

IMPLEMENTATION OF WASTE ELECTRIC AND ELECTRONIC EQUIPMENT DIRECTIVE IN EU 25

EXECUTIVE SUMMARY

Introduction

In the European Union, electro-scrap is the fastest growing waste stream, growing at 3-5 % per year (source), which is three times faster than average waste. About 90 % of this waste is still land filled, incinerated or recovered without any pretreatment. This allows the substances it contains, such as heavy metals and brominated flame retardants, to make their way into soil, water and air where they pose a risk to human health and cause environmental damage. Directive 2002/96/EC on waste electrical and electronic equipment (WEEE) along with the complementary Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) seeks to reduce the environmental impacts of WEEE throughout all stages of the equipment's lifecycle, particularly at the end-of-life stage, by encouraging the end-of-life management of the product, eco-design, life cycle thinking and extended producer responsibility. The transposition of the WEE Directive was due before 13 August 2004.

The key aims of the WEEE Directive are thus to:

- Reduce WEEE disposal to landfill;
- Provide for a free producer take-back scheme for consumers of end-of-life equipment from 13 August 2005;
- Improve product design with a view to both preventing WEEE and to increasing its recoverability, reusability and/or recyclability;
- Achieve targets for recovery, reuse and recycling of different classes of WEEE;
- Provide for the establishment of collection facilities and separate collection systems of WEEE from private households;
- Provide for the establishment and financing of systems for the recovery and treatment of WEEE, by producers including provisions for placing financial guarantees on new products placed on the market.

The setting up of efficient collection schemes is necessary to ensure the achievement of the targets set in the Directive. Following the subsidiarity principle, the Directive only defines general requirements to comply with mandatory collection and recycling objectives. The modalities of the logistics and the organisation of the take-back schemes are left to the choice of Member States. Before the WEEE Directive came into force several European countries (e.g. Belgium, the Netherlands, Sweden and Denmark) defined national regulations and organised management schemes for WEEE. These systems respond to sometimes very different national situations and philosophies. Some of these countries will have to adapt their national laws when implementing the WEEE Directive. Other countries that have not developed any management systems are developing new ones in order to comply with the Directive.

This report aims to achieve the following:

- Outline the key trends in the development of national and pan-national approaches to WEEE Directive compliance in the initial phase of development;
- Present a balanced overview of the opinions of key experts working in government, compliance organisations and industry as to the key challenges involved in the implementation of the Directive;
- Identify opportunities for harmonisation and improvement in the way the Directive is being implemented across the Member States;
- Provide feedback to the European Commission on potential areas for review in 2008.

Transposition

The countries already having WEEE management schemes in place were naturally influential in shaping the Directive and, thus, the adaptation of their national legislation to the Directive is relatively straightforward. The changes needed are generally of a complementary nature and regard issues like individual producer responsibility, labelling of products, financial guarantees needed in order to place a product on the market and collection and recycling targets.

The situation is very different for other countries, which do not have a WEEE culture. It is fair to say that they have faced significantly greater problems in developing the required legal and operational infrastructure. Different systems have been developed, trying to apply more market based approaches with multiple providers of take back services, apart from the collective single compliance scheme models being used in the already existing systems.

Several countries have been late with the transposition of the Directive and many of the countries that did create a timely transposition did so by simply translating the EU Directive, without specifying how the legislation would be applied in practice. Further secondary regulations and clarifications are thus needed.

The interaction and overlap with other areas of legislation, e.g. hazardous waste regulations, transfrontier shipment regulations, health and safety related marking etc., may have delayed the process of transposition and development of national legislation.

In addition, where countries experience significant cross-border trade and imports, the efforts devoted to coordinate the implementation of the legislation between neighbouring countries and the tendency to resist first-mover disadvantage, have caused further delay.

Collective and competitive systems

There are two clear generic categories of national organisation, the national collective system (monopoly) and the competitive clearing house system. National legislators as well as producers have different views on the preferred system; some support the laws of the competitive market while others see the benefits of managing risk collectively.

The collective system is a dominant national system which is responsible for collection, recycling and financing of all (or the vast majority) of WEEE within national boundaries. This is the general approach in the countries with established WEEE systems. Their legal status differ from country to country, but they are generally non-governmental, not-for-profit companies which are set up and owned by one or more trade associations. They are organised into product categories in order to focus on achieving maximum efficiency in their recycling operations and to identify markets for recycled material and product reuse.

