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Federal Department of the Environment,
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Federal Office for the Environment FOEN
Division

Legal framework and standards for WEEE management in Switzerland: -> Experience and future challenges

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Agenda

- **Experiences**
 - **Why an ordinance on WEEE**
 - **Classification of e-waste**
 - **Swiss WEEE regulations**
 - **Financing system for the collection and Recycling of WEEE**
 - **Transboundary Movements TBMs of e-waste**

- **Implementation and figures**
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 - **Preparation and Implementation of the Swiss WEEE-Regulations**
 - **Summary of the Experiences with the Swiss WEEE management**

- **Challenges**
 - **Limits / Maintenance of the financing system**
 - **Ecological improvements**
 - **Harmonization between the Swiss law and the European WEEE-directive where reasonable**



SWITZERLAND

Area: 41'285 km²
Population: 7.7 mio.
Cantons: 26
Political System: Federal
Material Flows: 47 tons/person/year
(33 tons thereof hidden flows abroad)



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Cantons are responsible for the implementation of the WEEE-ordinance



Why an ordinance on WEEE?

Problems with WEEE

- Strong and fast increase of the amount of WEEE
- Pollutants in the municipal solid waste
- Loss of valuable resources, if not recycled
- Insufficient recovery
- Uncontrolled conditions regarding the export

- **Swiss business circles indicated their interest in legally binding rules on the responsibility of traders, retailers, importers and manufacturers for taking-back and recycling of WEEE. This in order to give support to the starting and partially established voluntary collection and financing systems by individual Private Recycling Organisations (SWICO and SENS).**



Ordinance on the Return, the Taking Back and the Disposal of Electrical and Electronic Equipment (ORDEE/ 1998) / 1

Goal of the Swiss WEEE-regulation

- No e-waste in the municipal solid waste
- Maximum recovery of secondary raw material
- ESM disposal of problematic material





Ordinance on the Return, the Taking Back and the Disposal of Electrical and Electronic Equipment (ORDEE/ 1998) / 2

Content of the Swiss regulations on WEEE

- List of appliances
- Obligation to take back
- Obligation to give back
- Environmentally sound recycling and disposal
- Classification of e-waste (separate ordinance)
- Regulations for transboundary movements: Export / Import / Transit (separate ordinance)
- Restriction of the use of certain hazardous substances in electrical and electronic appliances: e.g. lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE). (separate ordinance and corresponding to the European ROHS regulation)



***-> The Swiss WEEE-Ordinance is a framework legislation!
This forms the basis for flexible implementation in line with the market!***



Classification of e-waste

Questions concerning EEE and WEEE:

- When is an EEE appliance a product ?
- When is EEE appliance a waste ?
- When is a WEEE hazardous ?

Classification of WEE in the Basel Convention

- List A1180 determines hazardous wastes
- List B1110 determines non-hazardous waste
- Often unclear/difficult to determine which WEEE is hazardous and which is not.
- Classification unclear for appliances destined for repair

Swiss WEEE classification

- Components containing PCB, mercury, asbestos: -> haz. waste
- All other WEEE: -> wastes under control
- Exports of all WEEE are under control, including EEE/WEEE destined for repair/refurbishment



Classification of WEEE in the Basel Convention

A1180 : Waste electrical and electronic assemblies or scrap containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III

B1110 : Electrical and electronic assemblies :

- **Electronic assemblies consisting only of metals or alloy**
- **Waste electrical and electronic assemblies or scrap (including printed circuit boards) not containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or not contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) or from which these have been removed, to an extent that they do not possess any of the characteristics contained in Annex III**
- **Electrical and electronic assemblies (including printed circuits boards, electronic components and wires) destined for direct reuse, and not for recycling or final disposal.**



Swiss WEEE-Ordinance / 1

Subject to the ORDEE:

- **Consumer electronics equipment**
- **Office, information and communication technology equipment**
- **Household appliances**
- **Tools (except large-scale stationary industrial tools)**
- **Sport and leisure appliances as well as toys**
- **Lighting equipment**
- **Lamps (without incandescent lamps)**

Not subject to the ORDEE:

- **Medical devices**
- **Monitoring and control instruments**
- **Automatic dispensers / industrial machines with EEE**



Swiss WEEE-Ordinance / 2

Bring-back / return obligation

- E-Waste must not enter municipal solid waste. Consumers **must** return it to a retailer or to an e-waste collection point.

