourg	KBA	7,619
Bulgaria	KBA	49,186	Austria	FTS	8,668
Cyprus	FTS	175	Spain	FTS	6,318
Malta	KBA	9,971	Portugal	FTS	1,508
			Italy	FTS	13,467
			Greece	FTS	850
Total EU			959,251		

Exports to non-EU states:

Exports to non-EU states were small compared with exports to EU countries, see Table 6. The foreign trade statistics showed a total of around 391,000 used cars exported (passenger cars and motor homes). This represented a further increase of 13 % against 2011. The major destinations for used cars outside of Europe are West Africa (35 %) and the states of the former Soviet Union (28 %), see Table 6.

¹⁵ Personal communication from the Federal Motor Transport Authority dated 19 February 2013 and Federal Statistical Office: *Warenverzeichnis Außenhandelsstatistik 8-Steller, Länderverzeichnis, Daten für 2012* (Commodity Classification, Foreign Trade Statistics, 8-digit, Country Classification, Data for 2012). Wiesbaden 2012

Table 6 Exports of used cars to non-EU states according to the foreign trade statistics, passenger cars and motorhomes with petrol or diesel engine¹⁶

Country \ Year	2012	
Non-EU total	391,044	
Of which states of the former Soviet Union (excluding Baltic States)	108,022	Of which Russia 42,608 Georgia 38,115 Belarus 12,392
Of which West Africa¹⁷	137,164	Of which Benin 50,198 Nigeria 32,267
Of which Norway, Switzerland	43,888	

Total exports of used cars:

Figure 3 illustrates the development over time of statistically verified exports of used cars from 2008 onwards. It indicates a sharp decrease in exports of used cars in 2009 as a result of the Environmental Premium, the after-effects of which were evidently still being felt in subsequent years.

In contrast to the Quality Reports for 2008 to 2010, in Figure 3 the export figures have been supplemented by the additional use of foreign trade statistics in some cases of exports to EU countries. As such, there may be minor deviations from the information provided in previous reports.

¹⁶ Federal Statistical Office: *Warenverzeichnis Außenhandelsstatistik 8-Steller, Länderverzeichnis, Daten für 2012* (Commodity Classification, Foreign Trade Statistics, 8-digit, Country Classification, Data for 2012). Wiesbaden 2013

¹⁷ Collective term for 18 West African states: Angola, Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Liberia, Morocco, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo

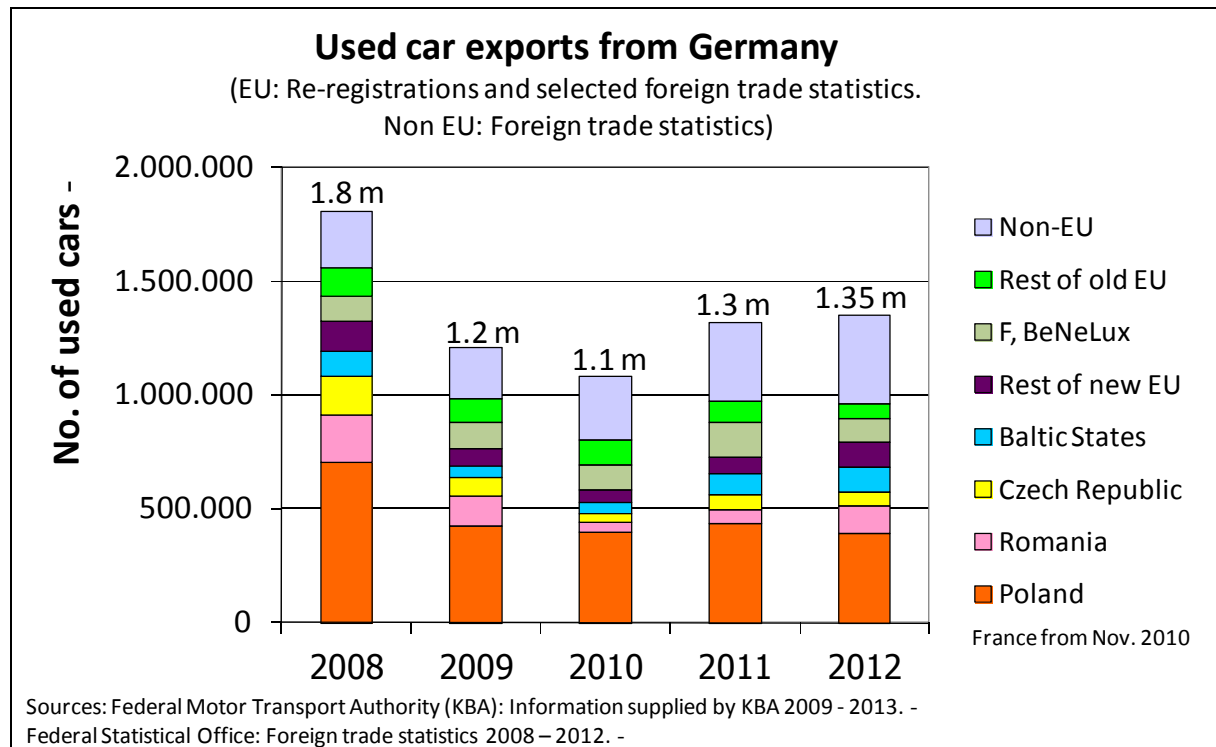


Figure 3 Development over time of used car exports from Germany, 2008 to 2012

Fate of finally deregistered cars, 2009 to 2012

Overall, the various statistical sources produce the following picture regarding the fate of cars finally deregistered in Germany from 2009 to 2012 - see Figure 4. Regarding both Figure 3 and Figure 4, it is worth pointing out that the export figures were supplemented by an additional data source compared with the Quality Reports for 2009 to 2010, as a result of which minor deviations from the information in the previous reports may arise.

