



Annual report on end-of-life vehicle reuse/recycling/recovery rates in Germany for 2014

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"

(English translation)

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"

Organisation submitting the data and the description:



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and



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We agree to make our Quality Report available to the national experts via *circa* (Y/N)

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1 Tables

pursuant to COM Decision 2005/293/EC for Germany, 2014

Notes:

- The Commission's guidance document "How to report on end-of-life vehicles according to Commission Decision 2005/293/EC"¹ (as at: May 6, 2013), pages 9-10 and 21-22, states that **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.
- The COM tables are repeated in the **Appendix** to this Annual 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, 2014 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
	in t	in t	in t	in t	in t
Batteries ^{a)}	37	4,104	0	4,104	80
Liquids (excluding fuel)	56	2,874	529	3,403	761
Oil filters ^{a)}	1	0	41	41	2
Other materials arising from de-pollution (excluding fuel) ^{a)}	1	0	46	46	14
Catalysts ^{a)}	7	386	0	386	3
Metal components ^{a)}	0	0	0	0	0
Tyres	845	6,677	5,246	11,923	92
Large plastic parts	108	1,274	0	1,274	28
Glass	174	1,011	0	1,011	6
Other materials arising from dismantling ^{a)}	3,769	1	1,039	1,040	4
Total	4,997	16,327	6,900	23,227	990

Explanatory comments and source information for this table may be found on the following page.

¹ <http://ec.europa.eu/eurostat/documents/342366/351811/ELV-Guidance-052013.pdf>



Explanatory comments:

This table contains a few rounding differences (in each case of one tonne) because quantities were rounded up or down to the nearest whole tonne.

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

Source:

From Federal Statistical Office data, Tables 1 and 15 of the Waste Management Survey 2014.

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, 2014 Including <u>all</u> metals (see above)				
Materials from shredding	Recycling	Energy recovery	Total recovery	Disposal
	(B2)	(C2)	(D2 =B2+C2)	(E2)
	in t	in t	in t	in t
Ferrous scrap (steel)	318,387	0	318,387	355
Non-ferrous materials (aluminium, copper, zinc, lead etc.)	49,733	0	49,733	0
Shredder light fraction (SLF)	57,648	50,878	108,526	6,216
Other	0	0	0	0
Total	425,768	50,878	476,646	6,571

Explanation:

The 355 t of metal scrap listed in the "Disposal" column originates from the metal portions of materials or components disposed of after dismantling.

Source:

From Federal Statistical Office data, Table 15 of the Waste Management Survey 2014.



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, 2014 Non-metals only!! (see above)					
End-of-life vehicles, body shells, components and materials disposed of abroad	Total weight of end-of-life vehicles which are exported per country	Total recycling of (parts of) end-of-life vehicles exported (F1)	Total recovery of (parts of) end-of-life vehicles exported (F2)	Total disposal of (parts of) end-of-life vehicles exported (F3)	Remarks
	in t	in t	in t	in t	
1) End-of-life vehicles (WC 160104*)	0	0	0	0	No exports in 2014 according to the statistics on "Transboundary shipments of waste requiring consent" a)
Breakdown by countries: -- Not applicable --					
2) Body shells from dismantling facilities (WC 160106)	7,671	1,939	3,372	4,299	Exported body shells: 28,662 t in total. Calculation of non-metals from body shells recovered and disposed of abroad, see explanation b)
Breakdown by countries: -- unknown --					
3) Components from dismantling facilities	410	149	369	40	Batteries ^{c)} , tyres, large plastic parts, glass etc.
Breakdown by countries, where known					
WC	Waste	Destination countries for waste exports (total, not just from dismantling facilities) included in the waste export statistics:			
- 130205*	Engine etc. oils	To Belgium, the Netherlands, Poland			
- 160103	Waste tyres	To Cameroon			
- 160601*	Lead batteries	To Belgium, Slovenia, Poland, Spain, Czech Republic			
- 160801*	Catalysts	To South Africa			
- 160807*	Catalysts	To Belgium, France, UK, USA			
4) SLF from shredders	1,192	593	1,107	85	Total SLF exported: WC 191003*: 1,221 t, WC 191004: 2,468 t. Of which 32.3 % from ELVs.
Breakdown by countries, where known					
WC	Waste	Destination countries for waste exports according to waste export statistics (total, not just originating from ELVs)			
- 191003*	Shredder light fraction	To Belgium			
- 191004	Shredder light fraction	To the Netherlands, Austria			
Total	9,273	2,681	4,848	4,424	

Explanatory comments and source information for this table may be found on the following page.



Explanatory comments:

WC = waste code

This table contains a few rounding differences (in each case of one tonne) because quantities were rounded up or down to the nearest whole tonne.

- a) Possible ELV exports are recorded in the waste export statistics (see sources below). According to these statistics, in 2014, 220 t were exported to Denmark under waste code 160104* (end-of-life vehicles). In the time series table, this waste is allocated to no. 8.12 "Other scrapped motor vehicles", while no exports are allocated to no. 8.11 "Scrapped passenger cars". In prior years, the vehicles exported under waste code 16 01 04* were in each case not road vehicles. Consequently, for the year 2014, we can assume that also this time this figure does not include any end-of-life vehicles falling within the scope of the ELV Directive.
- b) Calculation of recycled/ recovered and disposed of non-metals from exported body shells:

		Total weight	Of which recycled	Of which recovered	Of which disposal
1	Body shells, from dismantling facilities, exported for further treatment abroad	100 % = 28,662 t	80 % = 22,930 t	85 % = 24,363 t	15 % = 4,299 t
2	Of which recovered metal content	73.235 % of 28,662 t = 20,991 t	20,991 t	20,991 t	0 t
3	Of which non-metals (line 1 minus line 2)	7,671 t	1,939 t	3,372 t	4,299 t

The proportion of body shells recycled/recovered abroad has been estimated at 80% and 85% respectively, in line with the minimum requirement of the EC ELV Directive.

The metal content is 73.235 %, see Table 1 in number 2.2, letter b). Assumption: The metals were recycled/recovered in full.

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

Sources:

- Exports of body shells and other waste from end-of-life vehicle dismantling facilities: "Erhebung über die Abfallentsorgung im Jahr 2014" (Waste Management Survey, 2014), Table 15, Federal Statistical Office.
- German Environment Agency (UBA): "Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen 2014 - Export" (Transboundary Shipments of Waste Requiring Consent, 2014), https://www.umweltbundesamt.de/sites/default/files/medien/378/dokumente/export_2014.pdf
- German Environment Agency (UBA): "Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen. Zeitreihe Export nach Abfallarten - Mengen in 1000 t. 2006-2015" (Transboundary Shipments of Waste Requiring Consent. Time series "Exports by waste category - Volumes in 1,000 t. 2006-2015)", https://www.umweltbundesamt.de/sites/default/files/medien/378/dokumente/zeitreihe_export_notifizierungspflichtiger_abfaelle_nach_abfallarten_0.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, 2014					
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)
	in t	in t	in t	in t	in t
COM Tab 1: Dismantling (A, B1, D1) (non-metals only)	4,997	16,327	23,227	21,324	28,225
COM Tab 2: Shredders (B2, D2) (incl. <u>all</u> metals)		425,768	476,646	425,768	476,646
COM Tab 3: Exports (F1, F2) (non-metals only)		2,681	4,848	2,681	4,848
Total	4,997	444,776	504,722	449,773	509,719
				Recycling and recovery rates 2014	
W (total number of end-of-life vehicles)	512,163 vehicles			89.5%	101.4%
W1 (total vehicle weight)	502,656 tonnes			X1/W1	X2/W1

Explanation:

This table contains a few rounding differences (in each case of one tonne) because quantities were rounded up or down to the nearest whole tonne.



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) of COM Decision 2005/293/EC – Description of data used to determine ELV recycling/recovery rates for Germany, 2014

2.1.1 Section 1: Source 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 is drawn from 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 (§ 3 (1) No. 1). Tables 1.1, 14 and 15 of the "Waste Management Survey 2014" were used for this purpose.

At the end of each reporting year, the ELV treatment facilities (1,211 dismantling facilities and 50 shredding facilities in 2014) 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 German 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 Sample waste disposal form 2013 - DBA for Bavaria:
https://www.statistik.bayern.de/medien/statistik/erhebungen/abfallwirtschaft/dba_s18_20140704.pdf

⁴ Sample waste disposal form 2013 - SHR for Bavaria:
https://www.statistik.bayern.de/medien/statistik/erhebungen/abfallwirtschaft/shr_s18_20140407.pdf

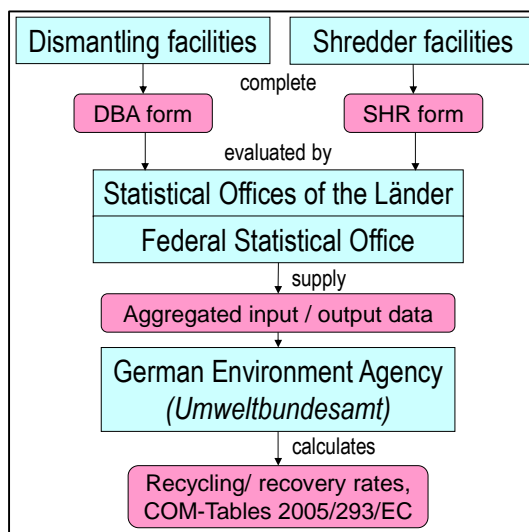


Figure 1 Data streams for determining recycling/recovery rates under the ELV Directive

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 are also used to obtain 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, firstly, metallic fractions and secondly, 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 may be included in the calculation of 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 codes 191003* and 191004) totalling 25% of the weight of the body shells



(originating 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 storage by the dismantling facilities and their treatment was postponed until subsequent years. Around 411,000 ELVs from 2009 were recovered and recycled between 2010 and 2013 - see previous year's Report. A further 11,000 or so of these ELVs were recovered or recycled in 2014. There are signs of a continuing slowdown in the rate of stock reduction for vehicles stockpiled under the Environmental Premium. Between 2010 and 2014, this figure was roughly halved each year - see Figure 2 in number 2.1.6.

2.1.2 Section 2: Quality of information sources

Coverage:

The data was collected from the whole of Germany from all 1,211 dismantling facilities for end-of-life vehicles and 50 shredder facilities with body shell treatment. The level of completeness is correspondingly high.

Data quality:

Since 2014 is now the eleventh reporting year based on the same methodology, it may be assumed that the data collection process is working well. The quality of the data is considered to be good.

The survey yields plausible values for average vehicle weight, and the figure of 981 kg is on a par with the previous year's figure. In relation to the empty weight of ELVs arising in 2014, around the same percentage of materials (19.0%) was dismantled by the dismantling facilities as in 2013 (18.6%).

There are no new findings regarding the quality of on-site data collection by the facilities. We would therefore refer you to the statements on the 2009 Report⁵.

The breakdown of the dismantled components and materials into recycling and energy recovery is based on material types and a knowledge of customary recovery paths in Germany. Based on industry association figures on the recovery and recycling of waste tyres in 2014 (excluding reuse), this breakdown has been updated to 56% material recycling and 44% energy recovery.

Various waste types consist of both metals and non-metals. The metal portions 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.

⁵ See Annual Report on end-of-life vehicle reuse/recycling/recovery rates in Germany, 2009, German version: www.bmub.bund.de/N50180/, English version: www.bmub.bund.de/N50180-1/



Imports:

In the statistical questionnaires, the end-of-life vehicle treatment facilities state whether the ELVs accepted come from outside of Germany or within Germany. Of the 506,291 t (515,867 vehicles) of ELVs accepted, 3,635 t (0.72%, or 3,704 vehicles) came from outside Germany. The 502,656 t (512,163 vehicles) of ELVs 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 international vehicle manufacturers; see number 2.2. The quality of this estimate can therefore be considered very good. As it was so recent, we continued to use the 2013 "Metal content assumption" for the reporting year 2014. This covers 95% of the vehicle market. The recovered portion of metal content from vehicles is still conservatively estimated at 97%.