The clearing house model is again a national framework in which multiple partners (producers, recyclers, and waste organisations) can provide services. The government ensures that there is a register of producers and defines the allocation mechanisms, and reporting and monitoring systems. The responsibilities of a central national coordination body are to determine the collection obligation of each producer (via the national register) and to assign this obligation to the compliance scheme action on behalf of the producer as well as to establish an allocation mechanism that enables compliance systems to indeed collect WEEE in an equitable manner from collection points over the territory. Several Member States, especially bigger countries, opt for this model and can have five to six market entrants with even more expected although there may be some market consolidation as economies of scale come into play. The main reason for this model is to avoid a monopolistic situation and to drive costs down.

There are advantages and disadvantages with both systems. National collective schemes properly managed are considered by many stakeholders as providing the simplest and most effective route to collecting and recycling WEEE. Producers who support collective models identify the additional costs of managing a national clearing house, separate collection containers, extra logistics etc. and point to economies of scale of the collective approach, especially in small countries where volumes cannot create a viable market for multiple systems.

Additionally, collective systems as run in the Netherlands, Belgium and Sweden are “tried and tested” and represent the only approach that has so far been shown to work in practice. The clearing house model, on the other hand, lacks experience and data to make good analyses and comparisons with existing collective schemes.

The supporters of the clearing house model however point out that collective scheme does not encourage cost reduction which on the other hand exists in an environment where competition is at play all the time and economics of the supply chain is a main driving factor. Numerous stakeholders indicate that market-based systems are designed to meet the minimum levels of collection and recycling in the most cost-efficient manner, but without any pressure to exceed them. This is compliance at least cost, without necessarily providing an incentive for additional environmental or behavioural improvements beyond that stipulated in legislation. Collective schemes on the other hand have invariably exceeded the collection and recovery targets set for them by national governments, they thus build a stronger recycling ethos and invest more in behavioural change amongst consumers. It can be seen how the clearing house model is the preferred industry route where the market is large and the potential cost savings are substantial. For smaller markets, including those countries with existing schemes, the benefits of market mechanisms are not big enough to outweigh the greater simplicity of structure and financing of collective models. However, opinions are split and most countries have faced a struggle between those pushing for a collective scheme and those supporting a more market based approach. Where countries have a strong Chamber of Commerce and tradition of centralised and collaborative decision making, producers have tended to resolve these issues amongst themselves and present a united negotiating position to government. Nevertheless, where this tradition is less strong, governments have been forced to make the choice for industry.

While legislators in Member States have spent considerable time studying the legal and operational approach in those countries with established WEEE schemes, all have indicated

the importance of building systems that meet local specifics of culture, geography and industry, and that take into account existing practices of waste collection.

As a final recommendation, the majority of scheme legislators and managers suggested that countries should get any system up and running before committing themselves to performance and target setting. The prevailing view was that there are simply too many unknown variables to accurately predict volumes and costs, and that only through experience will the judgement be made about what is effective.

In this context, Pan-European compliance schemes should also be mentioned. Producers that operate mostly on an EU basis will look to create efficiencies at an EU level. Such schemes may enable the necessary evolution and consolidation of the WEEE take back market and therefore deliver efficiency gains that benefit customers. They can also have a positive impact on the environment through proper technology investments enabled by economies of scale and optimisation in transport.

Whilst legislators at member state level as well as managers of national compliance schemes felt the medium term options for Pan European compliance schemes were limited, there was a general level of sympathy amongst individual producers to the eventual development of such an approach, although it was admitted that the implementation might prove difficult in practice.

The most prominent EU wide system is the European Recycling Platform (ERP), an undertaking by Hewlett Packard, Sony, Electrolux and Braun to develop Pan -European compliance structures. It contracts operators to design, operate and manage all aspects of the compliance process, (although activity remains in planning rather than operational). To work effectively, the ERP must establish national schemes in several countries and the gain legal approval to operate. The ERP does not need to transport WEEE outside of the country of origin, but needs to develop pan-European agreements with networks of providers with operations in all ERP countries. Supporters of such an initiative regard it as an important opportunity to develop much-needed alternatives to the national schemes, to create competition, which in turn, will stimulate efficiency and cost reductions. However, many legislators at Member State level as well as producers remain sceptical, at least in the short term. This is a common view amongst the supporters of the collective system and the logistical difficulty of coordinating a scheme on such a scale was noted to be a weak point. Others even thought such a scheme would be prevented from working successfully as legislative requirements differ so much in each country. If national compliance schemes exist, a Pan-European compliance scheme will depend on them and will negotiate contracts with them as a service provider.