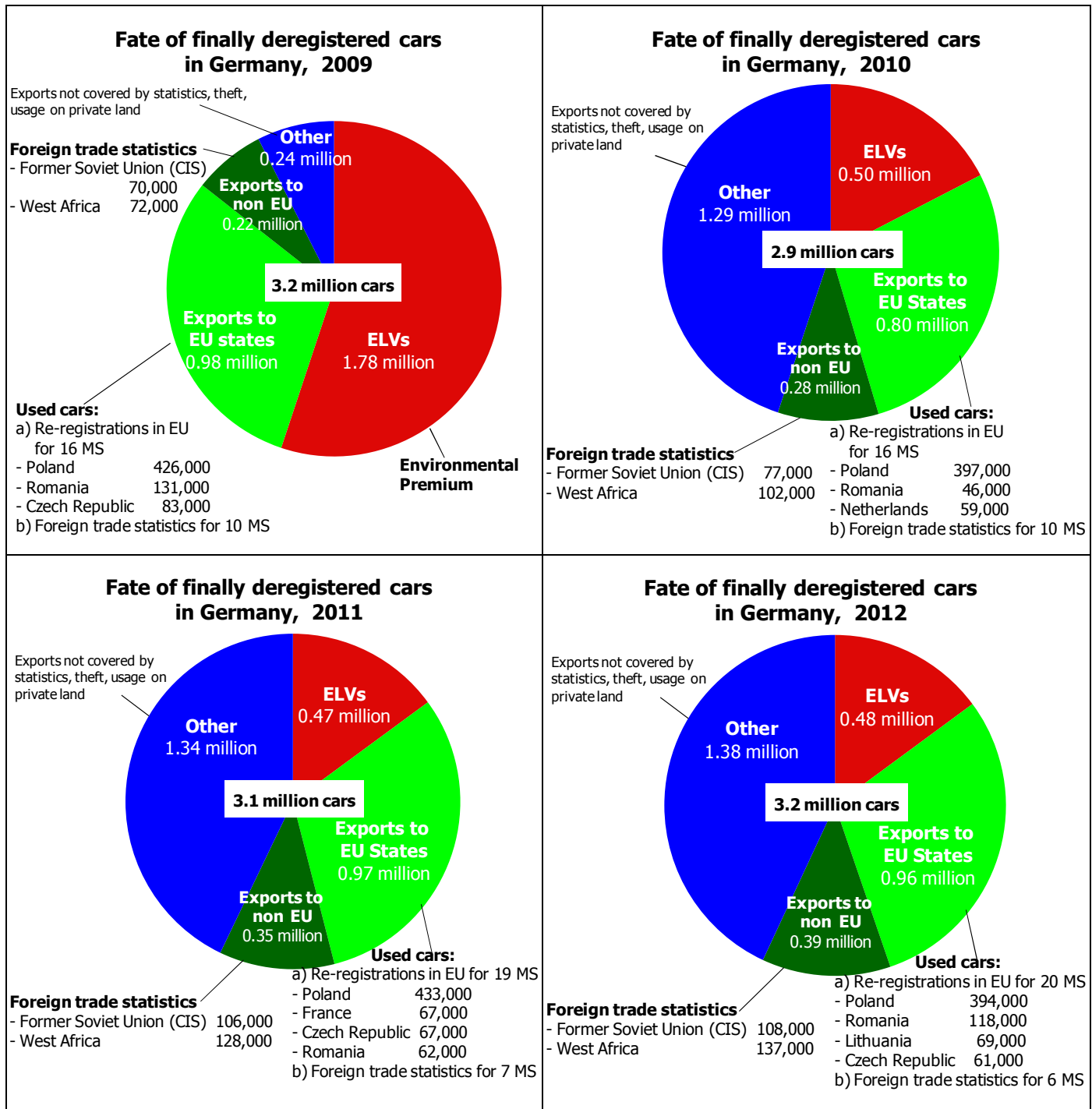


Figure 4 Fate of cars finally deregistered in Germany, 2009 to 2012¹⁸

¹⁸ Sources:

- Federal Motor Transport Authority: Working figures on the volume of re-registered used cars abroad. Personal communications from the Federal Motor Transport Authority dated 26 March 2010, 14 April 2010, 4 March 2011, 27 February 2012 and 19 February 2013.
- Federal Motor Transport Authority: *Außerbetriebsetzungen von Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 2007 bis 2013 nach Fahrzeugklassen* (Motor vehicles and trailers taken out of service, 2007 to 2013, by vehicle class). http://www.kba.de/DE/Statistik/Fahrzeuge/Ausserbetriebsetzungen/FahrzeugklassenAufbauarten/a_fzkl_zeit_eihe.html?nn=664274
- Federal Statistical Office: *Außenhandelsstatistiken 2009 bis 2012, 8-Steller, Gebrauchtwagenexport aus Deutschland* (Foreign Trade Statistics, 2009 to 2012, 8-digit, exports of used cars from Germany). Federal Statistical Office: Table 14 of the Waste Management Surveys, 2009, 2010, 2011 and 2012, Wiesbaden

ELVs, body shells:

- In 2012, the dismantling facilities in Germany accepted 479,256 end-of-life vehicles, of which 476,601 came from within Germany (=W).
- According to the statistics on "Transboundary shipment of waste requiring notification" ¹⁹, no "scrapped passenger cars" (No. 8.11) were exported from Germany in 2012.

