

ANNUAL REPORT

FOUNDATION
AUTO RECYCLING
SWITZERLAND

2015



1 RETROSPECTIVE AND OUTLOOK

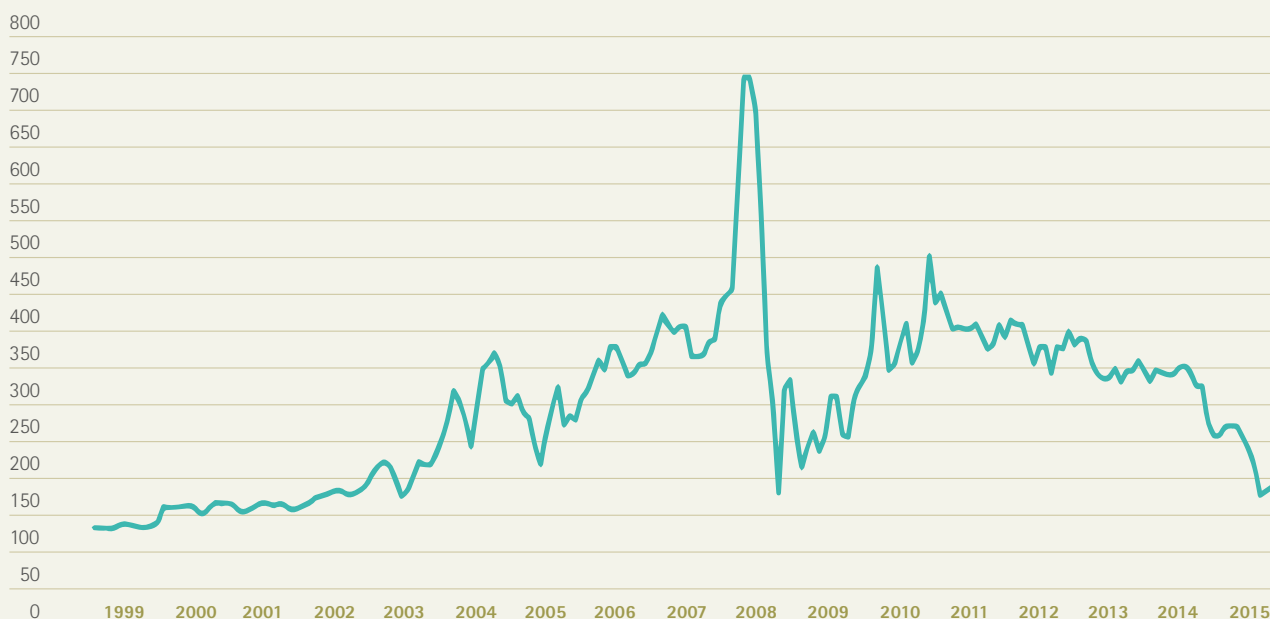
The strong Swiss franc and low scrap metal prices proved a serious obstacle to the recycling of end-of-life vehicles. Nevertheless the recycling branch held its own and was able to rise to the new challenges, including electric vehicles and new materials.

The year under review began with a sudden shock when the Swiss National Bank abolished the currency peg against the euro; that had a serious influence on all aspects of vehicle recycling. The negative impact was felt first at the end of the recycling chain, in the shredder plants. These process used metals and sell high quality scrap to the steel mills and smelting works. The scrap metal trade is an international business governed by the laws of the market economy. The price of shredder scrap (in Swiss francs) fell 25% in the first half of the

year and by as much as 50% by the end of the year compared to the previous year's prices. In addition to the revaluation of the franc, raw material prices collapsed. The shredder plants were obliged to pass price discounts on to their suppliers, including the vehicle recyclers. Instead of receiving a reasonable remuneration for the valuable material, in some cases supplements even had to be paid. The vehicle recyclers tended to hold back their end-of-life vehicles as they waited for scrap prices to rise again. As a result input to the shredder plants fell by 32%.

SHREDDER SCRAP PRICES 1999 – 2015

CHF/TONNE



(SOURCE: EUROFER, EUWID)

Like everyone else, vehicle recyclers live in changing times. Succession arrangements regularly result in closures and increasingly also in takeovers by foreign nationals. As a rule the latter tend to be more interested in the export of vehicles and components. For some time now an association called VAREX has therefore been planned to represent the exporting businesses. Unfortunately that organisation is not yet active. It would be extremely helpful as a central discussion partner for the authorities and also for the Foundation. Not least with a view to the adoption and enforcement of environmental standards. The technical development of vehicles is another challenge to conventional vehicle recycling. Because of the increasing complexity of electronic systems, entire assemblies instead of just individual components now have to be dismantled for reuse. For instance, only professionals who are qualified to deal with high voltage equipment are allowed to work on hybrid and electric vehicles. If cars are powered by gas, the gas tanks must always be drained and removed to prevent explosions from occurring in the shredder. The growing number of vehicle models and variants with a corresponding diversity of components requires the introduction of a rational stock management system for dismantled spare parts. In future, the shredder plants will also have to contend with further challenges. Almost all of them must deal with noise

