End-of-life vehicle reuse/recycling/recovery rates in Germany for 2011

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

Quality Report: Description of the data used
in accordance with Article 1 of COM Decision 2005/293/EC on end-of-life vehicles

0 General

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"*
- *Organisation submitting the data and the description:*

  UBA – Umweltbundesamt
  (Federal Environment Agency Germany),
  Wörlitzer Platz 1, D - 06844 Dessau-Roßlau

  and BMU – Bundesministerium für Umwelt,
  Naturschutz und Reaktorsicherheit
  (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)
  Division WA II 3,
  Robert-Schuman-Platz 3, D - 53175 Bonn

- *Contact person / contact details:*
  Regina Kohlmeyer
  Umweltbundesamt, Section III 1.6, Wörlitzer Platz 1, D-06844 Dessau-Roßlau,
  Tel. +49 (0)340- 2103-3320, Fax +49 (0)340- 2104-3320, e-mail: regina.kohlmeyer@uba.de
- ***Reference period: Data for the year 2011***
- *Delivery date / version: 27 June 2013, version 1*
- *We agree to make our Quality Report available to the national experts via circa (Y/N): Y*

Contents

1 Tables pursuant to COM Decision 2005/293/EC for Germany 2011

Note: According to the guide "How to report on ELVs according to Commission Decision 2005/293/EC", 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, 2011 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)]	91	2,946	0	2,946	1
Liquids (excluding fuel)	109	3,018	603	3,621	903
Oil filters [a)]	1	0	54	54	3
Other materials arising from de-pollution (excluding fuel) [a)]	2	0	30	30	7
Catalysts [a)]	15	312	0	312	2
Metal components [a)]	0	0	0	0	0
Tyres	1,268	13,708	0	13,708	216
Large plastic parts	336	1,613	0	1,613	3
Glass	621	1,671	0	1,671	36
Other materials arising from dismantling [a)]	4,959	0	737	737	11
Total	**7,402**	**23,268**	**1,424**	**24,692**	**1,181**

Source: From Federal Statistical Office data, Tables 1 and 15 of the Waste Management Survey 2011.

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

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, 2011 Including all 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)	310,696	0	310,696	18
Non-ferrous materials (e.g. Al, Cu, Zn, Pb)	34,198	0	34,198	0
Shredder light fraction (SLF)	59,908	65,794	125,702	16,043
Other	0	0	0	0
Total	**404,802**	**65,794**	**470,596**	**16,061**

Source: From Federal Statistical Office data, Table 15 of the Waste Management Survey 2011.

Explanation: The 18 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, 2011 Non-metals only!! (see above)					
Components / materials exported for further treatment Total weight, broken down by countries	**Total weight of end-of-life vehicles which are exported per country**	**Total recycling of (part of) end-of-life vehicles exported**	**Total recovery of (part of) end-of-life vehicles exported**	**Total disposal of (part of) end-of-life vehicles exported**	**Remarks**
		(F1)	**(F2)**	**(F3)**	
	[t]	[t]	[t]	[t]	
1) End-of-life vehicles (WC 160104*)	0	0	0	0	No exports in 2011 according to the statistics on "Transboundary shipment of waste requiring notification" [a]
Breakdown by countries: -- not applicable --					
2) Body shells from dismantling plants (WC 160106)	5,319	1,286	2,294	3,025	Basic figures: 20,164 t body shells exported for recovery (assumption: 80%/85% thereof recycled/ recovered), 26.4 % non-metals (= 100%-73.6% metal portion)
Breakdown by countries: -- unknown --					
3) Components from dismantling plants	478	350	471	7	Batteries[c], tyres, large plastic parts, glass etc.
Breakdown by countries, where known [b]					
WC **Waste**		**Destination countries** for waste exports (total, not just from dismantling plants) included in the waste export statistics:			
- 130205* Engine etc. oils		to the Netherlands			
- 160103 Waste tyres		to Bulgaria, Poland			
- 160113* Brake fluids		to Belgium			
- 160601 Lead batteries		to Belgium, Sweden, Slovenia, Spain, Czech Republic			
- 160807* Catalysts		to Belgium, France, UK, Japan, USA			
- 170405 Iron and steel		to Poland			
4) SLF from shredders	1,428	570	1,375	54	Total SLF exported: 191003*: 1,586 t, 191004: 2,430 t. Of which 36% 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			
Total	**7,225**	**2,206**	**4,140**	**3,086**	

Source: Federal Statistical Office Waste Management Survey 2011 and waste exports data

Explanatory comments:

WC = waste code

a) http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/ZeitreiheExportAbfallarten.pdf (No. 8.11) and http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/UStatGExport2011.pdf (waste code 16 01 04*). The 549 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 plants: "Erhebung über die Abfallentsorgung im Jahr 2011" (Waste Management Survey, 2011), 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 2012: http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/UStatGExport2011.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 the Member State

COM Table 4 (rates) for Germany 2011					
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)	7,402	23,268	24,692	30,671	32,095
Tab 2: Shredders (B2, D2) (incl. all metals)		404,802	470,596	404,802	470,596
Tab 3: Exports (F1, F2) (non-metals only)		2,206	4,140	2,206	4,140
Total	**7,402**	**430,277**	**499,428**	**437,679**	**506,830**

			Recycling and recovery rates 2011	
W	**(total number of end-of-life vehicles)**	**466,160 vehicles**	**93.4%**	**108.2%**
W1	**(total vehicle weight)**	**468,459 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 for ELVs

2.1 Chapter A) Information according to Article 1 (1) – Description of data used to determine ELV recycling/recovery rates for Germany 2011

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*) [1] (Section 3 (1) No. 1). Tables 1.1, 14 and 15 of the "Waste Management Survey 2011" 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)[2] and SHR (shredder facilities)[3]. 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.

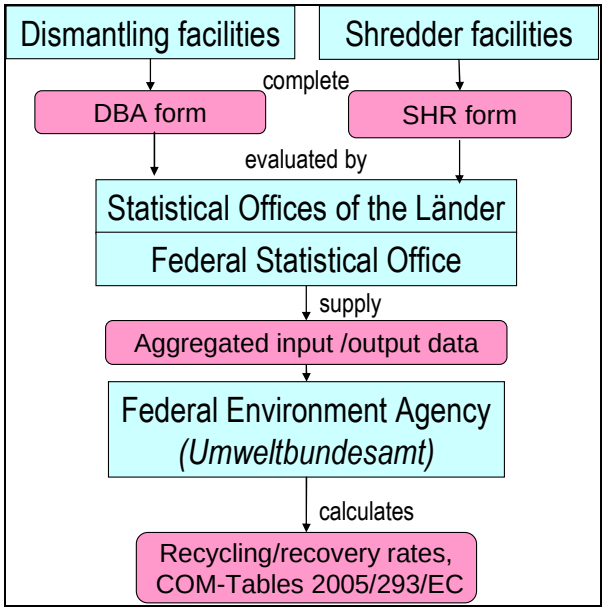


Figure 1 Data streams for determining recycling/recovery rates under the ELV Directive

[1] http://www.gesetze-im-internet.de/bundesrecht/ustatg_2005/gesamt.pdf

[2] Example: Form AE/DBA for Bavaria for 2011: https://www.statistik.bayern.de/medien/statistik/erhebungen/abfallwirtschaft/dba-s1-8.pdf

[3] Example: Form AE/SHR for Bavaria for 2011: https://www.statistik.bayern.de/medien/statistik/erhebungen/abfallwirtschaft/shr-s1-8.pdf

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

In the case of shredder facilities,
- the recovery of metals included in the "metal content assumption" and
- the recovery of the shredder light fraction (waste code numbers 191003* and 191004)
were incorporated into the rate calculation. Since shredder facilities also treat other metal waste apart from end-of-life vehicles, the shredder light fraction was split: 25 % of the weight of the body shells (from within Germany) that are treated in the shredder was allocated to ELV treatment and therefore entered in COM Table 2. Statistical information is recorded as to whether the shredder light fraction sent for recovery is ultimately recycled as material, recovered as energy or disposed of.