Table 7 Exports of used cars, end-of-life vehicles and pre-treated body shells from Germany

Reference year 2012	Unit	To other EU countries	To non-EU countries
<i>Used vehicles exported (see Table 5 and Table 6)</i>	<i>Number</i>	959,251	391,044
<i>Average age of used vehicles exported</i>	<i>Years</i>	(7.3) ²⁰	
<i>ELVs exported (see COM Table 3)</i>	<i>Number</i>	0	0
<i>De-polluted (and dismantled) body shells exported (waste code 16 01 06)</i>	<i>Number</i>	28,753 ²¹	
	<i>Tonnes</i>	23,050	

2.3.3 Section 3: Elements related to methods and quality of Sections 1 and 2

a) *How do you assess the quality of the information on both the national vehicle market and the export market?*

National vehicle market

The sources of data on the national vehicle market are stated in the footnotes to Table 4. The figures on new registrations, total registered fleet, average age and off-road notifications originate directly from the Federal Motor Transport Authority and are based on the official vehicle registrations. Their quality is therefore considered as very well. Since the sum for vehicle classes M1 and N1 cannot be taken directly from these sources, the data is given for all motor vehicles and, in addition, for the subset "passenger cars".

Since the changeover from final and temporary deregistrations to off-road notifications, the number of final deregistrations can no longer be determined directly from the statistics. The

¹⁹ See COM Table 3 and the waste export statistics:

<http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/egabfstatvexport2012.pdf>.

²⁰ This figure refers to vehicles with export licence plates in 2011. Source: Personal communication from the KBA dated 9 July 2012.

²¹ Converted with the average weight of body shells of 802 kg. The average weight was calculated from the total mass and the total number of body shells that left dismantling facilities in 2012 (to Germany and abroad): Total mass 426,211 t / total number 531,634 units = 802 kg/unit.

calculation is therefore based on an estimate by the Federal Motor Transport Authority during the period preceding the changeover in 2007, which assumed that about 60 % of off-road notifications are temporary.

The number of end-of-life vehicles arising is taken from the waste statistics of the Federal Statistical Office, which originate from a full-coverage survey of all dismantling facilities. This indicates good quality (see also the remarks on the data quality of the figures for end-of-life vehicles in Section 2.1.2).

Used car exports

The data on exports of used cars to EU Member States originates from the exchange of information under Article 9 of Directive 1999/37/EC on the registration documents for vehicles. In recent years, this exchange arrangement has been continuously expanded, leading to an improvement in data quality and coverage. For the second time, data is available for all 26 possible EU Member States. Overall, this figure should be viewed as the lower limit; completeness cannot be guaranteed. Nevertheless, we can assume that the statistics now largely reflect the reregistrations of used cars in EU Member States. A further improvement in data completeness (an additional 10,000 or so vehicles) has been achieved by additionally including data from foreign trade statistics.

The figures for exports of used cars to non-EU countries are taken from the foreign trade statistics. While these include all countries worldwide, they suffer from the familiar problem of notification thresholds. Since these are lower than for exports within the EU, it may be assumed that the figures cover a fairly high proportion of actual exports.

Cases of used car transits from Germany through another EU Member State to a non-EU state would not be covered by the non-EU foreign trade statistics. Neither would such exports be covered by the exchange of information under Directive 1999/37/EC on the registration documents for vehicles, unless the cars were to be re-registered in the transit country. No data is available about any informal exports for purposes other than reuse.

As illustrated by Figure 4, there is currently no statistical evidence of the fate of approximately 1.4 million of the 3.2 million or so vehicles finally deregistered in 2012.

However, since there is no concrete indication of the size of the share missing from the statistics, we have opted not to extrapolate the actual exports from the figures in the statistics. The export figures must be regarded as lower limits in each case.

- b) *Describe the source of information, the quality of sources, the completeness (coverage rate) and the validation process.*
- c) *If Foreign Trade Statistics (FTS) are used as a source for the reporting of export of used cars, please explain how you estimate the amount which is not reported due to the (monetary) reporting thresholds for export.*
- d) *How did you correct for unofficial imports and exports, e.g. where used cars are exported but not for reuse as a car.*

For information on items b) to d), please refer to a) above.

3 Supplement: Development of end-of-life vehicle disposal and recycling/recovery rates since 2004

3.1 Development of ELV quantities

Between 2004 and 2008, the number of end-of-life vehicles fell from 0.54 million to 0.42 million, rising to 1.78 million in 2009 as a one-off effect of the Environmental Premium, and has since dropped again to roughly its pre-2009 level - see Figure 5.