emission issues. In the past, these plants were situated well away from residential areas but of late the separation has been steadily narrowing. Emissions such as those of hydrocarbons and dust, which occurs mainly when handling the automobile shredder residue (ASR), may also be a problem. On the materials side, typical issues include rising amounts of fibre-reinforced plastics, in particular carbon (FRPs), together with high and ultra-high tensile steel. Plastic materials pass into the ASR. The carbon dust from carbon materials is electrically conductive and causes faults to occur in the electro-filters of the municipal waste incineration plants (MWIP) in which the shredder residue is disposed of by burning. The presence of high and ultra-high tensile steel types which are used in vehicle manufacture to improve crash safety, while at the same time reducing weight, places a heavier load on the shredder hammers and shredder housing and hence also increases maintenance costs. Even if one prestigious motor manufacturer now mainly uses carbon in his electrical vehicles, steel has not seen an end to its useful life in vehicle manufacture, at least for as long as the manufacturers are required to respect such stringent crash criteria. In this area steel remains the material of choice. Nevertheless automobile recycling has the big advantage of a lead-time of 10 to 15 years before large volumes arrive for disposal. Demand for carbon recycling will surely exist on that time horizon.



Obituary Honorary President Paul Gemperli

Our Honorary President Paul Gemperli died unexpectedly in February at the age of 85. He had managed the Foundation since its inception in 1992 for 18 years with great prudence and skill. The Foundation's early years had been dominated entirely by the search for a suitable thermal ASR recycling technology. Many processes were tested and various projects accompanied. During this phase progressive waste recycling technologies were invented, such as the Thermo-select, RCT or Twinrec process; the aim in every case was to produce energy and make an inert vitrified slag from the residues which could then be dumped in a landfill site without causing any problems. After several practical trials, the Foundation assessed the RESHMENT process and working with Thommen-Furler AG began to plan a suitable construction project in Monthey in the year 2000. A building permit was granted but the project had to be halted for political and economic reasons. From today's perspective that was the right decision. ASR recycling in the municipal waste incineration plants is working well and has proved successful. In the meantime, the waste incineration plants have reduced their harmful emissions well below the limit values and greatly optimised the production of energy and valuable materials. Paul Gemperli retired from his duties as Foundation Chairman at the end of 2009. During his term of office he made a decisive contribution to the Foundation's activities referred to above. As a token of appreciation for his successful action, the Foundation Board named him Honorary President of the Foundation. We owe a great debt of gratitude to Paul Gemperli and will continue to honour his memory.



65,000 TONNES
IRON ORE

The following savings
were made in the steelworks
by recycling shredder
scrap from end-of-life
vehicles:

30,000 TONNES
COAL

200,000
MWh ENERGY

45,000 TONNES CO₂

2 ACTIVITIES OF THE FOUNDATION

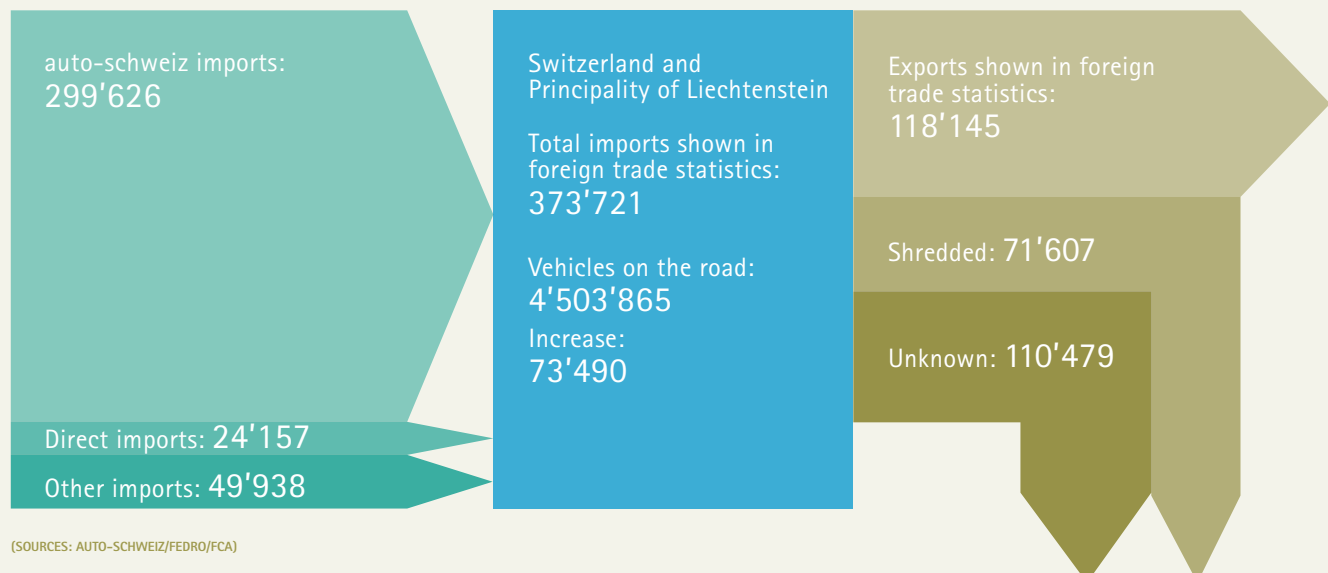
«Urban Mining» is the magic concept: today's consumer goods supply the raw materials for tomorrow. Useful substance contents are often higher than in mineral ores. Recycling is therefore worthwhile twice over: less waste is produced and nature is spared.