After-effects of the Environmental Premium

The year 2009 in Germany 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 plants and their treatment postponed until subsequent years. Around 214,000 ELVs from 2009 were recovered and recycled in 2010 - see previous year's Report. A further 116,000 or so of these ELVs were recovered or recycled in 2011, see Figure 2.

2.1.2 Section 2: Quality of information sources

Coverage: The data was collected from the whole of Germany from all 1,260 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 2011 is the eighth 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 if the years 2009 to 2011, which were directly and indirectly influenced by the Environmental Premium, are considered jointly (940 kg), see Table 1. The average weight of ELVs was 1,005 kg in 2011, exceeding the one tonne level for the second time, compared with just 898 kg in 2009. However, according to the Federal Statistical Office, in some cases ELV numbers were recorded at the time of their acceptance in 2009, yet their weight was not entered until the year of treatment.

This led to a below-average weight in 2009, and correspondingly higher figures for 2010 and 2011. The average weight of ELVs over the mentioned three years, at 940 kg, corresponds closely to the 2008 figure (929 kg).

Table 1 Average weight of ELVs, 2009 to 2011

	ELVs from Germany		Average weight
	Number (W)	Tonnes (W1)	kg/ELV
2009	1,778,593	1,596,831	**898**
2010	500,193	516,128	**1,032**
2011	466,160	468,459	**1,005**
Total, 2009 to 2011	2,744,946	2,581,418	**940**

Source: Federal Statistical Office, Table 14 of the Waste Management Survey, 2009 to 2011

In relation to empty vehicle weight of the ELVs of 2011, a higher percentage of materials was dismantled by the dismantling facilities than in 2009 (the 2009 figures were, however, particularly low due to the Environmental Premium). This is due to the fact that a relevant number of the ELVs treated in 2011 (approx. 25 %) originated from 2009, and therefore, a significant portion of the dismantled materials originates from ELVs from 2009 whose treatment was postponed.

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 2009 [4].

The breakdown of the dismantled components and materials into recycling and energy recovery is based on material types and a knowledge of the recovery paths that are usual in Germany. For example, 84 % of the waste oil incurred in Germany in 2011 was recycled, and 16 % recovered as energy[5].

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 471,023 tonnes of end-of-life vehicles accepted, 2,564 t (0.5 %) came from outside

[4] See Quality Report on end-of-life vehicle reuse/recycling/recovery rates in Germany, 2009
German:
http://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Wasser_Abfall_Boden/Abfallwirtschaft/qualitaetsbericht_altfahrzeug_2009_bf.pdf,
English:
http://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Wasser_Abfall_Boden/Abfallwirtschaft/qualitaetsbericht_altfahrzeug_2009_en_bf.pdf

[5] BMU website, "Waste oil" section, last updated June 2012: http://www.bmu.de/themen/wasser-abfall-boden/abfallwirtschaft/abfallarten-abfallstroeme/altoel/

Germany. The 468,459 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. Once again, we have reused the previous year's figure. In an ELV recovery test in Germany in 2006, 98.3 % of the metal content was recovered. The assumed figure of 97 % is therefore on the safe side.

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, in 2010 and 2011 this figure was around 13.9 % and 13.4 % respectively, still reflecting the after-effects of the Environmental Premium. The most important additional input materials of the 62 ELV shredders in 2011 were iron and steel (61 %), ferrous metals (11 %) and others (14 %). 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. Of the 573,000 t of body shells shredded in 2011, therefore, some 143,200 t of shredder light fraction was produced. This equates to 36 % of the 403,000 t of shredder light fraction incurred in total; see also pages 26/27.

2.1.3 Section 3: Determination of the weight

In the statistical survey, the dismantling facilities state the total of the 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 or parts of ELVs

Recycling or recovery of exported end-of-life vehicles: No end-of-life vehicles were exported in 2011, 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 0.9 % of the overall recovery rate.

Recycling or recovery of exported body shells: The quantities of body shells exported abroad for recovery and of body shells exported for disposal 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 73.6 % is used for calculation purposes, together with an overall 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 – in line with the notes in the guidelines – contains all metals recovered, i.e. including those recovered abroad. In the case of the shredder light fraction, 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 to three-stage disposal process in the following order:
(→ optional: acceptance or collection facility,)
→ dismantling facility for pre-treatment,
→ shredder facility.

As a result of this predetermined treatment sequence, it may be assumed 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 components. The resultant representation of COM Tables 1 to 4 is contained 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 - refer to the Report for 2009 for examples.

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 guidelines, 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 4.3 % of the total vehicle weight W1. The same is true of exported components and materials from dismantling (0.3 % in relation to W1) and the shredder light fraction (0.3 %).

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 used[6] 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?)

The statistical questionnaires are checked for plausibility by the Statistical Offices of the Länder and the Federal Statistical Office using established statistical test (e.g. input/output

[6] See COM Table 3 in Chapter 1 or directly at: :
http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/UStatGExport2011.pdf

comparison, expected waste types, comparison with the previous year). The Federal Environment Agency checks the information from a technical point of view, 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. We were able to tap into new sources of information regarding the national vehicle market and exports - see chapter 2.3.

g) Description on 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 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, certificates of destruction 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 2011:

X2 =	506,830 t	(Total reuse and recovery)
E1 =	1,181 t	(Disposal from dismantling, excluding metals)
E2 =	16,061 t	(Disposal of shredder light fraction and disposal of metals)
F3 =	3,086 t	(Disposal by export, excluding metals)
Total	527,158 t	(Total output)

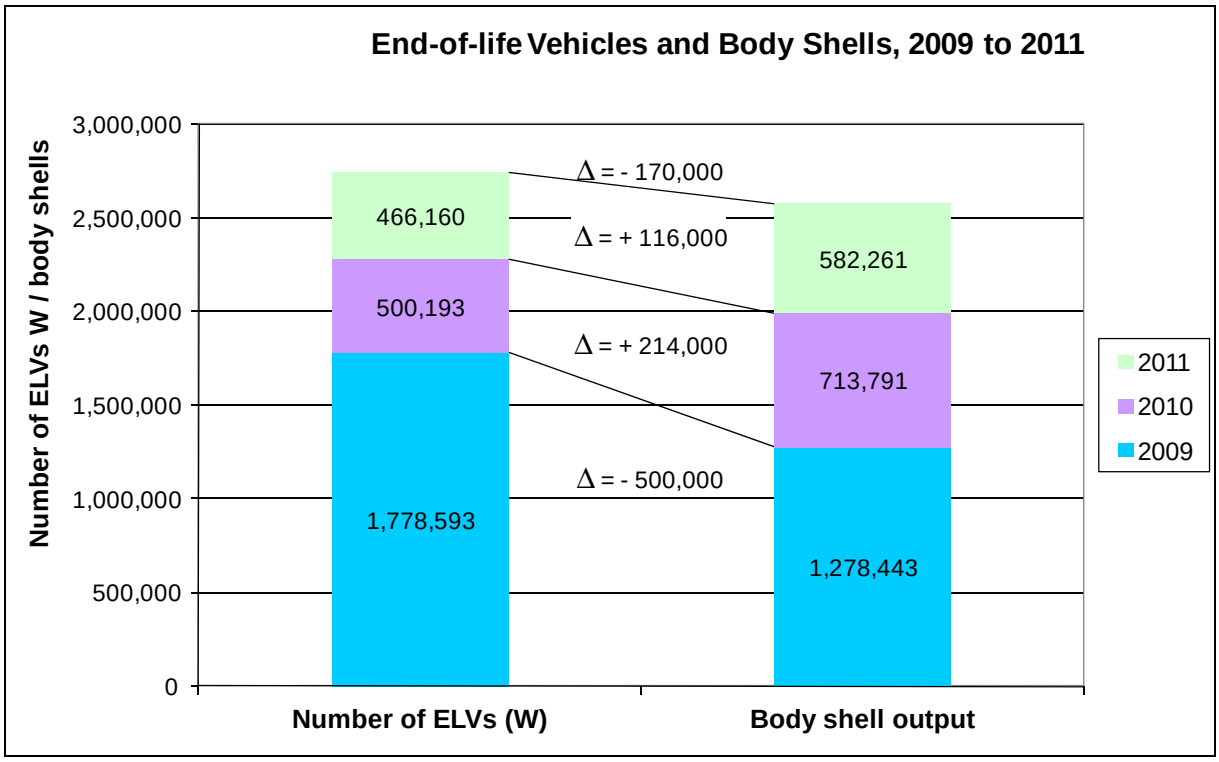
Comparison with number of end-of-life vehicles W1 = 468,459 t: Difference = 58,699 t = 12.5 %.

