

An Overview of the European Waste Electrical and Electronic Equipment (WEEE)

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WEEE

It aims to tackle improper treatment of waste of electrical and electronic equipment.

(Directive 2002/96/EC)

WEEE History

- Late 1990's, several member states introduced national laws to address environmental concerns.
- In 2000, the European Commission proposed EU legislation for electrical and electronic waste.
- It was tied in with directive 2002/95/EC, the RoHS directive.

WEEE History

- In 2003, both RoHS and WEEE directives were adopted in 2003.
- The WEEE law obliged the 25 members of the EU to implement this directive by 13 August 2004. Only Cyprus met this deadline.

WEEE History

- By 31 December 2006, more “reasonable” collection and treatment were established.
- A considerable amount of experience has been gained and tabulated for the time period 2004 through 2006.

The Problem

- A disposal of untreated WEEE to landfill.
- Recycling and recovery of WEEE by techniques that release or generate harmful substances.

The Problem

- EEE contains numerous substances that can and will harm human health and the environment
- Annual volumes of EEE waste in the EU continue to grow rapidly.

The Problem Scope (by weight)

- Ferrous metals (50%)
- Non-ferrous metals (5%)
- Glass (10%)
- Plastics (25%)
- Liquids (oils and cooling agents) (5%)
- Not categorized (5%)

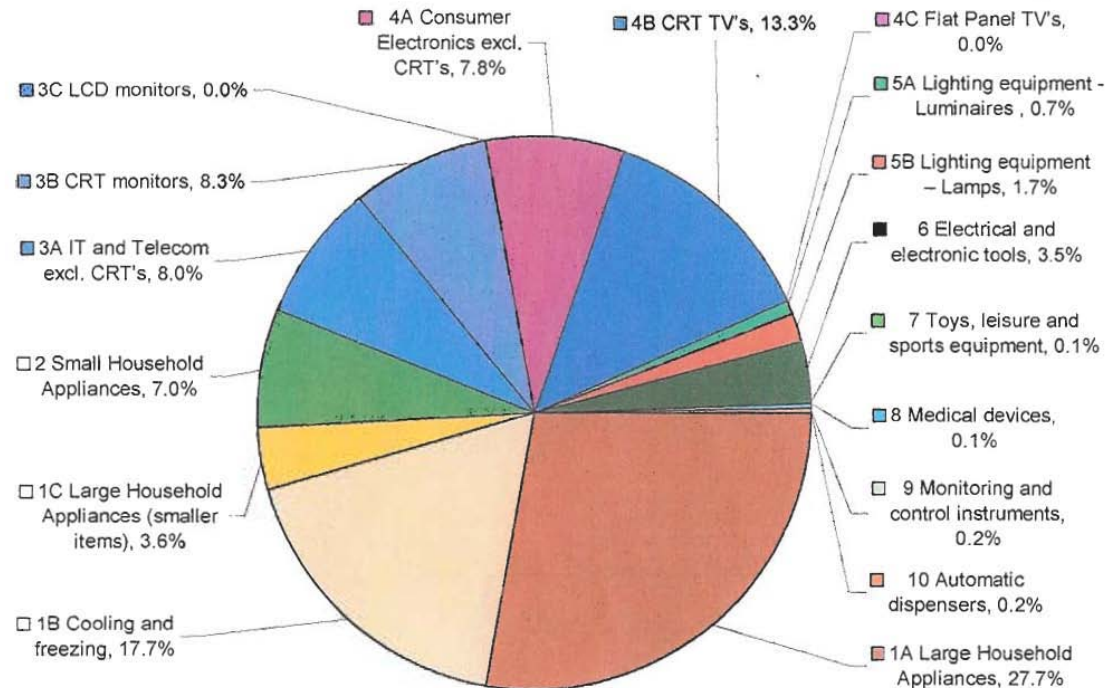
Judging the Problem

- By weight of each product or equipment
- Bill of materials is not acceptable.