Shredder light fraction:

The input of the 50 body shell shredders totalled around 4.1 million tonnes in 2014. The proportion of input attributable to body shells fell again slightly, from 13% in 2013 to 11.9% in 2014. The most important additional input materials from ELV shredders in 2014 were iron and steel (57%), ferrous metals (18%) and (mixed) metals (6%). To calculate the ELV recovery/recycling rates, it was necessary to determine the proportion of shredder light fraction originating from the treatment of body shells. A volume of shredder light fraction equivalent to 25% of the treated body shell weight was therefore allocated to ELV recovery/recycling, see number 2.1.1. Of the 463,700 t (approximate figure) of body shells (accepted from Germany and) shredded in 2014, some 115,900 t of shredder light fraction was produced, equivalent to 32.3% of the 359,000 t (approximate figure) of the shredder light fraction incurred in total; see also pages 37/38.

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 § 2 (1), no. 23 of the German ELV Ordinance (*AltfahrzeugV*). For a definition of vehicle empty weight in accordance with § 2 (1), No. 23 of the *AltfahrzeugV*, please refer to the 2009 Report.

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

Recycling or recovery of exported end-of-life vehicles:

No end-of-life vehicles were exported in 2014, refer to the comments on COM Table 3 in section 1.

Recycling or recovery of exported body shells:



In terms of quantity, exports of body shells and ELV parts from Germany play only a minor role: Recycling or recovery of non-metals from exported body shells accounts for only 1.0% of the overall recovery rate.

The quantities of body shells exported abroad for recovery can be taken from the statistics. No information is available concerning the proportion of body shells that is ultimately recycled or recovered abroad. As in Germany, a metal content assumption of 73.2% is used for calculation purposes, together with an overall recycling and recovery rate of 80% / 85% respectively, as the minimum targets set out in the ELV Directive.

Recycling or recovery of exported components/materials from dismantling facilities:

For each type of waste output from dismantling facilities, the statistics show whether recovery/recycling or disposal took place in Germany or abroad. The same breakdown into recycling and energy recovery is used as for recovery within Germany (see number 2.1.5, letter 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. In calculating 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

Because the metal content assumption has been applied, COM Table 2 – as outlined in the COM guidance document – contains all metals recovered, i.e. including those recovered abroad. With regard to 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 § 4 of the German ELV Ordinance (*AltfahrzeugV*), end-of-life vehicles pass through a two- to three-stage disposal process in the following sequence:

(→ optional: acceptance or collection facility,)

→ dismantling facility for pre-treatment,

→ shredder facility.

As a result of 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 eliminate the possibility of double counting: 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 have also been presented in such a way that they include metal components in both tables. The resultant representation of COM Tables 1 to 4 may be found in the Appendix to this Annual 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)

Calculations were performed or assumptions made at various points.

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 is deduced 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 number 2.1.2 and further examples in the 2009 Report.

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 number 2.1.2.

Regarding the "metal content assumption", please refer to number 2.2. In line with the COM 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 missing 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 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 28,662 t or 5.7% of the total vehicle weight W1 (502,656 t). The same applies to exported components and materials from dismantling (metals and non-metals: 6,862 t; i.e. 1.4% in relation to W1) and shredder light fraction (1,192 t; 0.2%).

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 used⁶ do not

⁶ See the source information below COM Table 3.

contain separate volume information about ELV treatment and their destination countries, they do indicate the total quantities exported from Germany for selected waste fractions (generally considerably higher than the quantities exported by the ELV treatment facilities) and the destination countries.

e) Description of validation process (How does Germany 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. The statistical offices use their established statistical test routines for this purpose (e.g. input/output comparison, anticipated waste types, comparison with the previous year). The German 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 number 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 "metal content assumption" was transferred from the previous year, see number 2.2.

Given the provisional results of the study into the fate of vehicles (see explanations under number 2.3), we have updated the methodology used for reporting the fate of finally deregistered motor vehicles. In particular, the actual number of finally deregistered motor vehicles was recalculated, and qualified additional estimates were undertaken for exports of used vehicles (into EU countries and non-EU countries) not covered by the statistics.

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

§ 4 of the German ELV Ordinance (*AltfahrzeugV*) states that end-of-life vehicles must be transferred to a dismantling facility (or alternatively, an acceptance or collection facility, which is required to pass the ELV on to the dismantling facility). Dismantling facilities are required to issue certificates of destruction for the end-of-life vehicles accepted, and must treat the ELVs in accordance with the provisions of the Ordinance. Certificates of destruction must therefore be issued for all end-of-life vehicles.

Nevertheless, in 2014, the observed "statistical gap" regarding the fate of finally deregistered vehicles (see Figure 5 in number 2.3.2) prompted the Federal Ministry for the Environment and the German Environment Agency to commission a study under the Environmental Research Plan to clarify the fate of such vehicles, see number 2.3.2.



2.1.6 Input/output balance

The recommended mass balance $X2+E1+E2+F3 = W1$ revealed the following for 2014:

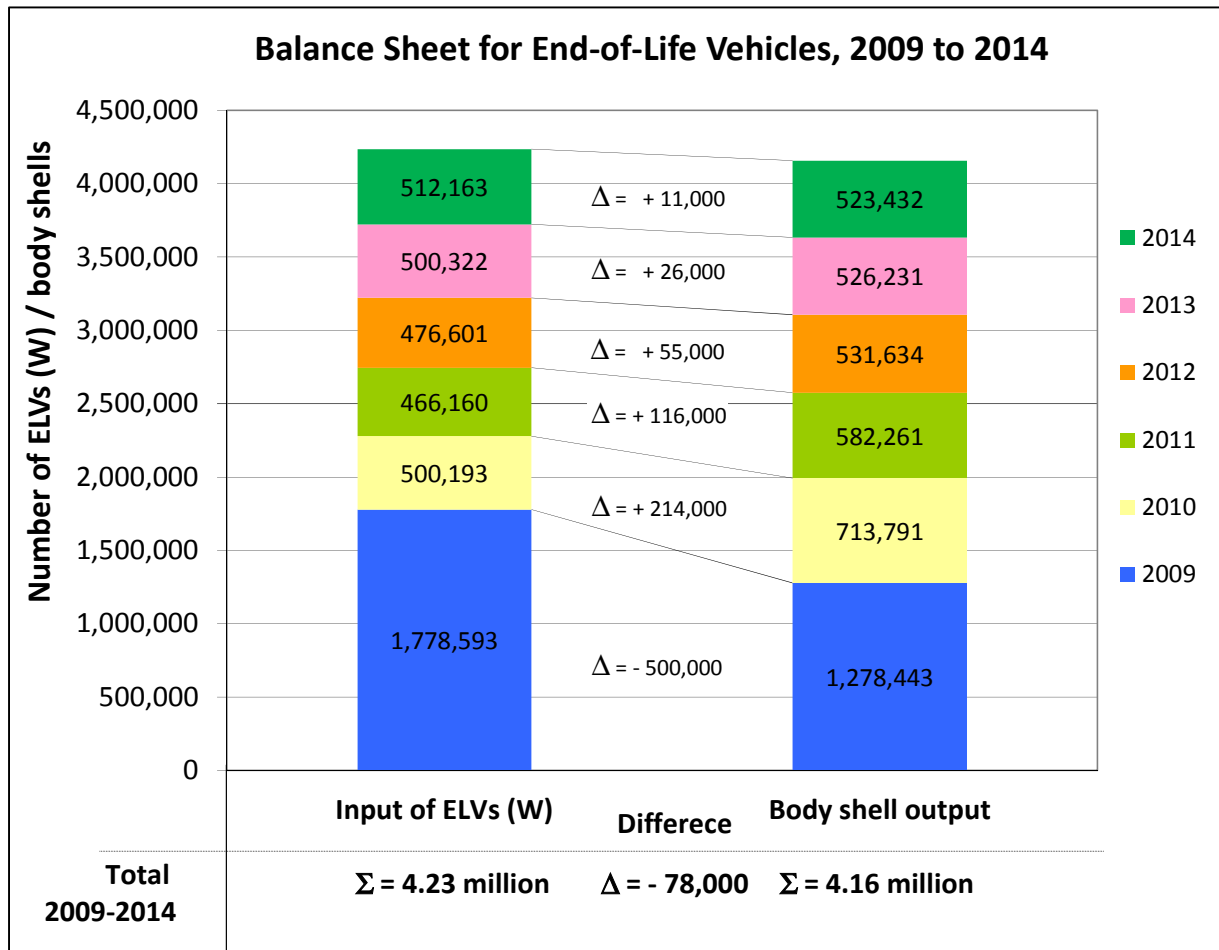
X2 =	509,719 t	(Total reuse and recovery)
E1 =	990 t	(Disposal from dismantling, excluding metals)
E2 =	6,571 t	(Disposal of shredder light fraction and disposal of metals)
F3 =	4,424 t	(Disposal by export, excluding metals)
<hr/>		
Total	521,703 t	(Total output)

Comparison with the number of end-of-life vehicles $W1 = 502,656$ t: Difference = $19,047$ t = 3.8 %.

In other words, the sum total of output flows is just under 4 % greater than the ELV input $W1$. This is plausible as a continuing after-effect of the 2009 Environmental Premium. There are signs that the after-effects of the Environmental Premium are continuing to weaken. Whereas in 2012, reported output quantities still exceeded ELV input by 8.5 %, by 2013 the difference had fallen to 6.2 %, and by 2014 to just 3.8 %.

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 $W1$. Almost the entire backlog has now been cleared between 2010 and 2014: Figure 2 indicates a year-on-year slowdown in the rate of stock reduction resulting from the Environmental Premium. Between 2010 and 2014, the clearance rate approximately halved each year. In addition to around 512,000 ELVs incurred for 2014, more than 11,000 ELVs from 2009 were also treated and recovered (compared with around 26,000 ELVs the previous year). The quantity treated in 2014 was therefore only around 2 % higher than the ELV input in 2014. This explains why the output side of the 2014 balance sheet is somewhat higher than the input side. If the calculation is adjusted to allow for the after-effects of the Environmental Premium by a simplified additional calculation (see number 3.3), the difference between input and output is reduced to 0.3%, producing an almost balanced result.

In mathematical terms, as was the case from 2010 until 2013, 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 2014 (see COM Table 4), because the ELVs arising in the year of reporting are used as the reference variable. As a result of a further weakening in the after-effects of the Environmental Premium, however, the rate by which the 100% level is exceeded is likewise continuing to decrease (2014: 101.4%, 2013: 103.8%, 2012: 106.3 %).



Source: Federal Statistical Office, Table 1 of the Waste Management Survey, 2009 to 2014

Figure 2 Balance sheet for ELVs and body shells in dismantling facilities, 2009 to 2014:
 ELVs accepted from within Germany (W) and body shells submitted to shredder facilities

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 2014. According to the statistics, around 422,000 of the ELV backlog has since been cleared.



2.2 Chapter B) Information according to Article 1 (2) of COM Decision 2005/293/EC – Metal content assumption

According to Article 1, paragraph (2) of Commission 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, recycling and recovery of this metal content.

a) Metal content of the vehicles:

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

For the reporting year 2012, the assumed metal content of ELVs was updated based on new registrations of M1⁷ and N1⁸ motor vehicles in 2000, weighted according to the respective registration volumes per manufacturer. The database for this update was further improved in the 2013 reporting period, bringing the vehicle market coverage level to 95%; see previous year's report⁹.