In other words, the sum total of output flows is more than 10 % 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. A large proportion of the backlog was cleared in 2010 and 2011: In addition to about 470,000 ELVs incurred for 2011, about 116,000 ELVs

from 2009 were also treated and recovered, see Figure 2. The quantity treated was therefore around 25 % higher than the ELV input in 2011. This explains why the output side of the balance sheet is higher than the input side in 2011.

In mathematical terms, 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 2011 (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 2011

Figure 2 Balance sheet of ELVs (accepted from within Germany, W) and body shells from dismantling facilities, 2009 to 2011

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 2011. According to the statistics, around 330,000 of the ELV backlog has since been cleared.

2.2 Chapter B) Information according to Article 1 (2) - Metal Content Assumption

As in previous years, Germany uses the method of "metal content assumption" pursuant to Article 1 (2) of COM Decision 2005/293/EC.

According to COLM 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?

We would refer you to the remarks made in the Report for 2009, since the same data basis was used.

The **average metal content is 75.9 %**. The metal content of the ELVs is broken down into **68.3 % ferrous metals and 7.6 % non-ferrous metals (average figures).**

The data is based on the new vehicle figures for 1995. Assuming an average ELV age of around 14 to 15 years (see Table 3), these figures are readily transferred to the ELV statistics for 2009 and 2010. As the average metal content of new vehicles only changes very slowly over time, the calculated data can also be applied to end-of-life vehicles for 2011.

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?

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 = 75.9 % * 97 % = 73.6 %

Taking into account the recycling/recovery of the metal content of 97 %, the breakdown yields 66.3 % ferrous metals and 7.3 % non-ferrous metals recycled/recovered, in relation to the vehicle empty weight, see Table 2.

Table 2 "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	75.9 %	68.3 %	7.6 %	Figures for metal content valid for 88.9 % of German market 1995, figures for ferrous and non-ferrous metal content valid for 83.5 % of German market 1995
	Allowing for a yield of 97 %			
"Metal content assumption"	**73.6 %**	**66.3 %**	**7.3 %**	Metal content recycled/recovered

c) Coverage rate

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

As in previous years, the figures for the metal content assumption cover 89 % of vehicles first registered in 1995, while the figures for the breakdown into ferrous and non-ferrous metals cover 84 %.

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

In line with the guide to the Quality Report (page 10 and pages 20-21), all recycled/recovered metals resulting from the "metal content assumption" calculations 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 in COM Tables 1 (dismantling, reuse and recycling/recovery) 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

After the relatively low level of new registrations in 2010 characterized by the after-effects of the Environmental Premium (see chapter 2.3.1 of the Report for 2009), new vehicle registrations in 2011 were roughly on a par with 2008. The number of ELVs was down 7 % against 2010, dropping to below the half million level. The statistics indicate that the number of used cars exported rose again by around quarter of a million to just above 2009 levels.

Table 3 Information on the national vehicle market

National vehicle market Germany	***Unit***	***Reference year 2011***
Motor vehicles newly registered in 2011, total[7]	*Number*	3,697,290
thereof passenger cars		3,173,634
Vehicles registered [8, 9] *in Germany, total*	*Number*	50,902,131
thereof passenger cars		42,301,563
Average age of fleet (motor vehicles [10,9]*, total)*	*Years*	9.5
thereof passenger cars		8.3
Passenger cars, taken out of service [11] *2011 (deregistrations and temporary layups)*	*Number*	7,809,184
Final de-registrations in 2011, passenger cars		approx. 3,100,000 [12]
CoDs issued in Germany	*Number*	466,160
ELVs arising in the Member State	*Number*	466,160
Average age of ELVs	*Years*	approx. 14 to 15

[7] Federal Motor Transport Authority: Neuzulassungen von Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 1950 bis 2012 nach Fahrzeugklassen.
http://www.kba.de/cln_016/nn_277816/DE/Statistik/Fahrzeuge/Neuzulassungen/FahrzeugklassenAufbauarten/n__fzkl__zeitreihe.html

[8] Federal Motor Transport Authority: Bestand an Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 1955 bis 2013 nach Fahrzeugklassen.
http://www.kba.de/cln_016/nn_191172/DE/Statistik/Fahrzeuge/Bestand/FahrzeugklassenAufbauarten/b__fzkl__zeitreihe.html

[9] Reference date 1.1.2011, only registered vehicles excluding temporary layups/off-road notifications.

[10] Federal Motor Transport Authority: Bestand an Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 2004 bis 2013 nach Fahrzeugklassen mit dem Durchschnittsalter der Fahrzeuge in Jahren.
http://www.kba.de/cln_016/nn_191188/DE/Statistik/Fahrzeuge/Bestand/Fahrzeugalter/b__alter__kfz__z.html

[11] Federal Motor Transport Authority: Außerbetriebsetzungen von Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 2007 bis 2012 nach Fahrzeugklassen.
http://www.kba.de/cln_016/nn_191240/DE/Statistik/Fahrzeuge/Ausserbetriebsetzungen/FahrzeugklassenAufbauarten/a__fzkl__zeitreihe.html

[12] Final deregistrations have not been recorded in the statistics since 2007, as there are now only "off-road notifications". Final deregistrations account for about 40 % of off-road notifications. Source: Federal Motor Transport Authority, see Report for 2009, footnote 13.

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 [13]. According to these statistics, the average age of ELVs in Germany has increased by 1.0 year since 2008.

As described in Section 2.1.5 g), the dismantling facilities have to issue a certificate of destruction 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 is 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, some 944,428 used cars were exported to other EU Member States. For 2011, figures were available for all 26 other EU Member States for the first time. Overall, this figure should be considered the lower limit.

Additionally, foreign trade statistics were also consulted where higher export figures were indicated; overall, there is statistical evidence of 970,857 exports of used vehicles into EU Member States.

Compared with figures of 0.9 million in 2009 and 0.8 million in 2010 due to the Environmental Premium, used car exports to EU Member States increased again slightly in 2011, see Table 4.

[13] Federal Motor Transport Authority: Average age of ELVs shown in the ZFZR. Personal communication dated 9 July 2012.