The Equipment & Products (EEE) Majority List

- Monitors (CRTs, LEDs, LCDs)
- Freezers
- Air conditions
- Refrigerators
- Lighting equipment
- Medical devices
- Electric tools
- Mixers
- Telecommunication equipment
- Small household appliances
- Dispensing machines
- Electronic games
- Toys
- Controls and control panels
- Mobile phones

2005 WEEE Breakdown by Weight



Typical Lifetime of Certain Eqpt

- Medical equipment – 20/30 years
- Large appliances – 15 years
- Freezers – 15/20 years
- Mobile phones – 2 years

RoHS Dangerous Chemicals

- Since RoHS was implemented in 2006 for new EEE, there are lots of lead, cadmium, mercury, and the other 3 still in the environment, probably until 2020 and beyond when longer life products are recycled.

Non-RoHS Dangerous Chemicals

- Other dangerous substances are currently in EEE include beryllium oxide, tetrabromo-bisphenol (flame retardant), PVC (poly-vinyl chloride) plasticiser and others with very long chemical names.

The Environment

- While these chemicals are dangerous to wildlife and humans, the WEEE also works to protect the environment.

The Scope of EEE in the EU

- The fastest growing waste stream in the EU is EEE.
- It produced 9.5 million tons of waste in 2007.

The Scope of EEE in the EU

Central Problems

- Disposal of EEE into landfills.
- Poor or substandard recycling and recovery that releases or generates harmful substances into the environment.

Environmental Damage

- Release of heavy metals like mercury, lead and cadmium.
- Release of ozone depleting gases (CFC's).

Improperly Treated Waste in the EU

- 3.4 million tons in 2005 (35.8%).
- 4.3 million tons in 2020 (estimated).

Where does WEEE come from (by weight)?

- 87% from Private Households.
- 13% from Business-to-Business.

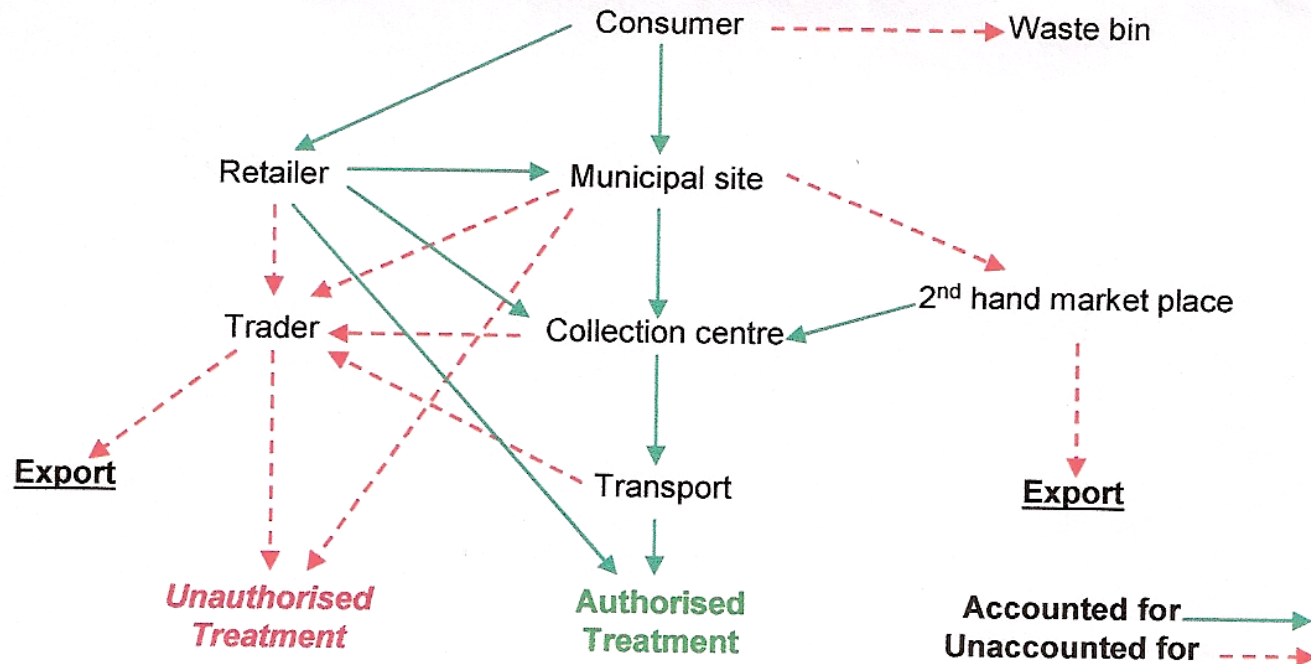
How much WEEE in EU?