A) VEHICLE UND ASR RECYCLING

The unexpected abandon of the Swiss franc currency peg against the euro led to a reduction of new vehicle prices by around 15%. With that incentive, sales of passenger cars rose by 7.2% to reach 323,783 units. However, it must be noted that this record number was achieved in large measure at the expense of the profit margin. In addition, a further 50,000 previously used vehicles reached Switzerland. The number of vehicles on the road rose by a total of just 73,500 passenger cars which means that 300,231 vehicles were taken off the road in the reporting period. Exports stated in the foreign trade statistics stood at 118,145 cars. Around 180,000

cancelled vehicles still remained. Of that number 71,607 (-31.8% compared to the previous year) were demonstrably scrapped. What happened to the difference of 110,000 vehicles and where are they? As mentioned earlier, scrap prices fell sharply. It is therefore easy to understand that end-of-life vehicles which previously still had some scrap value have been held back in the expectation of higher prices. It is reasonable to assume that these vehicles are stored in second-hand outlets and scrapyards. As the shredder plants received less raw material than in 2014, the quantity of automobile shredder residue (ASR) fell by nearly 10,000 to 59,603 tonnes. Around one-quarter of that total comes from end-of-life vehicles. Recycling took place

PASSENGER CAR STATISTICS SWITZERLAND



as usual in municipal waste incineration plants both in Switzerland and abroad and the share of ASR processed in Swiss plants rose again to 61 %. The average incineration price for all the plants stood at 140 francs per tonne and in Switzerland at 156 francs per tonne of ASR. In 2014, the 30 waste incineration plants in Switzerland generated around 1.7 GWh electricity and 3.0 GWh heat from 3.8 million tonnes of refuse. The average energy utilisation rate for all the plants was 61 %. The best facility reached 95%, but this is inevitably accompanied by the release of a large amount of heat. The new Ordinance on the avoidance and disposal of waste prescribes an energy efficiency of 55% with effect from 1 January 2026 after deduction of own

use. In recent years, most plants have stepped up their energy efficiency. Respecting this new limit value is therefore unlikely to prove difficult. That is a positive factor for ASR co-incineration because optimum use is made in this way of the heat that is released. The Foundation Auto Recycling Switzerland paid 18 francs per recycled vehicle to the shredder plants as a contribution to thermal recycling of the shredder residue. In return, it received the cancelled vehicle log books and evidence from the disposal plants. Like this, it is able to make reasonable verifications without great bureaucracy. The Foundation is in regular contact with vehicle recyclers, shredder operators and the authorities. It also maintains contacts with the automobile manufacturers.

ASR RECYCLING (IN METRIC TONNES)

INCINERATION PLANT	2011	2012	2013	2014	2015
Hinwil	25'259	17'775	14'016	13'645	13'322
Winterthur		685	4'053	6'113	7'110
Zurich Josefstrasse		2'884	3'164	2'733	3'820
Thun	3'404	1'238	2'360	3'886	3'492
Niederurnen	4'939	3'214	3'271	2'850	2'510
Zurich Hagenholz	5'113	5'408	2'987	3'957	2'378
Weinfelden	3'840	3'933	2'173	718	1'916
Monthey	2'023	124	514	1'354	637
Colombier					575
Buchs SG	378	292	435	425	356
Zuchwil		1'771	899	555	199
Perlen					24
Posieux	322	1'012			
Bern	1'632	786			
Trimmis	2'059	426			
Horgen	121				
Mannheim D	5'839	17'227	17'852	16'158	11'902
Espenhain D (SRW)		1'375	1'910	3'126	4'730
Bremen D			2'308	4'163	4'377
Magdeburg D					649
Ingolstadt D	1'443	3'122	2'044	1'681	330
Helmstedt D	2'125	1'053	3'364	6'080	
Weissenhorn D		1'358	2'651	2'033	
Olching D		2'432	2'281		
Iserlohn D		1'269	1'737		
Salaise F (Tredi)	4'885	1'259	683		1'276
Total	63'382	68'643	68'702	69'476	59'603

(SOURCE: AUTO RECYCLING SWITZERLAND FOUNDATION)