Table 4 **Exports of used cars from Germany, 2011.**
Calculated from two sources: Notifications to the Federal Motor Transport Authority (KBA) concerning vehicles formerly registered in Germany ("KBA") and foreign trade statistics ("FTS").[14]

New EU Member States (accession from May 2004)		Number 2011		Old EU Member States		Number 2011
	Source				Source	
Poland	KBA	**433,349**		Finland	KBA	20,040
Czech Republic	KBA	**66,953**		Denmark	KBA	8,934
Slovakia	KBA	16,019		Sweden	KBA	8,680
Hungary	KBA	18,360		United Kingdom	KBA	882
Lithuania	KBA	**57,523**		Ireland	KBA	70
Latvia	KBA	22,686		France	KBA	**67,462**
Estonia	KBA	12,709		Netherlands	KBA	**53,734**
Slovenia	FTS	3,012		Belgium	KBA	23,294
Romania	KBA	**62,488**		Luxembourg	KBA	7,317
Bulgaria	KBA	32,485		Austria	FTS	8,027
Cyprus	FTS	88		Spain	FTS	8,878
Malta	FTS	2		Portugal	FTS	1,947
				Italy	FTS	26,673
				Greece	KBA	9,245
Total EU				**970,857**		

Exports to non-EU states:

Exports to non-EU states were small compared with exports to EU countries, see Table 5. The foreign trade statistics showed a total of around 347,000 used cars exported (passenger cars and motor homes). Comparison with the figures for 2008 to 2010, in which about a quarter of a million cars were exported to non-EU states annually, indicate an increase of more than 100,000 vehicles. The major destinations for used cars outside of Europe are West Africa (37 %) and the states of the former Soviet Union (30 %), see Table 5.

[14] Personal communication from the Federal Motor Transport Authority dated 27 February 2012 and Federal Statistical Office: Warenverzeichnis Außenhandelsstatistik 8-Steller, Länderverzeichnis, Data for 2011. Wiesbaden 2012

Table 5 Exports of used cars to non-EU states according to the foreign trade statistics, cars and motorhomes with petrol or diesel engine[15]

Year / Country	2011		
Non-EU total	**347,415**		
Of which states of the former Soviet Union (excluding Baltic States)	**105,734**	Of which Belarus Russia Georgia	35,925 23,832 27,913
Of which West Africa[16]	**127,523**	Of which Benin Nigeria	60,210 27,733
Of which Norway, Switzerland	**42,208**		

Total exports of used cars:

Figure 3, which is included in this Quality Report for the first time, shows 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 Environment 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 states. As such, there may be minor deviations from the information provided in previous reports.

[15] Federal Statistical Office: Warenverzeichnis Außenhandelsstatistik 8-Steller, Länderverzeichnis, Data for 2011. Wiesbaden 2012

[16] 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

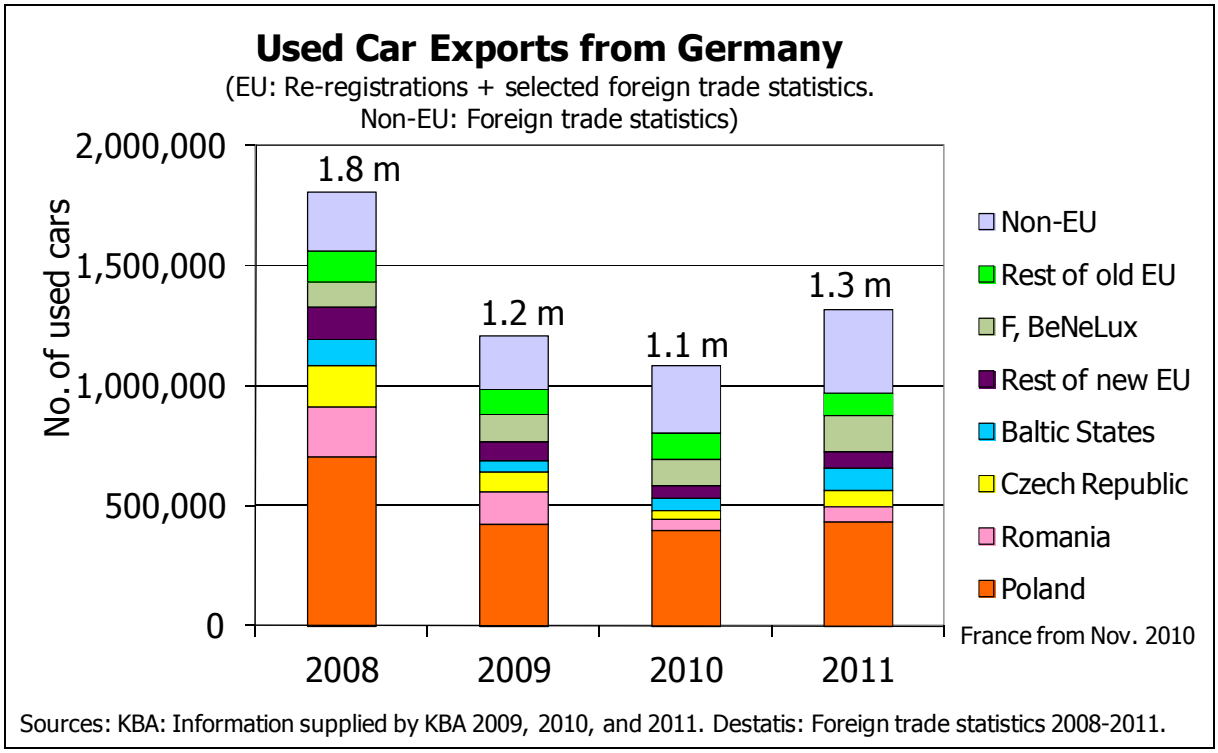


Figure 3 Development over time of used car exports from Germany, 2008 to 2011

Fate of finally deregistered cars, 2008 to 2011:

Overall, the various statistical sources produce the following picture regarding the fate of cars finally deregistered in Germany - see Figure 4. Regarding both Figure 3 and Figure 4, it is worth pointing out that the export figures have been supplemented by an additional data source compared with the Quality Reports for 2008 to 2010, as a result of which minor deviations from the information in the previous reports may arise.