With an average ELV age of around 14 to 15 years (see Table 2 in 2.3.1), the year 2000 was the average year of first-time registration for ELVs arising in the years 2014/2015. As the average metal content of new vehicles only changes very slowly over time, the calculated data should be applied over a 5-year period, from the reporting year 2012 to the reporting year 2016.

Calculation of the metal content of vehicles and its sub-division into ferrous and non-ferrous metals is based on extensive data material from German and international vehicle manufacturers on the vehicle registration volume for the various brands in 2000 and the metal content of vehicles. The average metal content of new registrations (M1 and N1 motor vehicles) for the year 2000 by manufacturer (anonymised) is shown in Table 1 of the previous year's report. The metal contents were further sub-divided into ferrous and non-ferrous metal contents, see Table 2 of the previous year's report.

The calculated weighted average metal content is 75.5%, of which 65.3% are ferrous metals and 10.2% non-ferrous metals (weighted averages).

⁷ Vehicle class M1: Passenger cars (motor vehicles predominantly for the carriage of passengers and comprising no more than eight seats, not including the driver's seat). Definition: See Annex II, section A, no. 1 of Framework Directive 2007/46/EC establishing a framework for the approval of motor vehicles and their trailers.

⁸ Vehicle class N1: Light commercial vehicles (motor vehicles predominantly for the carriage of goods and having a maximum mass not exceeding 3.5 tonnes). Definition: See Annex II, section A, no. 1 of Framework Directive 2007/46/EC establishing a framework for the approval of motor vehicles and their trailers.

⁹ Annual Report on end-of-life vehicle reuse/recycling/recovery rates in Germany, 2013, German: www.bmub.bund.de/N50180/, English: www.bmub.bund.de/N50180-1/



b) Reuse/recycling/recovery of the metal content

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 still estimated at 97 %, as outlined in the explanatory memorandum to the German ELV Ordinance (*AltfahrzeugV*) of 2002.

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 = 75.5% * 97% = 73.2%

Allowing for 97% recycling/recovery of the metal content, this yields 73.2% for the "metal content assumption", broken down into 63.3% ferrous metals and 9.9% non-ferrous metals recycled/recovered, in relation to the vehicle empty weight, see Table 1.

Table 1 "Metal content assumption", broken down into ferrous and non-ferrous metals
(cf. Table 3 of the previous year's report)

Metal content	Total metals	Ferrous metal	Non-ferrous metal	Remarks
Weighted average metal content of M1 and N1 motor vehicles	75.5%	65.3%	10.2%	Statement on metal content valid for 95% of the German vehicle market in 2000
Allowing for a recovery/recycling rate of 97%:				
"Metal content assumption"	73.2%	63.3%	9.9%	Metal content recycled/recovered



c) Coverage rate:

How does Germany ensure that it meets the required coverage of 95%?

The data supplied by 21 vehicle manufacturers on the assumed metal content covers 95.2% of new registrations in the year 2000 (3,406,164 out of 3,576,206 new registrations). This coverage therefore meets the minimum level of 95% required by Article 1 (2) of Commission Decision 2005/293/EC.

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

In line with the COM guidance document (page 10 and pages 21-22), 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.

Note on the Appendix to this Annual Report: As an alternative, the data from COM Tables 1 and 3 have also been presented in such a way that they include the metals in both tables. The resultant representation of COM Tables 1 to 4 may be found in the Appendix to this Annual 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). Consequently, as well as non-metals, COM Tables 1 and 3 also include the metal portions of dismantled and exported components and materials that were reused, recycled and disposed of.



2.3 Chapter C) Information according to Article 1 (3) of COM Decision 2005/293/EC – Vehicle market, exports

Provisional results of the study into the whereabouts of vehicles

Compared with the previous year, the data situation on the vehicle market and the fate of vehicles has improved, based on the provisional results of a study into the fate of finally deregistered vehicles.

In 2014, an awareness of long-standing statistical gaps in the fate of finally deregistered vehicles (see previous years' annual reports) prompted the Federal Ministry for the Environment and the German Environment Agency to commission a study as part of the Environmental Research Plan (UFOPLAN) to investigate the fate of these vehicles¹⁰. Investigations focused on identifying the possible underlying causes of the “statistical gap” concerning the fate of finally deregistered cars, and data research into the actual whereabouts of such vehicles in a given reference year. Using the provisional results for the reference year 2013, the statistical gap for 2013 of around 1.2 million used and end-of-life vehicles (see previous year's report) has been reduced to around 350,000 - see Figure 5 in number 2.3.2. The gap got largely closed, mainly by recalculating the actual number of finally deregistered motor vehicles, together with qualified estimates to supplement the statistical data on the export of second-hand cars (into EU and non-EU countries). The final results of the study are currently being completed, and will then be analysed so that expedient and pertinent measures can be derived.

In a subsequent step, the findings for the reference year 2013 were transferred to the calculation of the whereabouts of vehicles in 2014, see Table 3, numbers 2.3.2 and Figure 5.

2.3.1 Section 1: Information on the national vehicle market

In 2014, the number of new registrations of M1 and N1 motor vehicles¹¹ rose by 3 % compared with 2013. The average age of the vehicle fleet and the number of motor vehicles registered continued to rise slowly, as in previous years, and on 1 January 2014 totalled 8.8 years (passenger cars) and 7.7 years (trucks) respectively, or almost 46 million M1 and N1 motor vehicles. The number of ELVs increased by a good 2% against 2013, and once again remained above the half million level.

The data quality concerning the number of final deregistrations was improved, and included N1 motor vehicles (light commercial vehicles) for the first time. The proportion of final deregistrations was also recalculated, enabling us to update the final deregistrations for 2013. After the number of finally deregistered passenger cars had been estimated at around

¹⁰ Project title: “Development of proposals, including legal instruments, to improve the data situation on the whereabouts of end-of-life vehicles” (UFOPLAN research code 3714 33 315 0).

¹¹ For a definition of M1 and N1 motor vehicles, refer to footnotes 7 and 8 on page 17.



3.3 million in the previous year's report, assuming a deregistration rate of 40%, the updated calculation based on an in-depth statistical analysis by the Federal Motor Transport Authority was around 2.86 million finally deregistered passenger cars (M1 motor vehicles) and light commercial vehicles (N1 motor vehicles) for 2013, and a similar figure of around 2.86 million for 2014 - see Table 2.

Statistically documented exports of used vehicles totalled some 1.5 million in 2014, compared with around 1.6 million in 2013. This is supplemented by qualified estimates of the used vehicle exports not covered by the statistics, of around 0.40 million (2013) and 0.32 million (2014), see number 2.3.2.



Table 2 Information on the national vehicle market

National vehicle market Germany	Unit	Reference year 2013 (updated)			Reference year 2014		
		M1 and N1 motor vehicles			M1 and N1 motor vehicles		
		Total	Of which vehicle class M1 (passenger cars)	Of which vehicle class N1 (light commercial vehicles)	Total	Of which vehicle class M1 (passenger cars)	Of which vehicle class N1 (light commercial vehicles)
New Registrations and Fleet							
Motor vehicles newly registered ^{Q1)}	Number	3,160,563	2,952,431	208,132	3,260,310	3,036,773	223,537
Motor vehicles registered ^{Q2), E1)}	Number	45,476,560	43,431,124	2,045,436	45,951,065	43,851,230	2,099,835
Average age of fleet ^{Q3), E1)}	Years		8.7	Trucks, total 7.6		8.8	Trucks, total 7.7
Deregistrations ^{Q4)} (see recalculation in Table 3)							
Total (deregistrations and temporary layups)	Number	8,511,472	8,149,973	361,499	8,507,650	8,138,212	369,438
Final deregistrations ^{E2)}	Number	2,863,602	2,713,941	149,661	2,862,972	2,710,025	152,947
End-of-Life Vehicles							
CoDs issued in Germany	Number	500,322			512,163		
ELVs arising in Germany	Number	500,322			512,163		
Average age of ELVs	Years	approx. 14 to 15			approx. 14 to 15		

Source details for this table may be found on the following page.

Explanatory comments on Table 2:

E1) Reference dates 1.1.2013 and 1.1.2014, only registered vehicles excluding temporary layups.

E2) Updated data, based on a recalculation of the deregistration rate. In the previous year's report, final deregistrations were estimated at 3.3 million passenger cars in 2013. For details of the database update, see below (paragraph on "Recalculation of final motor vehicle deregistrations") and Table 3.



Sources for Table 2:

- Q1) Federal Motor Transport Authority (KBA): *Neuzulassungen von Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 1960 bis 2015 nach Fahrzeugklassen* (New registrations of motor vehicles and trailers, 1960 to 2015, by vehicle class), http://www.kba.de/DE/Statistik/Fahrzeuge/Neuzulassungen/FahrzeugklassenAufbauarten/n_fzkl_zeitreihe.html?nn=652406, and
Federal Motor Transport Authority: *Neuzulassungen von Lkw in den Jahren 2005 bis 2014 nach zulässiger Gesamtmasse* (New registrations of trucks, 2005 to 2014, by permissible maximum mass), http://www.kba.de/DE/Statistik/Fahrzeuge/Neuzulassungen/Groessenklassen/n_groessenklassen_lkw_zeitreihe.html?nn=657738.
- Q2) Federal Motor Transport Authority: *Bestand an Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 1960 bis 2016 nach Fahrzeugklassen* (Motor vehicle and trailer fleet, 1960 to 2016, by vehicle class), http://www.kba.de/DE/Statistik/Fahrzeuge/Bestand/FahrzeugklassenAufbauarten/b_fzkl_zeitreihe.html?nn=652402, and
Federal Motor Transport Authority: *Bestand an Lkw in den Jahren 2006 bis 2015 nach zulässiger Gesamtmasse* (Truck fleet, 2006 to 2015, by permissible maximum mass), http://www.kba.de/DE/Statistik/Fahrzeuge/Bestand/Groessenklassen/b_groessenklassen_lkw_zeitreihe.html?nn=662728.
- Q3) Federal Motor Transport Authority: *Bestand an Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 2007 bis 2016 nach ausgewählten Fahrzeugklassen mit dem Durchschnittsalter der Fahrzeuge in Jahren* (Motor vehicle and trailer fleet, 2007 to 2016, 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.
- Q4) Federal Motor Transport Authority: *Außerbetriebsetzungen von Kraftfahrzeugen und Kraftfahrzeuganhängern in den Jahren 2007 bis 2015 nach Fahrzeugklassen* (Motor vehicles and trailers taken out of service, 2007 to 2015, by vehicle class), http://www.kba.de/DE/Statistik/Fahrzeuge/Ausserbetriebsetzungen/FahrzeugklassenAufbauarten/a_fzkl_zeitreihe.html?nn=664274, and
Federal Motor Transport Authority: *Außerbetriebsetzungen von Lkw in den Jahren 2005 bis 2014 nach zulässiger Gesamtmasse* (Trucks taken out of service, 2005 to 2014, by permissible maximum mass), http://www.kba.de/DE/Statistik/Fahrzeuge/Ausserbetriebsetzungen/Groessenklassen/a_groessenklassen_lkw_zeitreihe.html?nn=664174.
-

The waste statistics do not provide any information about the average age of end-of-life vehicles. We can assume that there were no significant changes compared with the previous year.