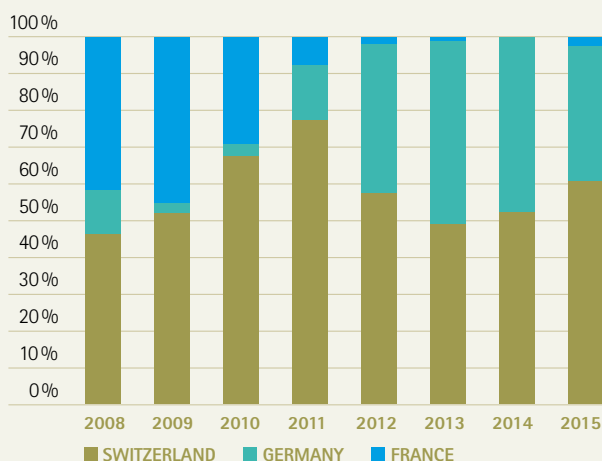
B) «WASTE INCINERATION PLANT RESIDUE PROCESSING» PROJECTS

Some 800,000 tonnes of slag and 80,000 tonnes of filter ash are left behind as residue from the municipal waste incineration plants (MWIP). These numbers include 5 to 15 per cent iron and 1 to 3 per cent non-ferrous metals. Metals are valuable materials which have to be returned to the material cycle, even if prices are low at present. That being so, a number of projects for processing incineration slag have been developed in recent years. This is an important sector for vehicle recycling because valuable waste metals pass into the solid MWIP residues as a result of incineration.

Centre for Sustainable Waste and Resource Utilisation ZAR:

The Foundation has reported repeatedly on developments in the ZAR. Dry discharge of slag from the incineration furnace is a requirement for efficient slag processing in the fine to ultra-fine range. This has already been achieved at the Zurich Oberland waste incineration plant since 2007. In the year under review, the emphasis was firstly on the wet-chemical treatment of filter dust and sewage sludge ash and also on construction of the full-scale industrial slag processing facility at the Hinwil site. Construction was held up by technical problems; however, these had nothing to do with the process. By the end of the year, the facility was completed and it began to operate in January 2016. The Foundation's participation is linked to a major trial with ASR which is due to be performed at a later date. The purpose of this trial is to find out how high the recovered metal share from ASR in fact is. Not only the «standard metals» will be taken into account here but also rare technical metals (see Section 2c, Vehicle electronics).

ASR RECOVERY BY COUNTRY



(SOURCE: AUTO RECYCLING SWITZERLAND FOUNDATION)

IGENASS Wet Discharge Interest Grouping:

IGENASS was founded in February 2015 under the management of the Institute for Environmental and Process Technology at Rapperswil University of Technology. Its members are working on the processing of wet discharged incineration slag. The aim is to make technical advances with the extraction of valuable materials, in the first place metals, from this slag. The intention is to achieve as far as possible trouble-free disposal of the slag with a good cost-benefit ratio. The aims resemble those of dry slag processing and healthy competition is arising in respect of the future definition of technical standards in this field. The Foundation is working on the assumption that in the long run both wet and dry discharge will have their place in waste incineration. For the co-incineration of ASR, a high proportion of the residual metals and any other valuable materials must be recovered.

C) «VEHICLE ELECTRONICS» PROJECT

The «Recycling potential of vehicle electronics» project is being led by the Federal Office for the Environment (FOEN) and is accompanied operationally by EMPA. After a lengthy pause the project has begun to move forward again. The reason lies in the revised Ordinance on the Return, Take-Back and Disposal of Electrical and Electronic Equipment (ORDEE) which is expected to enter into force in 2017. After it had been unclear for a long time whether electronic devices would already have to be removed from end-of-life vehicles at that stage and passed on for recycling, the Foundation, acting jointly with the Association of Automobile Recyclers, requested a discussion with the FOEN. The arguments put forward persuaded the FOEN not to press ahead and to await instead the results of the project which will become available in 2017/2018. Clarity must be obtained over the issue as to the extent to which systematic dismantling of electrical and electronic components is ecologically and economically rational and viable. A first cost calculation shows that 128 minutes are needed on average to remove eight components; that is equivalent to a cost of 171 francs per end-of-life vehicle. The costs of recycling the devices must be added. This expenditure is not proportionate. Pre-dismantling must be contrasted, for the purpose of ecological and economic considerations, with the slag processing referred to above. Today metals which are incorporated into electronic devices land up in the shredder residue and so find their way into the solid MWIP residues. That being so, cooperation is under way in the context of the ASR trials between the «Vehicle Electronics» project and the ZAR. In connection with this FOEN project, the Foundation also looked into the disposal of workshop waste materials. The major automobile importers in particular have contracts with workshop waste disposal

contractors. These collect the various kinds of waste which occur during vehicle maintenance and repairs and pass them on for recycling or disposal. Some suppliers also include vehicle electronics. The Foundation will advocate participation of the other importers in a system of this kind. Here the dismantling costs are already paid by the customer and the defective electrical and electronic components simply have to be collected separately.