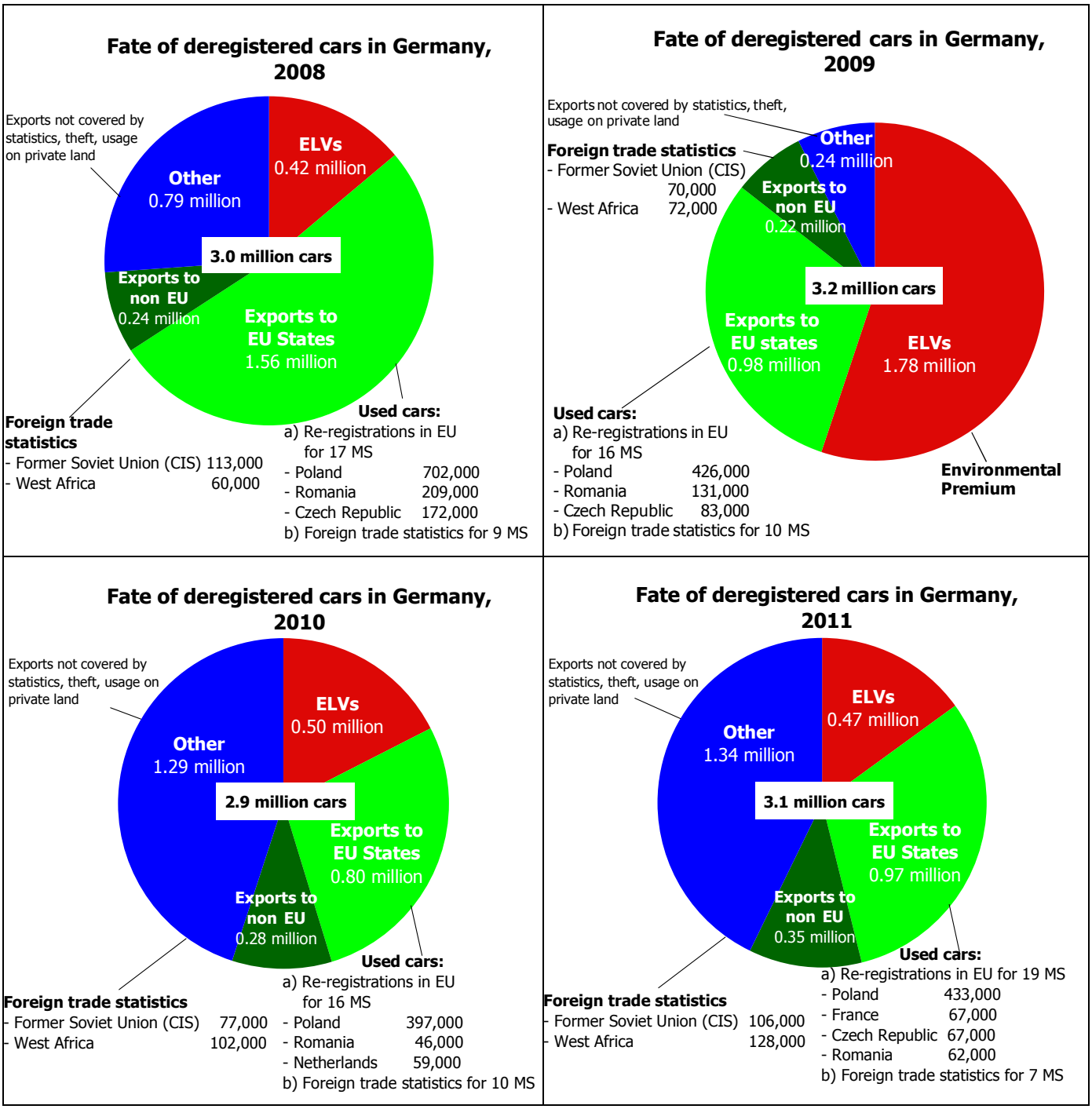


Figure 4 Fate of cars finally deregistered in Germany, 2008 to 2011[17]

[17] 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 23 April 2009, 26 March 2010, 14 April 2010, 4 March 2011 and 27 February 2012.
- Federal Motor Transport Authority: Fahrzeugklassen und Aufbauarten – Löschungen bzw. Außerbetriebsetzungen in den Jahren 1950 bis 2012 nach Fahrzeugklassen, http://www.kba.de/cln_005/nn_191240/DE/Statistik/Fahrzeuge/Ausserbetriebsetzungen/FahrzeugklassenAufbauarten/a_fzkl_zeitreihe.html
- Federal Statistical Office: Außenhandelsstatistiken 2008, 2009, 2010 und 2011, 8-Steller, Gebrauchtwagenexport aus Deutschland

ELVs, body shells:

- In 2011, the dismantling facilities in Germany accepted 468,711 end-of-life vehicles, of which 466,160 came from within Germany (=W).
- According to the statistics on "Transboundary shipment of waste requiring notification"[18] , no "scrapped passenger cars" (No. 8.11) were exported from Germany in 2011.

Table 6 Exports of used cars, end-of-life vehicles and pre-treated body shells from Germany

Reference year 2011	***Unit***	***To other EU countries***	***To non - EU countries***
Used vehicles exported (see Table 4 and Table 5)	*Number*	970,857	347,415
Average age of used vehicles exported	*Years*	(7.3)[19]	
ELVs exported (see COM Table 3)	*Number*	0	0
De-polluted (and dismantled) body shells exported (waste code 16 01 06)	*Number*	25,440[20]	
	Tonnes	20,164	

2.3.3 Section 3: Elements related to methods and quality of Section 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 3. 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 very good. 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

- Federal Statistical Office: Table 14 of the Waste Management Surveys, 2008, 2009, 2010 and 2011, Wiesbaden 2013

[18] See COM Table 3 and the waste export statistics: http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/ZeitreiheExportAbfallarten.pdf.

[19] This figure refers to vehicles with export licence plates.
Source: Personal communication from the Federal Motor Transport Authority dated 9 July 2012.

[20] Converted with the average weight of body shells of 793 kg. The average weight was calculated from the total mass and the total number of body shells that left dismantling facilities in 2011 (to Germany and abroad): Total mass 461,504 t / total number 582,261 units = 793 kg/unit.

calculation is therefore based on the Federal Motor Transport Authority's estimate at the time of conversion 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 first 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 26,000 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 car were to be re-registered in the transit country. No information is available about any possible informal exports for purposes other than reuse.

As illustrated in Figure 4, there is currently no statistical evidence of the fate of approximately 1.3 million of the 3.1 million or so vehicles finally deregistered in 2011.

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 dropping again to roughly its pre-2009 level in 2010 and 2011 - see Figure 5.