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

Recalculation of final motor vehicle deregistrations

In previous years' reports, the number of finally deregistered motor vehicles was estimated based on the total number of passenger cars taken out of service, based on the following reasoning: Since 2007, final deregistrations have no longer been recorded in the statistics, because since then, there have only been off-road notifications, which make no distinction between "temporary" and "permanent". Based on incidents that could still be differentiated prior to 2007, an approximate deregistration rate of 40 % of all cars taken out of service was ascertained under the framework conditions existing at that time¹². In the absence of more

¹² Data source: Federal Motor Transport Authority (see UBA/BMU annual report on end-of-life vehicle reuse/recycling/recovery rates in Germany for 2009, footnote 13, German version: www.bmub.bund.de/N50180; English version: www.bmub.bund.de/N50180-1/)



recent figures, this quota was used up to and including the report for 2013 to estimate the number of final deregistrations of passenger cars in the reporting period. Within the context of the aforementioned study into the fate of finally deregistered motor vehicles, the Federal Motor Transport Authority recalculated the deregistration quota for 2013 by analysing the available off-road notification data. At the same time, the database was extended: As well as off-road notifications of M1 vehicles (passenger cars), N1 vehicles (light commercial vehicles) were also taken into account. The recalculated deregistration rate for passenger cars is 33.3%, below the previous estimate of 40%. As such, the number of finally deregistered passenger cars in 2013 was adjusted downwards by 550,000 vehicles. At the same time, some 150,000 final deregistrations of N1 motor vehicles were added, see Table 3 and Figure 3.

In this way, the 2013 figure has been retrospectively updated from around 3.26 million to around 2.86 million final deregistrations of M1 and N1 motor vehicles, a difference of approximately 0.40 million. In 2014, there were once again around 2.86 million final deregistrations of M1 and N1 motor vehicles.

Table 3 Off-road notifications and final deregistrations in 2013 (previously and updated) and in 2014

	Off-road notifications	Deregistration rate	Final deregistrations
2013 – Previous data, see previous year’s report			
M 1 – passenger cars	8,149,973	Estimate: 40%	Approx. 3,260,000
2013 – Updated calculation			
M 1 – passenger cars	8,149,973	33.3%	2,713,941
N 1 – light commercial vehicles	361,499	41.4%	149,661
Total M1+N1 2013	8,511,472		2,863,602
2014			
M 1 – passenger cars	8,138,212	33.3%	2,710,025
N 1 – light commercial vehicles	369,438	41.4%	152,947
Total M1+N1 2014	8,507,650		2,862,972

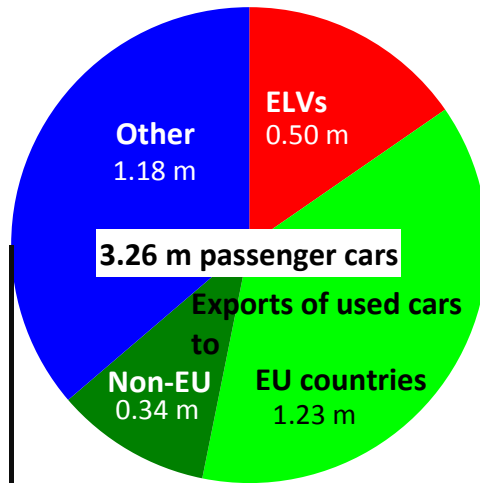


Fate of finally deregistered motor vehicles (Used vehicles and ELVs) in Germany, 2013

Finally deregistered passenger cars

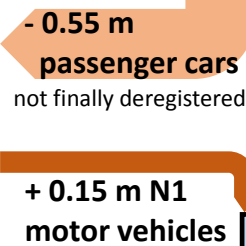
Previous data 2013

Vehicle class	Off-road notifications, total	Of which final deregistrations
M1 motor vehicles	8.15 million	Estimated approx. 40 % = 3.26 million



Amendments from recalculation

Passenger cars → Adjusted number 2.71 m instead of 3.26 m - 0.55 million cars
N1 motor vehicles → also included: + 0.15 million



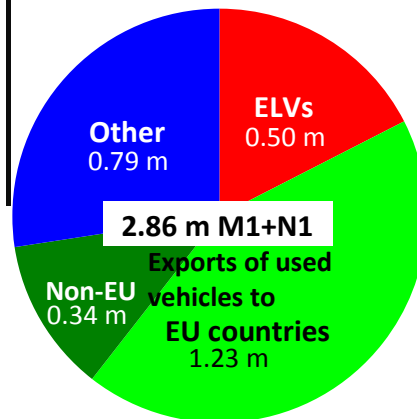
3.26 million passenger cars

2.86 million M1+N1 motor vehicles

Finally deregistered M1 and N1 motor vehicles

New calculation for 2013

Vehicle class	Off-road notifications, total	Of which final deregistrations
M1 motor vehicles	8.15 million	33.3 % = 2.71 million
N1 motor vehicles	0.36 million	41.4 % = 0.15 million
Total M1 + N1	8.51 million	2.86 million



Key

■ **ELVs**, statistically verified (waste statistics)

■ **Other whereabouts**, not statistically verified

Exports of used vehicles, statistically verified:

■ **to non-EU countries** (foreign trade statistics)

■ **to EU countries**

(re-registration statistics, foreign trade statistics)

Figure 3 Effect of recalculating the number of finally deregistered motor vehicles (used vehicles and ELVs) on the 2013 report on the whereabouts of vehicles in Germany



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

Exports of used vehicles to other EU countries:

As in prior years, there are two sources available for determining the number of exports of used cars from Germany into other EU countries: the re-registration statistics from the Federal Motor Transport Authority (KBA), and the foreign trade statistics of the Federal Statistical Office. The higher of the two values for each individual EU country were added together in order to obtain a total, see Table 5.

Re-registration statistics

The majority of used vehicles exported into other EU countries were identified from re-registrations in those countries, which were recorded in the re-registration statistics 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, 1,200,811 used vehicles were exported to other EU Member States and re-registered there. For 2014, figures were available for all 27 other EU Member States. Overall, the recorded figures should be seen as a minimum.

Foreign trade statistics

Additionally, data from the foreign trade statistics was also consulted where higher export figures were indicated. The data situation was improved compared with the previous year's report, by also evaluating exports of other relevant commodity codes when logging exports of used vehicles; see Table 4. Previous years' reports evaluated foreign trade statistics for exports of seven commodity codes relating to used passenger cars and motor homes (Table 4, left). For the 2014 reporting year, exports of four further commodity codes for used trucks weighing up to 5 t¹³ were included for the first time (Table 4, right).

¹³ The classification of commodity codes under the Combined Nomenclature of the Common Customs Tariff is not fully consistent with the definition of EC vehicle classes as set out in Annex II, section A, no. 1 of Directive 2007/46/EC establishing a framework for the approval of motor vehicles and their trailers. Under Framework Directive 2007/46/EC, the total mass of a motor vehicle in class N1 must not exceed 3.5 tonnes. By contrast, under the Combined Nomenclature, the lowest grade of motor vehicles for the carriage of goods is defined as "5 t or less". This produces a certain degree of data uncertainty; however, it can be assumed that the vast majority of trucks up to 5 tonnes are class N1 motor vehicles.



Table 4 Relevant commodity codes for recording exports of used vehicles in vehicle classes M1 and N1 in the foreign trade statistics

Commodity code	Used passenger cars and motor homes	Commodity code	Used trucks of a gross vehicle weight not exceeding 5 tonnes
87032190	Passenger car with petrol engine, not exceeding 1000 cm ³ , used	87042139	Trucks < 5 t, used, with diesel engine > 2500 cm ³
87032290	Passenger car, petrol engine, 1000-1500 cm ³ , used	87042199	Trucks < 5 t, used, with diesel engine < 2500 cm ³
87032390	Passenger car/motor home, petrol engine, 1500-3000 cm ³ , used	87043139	Trucks < 5 t, used, petrol engine > 2800 cm ³
87032490	Passenger car/motor home, petrol engine, > 3000 cm ³ , used	87043199	Trucks < 5 t, used, petrol engine < 2800 cm ³
87033190	Passenger car with diesel engine, not exceeding 1500 cm ³ , used		
87033290	Passenger car/motor home, diesel engine, 1500-2500 cm ³ , used		
87033390	Passenger car/motor home with diesel engine, > 2500 cm ³ , used		

An evaluation of the re-registration statistics and foreign trade statistics produces a statistically verified total of 1,220,199 used vehicles exported from Germany to other EU countries in 2014, see Table 5.

According to the previous year's report (see Table 5), in 2013 some 1,232,987 used cars were exported from Germany to other EU countries. If we add to this exports of used vehicles under the additional four commodity codes for trucks up to 5 tonnes, see Table 4 right, for the seven target countries whose export data were taken from the foreign trade statistics¹⁴ (1,081 vehicles), there were 1,234,068 used vehicle exports to other EU countries in total recorded in 2013. As such, the statistically verified exports of used vehicles were of a similar magnitude in both 2013 and 2014.

¹⁴ Exports of used trucks up to 5 tonnes in 2013 to Greece: 210, Spain: 30, Croatia: 162, Italy: 343, Cyprus: 0, Austria: 329, Portugal: 7, Total: 1,081.



Table 5 Exports of used vehicles from Germany to other EU countries, 2014.
Determined from two sources: Notifications to the Federal Motor Transport Authority (KBA) concerning motor vehicles formerly registered in Germany (“KBA”) and the foreign trade statistics (“FTS”), arranged in the protocol order of Member States

EU Member State (with country code)	Source	Number in 2014	EU Member State (with country code)	Source	Number in 2014
BE - Belgium	KBA	25,641	LU - Luxembourg	KBA	11,010
BG - Bulgaria	KBA	39,023	HU - Hungary	KBA	48,099
CZ - Czech Republic	KBA	66,694	MT - Malta	FTS	88
DK - Denmark	KBA	5,156	NL - Netherlands	KBA	72,399
EE - Estonia	KBA	13,346	AT - Austria	FTS	12,038
IE - Ireland	KBA	125	PL - Poland	KBA	484,432
EL - Greece	FTS	1,115	PT - Portugal	KBA	5,588
ES - Spain	FTS	5,635	RO - Romania	KBA	169,433
FR - France	KBA	100,136	SI - Slovenia	KBA	8,135
HR - Croatia	FTS	1,620	SK - Slovakia	KBA	19,917
IT - Italy	FTS	16,456	FI - Finland	KBA	13,093
CY - Cyprus	FTS	206	SE - Sweden	KBA	7,509
LV - Latvia	KBA	25,618	UK - United Kingdom	KBA	1,155
LT - Lithuania	KBA	66,532			
Total EU			1,220,199		

Sources:

- Personal communication from the Federal Motor Transport Authority dated 24/04/2015.
- Federal Statistical Office: *Warenverzeichnis Außenhandelsstatistik 8-Steller* (see Table 4, left and right), *Länderverzeichnis, Daten für 2014*. (Commodity Classification, Foreign Trade Statistics, 8-digit, country classification, data for 2014). Wiesbaden 2016

Additional estimate for other exports of used vehicles into EU countries with re-registration not covered by the statistics

The aforementioned study into the fate of finally deregistered motor vehicles also assessed the quality of the re-registration data for the individual EU countries that supply data. It concluded that the data predominantly of those countries whose exports according to the foreign trade statistics exceed exports according to the re-registration statistics were incomplete.