D) PUBLICATIONS

- Recycling Magazine No. 8, 22.04.2015
«Mit Verbrennung zum Erfolg» (Successful incineration)
- Jahrbuch «klimafreundliche Schweiz 2015» (Climate-friendly Switzerland annual 2015), 06.2015
«Altfahrzeuge – Rohstoff- und Energielieferanten...» (End-of-life vehicles – A source of raw materials and energy)
- EUWID No. 34, 19.08.2015
«Schweiz: Etwas mehr SLF aus Altfahrzeugen» (Switzerland: rather more ASR from end-of-life vehicles)
- Automobile Revue No. 37, 09.09.2015
«Die Schweiz ist auch ein Exportland» (Switzerland is also an exporting country)
- Öbu Online Advent Calendar, 10.12.2015
«Autorecycling ist Gold wert» (Vehicle recycling is worth its weight in gold)



Adventskalender Nachhaltige Entwicklung 2015

Autorecycling ist Gold wert

Ein Auto besteht rund zu 79% aus Metall, hauptsächlich aus Eisen, aber nicht nur – in einem Auto stecken auch Gold, Silber, Platin, Kupfer und die geheimnisvollen Selteneren Erden. Die Stiftung Auto Recycling Schweiz setzt sich dafür ein, diese wertvollen Metalle zurück zu gewinnen.

In der Schweiz sind ca. 4,5 Mio. Autos in Betrieb. 2014 kamen rund 320'000 neue hinzu, rund 280'000 wurden aus dem Verkehr gezogen. Nicht ganz die Hälfte der Abfälle wird exportiert, hauptsächlich nach Litauen, Nigeria oder Polen, wo die Autos noch eine Weile ihren Dienst tun.

► Diese sind weitere interessante Zahlen finden Sie im schön gestalteten Jahresbericht 2014 der Stiftung Auto Recycling Schweiz (PDF)

Rund 100'000 Autos werden in der Schweiz pro Jahr komplett entsorgt. | Dazu werden die erst einmal zerlegt und vorkompaktiert, d.h. alle Flüssigkeiten wie z.B. Öl werden gesammelt. Viele Teile können als Ersatzteile verkauft werden. ► Sehen Sie hierzu ein interessantes Video der Firma Kammerer Autowerkstatt – Wertvoll ist auch der Katalysator, er enthält ein paar Gramm Platin, das Gramm kostet rund 30 Fr. Aus den USA und Deutschland sind Meldungen bekannt, wonach Diebesbanden gezielt an geparkten Autos die Katalysatoren abzapfen, um das wertvolle Platin später weiter zu verkaufen.

Ein Schredder zerschlägt eine Autowrack in nur Sekunden in kleine, faustgrosse Stücke. | Die schweren eisen-, aluminium- und kupferhaltigen Teile können bereits heute zu fast 100% recyclet werden. Wie steht es aber um das Gold, das Silber, Neodym, Palladium? Diese Metalle sind leider meist nur als Staub vorhanden und kleben zu allem Übel an Textil- oder Plastikteilen. Heute gibt es keine wirtschaftlich lohnenden Verfahren, die Metalle an diesem Punkt zurück zu gewinnen. Sie wandern deshalb in die Kehrichtverbrennung. Das ist aber noch nicht das Ende der Geschichte!

10 kg Gold pro Jahr aus Abfall. | Im Zentrum für nachhaltige Abfall- und Ressourcenutzung in Hünfeld werden bereits heute pro Jahr rund 10 kg Gold aus Abfall zurückgewonnen. Gerade jetzt läuft die Inbetriebnahme einer neuen Anlage, die diese Menge noch steigern könnte. Erste Resultate werden im Sommer 2016 erwartet.

Rund 23 kg Gold im Wert von 820'000 Fr., werden in den 100'000 Autos, die 2014 in der Schweiz geschreddert wurden, (z.B. Autos) (z.B. Autos).

Werkstoff Kammerer. Aus diesem Autowrack konnten noch verschobene Metalle und auch Energie gewonnen werden. Ein Forschungsprojekt untersucht die Rückgewinnung von selteneren Erden, wie zum Beispiel Neodym, Lanthan oder Thorium.



3 LAWS AND REGULATIONS

The new regulations on waste no longer deal simply with the environmentally-friendly handling of waste, but also encourage full material recycling to spare natural resources.

A) TECHNICAL ORDINANCE ON WASTE (TOW)/ORDINANCE ON THE AVOIDANCE AND DISPOSAL OF WASTE (VVEA)

After the TOW had been in force for twenty years, the FOEN decided that the «Waste Bible» which had been widely used until then must undergo a total revision and be adapted to the new challenges. That was in 2010. Almost six years later the new work was approved by the Swiss Federal Council under the name «Ordinance on the Avoidance and Disposal of Waste». As the title already indicates, greater importance will be attached in future to the avoidance, reduction and targeted recycling of waste. In our particular area mention must be made first and foremost of Article 21: «Metal pieces are to be removed for material recycling from the lightest fraction (ASR) which occurs when waste materials containing metals are comminuted». Further limitations which had appeared in the draft text were omitted in the end, including the provision that foreign incineration facilities which recycle ASR must also have an enhanced treatment facility for filter dust (known as acid scrubbing) at their disposal. That would have been equivalent to a de facto ban on exports which the Foundation opposed for reasons of security of disposal and competition. Nevertheless the Foundation continues to favour recycling in Switzerland. The new VVEA refers on many points to the state of the art which is to be defined in an aid to implementation that remains to be drawn up and in cooperation with the industry.