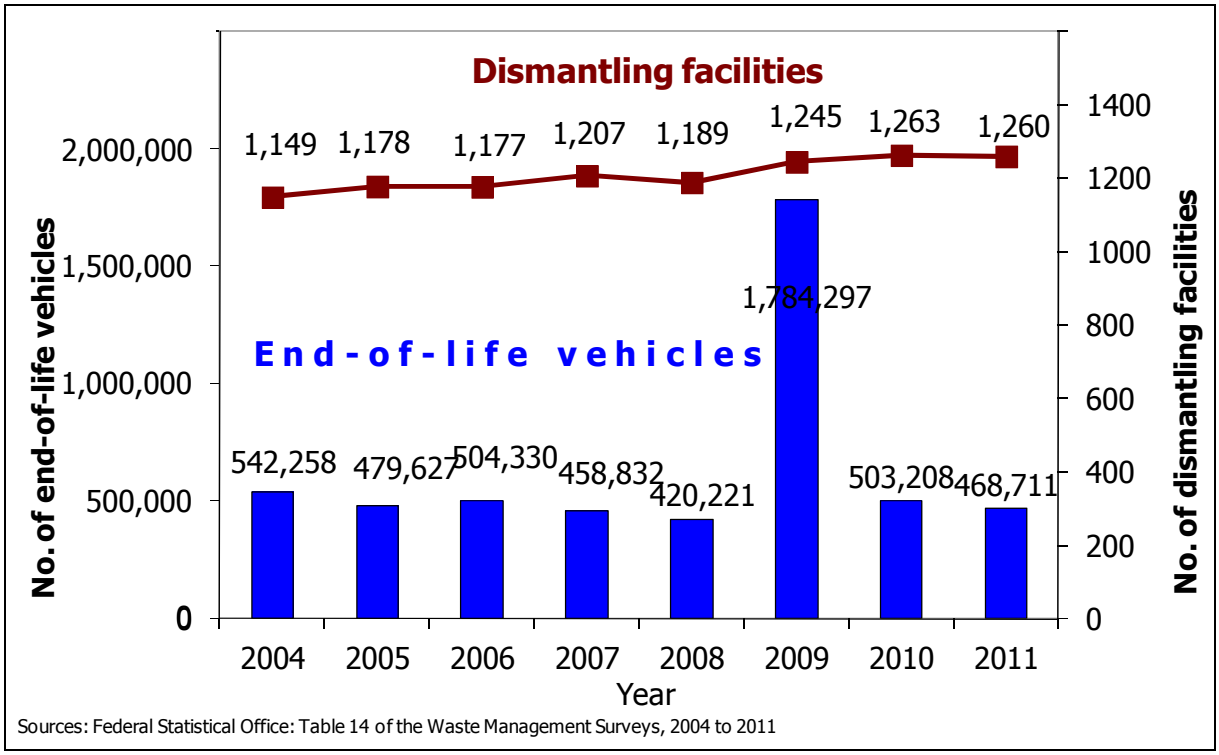
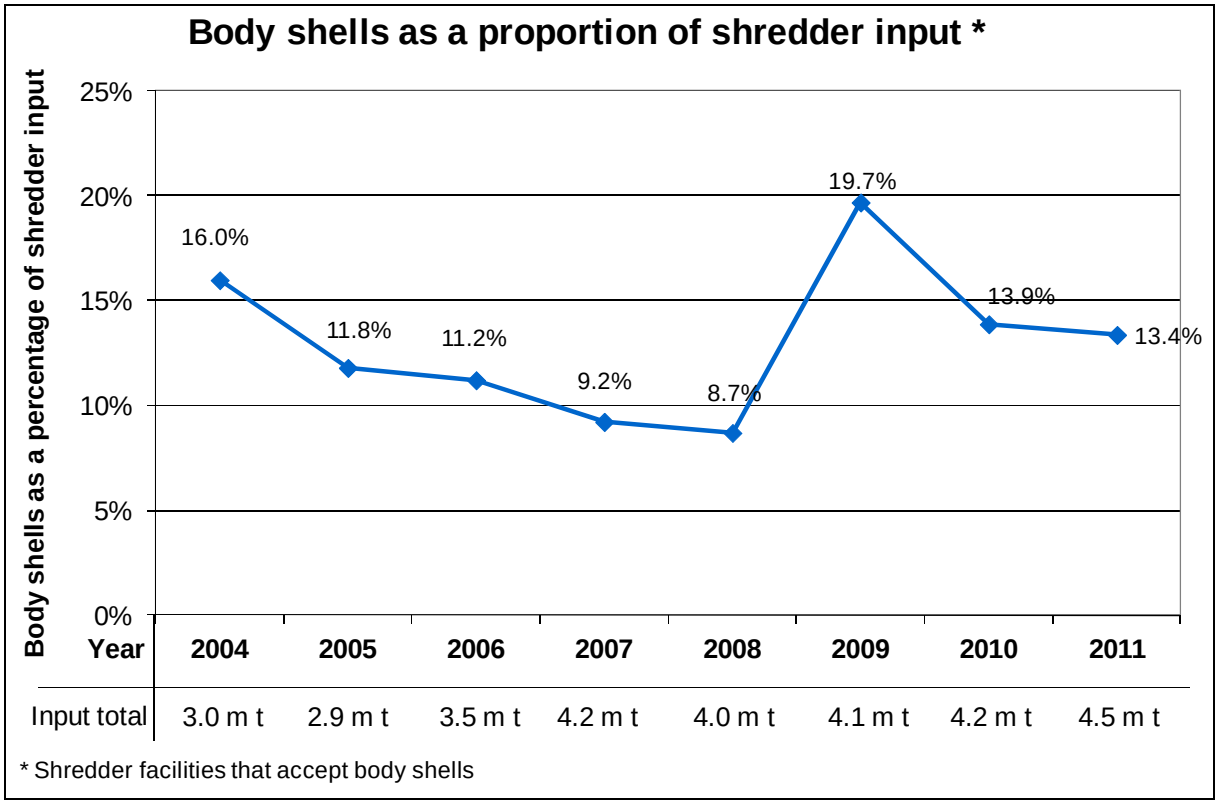


Figure 5 **Development of ELV quantities (total, delivered from within Germany and abroad) and the number of dismantling facilities in the waste statistics, Germany since 2004**[21]

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 rose to 13.4 % in 2011, roughly on a par with the 2010 level, see Figure 6.

[21] 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 2011

Figure 6 Development of body shells as a percentage of input into German shredder facilities, 2004 to 2011

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, the proportion that is recycled or recovered has increased continuously year on year, and by 2010 only 9 % was sent for disposal. In 2011 this figure increased slightly to 11 %, see Figure 7. The diagram shows the total quantity of shredder light fraction generated in shredder facilities that accept body shells. A certain proportion of this originates from body shells (2011: 36 % or approx. 143,200 t out of 403,000 t).

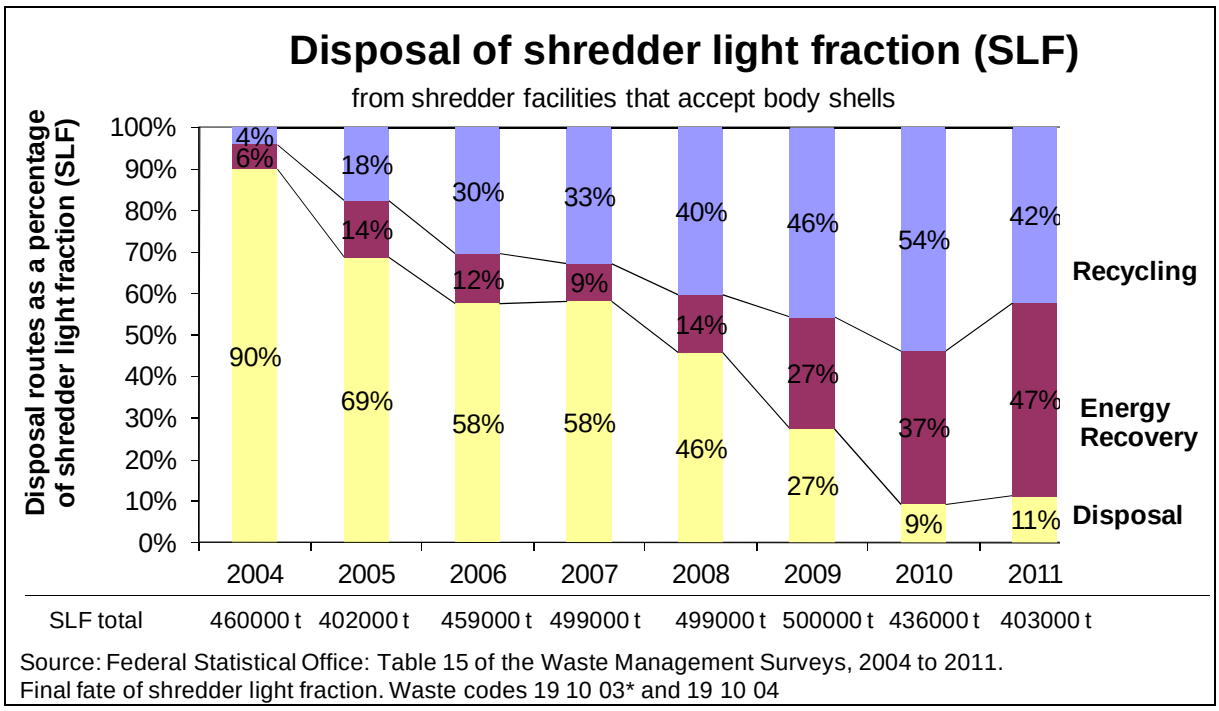
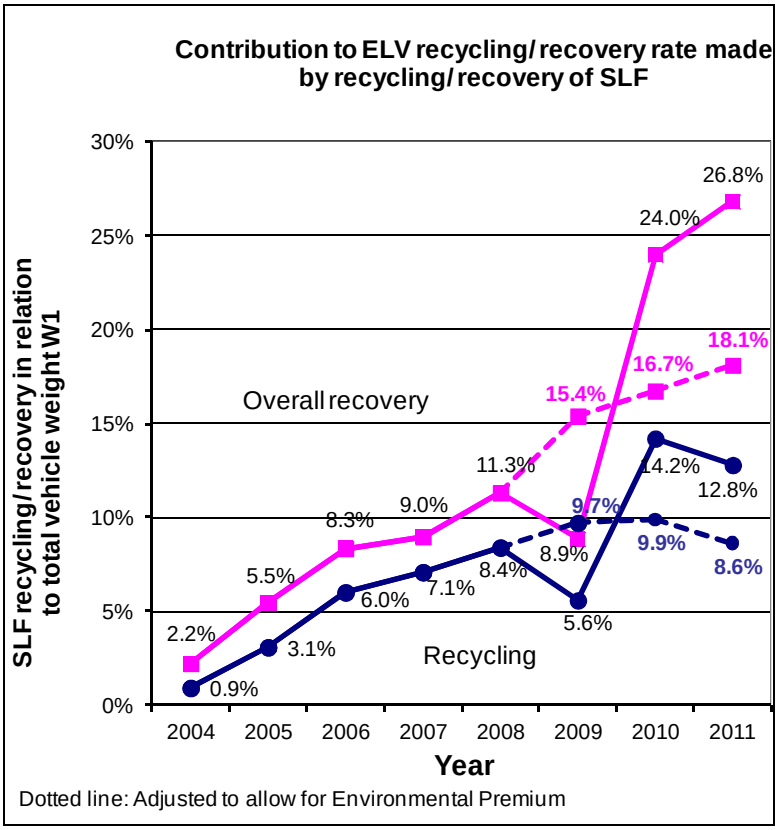