Comparing the exports as per the 2014 re-registration statistics (1,200,811) with those in the foreign trade statistics (165,120) produces a ratio of approximately 7.3. After deducting the volumes already recorded in the foreign trade statistics, this produces a factor of $(7.3 - 1 =)$ approximately 6.3 by which the re-registration statistics exceed the foreign trade statistics. Applying this factor to the foreign trade data for those countries thought to have incomplete

re-registration statistics allows us to calculate the maximum number of used vehicles exported with re-registration not previously covered by the statistics (233,000 vehicles). The authors of the study conservatively-reasonably estimate the total number of used vehicle exports to other EU Member States with subsequent re-registration not previously covered by the statistics at 140,000 in 2013. As the export figures for 2013 and 2014 were of a similar magnitude (1,234,068 in 2013 and 1,220,199 in 2014), this additional estimate of 140,000 has also been applied to 2014. These additional estimates are shown in light green hatching in Figure 5.

Exports of used vehicles to non-EU countries

Exports to non-EU countries were on a smaller scale than exports to EU countries, see Table 6. Like the evaluation of foreign trade statistics for exports of used cars to EU countries, the data situation for exports into non-EU countries has also been improved over the previous year's report, by including exports of four further relevant commodity codes (used trucks up to 5 t), see Table 4, right.

For **2013**, the previous year's report showed exports of used vehicles (seven commodity codes for used passenger cars and motor homes, see Table 4, left) totalling 344,551. If exports of used trucks up to 5 t (four commodity codes, see Table 4, right) are also included, this figure is increased by 41,157 to a total of **385,708 motor vehicles** in 2013.

For **2014**, analysis of the German foreign trade statistics (11 commodity codes) produces a total of **271.349** exports of used vehicles (passenger cars, motor homes, trucks up to 5 t), indicating a decrease of around 30% in recorded exports to 2010 levels. The decrease was particularly sharp in exports to former Soviet Union countries. The major non-European destinations are still West Africa (approx. 40 %) and the states of the former Soviet Union (approx. 23 %), see Table 6.



Table 6 Exports of used vehicles from Germany to non-EU countries, 2014
in accordance with the foreign trade statistics,
passenger cars, motor homes and trucks < 5 t, in each case with petrol or
diesel engines

Country	Number in 2014		
Non-EU total	271,349		
Of which states of the former Soviet Union (excluding Baltic States)	63,004	Of which	Georgia 24,778 Ukraine 14,838 Russia 7,927
Of which West Africa¹⁵	108,623	Of which	Benin 39,126 Nigeria 26,307 Niger 11,481
Of which Norway, Switzerland	31,075		

Source: Federal Statistical Office: *Warenverzeichnis Außenhandelsstatistik 8-Steller* (see Table 4, left and right), *Länderverzeichnis, Daten für 2014* (Commodity Classification, Foreign Trade Statistics, 8-digit, Country Classification, Data for 2014). Wiesbaden 2016

Additional estimate for other exports of used vehicles to non-EU countries not covered by the statistics

As outlined in number 2.3.3 of the previous years' reports, transits of used vehicles from Germany via another EU country into a non-EU country are not always covered by the non-EU foreign trade statistics: Used vehicles from Germany which are exported in the single-stage process or exported by customs agents from another EU Member State (customs office of exit) are systematically not recorded by the German customs statistics (and hence are not included in the foreign trade statistics). Using the example of Belgium, the aforementioned study into the fate of finally deregistered vehicles was able to ascertain that in 2013, exports of at least 116,732 used cars in vehicle class M1, last registered in Germany, were not included in the statistics.

If this figure of 116,732 undocumented exports via Belgium is extrapolated to the customs offices of other countries, this would produce a rough total of between 184,000 and 363,000 exports of used vehicles in vehicle classes M1 and N1 to non-EU countries which are not covered by the statistics. The aforementioned study suggests that the trend is heading towards the lower middle range of this estimate. Based on current knowledge, around **260,000 used vehicles** exported to non-EU countries and not yet included in the foreign trade were additionally estimated **for 2013**. As fewer used vehicles were exported in 2014 than in 2013 according to the foreign trade statistics (2013: 385,708 motor vehicles; 2014: 271,349 motor vehicles), we can assume that the number of exports not covered by the statistics has decreased accordingly. As such, the additional estimate **for 2014** was

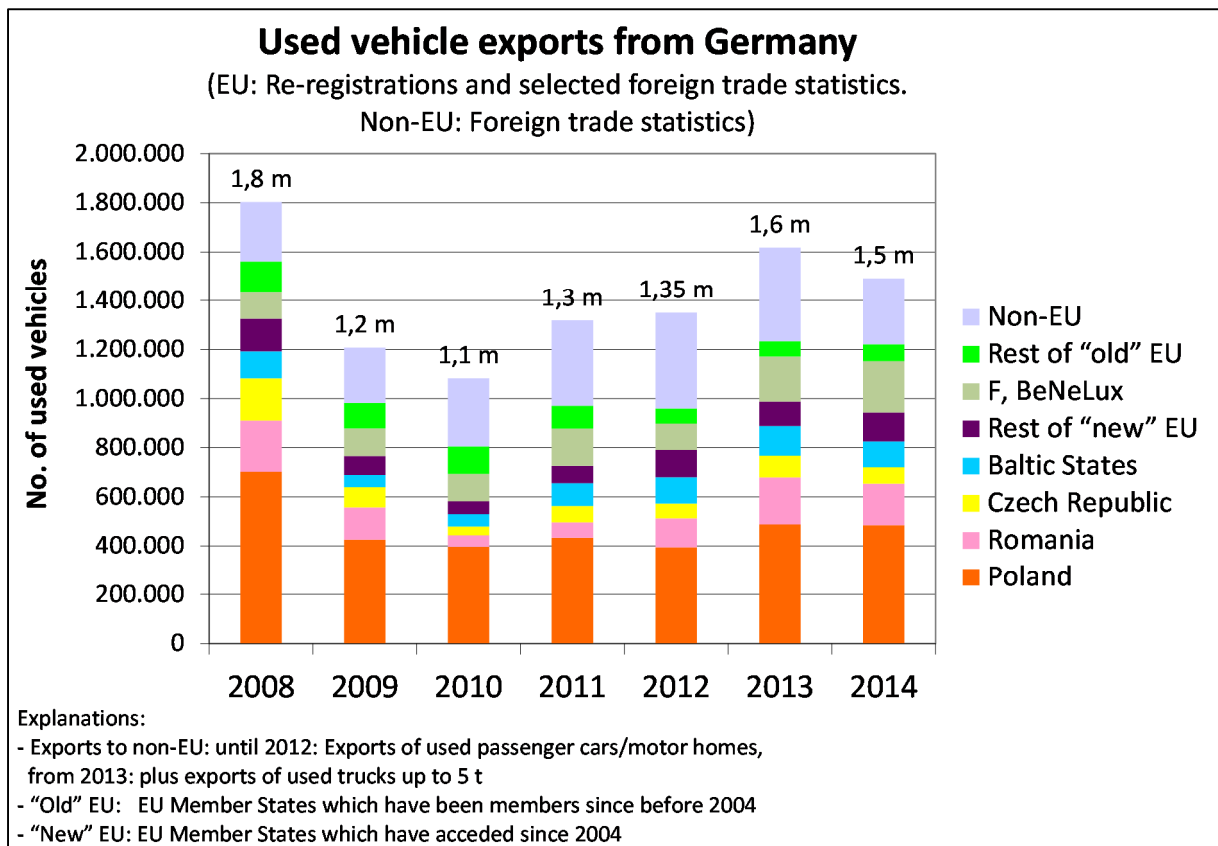
¹⁵ Collective term for 18 West African states: Angola, Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Liberia, Morocco, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo



proportionately adjusted to **180,000 motor vehicles**. These additional estimates are shown in dark green hatching in Figure 5.

Total exports of used vehicles:

Figure 4 illustrates the development over time of statistically verified exports of used vehicles from 2008 onwards. Compared with 2013, the statistically verified exports of used vehicles showed a slight decrease to around 1.5 million. For details of the exports of used vehicles to EU and non-EU countries not covered by the statistics and the corresponding additional estimates, please refer to the preceding paragraphs.



Sources: Information supplied by the Federal Motor Transport Authority, 2009 to 2015. Federal Statistical Office: Foreign trade statistics, 2008 to 2014.

Figure 4 Development over time of used vehicle exports from Germany, 2008 to 2014

Fate of finally deregistered M1 and N1 motor vehicles, 2013 (updated) and 2014

As outlined above (see number 2.3.1), the proportion of final deregistrations has been recalculated. The recalculated deregistration rate led to a retrospective updating of the number of M1 and N1 motor vehicles finally deregistered in 2013, and a corresponding calculation for 2014.

In addition, existing data gaps relating to used vehicle exports were also subjected to qualified estimates, supplemented with data for N1 motor vehicles, see above. Overall, the various statistical sources and qualified additional estimates produce the following picture

regarding the fate of finally deregistered M1 and N1 motor vehicles in Germany in 2013 (updated) and 2014 – see Figure 5.

With this update, in 2013, statistics were unavailable concerning the fate of some 0.35 million finally deregistered M1 and N1 motor vehicles. In 2014, this figure was 0.54 million vehicles.

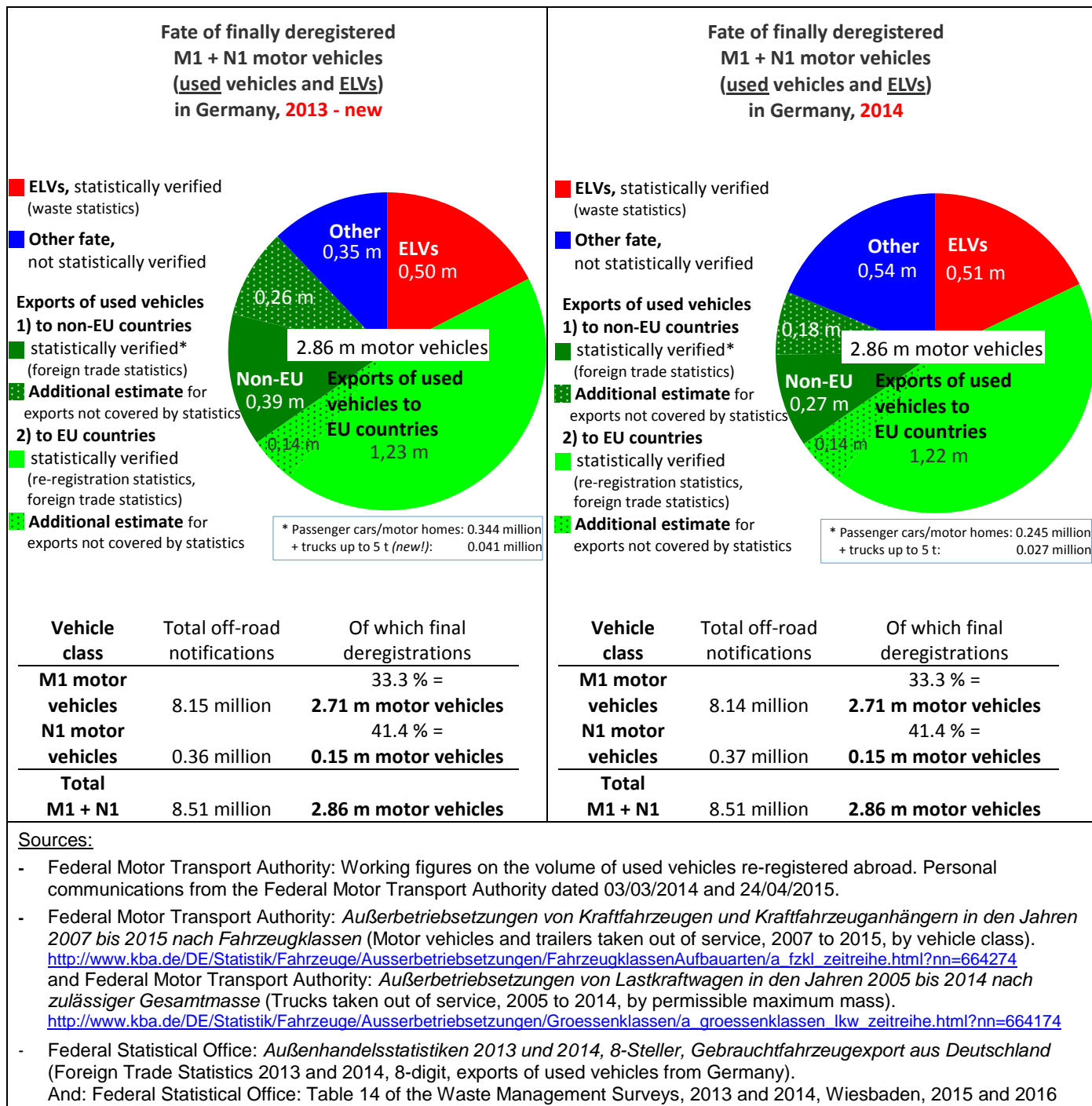


Figure 5 Fate of finally deregistered M1 and N1 motor vehicles (used vehicles and end-of-life vehicles) in Germany, 2013 (updated) and 2014