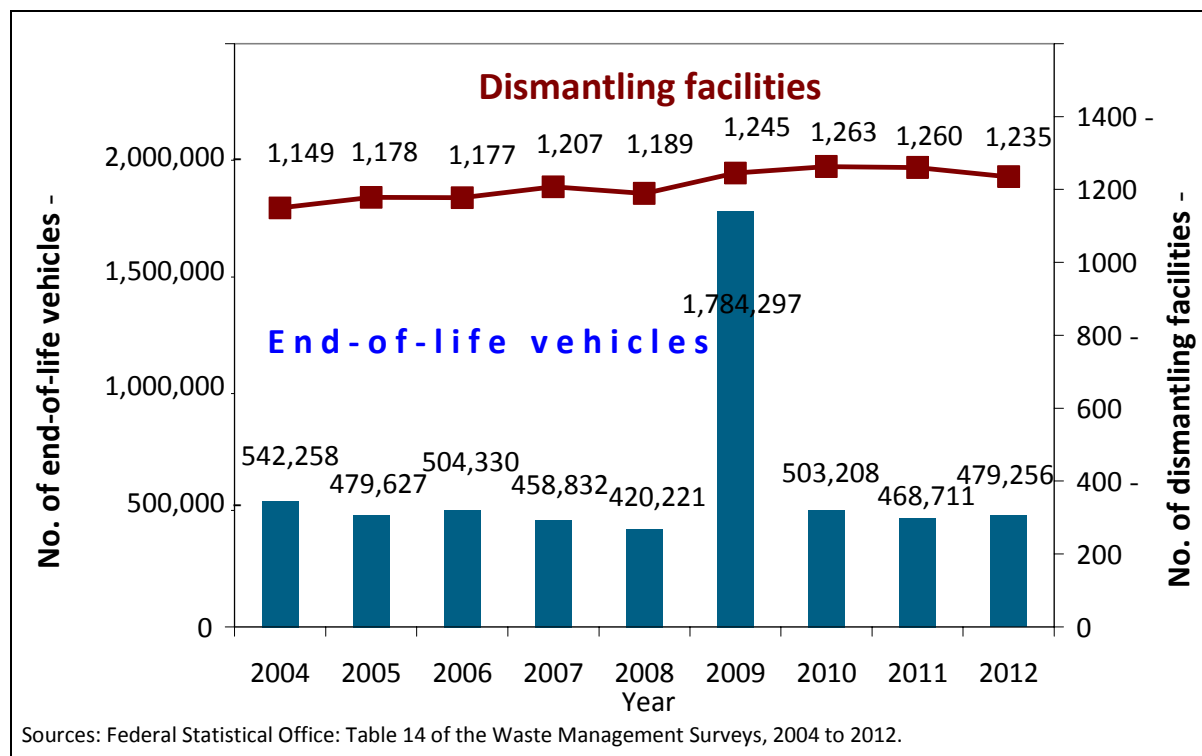


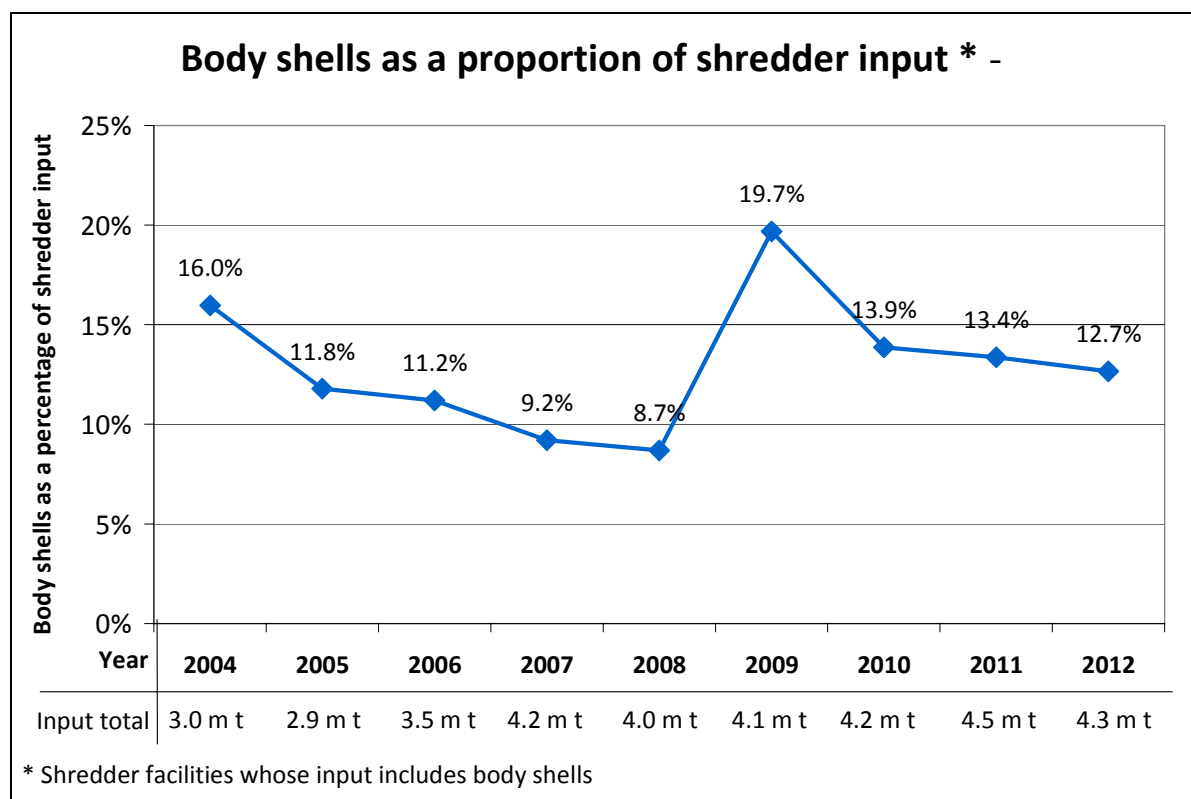
Figure 5 Development of ELV quantities (total, delivered from within Germany and abroad) and the number of dismantling facilities in the waste statistics, Germany since 2004²²

In 2008, body shells as a share of input into shredder facilities that treat body shells reached a new low of 8.7 %. As a result of the after-effects of the Environmental Premium, this figure amounted to 12.7 % in 2012, slightly lower than in the preceding two years; see Figure 6.

²² Note: Figure 5 shows the total number of end-of-life vehicles treated in the dismantling facilities.

The figure W (total number of ELVs) which is relevant for calculating the rates is lower, as the ELVs received from abroad are deducted first.

The number of dismantling facilities corresponds to the information in the waste statistics of the Federal Statistical Office. Discrepancies are possible compared with the number of dismantling facilities certified under the ELV Ordinance (*AltfahrzeugV*) as determined by GESA (*Gemeinsame Stelle Altfahrzeuge* / Joint Agency for End-of-Life Vehicles), for example because some certified facilities may not actually have accepted any end-of-life vehicles.



Source: Federal Statistical Office, Table 1 of the Waste Management Survey, 2004 to 2012

Figure 6 Development of body shells as a proportion of input into German shredder facilities, 2004 to 2012

3.2 Recycling/recovery of shredder light fraction

One important non-metallic waste stream from the treatment of end-of-life vehicles is the shredder light fraction. Whereas 90 % of the shredder light fraction was still being sent for disposal in Germany in 2004 (waste codes 19 10 03* and 19 10 04), the proportion that is recycled or recovered has increased continuously year on year, and by 2012 only 4 % was sent for disposal - see Figure 7. The diagram shows the total quantity of shredder light fraction treated in shredder facilities that accept body shells. A certain proportion of this originates from body shells (2012: 31 % or approximately 128,800 t out of around 409,000 t).