B) ORDINANCE ON THE RETURN, TAKE-BACK AND DISPOSAL OF ELECTRICAL AND ELECTRONIC EQUIPMENT (ORDEE)

As already indicated in Section 2C, the revised ORDEE is not due to enter into force until 2017. The main aim of the revision is to ensure that «fellow-travellers», in particular the online trade, play their part in the financing of disposal. The SENS, SWICO and SLRS collection systems which exist on a voluntary basis will continue to play an essential role. The state of the art will be defined in an aid to implementation. Businesses that were not previously covered will have to take part in one of the voluntary systems or in the FOEN solution. As already announced, electrical and electronic devices in buildings and vehicles will be covered by ORDEE. With reference to the «Vehicle electronics» project it remains to be seen which devices will be placed on the list of devices in due course. The Foundation will insist on the need to safeguard the proportionality which is laid down in the ordinance.



-40^{TO}
+125 °C

TEMPERATURE RANGE

20 to 80 control devices are mounted in vehicles today. Demands placed on the components are high: great strength, temperature range -40 to +125°C, resistance to vibrations and impact, reliability.

4 CONFERENCES AND WORKSHOPS

The events show the current state of development of the recycling economy in different branches of industry and point to the future challenges.

RECYCLING CONGRESS OF SWISS RECYCLING

16. JANUARY 2015, BIEL

The Recycling Congress is intended primarily for local authorities and organisations which deal with domestic waste. The Foundation used the opportunity to produce a brochure on the subject of vehicle recycling.

BERLIN RECYCLING AND RAW MATERIALS CONFERENCE

16 – 17 MARCH 2015

This specialist conference is divided into a plenary session with contributions about environmental policy, strategy and economy on the one hand and on the other presentations on the topics of plastics, metals, paper, process engineering as well as vehicle and electronic devices.

INTERNATIONAL AUTOMOBILE RECYCLING CONGRESS

24 – 26 MARCH 2015, BERLIN

The Foundation is a sponsoring partner of the only congress in this branch and has a seat on the Steering Committee. Discussions focussed on compliance with the EU directive, the practically unhindered outflow of end-of-life vehicles (and hence of raw materials) and the challenges that will arise in future for the recycling of certain materials and components.

GREEN FORUM, 23 JUNE 2015, RAPPERSWIL SG

The Annual Green Forum is organised by SWICO and deals with issues relating to the recycling of electronics. SWICO is the Federation of the Digital Economy and runs a collection and recycling system for entertainment and office electronics.

RESSOURCE-TRIALOGUE, 17 AUGUST 2015, BERN

This forum is an initiative of Swiss Recycling, the VBSA and the Canton of Aargau and serves as a platform to shape the future waste and resource economy.

The focus of the waste economy is no longer just on the avoidance of environmental impacts but increasingly on the use of waste as a valuable material and energy resource. Information gained from the Trialogue serves as the basis for the waste industry's mission statement for 2030.

FEDERAL GERMAN DEPARTMENT OF THE ENVIRONMENT (UBA); WORKSHOP 02 NOVEMBER 2015, BERLIN

THE UBA issued an invitation to a workshop on the topic of «Recycling of precious and special metals». Speakers from Germany and other countries presented a brief outline of research projects in this field. Representatives of EMPA and the FOEN in particular gave presentations. The FOEN showed how recycling can itself place a burden on the environment. Consequently, a 100% recycling rate is not desirable for ecological reasons. Recovery of rare earths from waste is currently obstructed not just by economic considerations but also by the «chicken and egg problem». The processing technology could exist but the necessary investments are lacking because the waste volume is too low. On the other hand, waste is not systematically collected because there are no recycling facilities. The UBA would like to provide aid as an incentive here.

VBSA CONFERENCE 01 DECEMBER 2015, OLTEN

The traditional event of the Federation of operators of Swiss waste treatment facilities dealt with the recovery of energy from waste. In this context, there are some interesting ideas and approaches to the storage of energy for peak load periods when demand is high. In the final analysis this should also prove financially viable. Last year, all the incineration plants in Switzerland together generated electricity and heat with a value of 200 million francs. These facilities are by no means just waste disposal entities today, but also energy producers and raw material generators. This aspect is linked to slag processing.