- Total WEEE – 9.5 million tons in 2007
- Total WEEE – 12.3 million tons in 2020

How much WEEE in EU by person?

- EU 15 older members 14-24 kg 30-53 lbs.
- EU 12 newer members 6-12 kg 13-26 lbs.

Possible Leaks in WEEE Recycling from Private Homes



“Original” EU Countries

- Germany
- Norway
- Sweden
- Denmark
- Netherlands
- Belgium
- U.K.
- Ireland
- Luxembourg
- France
- Portugal
- Spain
- Greece
- Austria
- Italy

“Newer” EU Countries

- Cyprus
- Czechland
- Hungary
- Poland
- Romania
- Slovakia
- Lithuania
- Latvia
- Estonia
- Slovenia
- Malta
- Finland

Current Effectiveness of Collection of WEEE

- 11% goes directly to landfill.
- 54% currently in line with directive.
- 35% improperly treated.

Current Costs for WEEE Implementation (Est.)

- Collection & transport, € 1.8 billion (\$2.61 billion)
- Additional costs, € 0.9 billion (\$1.30 billion)
- Treatment costs, € 1.3 billion (\$1.89 billion)
- Additional treatment costs to meet legal requirements, € 1.8 billion (\$2.61 billion)
- Enforcement costs, € \$0.6 billion (\$0.87 billion)
- **Total Annual Costs, € 6.2 billion (\$8.99 billion)**

Value Recovered WEEE

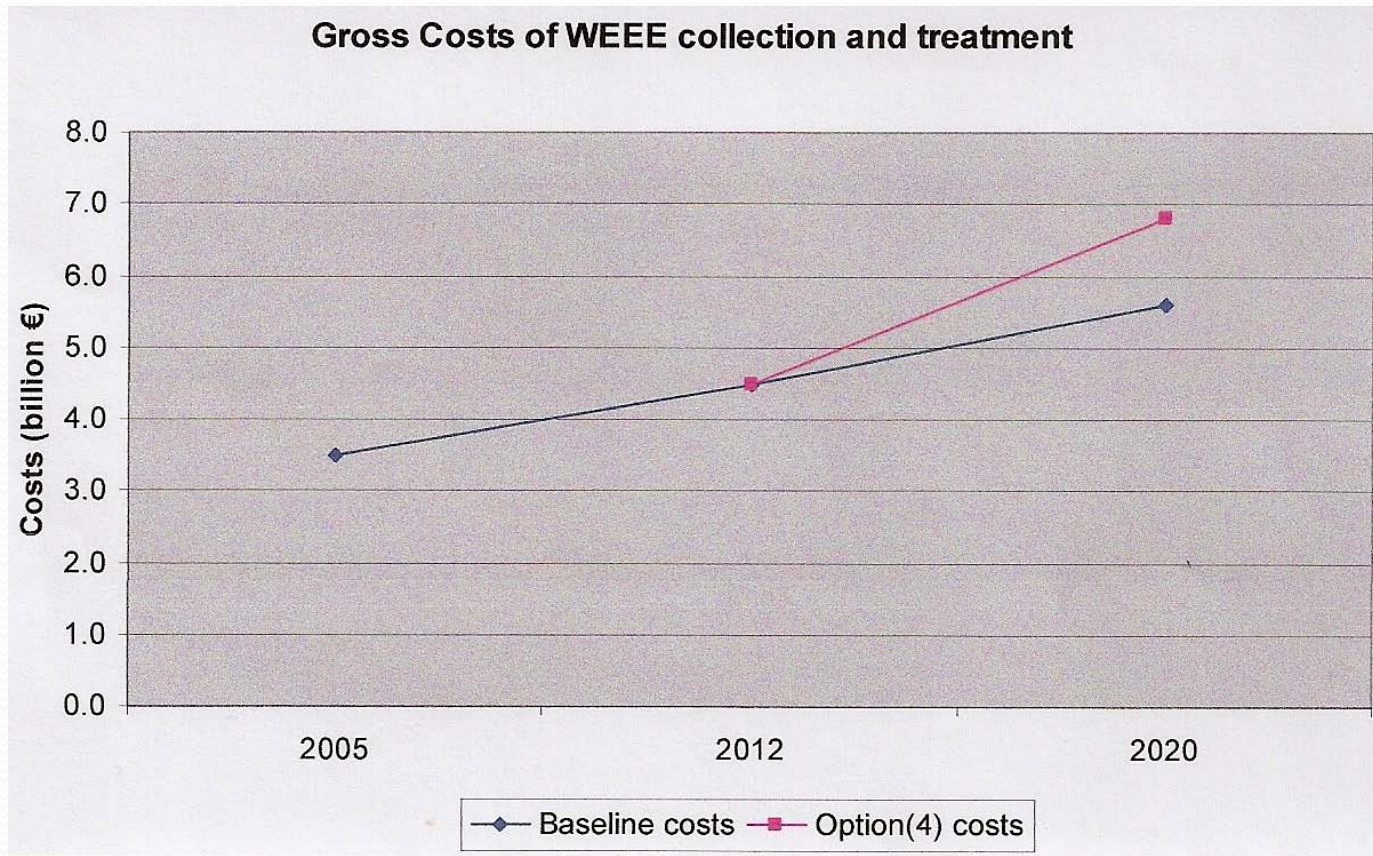
- Materials recovered, € 2.8 billion (\$4.06 billion)
- Other means, € 3.4 billion (\$4.93 billion)