Obligation to take back

- Retailers must take back **free of charge** e-waste of the type they normally sell – independent from the brand, and also if no new appliance is bought.
- Manufacturers and importers must take back **free of charge** e-waste of the brands manufactured or imported by them.
- Municipalities are not obliged to collect e-waste.
In small villages with no retailers municipalities are encouraged to take back e-waste.



Environmentally sound recycling and final disposal

- **Disposal license of the Canton**
- **Requirements for disposal:**
 - **Recycling / final disposal of WEEE must follow state of the art technology**
 - **Components containing pollutants must be removed before further treatment, and disposed of separately and environmentally sound.**
 - **Cathode ray tubes and metallic components must be recycled, as far as this is environmentally worthwhile and economically justifiable.**
 - **Non-recycled components (e.g. plastics with hazardous flame retardants) must be incinerated in suitable plants.**



Financing system for the collection and Recycling of WEEE

Voluntary system

- Industry and commerce established a voluntary financing system for the collection and recycling of WEEE
- Funds are raised through a “Prepaid Recycling Fee” / PRF

Responsible Associations

- **SWICO** Swiss association for Information, Communication Organisation Technology
www.swicorecycling.ch
- **S.EN.S** Swiss Foundation for Waste management
www.sens.ch
- **SLRS** Swiss Lighting Recycling Foundation
www.slrs.ch