Figure 7 **Disposal of shredder light fraction from shredder facilities that treat body shells in Germany, 2004 to 2011**



The contribution made by the shredder light fraction to the overall ELV recovery rate rose exceptionally to 24 % in 2010, and increased again to 26.8 % in 2011. The explanation for this is that, in addition to the ELVs incurred in 2011, shredding of some ELVs from 2009 was postponed until 2011. Recycling/recovery of shredder residues from both these body shell quantities was reflected in the rate calculated for 2011.

Figure 8 Contribution to end-of-life vehicle recycling/recovery rate 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 2011; see dotted line in Figure 8. To this end, the volume of shredder light fraction originating from the treatment of ELVs incurred in a given year in Germany was calculated (2001: around 97,000 t), regardless of in which year treatment actually took place. This produces "adjusted" contributions to the recycling rate for all three years on a similar level to 2008. The annual increases in "adjusted" contributions to the overall recovery rate (approximately 18 % in 2011) are primarily attributable to the falling proportion of shredder light fraction disposal up until 2011.

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 (73.6 %), in 2011 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 stock levels of ELVs 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 2010 and 2011, see Figure 9. For example, in 2011, 25 % more ELVs and body shells (582,000 units) were treated and recycled/recovered than were actually incurred in that year. In 2011, the recycling/recovery of the shredder light fraction was also correspondingly high in relation to the 466,160 end-of-life vehicles incurred, see also Figure 8.

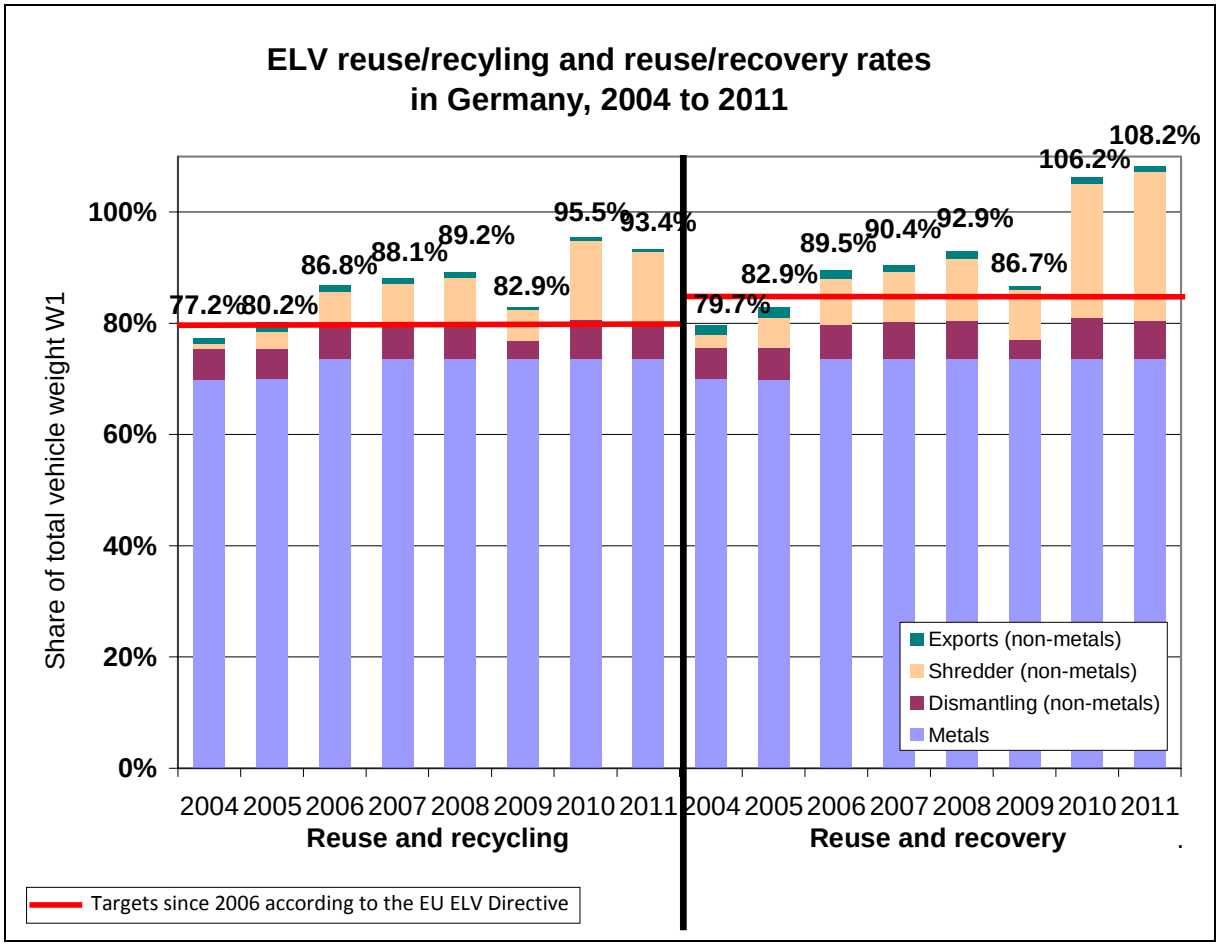


Figure 9 **Contribution of dismantling facilities, shredder facilities and recycling/recovery abroad to ELV reuse/recycling and reuse/recovery rates, 2004 to 2011**

Consequently, as in the previous year, the postponed treatment and recycling/recovery of accumulated ELVs as an after-effect of the Environmental Premium produces a mathematical overall recovery rate of more than 100 % for the year 2011 in relation to the mass 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 that would have applied, were it not for the influence 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 2011: around 582,000 output body shells) were scaled up or down in relation to the number of ELVs for that year (e.g. 2011: W = 466,160).
- 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 estimated higher rates for 2009 and lower rates for 2010 and 2011. The recycling rate for 2011, adjusted to allow for the Environmental Premium, is approximately 88 %, and the overall recovery rate approximately 98 %, see Figure 10.