5 MOTOR VEHICLE STATISTICS

STATISTICS FOR PASSENGER CARS IN SWITZERLAND

YEAR	NEW REGISTRATIONS ¹⁾	IMPORTS ²⁾	TOTAL ON THE ROAD	TAKEN OFF ROAD ³⁾	EXPORTS ²⁾	VEHICLES CANCELLED IN SWITZERLAND ⁴⁾	VEHICLES SHREDDED IN SWITZERLAND ⁵⁾	DIFFERENCE CANCELLED SHREDDED
2000	315'398	332'880	3'545'247	254'908	73'404	181'504		
2001	317'126	330'541	3'629'713	246'075	83'319	162'756		
2002	295'109	302'763	3'700'951	231'525	90'034	141'491	166'198 ⁶⁾	-24'707
2003	271'541	288'192	3'753'890	235'253	94'682	140'571	153'412 ⁶⁾	-12'841
2004	269'211	281'588	3'811'351	224'127	108'235	115'892	147'096 ⁶⁾	-31'204
2005	259'426	287'371	3'864'994	233'728	90'354	143'374	129'704 ⁶⁾	13'670
2006	269'421	284'182	3'899'917	249'259	106'857	142'402	104'600	37'802
2007	284'674	305'102	4'002'584	202'435	131'695	70'740	88'261	-17'521
2008	288'525	310'841	4'031'205	282'220	108'205	174'015	82'195	91'820
2009	266'018	276'833	4'051'832	256'206	82'967	173'239	58'279	114'960
2010	294'239	333'808	4'119'684	265'956	91'965	173'991	78'657	95'334
2011	318'958	367'961	4'209'672	277'973	96'430	181'543	90'338	91'205
2012	328'139	374'379	4'300'036	284'015	127'806	156'209	99'448	56'761
2013	307'885	342'762	4'366'895	275'903	125'325	150'578	107'282	43'296
2014	301'942	337'653	4'430'375	274'173	120'977	153'196	105'034	48'162
2015	323'783	373'721	4'503'865	300'231	118'145	182'086	71'607	110'479
	(FEDRO/AUTO-SCHWEIZ)	(FCA)	(FEDRO/AUTO-SCHWEIZ)		(FCA)			

FEDRO: Federal Roads Office (status as of 30 September)

FCA: Federal Customs Administration (foreign trade statistics)

1) New registrations in Switzerland, including direct and parallel imports

2) All imports and exports shown in the foreign trade statistics

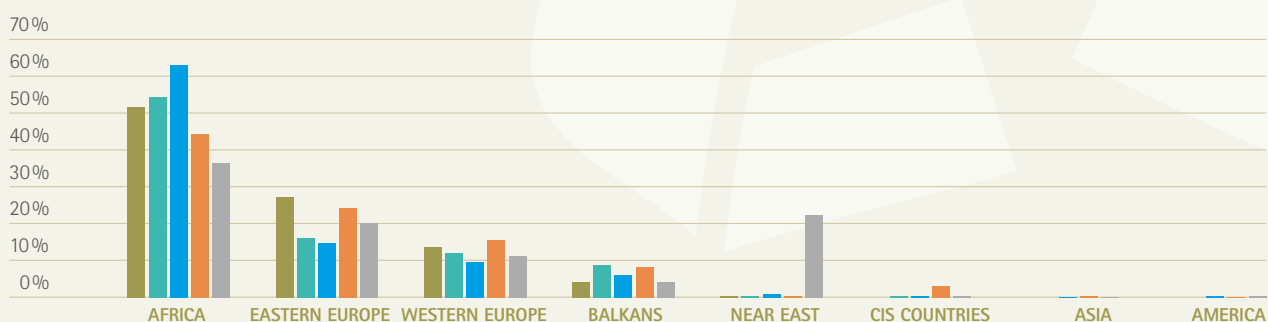
3) Calculated: imports less increase in number of vehicles on the road

4) Calculated: cancelled vehicles less exports

5) Vehicles proven to have been shredded (at present vehicle log books; up to 2005 weighing certificates)

6) Calculated from weighing certificates (850 kg/vehicle); from 2006 cancelled vehicle log books

EXPORTS OF PASSENGER CARS BY REGION



■ 2015	52%	28%	14%	5%	1%	0%	0%	0%
■ 2014	55%	17%	13%	10%	1%	1%	0%	0%
■ 2013	63%	15%	10%	7%	2%	1%	0.1%	0.2%
■ 2008	45%	25%	16%	9%	1%	4%	0.2%	0.1%
■ 2003	37%	21%	12%	5%	23%	1%	0.1%	0.4%

(SOURCE: FEDERAL CUSTOMS ADMINISTRATION, FOREIGN TRADE STATISTICS)