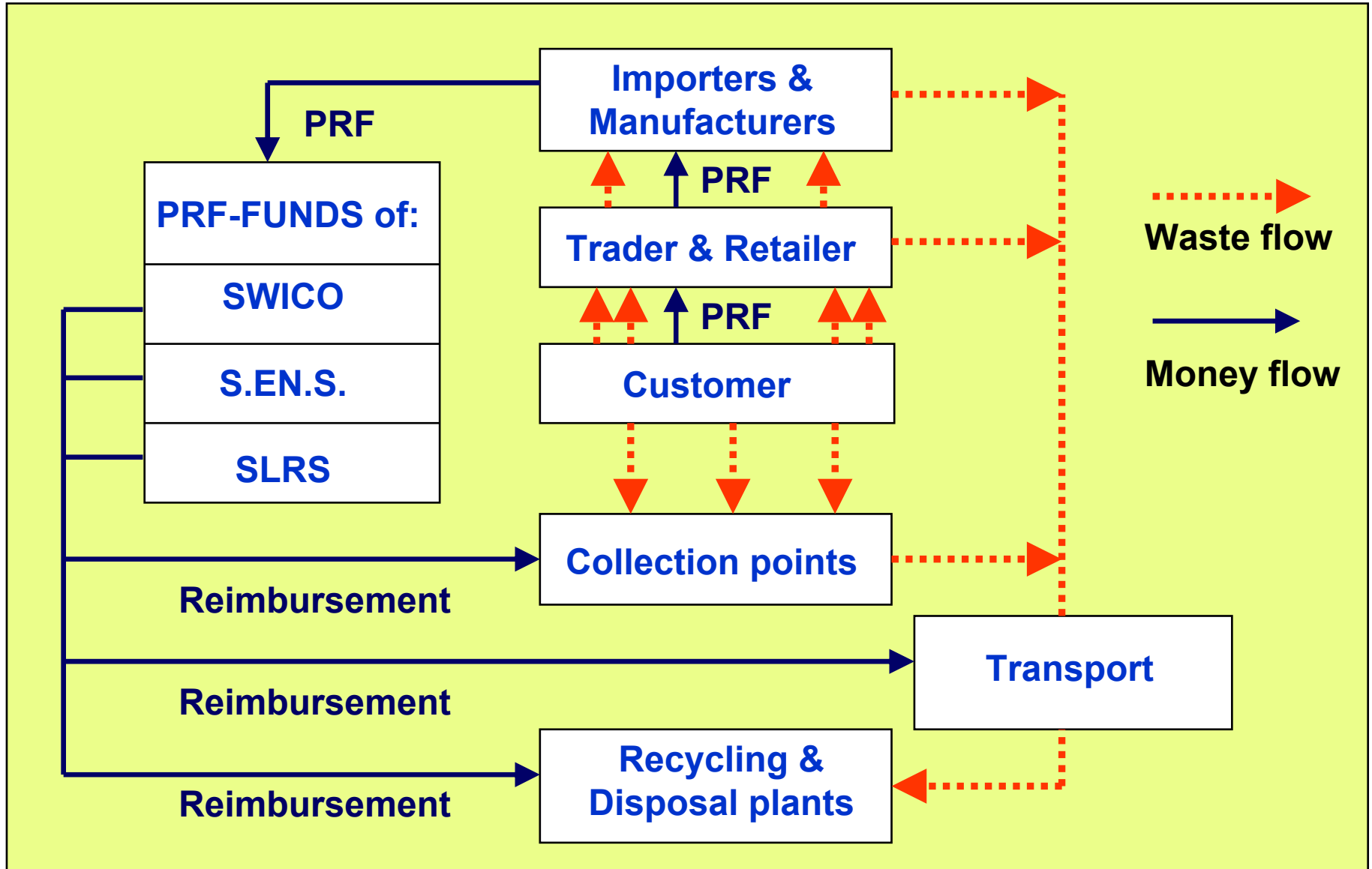
Financing system based on a PRF

- Points of sale charge the customer a **Prepaid Recycling Fee (PRF)** imposed on new equipment.
- The PRF is transparently declared and „non profit“ fed into an PRF-fund via importers / manufacturers / distributors.
- The PRF is used to finance the collection, transportation and recycling of WEEE.
- The customer returns all equipment free of charge.
- As the financing is based on a voluntary system, „free riders“ may burden the system.





Cash flow of PRF and flow of E-waste





Transboundary Movements TBMs of e-waste

- **E-Waste can be exported or imported only with the authorization of the Federal Office for the Environment**

- **Requirements for TBMs:**
 - **Proof / evidence that the recovery process is environmentally sound**
 - **Importing and transit countries give their consent**
 - **Exports only possible to member countries of the OECD**

- **Exports of EEE-appliances for repair are subject to above mentioned export controls and requirements**

- **No restrictions for second-hand appliances**
Classification often difficult; therefore the following rule is applied:
 - **Plug in and appliance works as originally intended -> product**
 - **Plug in and appliance doesn't work -> waste**



Cooperation with the Private Sector: Principle

is a principle of the Swiss Federal Law relating to the Protection of the Environment (LPE)!

Art. 41a LPE

The Federal Council and, within their area of responsibility, the Cantons shall cooperate with private sector organizations in enforcing this law.

- They may promote sector agreements by setting quantitative targets and deadlines for meeting them.
- Before enacting implementing regulations, they shall examine voluntary private sector measures. Wherever possible and necessary, they shall incorporate sectoral agreements into the implementing regulations in whole or in part.



Cooperation with the Private Sector: Stakeholders

- **Ministries (e.g. State Secretariat for Economic Affairs)**
- **Other authorities (Cantons)**
- **Associations / organisations (industry, commerce, consumers etc.)**
- **PROs Private Recycling Organisations (SENS, SWICO, SLRS)**
- **Recyclers / disposal companies**
- **Producers**
- **Retailers**
- **Political Parties**



What an ordinance shall guarantee

- **Balance in the market**
- **No trade barrier for products**
- **Cooperation with industry**
- **Minimum set of rules**
- **No monopoly**



Preparation and Implementation of the Swiss WEEE-Regulations

Overall monitoring and discussion forum:

- „Contact group“:
all stakeholders meet periodically to discuss current problems and guide the different working groups elaborating / revising the guidelines

Working groups that elaborate or revise guidelines:

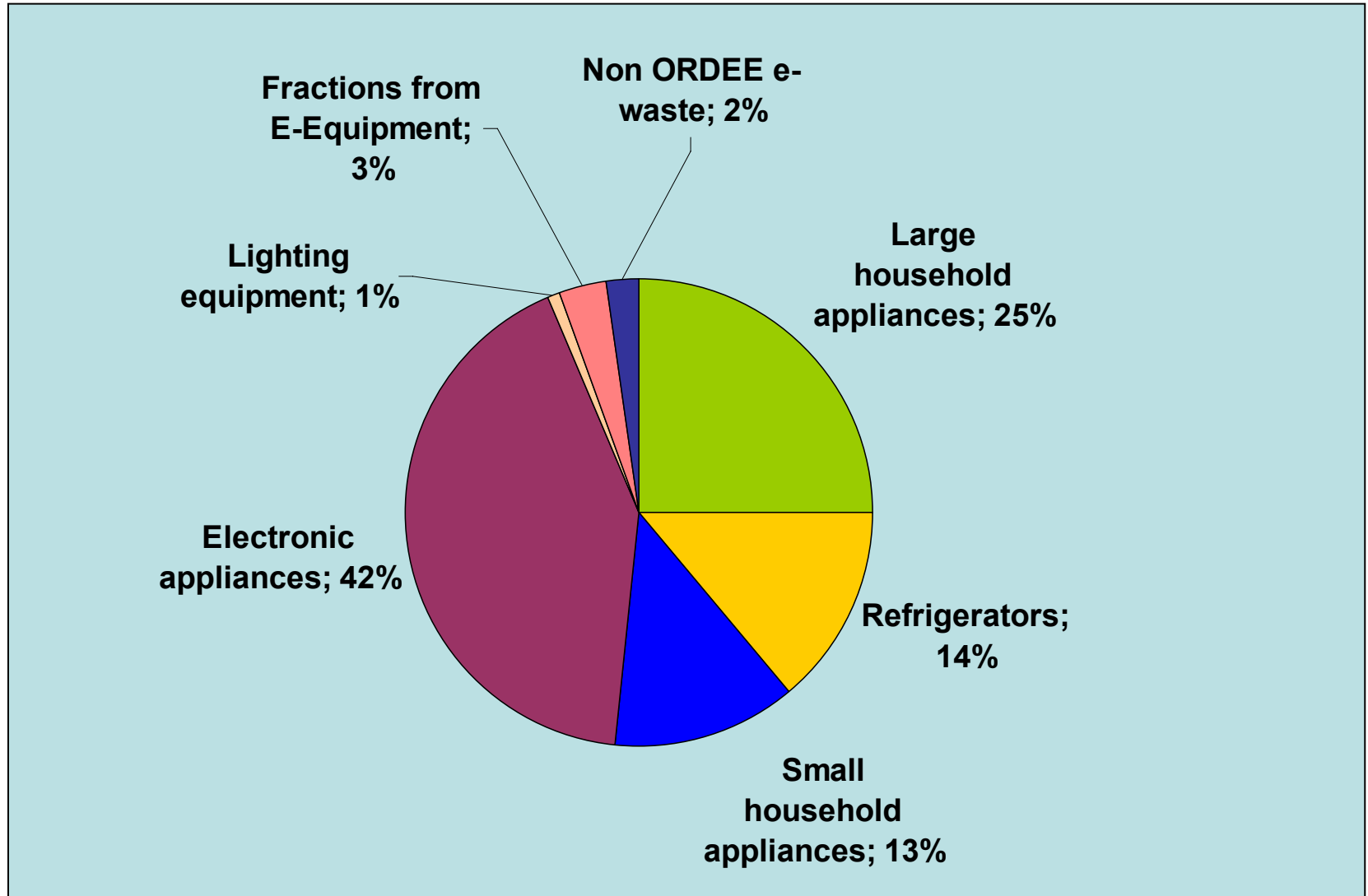
- Working group „Licensing“
- Working group „Information“
- Working group „State of the art recycling technologies“
- Working group „Coordination and control activities“
- Working group “Illuminants”
- Working Group “transboundary movements for repair, warranty cases, between same companies)

In Switzerland guidelines put undefined legal phrases from laws and ordinances into concrete terms and thus enable their implementation to be uniform.