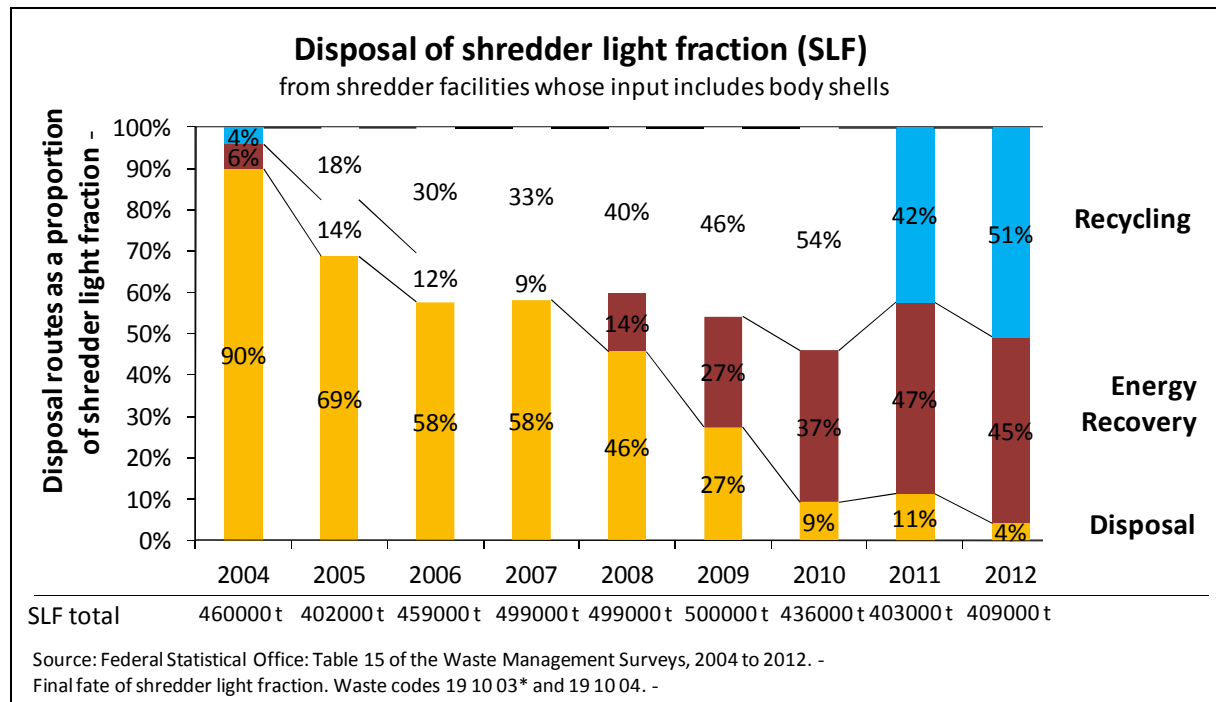
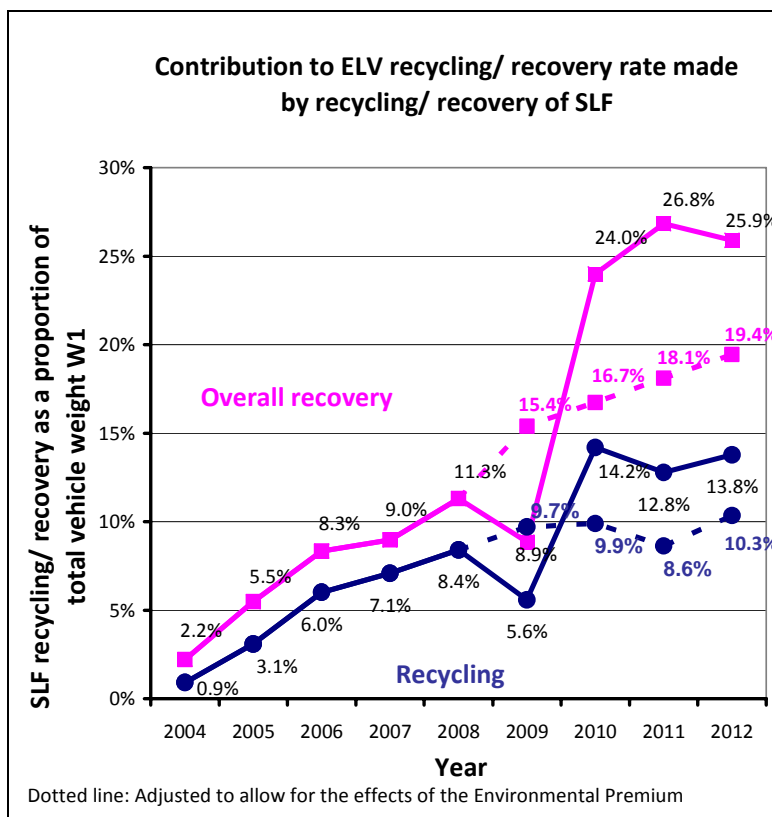


Figure 7 Disposal of shredder light fraction from shredder facilities that treat body shells in Germany, 2004 to 2012



In 2012, the contribution of shredder light fraction to the overall ELV recovery rate stabilised in the range above 25 %. The explanation for this is that, in addition to the ELVs incurred in 2012, shredding of some ELVs from 2009 was postponed until 2012. Recycling/recovery of shredder residues from both these body shell quantities were reflected in the rate calculated for 2012.

Figure 8 Contribution to end-of-life vehicle recycling/recovery rates made by recycling/recovery of shredder light fraction; figures as a percentage of total vehicle weight W1

In order to gauge the current contribution of shredder light fraction to ELV recycling/recovery rates excluding the effects of the Environmental Premium, a simplified additional calculation was used to extract the contribution of the Environmental Premium for the affected years 2009 to 2012; see dotted line in Figure 8. This entailed calculating the volume of shredder light fraction originating from the treatment of ELVs incurred in a given year in Germany (2012: around 97,000 t), regardless of in which year treatment actually took place. This produces "adjusted" contributions to the recycling rate for all four years on a similar level to 2008. The annual increases in "adjusted" contributions to the overall recovery rate (approximately 19 % in 2012) are primarily attributable to the falling proportion of shredder light fraction disposal up until 2012.