The potential for this kind of system was seen as slightly higher in the medium to longer term, but only with much greater coordination at European level, with, e.g. a European register of producers and quantities, a European clearing house, etc.

Existing national approaches

Some Member States as well as Norway and Switzerland had established WEEE take- back and recycling schemes before the EU Directive was put in place. The Netherlands operates two systems, ICT Milieu and NVMP, and the other countries have one with Recupel in Belgium, El Kretsen in Sweden, El Retur in Norway and SWICO in Switzerland. These

existing schemes are presented and compared in the table below. Comments on their performance and how they relate to issues being discussed around the Directive are given in the following pages, not needed

Collection targets and recycling rates

	Recupel	ICT Milieu	NVMP	El Kretsen	El Retur*	SWICO*
Country	Belgium	Netherlands	Netherlands	Sweden	Norway	Switzerland
Established	2001	1999	1999	2001	1999	1994
Full time staff 2002	25	2	12	12	7	4
Operated by	Producers	Producers	Producers	Producers	Producers	Producers
Quantity of WEEE Collected. kg (2002)	35,875	9,426	65,856	74,756	35,787	37,400
Quantity of WEEE Collected. kg per capita (2002)	4.0	0.58	4.3	8.4	8.0	3.3 (8.4 including SENS)
Total cost per kg collected including overhead/reserve fund formation in Euro (2002)	1.36	0.48	0.61	0.47	0.60	0.80
Direct recycling and transport costs per kg in Euro (2002)	0.54	0.45	0.35	0.45	0.52	0.64
Estimated reserve	c. 25,000,000 Euro (e) Future Provision	n/a	c. 80 Million Euro (e) Future Provision	c. 9 Million Euro (e) 3 month operating reserve	c. 18 million Euro (e) 12 Month Operating reserve	c. 10.5 million Euro (e) 6 month Operating reserve
Recycling performance (including energy recovery)	80%	89%	80%	90%	84%	97%
Retailer take back	Yes	Yes	Yes	Limited	Yes	Yes
Collection sites	Yes	Yes	Yes	Yes	Yes	Yes
Number of financing model according to product sectors	1 Fixed fee per Unit	1 Actual recycling costs based upon market share in arrears	1 Fixed fee per unit	3 Fixed fee per unit/kg % of sales price Actual recycling costs based upon market share in arrears	3 Fixed fee per unit Actual recycling costs based upon market share in arrears Customs levy fixed fee per unit imported	2 Fixed Fee per unit Fixed fee per product price band
Visible recycling fee	Yes	No	Yes	No	Yes (White Goods Only)	Yes
Historic/future split	Yes	No	Yes	No	Yes	No
Household/Commercial split	Household only	Both	Household only	Both	Both	Both

The Directive states that each Member State should collect 4 kg of WEEE per capita. Legislators at member state level on the whole believe that this is good, it is high and will require work, although there is inevitably an element of compromise between the most and least advanced countries in target setting. The targets are obviously not challenging for countries that have established schemes and do not provide any stretch, whereas other countries without WEEE saturation may struggle to comply without importing WEEE. In the existing schemes, Sweden and Norway collect about 8 kg per capita while the other countries reach about 4 kg. Moreover, the existing systems show a recycling rate of about 80-90 % (including energy recovery). It is still very difficult to make comparisons of recycling and treatment performance due to varying standards and definitions between countries.

Logistics

There are several channels for the collection of WEEE although there are three primary ones: municipal sites, in store retailer take-back and producer take-back. The majority of schemes have organised themselves primarily around the former and some of the existing ones use it exclusively. Others encourage retailer participation but this normally does not exceed 30 % of total volume. While municipal collection sites are usually free for households to use to an unlimited extent, take-back through retailers is usually also free but can be dependent upon the purchase of a new product. The producer take-back system may apply to larger commercial equipment and operates on a new for old basis.