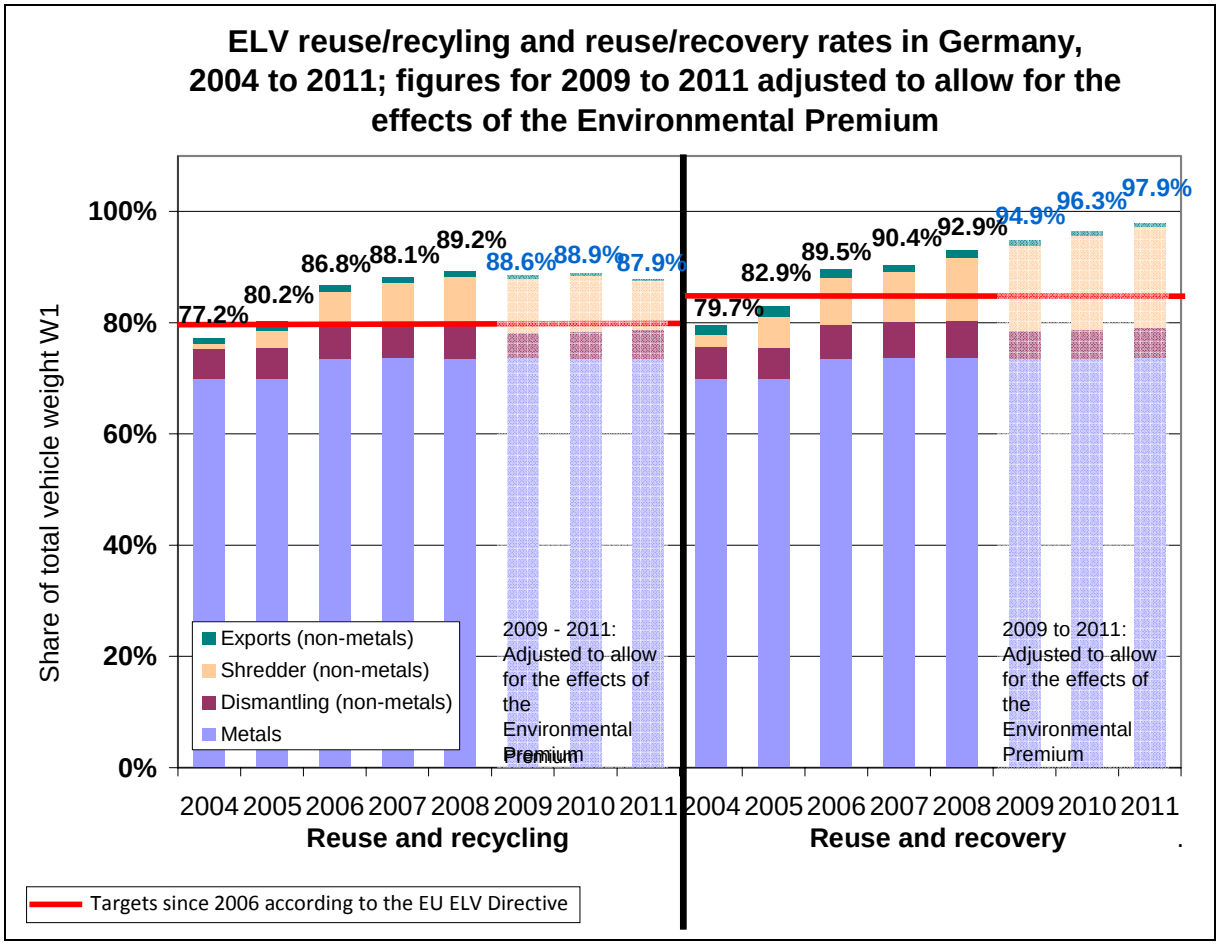


Figure 10 **Contribution of dismantling facilities, shredder facilities and recycling/recovery abroad to ELV reuse/recycling and reuse/recovery rates, 2004 to 2011, with figures for 2009 to 2011 adjusted to allow for the effects and after-effects of the Environmental Premium.**

Appendix to the Quality Report: COM Tables with allocation of metals also to Tables 1 and 3

According to the EU Commission's guide, 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, 2011 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	228	7,366	0	7,366	1
Liquids (excluding fuel)	109	3,018	603	3,621	903
Oil filters	2	81	54	135	8
Other materials arising from de-pollution (excluding fuel)	2	17	30	46	12
Catalysts	76	1,558	0	1,558	8
Metal components	22,614	33,924	0	33,924	2
Tyres	1,268	13,708	0	13,708	216
Large plastic parts	336	1,613	0	1,613	3
Glass	621	1,671	0	1,671	36
Other materials arising from dismantling	5,108	77	737	814	11
Total	**30,365**	**63,033**	**1,424**	**64,457**	**1,200**

Source: From Federal Statistical Office data, Tables 1 and 15 of the Waste Management Survey 2011.

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, 2011 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)	239,880	0	239,880	0
Non-ferrous materials (e.g. Al, Cu, Zn, Pb)	26,403	0	26,403	0
Shredder light fraction (SLF)	59,908	65,794	125,702	16,043
Other	0	0	0	0
Total	**326,191**	**65,794**	**391,985**	**16,043**

Source: From Federal Statistical Office data, Table 15 of the Waste Management Survey 2011.

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

1. *Calculation of recovered/recycled metals (total) = 73.6 % (metal content assumption) * 468,459 t (total vehicle weight W1) = 344,894 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 66.3 % : 7.3 %*

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 (exports) for Germany, 2011 Total metals + non-metals					
Components / materials exported for further treatment Total weight, broken down by countries	**Total weight of end-of-life vehicles which are exported per country**	**Total recycling of (part of) end-of-life vehicles exported**	**Total recovery of (part of) end-of-life vehicles exported**	**Total disposal of (part of) end-of-life vehicles exported**	**Remarks**
		(F1)	**(F2)**	**(F3)**	
	[t]	[t]	[t]	[t]	
1) End-of-life vehicles (WC 160104*)	0	0	0	0	No exports in 2011 according to the statistics for "Transboundary shipment of waste requiring notification" [a)]
Breakdown by countries: -- not applicable --					
2) Body shells from dismantling plants (WC 160106)	20,164	16,131	17,139	3,025	Basic figures: 20,164 t body shells exported for recovery (assumption: 80%/85% thereof recycled/ recovered)
Breakdown by countries: -- unknown --					
3) Components from dismantling plants	1,517	1,388	1,509	7	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 plants) included in the waste export statistics: - 130205* Engine etc. oils to the Netherlands - 160103 Waste tyres to Bulgaria, Poland - 160113* Brake fluids to Belgium - 160601 Lead batteries to Belgium, Sweden, Slovenia, Spain, Czech Republic - 160807* Catalysts to Belgium, France, UK, Japan, USA - 170405 Iron and steel to Poland					
4) SLF from shredders	1,428	570	1,375	54	Total SLF exported: 191003*: 1,586 t, 191004: 2,430 t. Of which 36% 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					
Total	**23,109**	**18,090**	**20,023**	**3,086**	

Source: Federal Statistical Office Waste Management Survey 2011 and waste exports data

Explanatory comments:

WC = waste code

a) http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/ZeitreiheExportAbfallarten.pdf (No. 8.11) and http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/UStatGExport2011.pdf (waste code 16 0104*). The 549 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 plants: "Erhebung über die Abfallentsorgung im Jahr 2011" (Waste Management Survey, 2011), 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 2012: http://www.umweltbundesamt.de/abfallwirtschaft/abfallstatistik/dokumente/UStatGExport2011.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 the Member State

COM Table 4 (rates) for Germany 2011					
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) (metals + non-metals)	30,365	63,033	64,457	93,398	94,822
Tab 2: Shredders (B2, D2) (metals + non-metals)		326,191	391,985	326,191	391,985
Tab 3: Exports (F1, F2) (metals + non-metals)		18,090	20,023	18,090	20,023
Total	**30,365**	**407,315**	**476,466**	**437,679**	**506,830**

				Recycling and recovery rates 2011	
W	**(total number of end-of-life vehicles)**	**466,160**	**vehicles**	**93.4%**	**108.2%**
W1	**(total vehicle weight)**	**468,459**	**tonnes**	**X1/W1**	**X2/W1**