3.3 Development of ELV recycling/recovery rates

On the basis of the statistical data in combination with other documented parameters, e.g. regarding the metal content assumption (73.3 %), in 2012 Germany once again met or exceeded the EU-wide targets of 80 % for reuse/recycling and 85 % for reuse/recovery. As a result of increases/decreases in the ELV stock levels that had been intermediately stored at dismantling facilities (see Figure 2 in chapter 2.1.6), comparatively low recycling/recovery rates were achieved in 2009, contrasting with exceptionally high rates in the years 2010 to 2012, see Figure 9. For example, in 2012, for the third year in succession, more ELVs and body shells were treated and recycled/recovered than were actually incurred in that year. However, the magnitude of the treatment surplus, at 12 % in relation to the 476,601 ELVs incurred, or an output of approximately 532,000 body shell units, was lower than in the two preceding years, see also Figure 8.

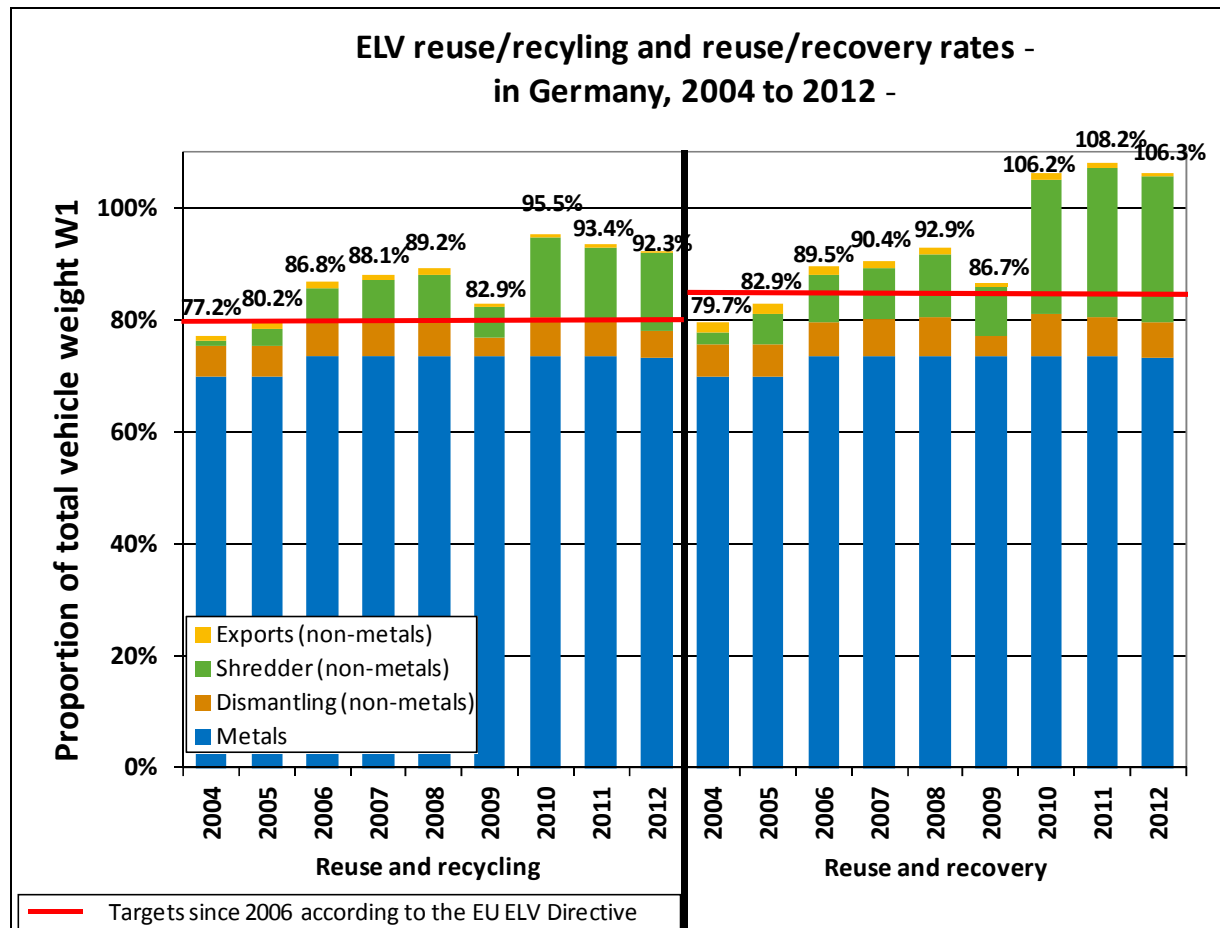


Figure 9 Contribution of dismantling facilities, shredder facilities and recycling/recovery abroad to ELV reuse/recycling and reuse/recovery rates, 2004 to 2012

Consequently, as in the previous two years, the postponed treatment and recycling/recovery of accumulated ELVs as an after-effect of the Environmental Premium produces, in arithmetical terms, an overall recovery rate of more than 100 % for the year 2012 in relation to the number of ELVs incurred in that year, whereas conversely, in 2009 (the year of the Environmental Premium), recycling and recovery rates were lower. Once the backlog from the Environmental Premium has been cleared completely, recycling/recovery rates will return to normal.

In order to gauge the potential recovery/recycling rates excluding the effects of the Environmental Premium, a simplified additional calculation was performed:

- The components and materials obtained from the treatment of ELVs in dismantling facilities (for example, in 2012: around 532,000 output body shells) were scaled up or down in relation to the number of ELVs for that year (e.g. 2012: $W = 476,601$).
- The volume of shredder light fraction was likewise scaled up or down in relation to the number of ELVs (W) for the respective year, see text on Figure 8.