Those schemes that use multiple recyclers and transport firms and that have been through a process of competitive tendering have managed to control and reduce costs substantially while those that operate through a single supplier have failed to deliver similar reductions in contract costs. Several schemes deliberately make use of multiple firms to ensure that in a monopolistic situation with cost problems does not result.

It is furthermore considered that the success of a WEEE programme will in part be dictated by the clarity with which it can be explained to the consumer and the ease to which the consumer can engage with the collection and financing system. Different collection systems for different products cause consumer confusion and reticence and detract from efficiency.

Visible fee

Many producers support the option given in the Directive to indicate to consumers the costs of recycling historical waste for a period of eight to ten years in the form of a “visible fee”, i.e. a separate part of the product price and several industry representatives think the final deadline to allow this system should be extended indefinitely. A mandatory visible fee is seen by many producers as providing some cushion against the impact that the Directive might otherwise have. Where the visible fee is not mandatory, it tends to disappear and the cost is instead absorbed into the product price. The cost of WEEE compliance can be significant in highly price sensitive and competitive low margin markets such as consumer electronics, and will then most likely be borne by the producer in the short term.

All the schemes reviewed have settled upon some form of current market share, either through fees on products sold, or allocation of actual costs to products placed on the market. All national scheme legislators and scheme managers regarded sorting by brand as highly inefficient and costly by comparison.

Regarding the financial model, there is a split view between the Brown and White goods sectors on one hand and the ICT sector on the other. This reflects the different preferences for dealing with historic WEEE and orphan products (whose producers no longer exist). The Brown and White Goods sectors have a significant historical waste and the White Goods sector especially supports visible fee schemes such as Recupel (Belgium) and NVMP (the Netherlands). They are less supportive of ex post based market share schemes such as ICT Mileu (the Netherlands). The opposite is true for ICT firms, which have fewer historic liabilities. Schemes such as El Retur (Norway) and El Kretsen (Sweden) have demonstrated the flexibility to accommodate both financing systems within a single organisation.

Various options are possible for the fee structure – actual costs of recycling, projected costs of recycling per product category, cross subsidisation (i.e. fees on some product group supporting the recycling of another one). The more complicated the fee structure, the more demanding it is in collection and administration. There is a challenge to balance administrative efficiency against the wish to relate real costs of recycling a given product to the fee charged. There is inevitably a point at which it is administratively more efficient to band different products together into one product grouping or to set a fee according to the retail price. El Kretsen (Sweden) as well as El Retur (Norway) have approached this issue by allowing multiple financing systems for different product categories. In the Netherlands, ICT Mileu and NVMP operate as separate systems precisely because this flexibility of financing could not be achieved. Furthermore, the Nordic schemes use a more complex system of up to 50 product categories, each with their own price allocations. This kind of system provides a better reflection of the costs of recycling the individual products but has led to some complaints from industry about the workload and level of detail that is required to compile the returns. Where fee-based systems are used, the paperwork and monitoring requirements increase significantly according to the numbers of product classifications and fee bands, both for the scheme and producers. However, in a simplified system with fewer and bigger groups/categories, a higher level of cross-subsidising between products is inevitable with recycling fees bearing little relationship with actual recycling costs for a given product.

Financial guarantee

The Directive requires that each producer gives a financial guarantee for recycling when placing a product on the market and, thus, the Member States need to ensure that such guarantees are provided by all producers. This is essential in avoiding the remaining producers financing the recycling of products from “free-riders” who have disappeared or cannot be identified.

Free-riders currently represent between 10-20% by volume of products placed on the market (the percentage of non compliant firms being higher). Many producers suggest legislation which only allows products to be sold where their producers could provide proof of registration. National collective compliance schemes are generally thought of as a way of ensuring good market coverage and reducing the problems of free-riders and orphan products, provided that full enforcement by competent authorities is guaranteed. Enforcement is considered to be the key issue regarding the cost effectiveness and equity of the schemes.

Furthermore, when legislation promotes joint compliance schemes rather than individual ones the guarantee may take into account inflation in collection and treatment costs, thereby making it prohibitively expensive to undertake an individual route.