Exports of ELVs and body shells:

- According to the statistics and time series¹⁶, in 2014, 220 t “ELVs” (waste code 160104*), but no “Scrapped passenger cars” (no. 8.11) and 0 “Other scrapped motor vehicles” (no. 8.12) (figures in 1000 t) were exported from Germany. Further details of the type of “ELVs (160104*)” are not available. In prior years, the exported vehicles under waste code 16 01 04* referred solely to vehicles such as ships which do not fall under the ELV Directive. Consequently, in 2014 we can assume once again that these figures do not include any end-of-life vehicles falling within the scope of the ELV Directive.
- The export of body shells for treatment abroad increased slightly against 2013, accounting for 5.7% of the total ELV weight (W 1).

Table 7 Exports of used vehicles, ELVs and depolluted body shells from Germany

Reference year 2014	Unit	To other EU countries	To non - EU countries
Used vehicles exported (see Table 5 and Table 6)	Number	1,220,199 (+ additional estimate 140,000)	271,349 (+ additional estimate 180,000)
Average age of used vehicles exported	Years	(7.3) ¹⁷	
ELVs exported (see COM Table 3)	Number	0	0
Depolluted (and dismantled) body shells exported (WC 16 01 06)	Number	34,888 ¹⁸	
	Tonnes	28,662	

¹⁶ See COM Table 3 and:

German Environment Agency (UBA): “Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen 2014 – Export” (Transboundary Shipments of Waste Requiring Consent 2014 - Exports), https://www.umweltbundesamt.de/sites/default/files/medien/378/dokumente/export_2014.pdf, and German Environment Agency: “Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen. Zeitreihe Export nach Abfallarten - Mengen in 1000 t. 2006-2015” (Transboundary Shipments of Waste Requiring Consent. Time series: Exports by waste category - Volumes in 1,000 t. 2006-2015), https://www.umweltbundesamt.de/sites/default/files/medien/378/dokumente/zeitreihe_export_notifizierungspflichtiger_abfaelle_nach_abfallarten_0.pdf

¹⁷ This figure refers to motor vehicles with export licence plates in 2011. More recent figures are not available. Source: Personal communication from the Federal Motor Transport Authority dated 9 July 2012.

¹⁸ Converted with the average weight of body shells of 822 kg. The average weight was calculated from the total mass and the total number of body shells that left dismantling facilities in 2014 (to Germany and abroad): Total mass 430,024 t / total number 523,432 units = 822 kg/unit.

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

a) How does Germany 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 under Table 2 in number 2.3.1. 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. For the first time, it was possible to take the total of vehicle classes M1 and N1 directly from the sources.

Final de-registrations: During the course of the aforementioned study into the fate of finally deregistered vehicles, we were able to update the de-registration rate, which is now 33.3% for M1 motor vehicles, rather than 40%, and 41.4% for N1 motor vehicles. The data quality has been significantly improved thanks to this recalculation. The number of final deregistrations will no longer be over-estimated. This directly influences the extent of the “statistical gap”. For further details, see number 2.3.1.

End-of-life vehicles: 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. The quality can therefore be assumed to be good (see also the remarks on the quality of the data for end-of-life vehicles in Section 2.1.2).

Exports of used vehicles

The data on exports of used vehicles to other EU countries originate from two independent sources: The exchange of information under Article 9 of Directive 1999/37/EC on the registration documents for vehicles with information on re-registrations of used cars in other EU States, plus foreign trade statistics. The exchange of information under Directive 1999/37/EC is being expanded year on year, so that the quality and level of coverage are continuously improving. For 2014, figures were available for all 27 other EU Member States. In total, this figure should be viewed as a minimum number, since research carried out by the aforementioned study found that the figures are incomplete for some countries. Exports of used vehicles to EU countries with re-registration not currently covered by the available statistics are estimated at 140,000 units, see number 2.3.2.

The data on exports of used vehicles to non-EU countries is taken from the foreign trade statistics. This includes every country worldwide. The level of coverage for vehicles registered in Germany for export to a non-EU country is considered good. The data quality was improved by additionally including four further relevant commodity codes from the foreign trade statistics (for trucks < 5 t).

Research carried out by the aforementioned study identified those cases where the transit of used vehicles from Germany via another EU country to a non-EU country is not covered by the German foreign trade statistics. Used vehicles from Germany which are exported in the



single-stage process or exported by customs agents from another EU Member State (customs office of exit) are systematically not recorded by the German customs statistics (and hence are not included in the foreign trade statistics). This was quantified using Belgium as an example. Extrapolation produced around 260,000 cases for the year 2013 and around 180,000 cases for the year 2014 in which these exports were not recorded in the German foreign trade statistics.

Balance sheet showing the fate of vehicles

As indicated by Figure 5, there are currently no statistics covering the fate of approximately 0.35 million (2013) and approximately 0.54 million (2014) of around 2.9 million motor vehicles finally deregistered in each of these years. Compared with the previous year's report, which indicates a "statistical gap" of 1.18 million passenger cars for 2013, the data situation has been significantly improved and the gap reduced to a fraction of this amount.

- 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 Germany estimates the amount which is not reported due to the (monetary) reporting thresholds for export.**
- d) How did Germany 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.

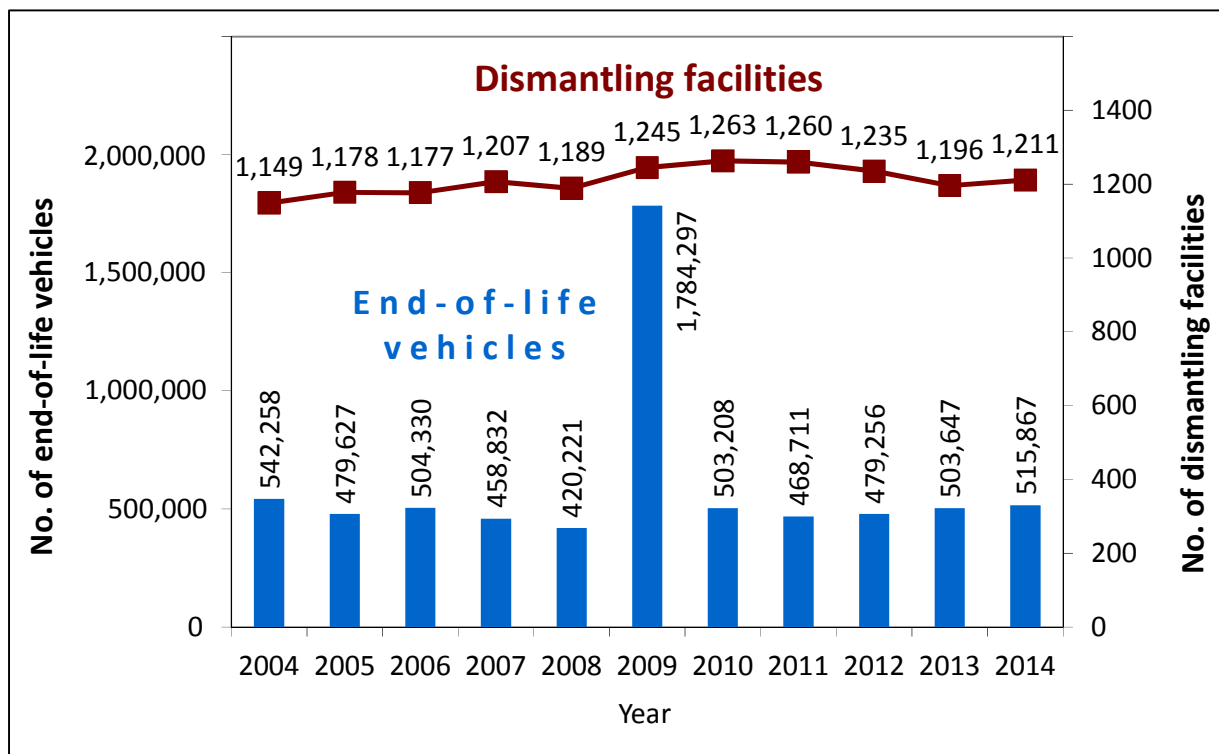


3 Supplement:

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 received from Germany and abroad 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 6. Between 2011 and 2014, the number of ELVs increased by a small amount each year, from 0.47 million to 0.52 million. The number of ELV dismantling facilities has remained in the region of 1,200 for several years.

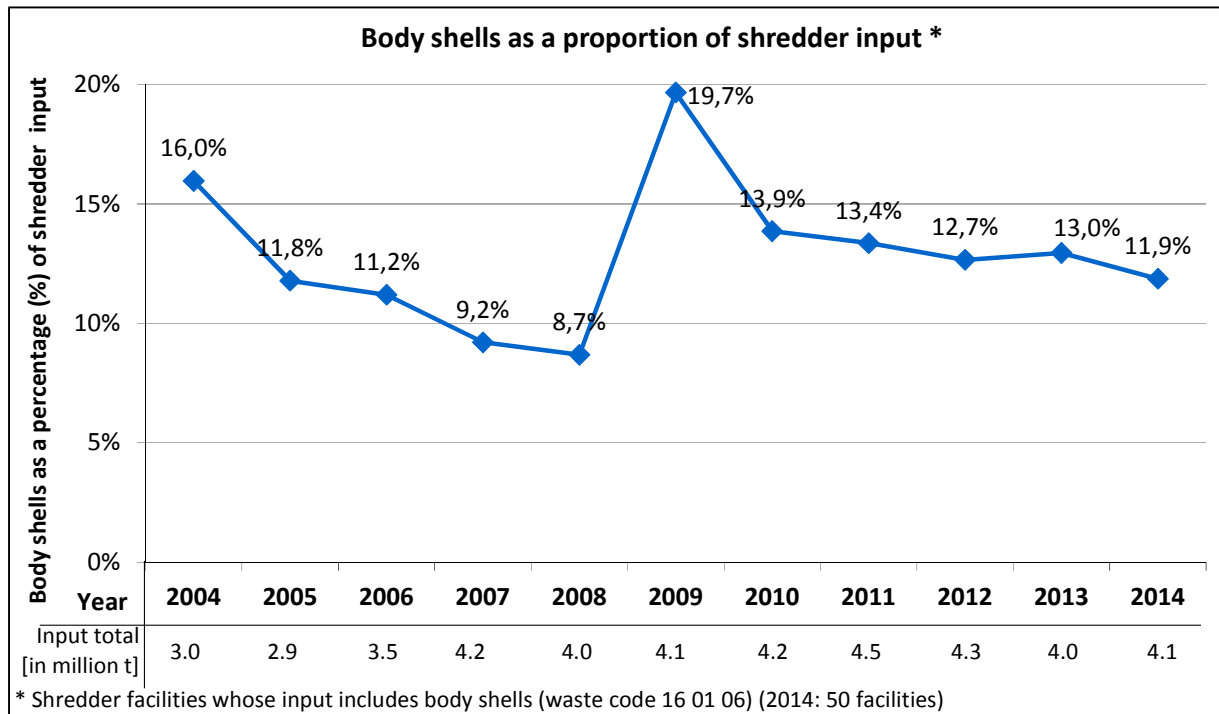


Source: Federal Statistical Office: Table 14 of the Waste Management Surveys, 2004 to 2014.