This simplified calculation produces higher estimated rates for 2009 and lower rates for the years 2010 to 2012. As in the previous year, the recycling rate for 2012, adjusted by the Environmental Premium, is approximately 88 %, and the overall recovery rate approximately 99 %, see Figure 10.

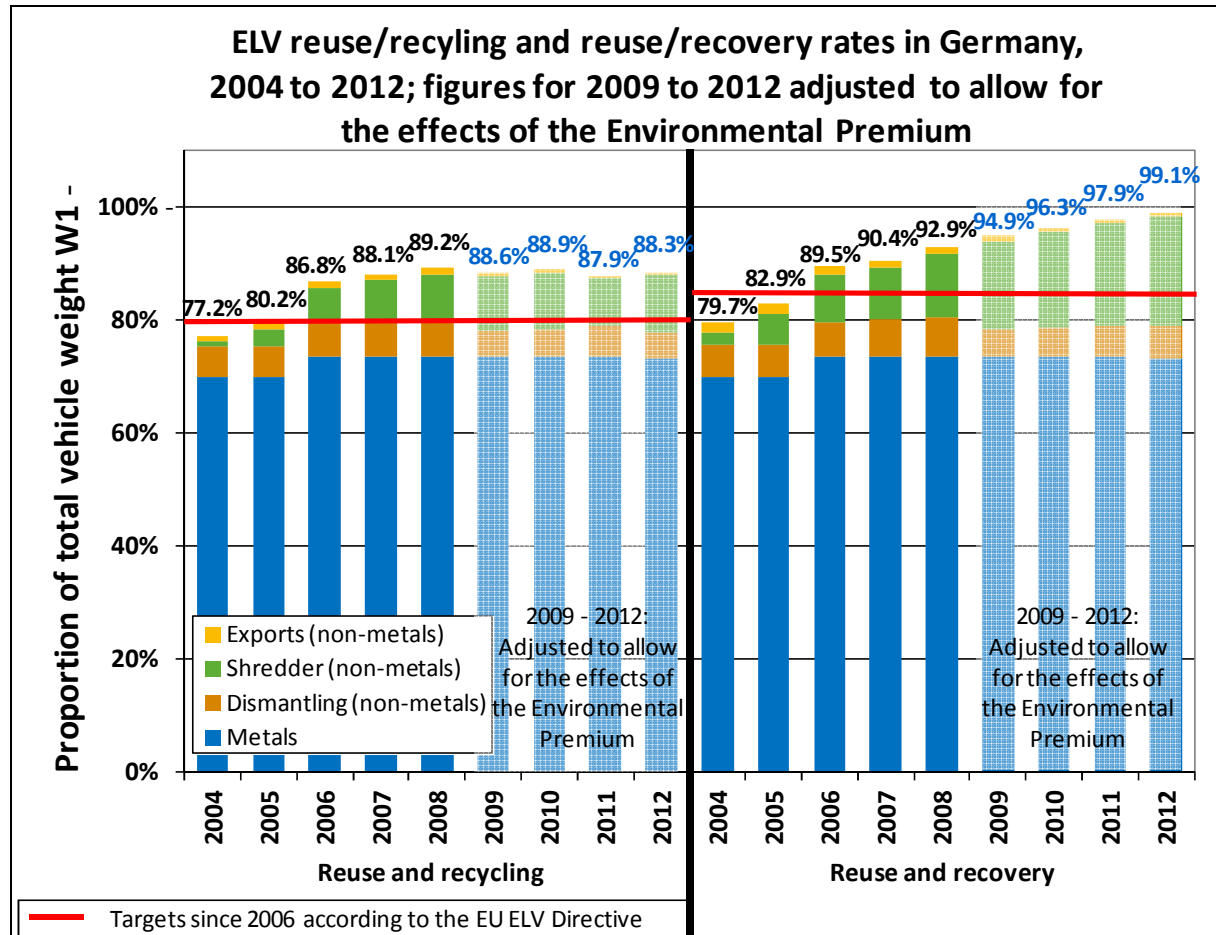


Figure 10 Contribution of dismantling facilities, shredder facilities and recycling/recovery abroad to ELV reuse/recycling and reuse/recovery rates, 2004 to 2012, with figures for 2009 to 2012 adjusted to allow for the effects and after-effects of the Environmental Premium.

4 Appendix: COM Tables with allocation of metals also to Tables 1 and 3

According to the EU Commission's guidance document, all recovered/recycled metals are to be entered in COM Table 2 (Shredders) if the "metal content assumption" is applied. However, this representation is not suitable for certain interpretations, such as calculating the specific dismantled battery mass per vehicle. For this reason, an alternative representation of COM Tables 1 to 4 is included in this Appendix, showing the distribution of recovered/recycled metals among COM Tables 1 to 3.

Materials from de-pollution and dismantling (in tonnes per year) of end-of-life vehicles arising in the Member State and treated within the Member State

COM Table 1 (dismantling) for Germany, 2012					
Total metals + non-metals					
Materials from de-pollution and dismantling	Reuse	Recycling	Energy recovery	Total recovery	Disposal
	(A)	(B1)	(C1)	(D1=B1+C1)	E1
	[t]	[t]	[t]	[t]	[t]
Batteries	162	10,212	0	10,212	2
Liquids (excluding fuel)	89	2,859	581	3,440	867
Oil filters	1	79	53	132	12
Other materials arising from de-pollution (excluding fuel)	3	26	39	65	30
Catalysts	43	1,736	0	1,736	7
Metal components	19,548	33,269	0	33,269	444
Tyres	1,249	6,651	5,665	12,316	50
Large plastic parts	285	1,326	0	1,326	24
Glass	474	1,084	0	1,084	3
Other materials arising from dismantling	4,650	43	1,000	1,043	14
Total	26,504	57,284	7,338	64,622	1,454

Source: From Federal Statistical Office data, Tables 1 and 15 of the Waste Management Survey 2012.