Individual producer responsibility

One of the main purposes of the WEEE Directive is to support environmentally friendly product designs, i.e. products that can be easily dismantled, recovered, reused and recycled. Firms may have an incentive to alter their product's design if it allows for lower product recycling costs. Producers will invest in eco design if they can recover the benefits of their investments. However, several key countries have dropped the Individual Producer Responsibility (IPR) concept out of their final transposition, rendering the eco-impact of the Directive less effective. Many producers express their disappointment about the missing incentives in the Directive for better environmental performance, as they will be charged for their products on, e.g. a weight basis, independently from the attributes of their products in the same category. Producers could reap the benefits of potential eco-design if individual and collective producer compliance concepts were allowed. Although all countries actually do that, in practice, the likelihood of this occurring is significantly reduced through the creation of barriers to such compliance by national legislators. Criteria are almost always set in a way that discourages IPR and to encourage producers to join a single national collective system. The motivation for this behaviour is to ensure equity and to make administering WEEE activities easier for government by reducing the burden of monitoring and approvals required.

However, it should be stressed that some companies see eco-design as being an issue which is already being tackled outside of the scope of this Directive.

Product scope and producers

Several stakeholders report a level of uncertainty about who is responsible for the definition of products covered by the Directive. National legislators often ask for clarification from the Commission on whether products are included in the scope before issuing national lists of advice. The Commission may provide non-binding advice, but the responsibility is with the Member State.

Furthermore, there is a concern among industry that some Member States may choose to adopt the widest scope possible and not limit themselves to those products which are part of the categories listed in Annex 1A. This could cause confusion and problems for industry. Many Member States are currently examining possible "grey area" products and developing guidelines to assist companies in deciding whether their products are covered by the Directive or not.

The Directive sets responsibilities for those placing electrical and electronic equipment on the market. However, companies find that the definition of "the producer" is unclear. The Directive states that a producer is basically a party who manufactures, resells, exports or imports EEE into a member state. In the process of transposing the Directive, some Member States have restricted this concept to their national territory. However, the European Commission has expressed that when a product is placed on the European market it must afterwards circulate freely between Member States. The situation creates problems on potential product re-marking, change of visible fee and product traceability. An intensive collaboration between Member States' systems with an extensive information exchange on the level of import and export is necessary in order to avoid multiple financing.

Moreover, there are some discrepancies amongst Member States as to whether producers (i.e. importers) who do not operate in particular the country but through direct sales instead should be registered to the system.

Factors that impact the operation of compliance schemes

There are a number of factors that will have, depending on the characteristics of each country, varying impact on the operation of compliance schemes. Issues in particular are:

- Distance and geography, with smaller distances reducing costs for transport and logistics.
- Population size and density, where a higher population enables the generation of economic efficiencies and economies of scale.
- Cost of labour, as collection, sorting and treatment are highly labour intensive.
- Length of time in operation as, with time, there are greater opportunities to fine tune the system, negotiate better contracts with suppliers, rationalise overheads and invest in capacity.
- Consumer behaviour, with established European compliance schemes owing their success to prevailing consumer recycling behaviour. The level of WEEE recycling awareness in relation to specific product groups is also a key driver of success.

Opportunities for harmonisation at the EU level

The progress to date of the transposition of the WEEE Directive into national law already reveals major differences from one legal system to another and many stakeholders believe that national implementation models will be likely to continue to diverge as they develop. According to producers, there is a need to coordinate national compliance schemes and to harmonise measures at EU level to align processes and costs and to avoid discrepancies and barriers to fair competition.

The most likely area of harmonisation of processes is probably a producer register. This would initially require the standardisation of processes for producer notification and registration across the EU. Furthermore, attention should be given to harmonising treatment standards across the EU, as it is felt that currently, quality of recycling varies considerably. The quality of recycling facilities is thus considered to be an important area of cooperation. Moreover, there is on-going work on issues like financial guarantees and how they will work.

Future development

There will be significant growth and consolidation of collection and recycling services to enable more efficiencies and economies of scale. Household WEEE will be recycled in larger sites as volumes will increase significantly. This will allow better technology and the cost is expected to decrease. For the next five years, recycling costs are expected to decrease in general. However, waste handling, transport and sorting are major parts of the overall WEEE cost and these will probably remain steady as these are difficult to optimise, in particular for products at their end of life.

Regarding organisation, it is believed that some key contractors will appear both at national and European level (with excellent logistics and high-volume recycling plants) and absorb the smaller stakeholders.