Figures on e-waste 2008 Switzerland / 1

Processed e-waste in 2008





Figures on e-waste 2008 Switzerland / 2

Processed WEEE in 2008	Tons	Generated fractions in 2008	%
Large household appliances	26'800	Metals	57%
Refrigerators	15'100	Plastics	15%
Small household appliances	13'800	Metal- Plastic mixture	11%
Electronic appliances	45'000	CRT and LCD	10%
Lighting equipment	1'130	Others	3%
Fractions from E-Equipment	3'600	Wires	2%
Non ORDEE e-waste	2'300	Printed circuit boards	1%
<u>Total (tons)</u>	<u>107'730</u>	Pollutants	1%



Figures on e-waste 2008 Switzerland / 3

Total amounts of WEEE collected in Switzerland 2008

- collected: 107 730 tons = 14 kg per inhabitant
- PRF collected **66.941 millions CHF**
- Collection target of the WEEE-directive of the European Union for 2016: 65% WEEE collection rate (including B2B equipments) in function of the average amount of EEE placed on the market in the two preceding years in each Member States.



Figures on e-waste 2008 Switzerland / 4

WEEE PROs in Switzerland:

SWICO	ICT-Appliances
SENS	Other appliances
SLRS	Lamps and lighting fixtures

Producers and importers taking part in the PRO-system:

SWICO:	553
SENS:	527

**Collection points SWICO and SENS : 448 each (often together)
plus every retailer of EEE**

Prepaid disposal fee income:

SWICO:	37 Mio. CHF	(~ 32 mio US\$)
SENS :	30 Mio. CHF	(~ 26 mio US\$)

Costs and collection rate

Recycling (per kg) :	0.55 CHF/kg WEEE (~ 0.5 US\$)
Recycling costs (per person) :	7.70 CHF (~ 7.5 US\$)
Collection rate per person:	14 kg



Summary of the Experiences with the Swiss WEEE management

- **EEE and WEEE constitutes a complex market**
- **(Political) awareness of alle stakeholders for WEEE is needed**
- **Information is an ongoing task**
- **framework regulation very successful**
- **Financing system must be introduced from the beginning**
- **Ongoing cooperation with all stakeholders is important and helpful**
- **High collection and recycling rates**
- **Good cooperation with all stakeholders**
- **Consumers are satisfied (assurance of esm recycling of WEEE)**
- **Revision / adaptation of the regulations are needed from time to time**



Future challenges: Overview

1. Limits / Maintenance of the financing system

2. Ecological improvements

3. Harmonization between the Swiss law and the European WEEE-Directive where reasonable



Future challenges / 1

1. Limits / Maintenance of the financing system

The existing voluntary financing system may compromise the recycling system as a whole

- **Market distortions because of side riders**
- **Problem with trade through the internet (internet sellers)**
- **Direct imports to the customers from abroad**
- **cherry pickers**

Possible dominance of the PROs in the market

- **PROs are requesting an own license of the recyclers beside the official license according to the Swiss regulations**
- **Risk of PROs actively intervening into the recycling market (Material flows, competition disturbances)**
- **Kick-backs of PRF money from the recyclers to the collectors in order to receive e-waste.**
- **Who owns the e-waste?**
- **Exportations versus autonomous solution**



Future challenges / 2

2. Ecological improvements

Further conservation of resources

- Lacking requirements concerning the recovery of rare earth elements (e.g. Indium, tantalum...)
- Unused potentials: e.g. EEE of used cars
- Lack of regulations and technologies for the recovery of plastics
- Today hybrid cars do not under the WEEE regulations

Product design issues

- Today's system gives no incentives for a “greener” product design/product of the individual EEE producers
- Swiss WEEE regulations do not include requirements or incentives for a green for the product design
- Swiss WEEE regulations do not include request concerning energy efficiency of EEE (see e.g. EU Directive on energy using products)



Future challenges / 3

3. Harmonization between the Swiss law and the European WEEE-directive where reasonable

- **Inclusion of all e-waste categories defined in the EU-regulation into the Swiss regulations**
- **EU prescribes mandatory recycling and material recovery rates**
- **Marking of new equipment (crossed-out waste bin)**



Thank you!

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