Materials from shredding (in tonnes per year) of end-of-life vehicles arising in the Member State and treated within the Member State

COM Table 2 (shredders) for Germany, 2012 Proportionate metal shares only				
Materials from shredding	Recycling	Energy recovery	Total recovery	Disposal
	(B2)	(C2)	(D2 =B2+C2)	(E2)
	[t]	[t]	[t]	[t]
Ferrous scrap (steel)	229,993	0	229,993	0
Non-ferrous materials (e.g. Al, Cu, Zn, Pb)	37,507	0	37,507	0
Shredder light fraction (SLF)	65,555	57,642	123,197	5,538
Other	0	0	0	0
Total	333,055	57,642	390,696	5,538

Source: From Federal Statistical Office data, Table 15 of the Waste Management Survey 2012.

Explanatory comment on the calculation of metal proportions for COM Table 2:

1. *Calculation of recovered/recycled metals (total) =*
73.3 % (metal content assumption) * 475,719 t (total vehicle weight W1) = 348,702 t.
2. *Deduction of metals already recorded in COM Table 1 (dismantling of metals: re-use and recycling/recovery) and COM Table 3 (metal exports).*
3. *Breakdown into ferrous/non-ferrous on a ratio of 63.0 % : 10.3 %*

Monitoring of (parts of) end-of-life vehicles arising in the Member State and exported for further treatment (in tonnes per year)

COM Table 3 (export) for Germany, 2012					
Total metals + non-metals					
Components / materials exported for further treatment	Total weight of end-of-life vehicles which are exported per country	Total recycling of (parts of) end-of-life vehicles exported	Total recovery of (parts of) end-of-life vehicles exported	Total disposal of (parts of) end-of-life vehicles exported	Remarks
Total weight, broken down by countries		(F1)	(F2)	(F3)	
	[t]	[t]	[t]	[t]	
1) End-of-life vehicles (WC 160104*)	0	0	0	0	No exports in 2012 according to the statistics on "Transboundary shipment of waste requiring notification" ^{a)}
Breakdown by countries: -- not applicable --					
2) Body shells from dismantling facilities (WC 160106)	23,050	18,440	19,593	3,458	Basic figures: 23,050 t body shells exported for recovery (assumption: 80%/85% thereof recycled/recovered)
Breakdown by countries: -- unknown --					
3) Components from dismantling facilities	4,300	3,851	4,297	3	Batteries, tyres, large plastic parts, glass etc.
Breakdown by countries, where known ^{b)}					
WC	Waste	Destination countries for waste exports (total, not just from dismantling facilities), included in the waste export statistics:			
- 130208*	Engine etc. oils	To Belgium, the Netherlands, Switzerland			
- 160103	Waste tyres	To Bulgaria, Poland			
- 160601	Lead batteries	To Belgium, France, Slovenia, Spain, Czech Republic			
- 160807*	Catalysts	To Belgium, UK, USA			
- 170402	Aluminium	To Poland			
- 170403	Lead	To Poland			
- 170405	Iron and steel	To Poland			
- 170410*	Cables with haz. substances	To the Netherlands			
4) SLF from shredders	87	34	74	14	Total SLF exported: 191003*: 277 t, 191004: 0 t. Of which 31% from ELVs.
Breakdown by countries, where known ^{b)}					
WC	Waste	Destination countries for waste exports (total, not just from ELVs) according to waste export statistics			
- 191003*	Shredder light fraction	To Belgium, Canada			
Total	27,437	22,325	23,963	3,474	

Source: Federal Statistical Office Waste Management Survey 2012 and waste exports data
Explanatory comments:

WC = waste code

a) <http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/egabfstatvexport2012.pdf>, (No. 8.11) and <http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/ustatgexport2012.pdf> (waste code 16 01 04*). The 4,433 t "end-of-life vehicles" exported to Denmark shown under 16 01 04* do not refer to road vehicles. As such, these vehicles do not fall within the scope of the End-of-Life Vehicles Directive. They may be allocated to No. 8.12 "Other scrapped motor vehicles", but not to No. 8.11 "Scrapped passenger cars".

b) Sources:

b1) Waste exports from end-of-life vehicle dismantling facilities: "Erhebung über die Abfallentsorgung im Jahr 2012" (Waste Management Survey, 2012), Table 15, Federal Statistical Office.

b2) Total waste exports for Germany: "Abfallstatistik: Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen" (Waste statistics: Transboundary shipment of waste requiring notification), Federal Environment Agency, June 2013: <http://www.umweltbundesamt.de/sites/default/files/medien/377/dokumente/ustatgexport2012.pdf>

Total reuse, recovery and recycling (in tonnes per year) of end-of-life vehicles arising in the Member State and treated within or outside of the Member State

COM Table 4 (rates) for Germany 2012					
From ...	Reuse	Total recycling	Total recovery	Total reuse and recycling	Total reuse and recovery
	(A)	(B1 + B2 + F1)	(D1 + D2 + F2)	(X1=A+B1+B2+F1)	(X2=A+D1+D2+F2)
	[t]	[t]	[t]	[t]	[t]
Tab 1: Dismantling (A,B1,D1) (metals + non-metals)	26,504	57,284	64,622	83,788	91,126
Tab 2: Shredders (B2, D2) (metals + non-metals)		333,055	390,696	333,055	390,696
Tab 3: Exports (F1, F2) (metals + non-metals)		22,325	23,963	22,325	23,963
Total	26,504	412,663	479,282	439,167	505,786
				Recycling and recovery rates 2012	
W (total number of end-of-life vehicles)	476,601 vehicles			92.3%	106.3%
W1 (total vehicle weight)	475,719 tonnes			X1/W1	X2/W1