Figure 6 Development of ELV quantities (total, delivered from within Germany and abroad) and number of dismantling facilities in the waste statistics, Germany since 2004¹⁹

In 2009, body shells as a share of input at shredder facilities that treat body shells reached a new high of 19.7 %. In 2014, the share was approximately 12 %, see Figure 7.

¹⁹ Note: Figure 6 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 authorized under the ELV Ordinance (*AltfahrzeugV*) as determined by GESA (*Gemeinsame Stelle Altfahrzeuge / Joint Agency for End-of-Life Vehicles*) of the Federal Länder, for example because some authorized facilities may not actually have accepted any end-of-life vehicles.

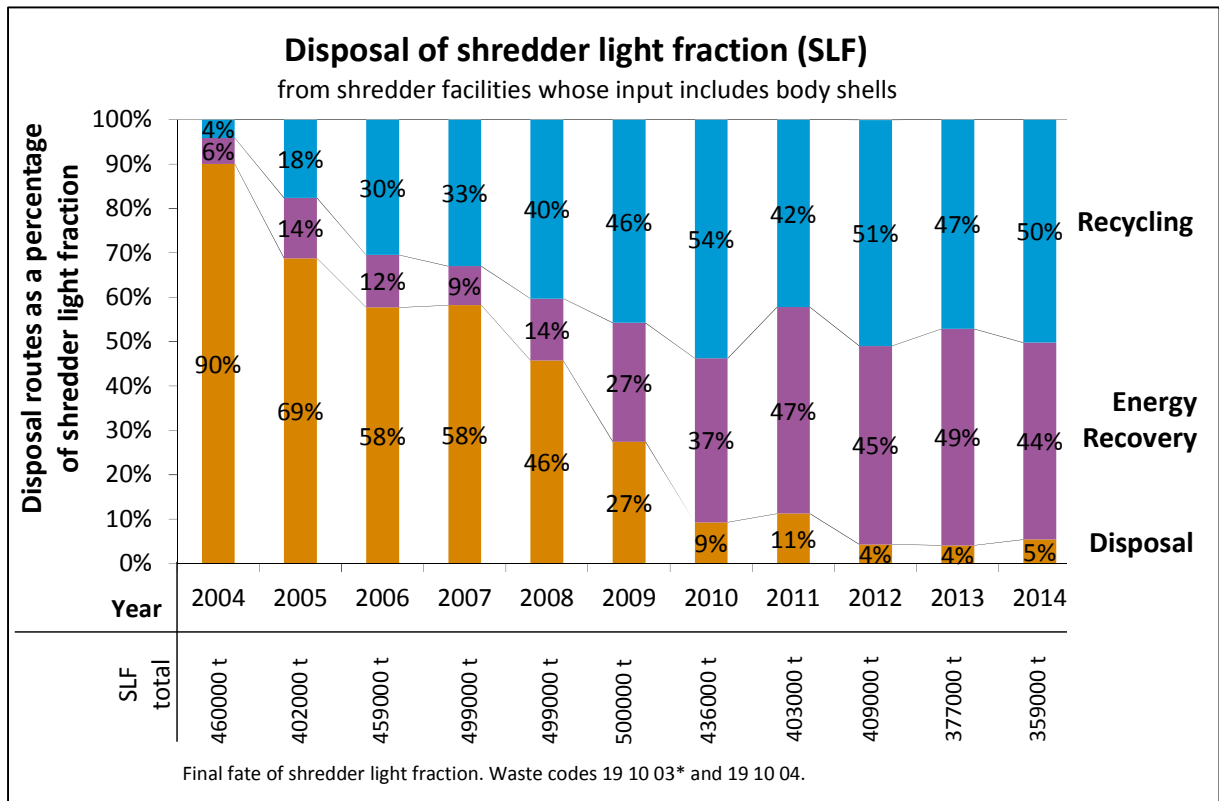


Source: Federal Statistical Office, Table 1 of the Waste Management Survey, 2004 to 2014

Figure 7 Development of body shells as a percentage of input into German shredder facilities, 2004 to 2014

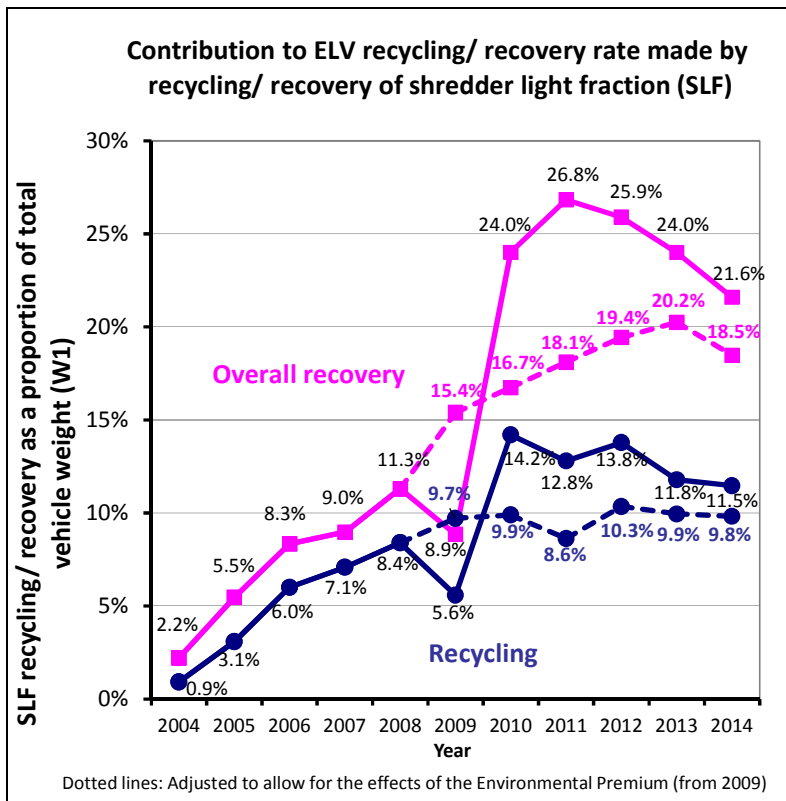
3.2 Recycling / recovery of shredder light fraction

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 - 2014 only 4% / 5% respectively was sent for disposal – see Figure 8. The diagram shows the total quantity of shredder light fraction incurred in shredder facilities that accept body shells. A certain proportion of this originates from body shells (2014: 32.3% or approximately 115,900 t out of a total of 359,000 t shredder light fraction produced).



Source: Federal Statistical Office: Table 15 of the Waste Management Survey, 2004 to 2014.

Figure 8 Disposal of shredder light fraction from shredder facilities that treat body shells in Germany, 2004 to 2014



As the after-effects of the Environmental Premium grow weaker year on year, the contribution of shredder light fraction to the total ELV recovery rate is slowly decreasing, and totalled 21.6 % in 2014.

Figure 9 Contribution to end-of-life vehicle recycling/recovery rates made by recycling/ recovery of shredder light fraction, 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 2014; see dotted lines in Figure 9. To this end, we calculated the volume of shredder light fraction originating from the treatment of ELVs incurred in a given year in Germany (2014: around 99,000 t), regardless of in which year treatment actually took place. As we can see from Figure 9, the solid lines (“unadjusted” contributions of shredder light fraction) and the dotted lines (“adjusted” contributions) are gradually moving closer together. Since 2009, shredder light fraction has contributed around 10% to the recycling rate each year, adjusted to allow for the effects of the Environmental Premium.

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 (73.2%), in 2014 Germany once again met or exceeded the EU-wide targets of 80 % for reuse/recycling and 85 % for reuse/recovery. The target values applicable from 2015 onwards of 85 % and 95 % respectively have also been met.

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 2014, see Figure 10. For example, in 2014, for the fifth year in succession, more ELVs and body shells were treated and recycled/recovered than were actually incurred in that year. However, the after-effects continued to weaken. The treatment surplus was only 2% (523,432 body shells in the output of the dismantling facilities, compared with 512,163 ELVs incurred), see also Figure 2.

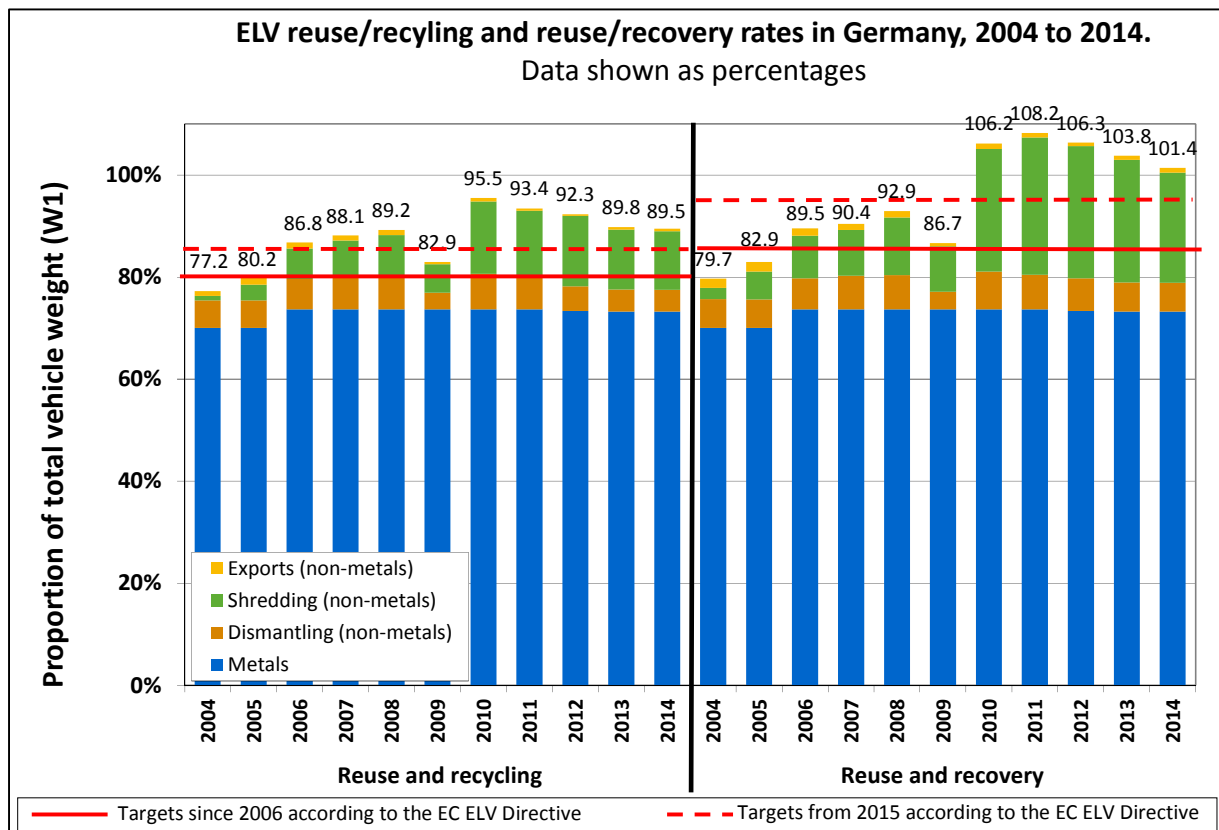


Figure 10 Contributions of dismantling facilities, shredder facilities and recycling/recovery abroad to ELV reuse/recycling and reuse/recovery rates, 2004 to 2014

In 2014, once again, the postponed treatment and recycling/recovery of accumulated ELVs as an after-effect of the Environmental Premium produces a mathematical overall recovery/recycling rate of more than 100% in relation to the number of ELVs incurred in that year (albeit less pronounced than in the preceding four years), 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 without the influence of the Environmental Premium, a simplified additional calculation was performed:

- The components and materials obtained by the dismantling facilities from the treatment of ELVs (for example, in 2014: 523,432 output body shells) were scaled down or up in relation to the number of ELVs for that year (e.g. 2014: W = 512,163).
- The volume of shredder light fraction was likewise scaled down or up in relation to the number of ELVs (W) for the respective year, see text on Figure 9 above.

