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# THE WEEE AND RoHS DIRECTIVES:
## Highlights and Analysis

## The WEEE Directive

### *Individual versus Collective Responsibility*

Athough these terms have not been well defined, the distinction between individual and collective responsibility for taking back products at end of life and managing them in accordance with the directive hinges on whether the end-of-life management system rewards companies that "do the right thing" by designing products that are more reusable/recyclable. For example, with individual responsibility, a company pays to manage its *own* products and therefore benefits from implementing design changes that call for the use of recyclable materials or that increase ease of disassembly. With collective responsibility, companies share the costs of managing end-of-life products based on market share, and therefore do not benefit from such design changes. End-of-life management based on individual responsibility generally entails sorting or tracking waste products by brand, which can be costly.

The WEEE directive allows collective responsibility for "historical" waste (i.e., products put on the market before August 13, 2005), since design incentives are irrelevant for products already on the market. However, the directive requires individual producer responsibility for electrical and electronic equipment put on the market after August 13, 2005. Environmentalists and some companies (led by Electrolux and Hewlett-Packard) pushed for this provision so that incentives would be provided for environmental product design. The European Environmental Bureau hails it as setting a precedent for future policy.

The directive allows individual responsibility to be implemented through individual or collective systems. Under an individual system, a company establishes its own take-back program for its own products. How individual responsibility could be implemented in a collective system is unclear. The challenge is to arrive at a fee structure that reflects the actual cost of recycling a specific product. Such systems have been developed for packaging by basing fees on weight and material composition. However, this would be far more difficult for complex electrical and electronic products, which may contain hundreds of different types of materials.

### *Outstanding Issues and Key Points*

• The WEEE Directive makes industry responsible, at a minimum, for picking up waste electrical and electronic equipment from collection points, rather than from individual households. This means that government may pay for the transport of waste to the collection points, with the costs determined by the number of collection points established and the amount of sorting that is done. The directive does not impose specific requirements regarding these issues, so there will probably be different interpretations by the different member states. As a result, the proportion of collection costs allocated to government and industry will differ from country to country. Some member states may hold producers responsible for the total costs of collection from individual households.

• The directive's mandated reuse/recycling and recovery targets are based on the amounts of electrical and electronic products separately collected by weight. However, there are no collection targets by

product type, and it is possible that the target of 4 kg (8.8 lbs) per person per year will be met without some types of products being collected at all. For example, the recycling target of 65 percent for cell phones will be meaningless if a significant quantity of these products, which weigh relatively little, fail to be collected. The reuse/recycling and recovery targets are to be revised in December 2008, after which they may be based on the amount of specific products on the market rather than the amount of electrical and electronic waste separately collected.

- The outcome of a debate over whether to ban electrical and electronic equipment from municipal waste was a compromise: rather than require a ban, soft language is used that calls for minimizing the disposal of these products as unsorted municipal waste.

- "Clever chips" that prevent reuse/recycling are banned. For example, ink-jet cartridges programmed to self-destruct so they cannot be refilled may not be sold or distributed.

- There is an overlap period during which producers must provide a financial guarantee that the waste management costs of new products put on the market will be paid for, while they may also impose a "visible fee" (one that is explicitly designated, perhaps on the price tag) to cover the waste management costs of historical products. Some products may therefore bear a double financial burden for waste management during this period. The visible fee will phase out in 2013 for large appliances and in 2011 for all other electrical and electronic equipment.

- Take-back must always be free to the end user.

- New products must be labeled with the name of the producer.

### *WEEE Directive: Key Dates*

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| **February 13, 2003** | WEEE Directive goes into effect. |
| **August 13, 2004** | Member states enact implementing legislation/ regulations/administrative actions. |
| **August 13, 2005** | Producers have systems in place to take back and manage electrical and electronic waste free of charge to end users.<br><br>Products put on the market after this date are classified as "new" and are labeled as such. |
| **December 31, 2006** | Member states ensure that targets for collection, reuse/recycling, and recovery have been met. |

## The RoHS Directive

### *Lead and Brominated Flame Retardants*

The RoHS Directive is already having a major impact on the design of electrical and electronic products as industry invests in finding alternatives to key substances such as lead and brominated flame retardants. But there is continuing debate on the environmental impact of the banned substances, along with pressure for more exemptions.

Lead is a substance of concern around the world. According to Intel, 90 percent of electronic components contain lead, mainly lead solder. Finding alternatives to lead solder is a massive undertaking because of product reliability, component compatibility, energy use, and cost issues.

Brominated flame retardants are also ubiquitous in electronic products and are used primarily in printed wiring boards, plastic housings, and cables. The

RoHS Directive requires the elimination of two categories of retardant: polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs). Another brominated flame retardant — tetrabromobisphenol (TBBP-A), which is widely used in electronic equipment — may be added to the list in the future. Meanwhile, research continues on alternative flame retardants, such as those based on phosphorous, and on materials able to withstand such high temperatures that they do not require flame retardants. Environmental organizations are pressing for a ban on all brominated flame retardants.

### *RoHS Directive: Key Dates*

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| **February 13, 2003** | RoHS Directive goes into effect. |
| **August 13, 2004** | Member states enact implementing legislation/ regulations/administrative actions. |
| **February 13, 2005** | EU Commission reviews provisions of the directive, taking into account new scientific evidence; proposals to be submitted for adding to the list of banned substances. |
| **July 1, 2006** | Member states ensure that all electrical and electronic equipment put on the market contains no lead, mercury, cadmium, hexavalent chromium, or PBBs or PBDEs (brominated flame retardants). |

## Global Impacts of WEEE and RoHS

Europe is one of the largest markets in the world, and any company wishing to sell electrical and electronic equipment in this market will be able to do so only if it removes the hazardous substances specified in the RoHS Directive. An outstanding question is whether US companies, which must remove these substances from products they sell in Europe, will continue to use them in products they sell in the US. While this is possible, it seems unlikely. Thus, the US (as well as other countries outside the EU) may piggyback on the RoHS Directive and experience a substantial reduction in the hazardous substances contained in electrical and electronic equipment sold in their own countries. Japan now leads the world in eliminating hazardous substances from these products, and China has announced a policy modeled on RoHS.

The impact of the WEEE Directive is likely to be different from that of RoHS. US companies selling their products in Europe will have to participate in systems to take back, reuse, and recycle their products in EU member states. However, there is no reason to believe that they will set up similar systems in the US without the enactment or threat of state or federal legislation. In 1994, the EU passed a directive requiring producer responsibility for packaging waste, but this led to no similar initiatives in the US.