EXTRACT FROM FOREIGN TRADE STATISTICS; EXPORTS OF PASSENGER CARS 2015

2015	VEHICLES	WEIGHT (kg)	PRICE (CHF/Vehicle)
Total (140 Countries)	118'145	1'405	3'159
Libya	23'042	1'381	753
Poland	19'013	1'522	1'538
Niger	14'588	1'270	1'131
Benin	8'966	1'307	1'460
Bulgaria	8'115	1'507	778
Germany	8'078	1'528	10'865
Togo	7'119	1'215	1'049
France	5'199	1'378	7'390
Nigeria	1'950	1'540	1'606
Czech Republic	1'920	1'494	6'882
Hungary	1'456	1'386	1'600
Macedonia	1'418	1'464	1'384
Lithuania	1'405	1'597	1'503
Serbia	1'381	1'307	1'447
Cameroon	1'269	1'320	1'436
Austria	1'095	1'478	6'655
Kosovo	1'067	1'476	2'446
Italy	1'039	1'361	10'184
Guinea	988	1'345	1'187

(SOURCE: FCA)

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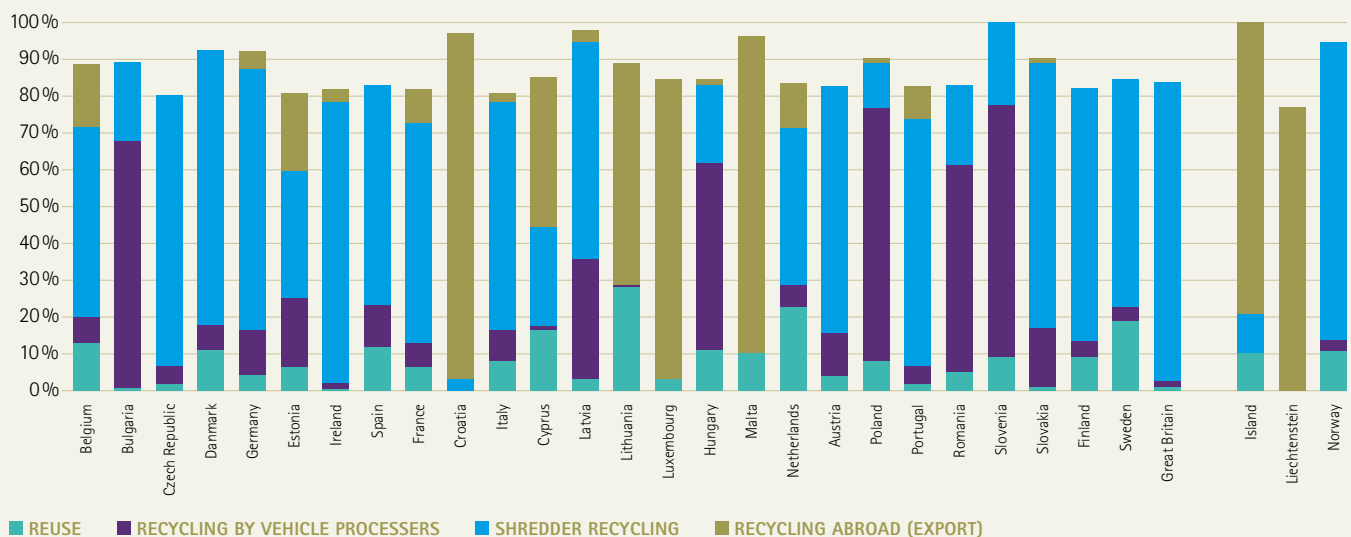
DEVELOPMENTS ABROAD

The law and practice often do not coincide. On one hand, high recycling rates are required, while on the other no information is available in Europe as to where 3.6 million vehicles end up (EU Commission; 2013). Nevertheless some progress has been made.

For the year 2015, the EU Member States were required for the first time to provide evidence of a 95% recovery rate and an 85% recycling rate. The 10% difference can be achieved by use for energy purposes, e.g. the shredder residue. Holland is probably the only EU country which is able to fully meet these criteria. Since 2011 Auto Recycling Nederland has been operating a reprocessing facility especially for shredder residues. Today 40,000 tonnes of ASR are processed every year. Much of this is passed on for recycling. However, the cost is considerable: more than 170 different units have to be coordinated. Some major shredder plants also have reprocessing facilities. However, this cannot hide the fact that a great deal of

material still finds its way into landfill. The question repeatedly arises as to the «illegal» export of end-of-life vehicles from Europe to countries in the east and south. Illegal is probably the wrong word here because the main issue resides in data gathering and inspection. As long as the vehicles are in a reasonable technical condition there is no objection to their further operation in the developing countries. On the other hand, shredding would undoubtedly be the better solution for some vehicles. In recent years the technical complexity of vehicles has increased constantly. It remains to be seen whether demand for those vehicles will still exist in future in the export countries. The fact is that cheap repairs will then hardly be possible any longer.

RECYCLING AND REPROCESSING RATE OF END-OF-LIFE VEHICLES IN THE EU 2012



(SOURCE: EUROSTAT)

ANNEX

DOCUMENTATION

Publications such as press releases, annual reports, INFO newspapers etc. can be consulted on the Foundation's website: www.stiftung-autorecycling.ch

MEMBERSHIP OF THE FOUNDATION BOARD

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