The estimates from this simplified calculation produce higher adjusted rates for 2009 and lower adjusted rates for the years 2010 to 2014. The recycling rate for 2014, adjusted by the



Environmental Premium, is approximately 88%, on a par with previous years, and the overall recovery rate approximately 98%, slightly down on the previous year, see Figure 11.

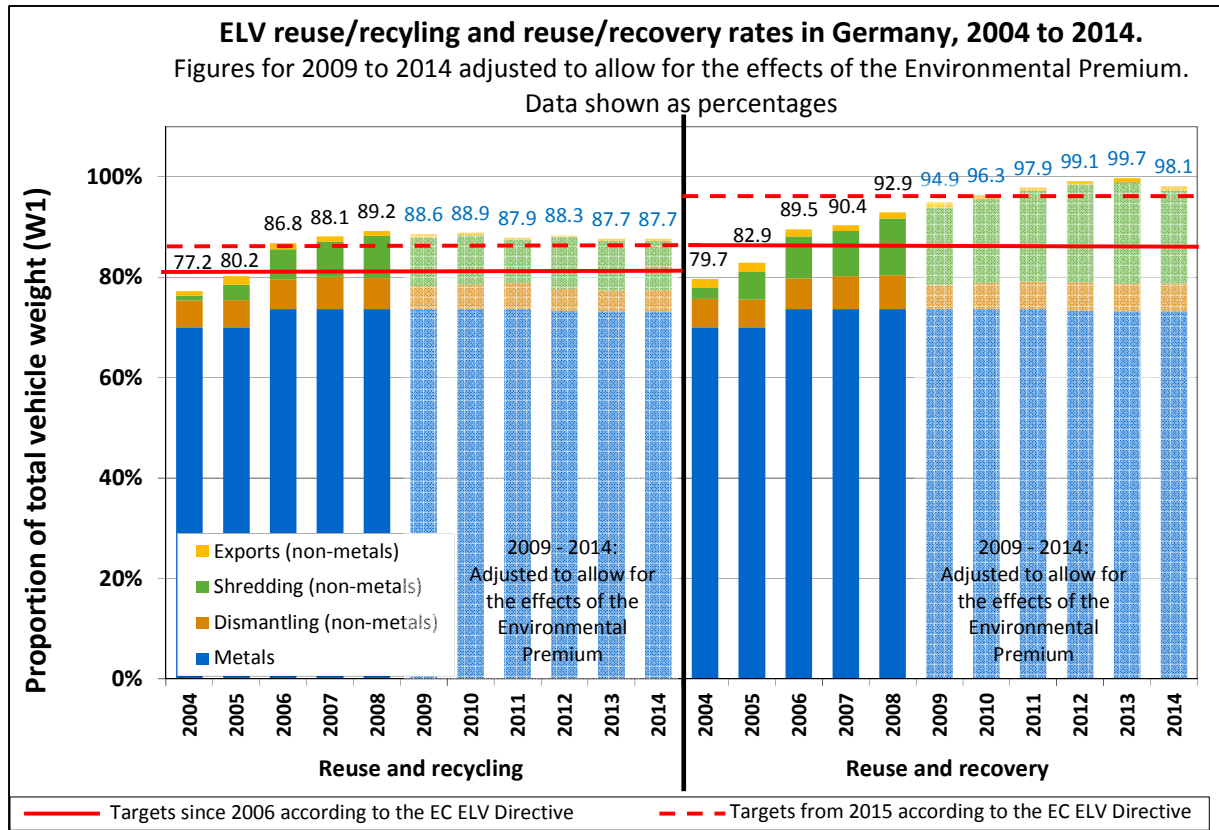


Figure 11 Contribution of dismantling facilities, shredder facilities and recycling/recovery abroad to ELV reuse/recycling and reuse/recovery rates, 2004 to 2014, with figures for 2009 to 2014 adjusted to allow for the effects and after-effects of the Environmental Premium.



4 Appendix:

COM Tables with allocation of metals also to Tables 1 and 3

According to the COM guidance document, all recovered/recycled materials 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, 2014 Metals + non-metals					
Materials from de-pollution and dismantling	Reuse	Recycling	Energy recovery	Total recovery	Disposal
	(A)	(B1)	(C1)	(D1=B1+C1)	E1
	in t	in t	in t	in t	in t
Batteries	92	10,402	0	10,402	81
Liquids (excluding fuel)	56	2,874	529	3,403	761
Oil filters	2	61	41	102	6
Other materials arising from de-pollution (excluding fuel)	1	35	46	80	22
Catalysts	35	1,929	0	1,929	13
Metal components	14,981	36,170	0	36,170	110
Tyres	845	6,677	5,246	11,923	92
Large plastic parts	108	1,274	0	1,274	28
Glass	174	1,011	0	1,011	6
Other materials arising from dismantling	3,917	83	1,039	1,122	4
Total	20,211	60,517	6,900	67,417	1,122

Explanation:

This table contains a few rounding differences (in each case of one tonne) because quantities were rounded up or down to the nearest whole tonne.

Source:

From Federal Statistical Office data, Tables 1 and 15 of the Waste Management Survey 2014.

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, 2014 Proportionate metal shares only				
Materials from shredding	Recycling	Energy recovery	Total recovery	Disposal
	(B2)	(C2)	(D2 =B2+C2)	(E2)
	in t	in t	in t	in t
Ferrous scrap (steel)	243,466	0	243,466	0
Non-ferrous materials (aluminium, copper, zinc, lead etc.)	38,030	0	38,030	0
Shredder light fraction (SLF)	57,648	50,878	108,526	6,216
Other	0	0	0	0
Total	339,144	50,878	390,022	6,216

Explanatory comments:

Calculation of metal proportions for COM Table 2:

1. Calculation of recycled/recovered metals (total) =
73.235% (metal content assumption, see Table 1 in number 2.2, letter b) * 502,656 t (total vehicle weight W1) = 368,120 t.
2. Deduction of metals already recorded in COM Table 1 (dismantling of metals: reuse and recycling/recovery) and COM Table 3 (metal exports).
3. Breakdown into ferrous/non-ferrous on a ratio of 63.3% : 9.9%

Source:

From Federal Statistical Office data, Table 15 of the Waste Management Survey 2014.



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, 2014 Metals + non-metals					
End-of-life vehicles, body shells, components and materials disposed of abroad	Total weight of end-of-life vehicles which are exported per country	Total recycling of (parts of) end-of-life vehicles exported (F1)	Total recovery of (parts of) end-of-life vehicles exported (F2)	Total disposal of (parts of) end-of-life vehicles exported (F3)	Remarks
	in t	in t	in t	in t	
1) End-of-life vehicles (WC 160104*)	0	0	0	0	No exports in 2014 according to the statistics on "Transboundary shipments of waste requiring consent" ^{a)}
Breakdown by countries: -- Not applicable --					
2) Body shells from dismantling facilities (WC 160106)	28,662	22,930	24,363	4,299	Basic figures: 28,662 t body shells exported. Assumption: 80% thereof recycled/ 85% recovered.
Breakdown by countries: -- unknown --					
3) Components from dismantling facilities	6,862	6,379	6,599	263	Batteries, tyres, large plastic parts, glass etc.
Breakdown by countries, where known					
WC	Waste	Destination countries for waste exports (total, not just from dismantling facilities) included in the waste export statistics:			
- 130205*	Engine etc. oils	To Belgium, the Netherlands, Poland			
- 160103	Waste tyres	To Cameroon			
- 160601*	Lead batteries	To Belgium, Slovenia, Poland, Spain, Czech Republic			
- 160801*	Catalysts	To South Africa			
- 160807*	Catalysts	To Belgium, France, UK, USA			
4) SLF from shredders	1,192	593	1,107	85	Total SLF exported: WC 191003*: 1,221 t, WC 191004: 2,468 t. Of which 32.3 % from ELVs.
Breakdown by countries, where known					
WC	Waste	Destination countries for waste exports according to waste export statistics (total, not just originating from ELVs)			
- 191003*	Shredder light fraction	To Belgium			
- 191004	Shredder light fraction	To the Netherlands, Austria			
Total	36,716	29,901	32,069	4,647	

Explanatory comments and source details for this table may be found on the following page.



Explanatory comments:

WC = waste code

This table contains one rounding difference (of one tonne) because quantities were rounded up or down to the nearest whole tonne.

- a) Possible ELV exports are recorded in the waste export statistics (see sources below).
According to these statistics, in 2014, 220 t were exported to Denmark under waste code 160104* (end-of-life vehicles). In the time series table, this waste is allocated to no. 8.12 "Other scrapped motor vehicles", while no exports are allocated to no. 8.11 "Scrapped passenger cars". In prior years, the exported vehicles under waste code 16 01 04* were in each case not road vehicles. Consequently, for the year 2014, we can assume that also this time this figure does not include any end-of-life vehicles falling within the scope of the ELV Directive.

Sources:

- Exports of body shells and other waste from end-of-life vehicle dismantling facilities: "Erhebung über die Abfallentsorgung im Jahr 2014" (Waste Management Survey, 2014), Table 15, Federal Statistical Office.
- German Environment Agency (UBA): "Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen 2014 - Export" (Transboundary Shipments of Waste Requiring Consent, 2014), https://www.umweltbundesamt.de/sites/default/files/medien/378/dokumente/export_2014.pdf
- German Environment Agency (UBA): "Grenzüberschreitende Verbringung von zustimmungspflichtigen Abfällen. Zeitreihe Export nach Abfallarten - Mengen in 1000 t. 2006-2015" (Transboundary Shipments of Waste Requiring Consent. Time series "Exports by waste category - Volumes in 1,000 t. 2006-2015)", https://www.umweltbundesamt.de/sites/default/files/medien/378/dokumente/zeitreihe_export_notifizierungspflichtiger_abfaelle_nach_abfallarten_0.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, 2014					
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)
	in t	in t	in t	in t	in t
COM Tab 1: Dismantling (A,B1,D1) (metals + non-metals)	20,211	60,517	67,417	80,728	87,628
COM Tab 2: Shredders (B2, D2) (metals + non-metals)		339,144	390,022	339,144	390,022
COM Tab 3: Exports (F1, F2) (metals + non-metals)		29,901	32,069	29,901	32,069
Total	20,211	429,562	489,508	449,773	509,719
				Recycling and recovery rates 2014	
W (total number of end-of-life vehicles)	512,163 vehicles			89.5%	101.4%
W1 (total vehicle weight)	502,656 tonnes			X1/W1	X2/W1