Important Materials Recovered

Energy Savings

- Aluminum 95%
- Copper 85%
- Iron and Steel 74%
- Zinc 60%
- Paper 64%
- Plastics 80%

Gross Costs



New Jobs - EU

- The Commission expects that over 3000 jobs have been created in the waste recovery sector by 2012.

Who's in Charge

- The EU Commission has implemented several directives and regulations that place responsibility recovers, reuse and recycling on the product manufacturer.

Who's Responsible

- By the Extended Producer Responsibility (EPR), the equipment manufacturer financially or physically responsible for their equipment at end-of life.

Producers

- Over 40,000 registered in the EU.
- Classified into categories identified earlier.
- They financially support WEEE.

EC Criticized (EPR)

- There are no rewards for green product designs.

Who is Given a Free Ride

- Private households should have the possibility of returning WEEE at least free-of-charge.

Member Countries

- Each national commission has the responsibility for implementing the EC-WEEE directives and regulations.

Member Countries

- There are a number of differences in classifying and registering equipment producers from one member state to another.

Registering in Different Member States

- An Electrical and Electronic Equipment (EEE) producer would have to register with each member state because each member state came to divergent interpretations of the WEEE directive.

Confusion Reigns – Extra Producer Costs

- Some producers evade costs and financial guarantees by falsely classifying their product as B-to-B WEEE. The B-to-B waste nevertheless ends up in the household waste stream.
- The cost falls on those producers who have registered for household WEEE.

Confusion Reigns – Extra Producer Costs

- Avoidance of higher recovery/recycling requirements by different product categorization, which can lead to lower levels of environmental protection.

Confusion Reigns – Extra Producer Costs

- Disadvantage in competition with respect to those who follow the rules and those who don't.

Confusion Reigns – Extra Producer Costs

- Unintended costs to producers selling into more than one member country, when they have to meet different obligations.

Different Approaches by Member States

- Who needs to register?
- Who needs to report?
- What needs to be reported?
- What is a “producer?”
- How does one establish the obligations of a “distance seller?”

EU Commission

- Working on a European combined registration list.
- Due to be presented in 2011 to the commission and parliament.

Other Locations Using WEEE

- South Korea
- Japan
- Taiwan
- Switzerland
- Canada
- USA

U.S. States with WEEE

- Arkansas
- California
- Colorado
- Connecticut
- Maryland
- Michigan
- North Carolina
- Oregon
- Washington
- Texas

Conclusion

- WEEE is a work in progress.
- It handles an estimate of the current EEE waste of 65% to 70%.
- The EC is working to simplify much of the chaos, confusion and extra cost in WEEE today.