

DISCUSSION PAPER

OF 28 MARCH 2003

by the

**UK GOVERNMENT
SCOTTISH EXECUTIVE
WELSH ASSEMBLY GOVERNMENT
NORTHERN IRELAND ADMINISTRATION**

**ON THE IMPLEMENTATION OF
DIRECTIVES OF THE EUROPEAN COUNCIL AND
PARLIAMENT**

2002/96/EC OF 27 JANUARY 2003

**WASTE ELECTRICAL AND ELECTRONIC
EQUIPMENT (WEEE)**

&

2002/95/EC of 27 JANUARY 2003

**RESTRICTION OF THE USE OF CERTAIN
HAZARDOUS SUBSTANCES IN ELECTRICAL AND
ELECTRONIC EQUIPMENT (ROHS)**

Department of Trade and Industry
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PREFACE

This discussion document seeks your initial views on how the Government and Devolved Administrations should transpose and implement the requirements of two related European Directives. These are the:

- Waste Electrical and Electronic Equipment (WEEE) Directive and
- the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (ROHS) Directive.

The ROHS Directive deals with reserved matters relating to the European Single Market and will be implemented for the United Kingdom by DTI. The WEEE Directive deals mainly with devolved environmental matters. The Devolved Administrations may therefore make separate regulations for Scotland, Wales and Northern Ireland - this is presently under consideration.

The Governments consultation process will continue over the next eighteen months. Comments are welcome at any time but will be of most value by the dates which each formal paper suggests. The consultation process started with a nationwide series of awareness seminars during the Autumn of 2002. There will now be at least a further three distinct phases. This broad brush discussion paper is the first.

In order to move ahead as quickly as possible and provide an early steer on the detail of likely options, comments are sought over an eight week period rather than the usual 12 weeks. The next two detailed phases of consultation will provide longer periods.

Comments should be made by **30 May 2003** to:

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DTI will copy all representations to the devolved administrations, Defra and other interested Departments. We may decide to disclose or publish any representation unless it is clearly marked “in confidence”.

Representative groups should give a summary of the people and organisations they represent when they respond. This can be done by completing the short questionnaire that was included with this document. If you downloaded this document in PDF format, the questionnaire can be found after this Preface.

We would welcome comments from all interested parties on the options set out in this paper; we shall then develop the front-runners for a more detailed consultation, before publishing the draft implementing Regulations for comment.

This discussion document is divided into two parts the first dealing with the WEEE Directive and the second with ROHS. Both parts are set out according to the articles of each Directive and give a description of the requirements of the article, plus our initial thoughts on how we might go about implementing the Directives. **We have asked questions on issues we are particularly interested to know your opinions on throughout the paper and these are summarised at Annex A.**

Your response to this paper would be welcome in any form, but it would be helpful if you could relate it to the questions if possible. You do not have to answer all of the questions – any information is useful.

Electronic versions of the discussion paper

A link to this paper in PDF format for downloading is available on the DTI website at <http://www.dti.gov.uk/sustainability/weee/index.htm#1>. If you prefer, an electronic version of the paper can be filled in on-line by following the link from the same page.

Output from this discussion paper

We will be producing a summary and analysis of responses and this will be available from DTI or downloadable from our website.

Further information

Further information on the WEEE and ROHS Directives is available on the DTI website at: <http://www.dti.gov.uk/sustainability/weee/index.htm>, including a list of Frequently Asked Questions. If you have any questions about this consultation please use the contact points above.

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GENERAL QUESTIONNAIRE

The analysis of responses to this discussion document will further inform the Government in developing ideas for a further detailed consultation. Further information on your organisation would be useful to supplement your response. The following questions aim to assist Government in relating issues to types of organisations.

Please tick here if you prefer this information to be kept confidential

Please tick here if you would like your details adding to the DTI's mailing list on WEEE/ROHS issues.

Contact Name _____
Organisation _____
Address _____

Postcode _____
Telephone _____ Fax _____
Email _____

1. Which of the following best describes your organisation?

- Manufacturer of Electrical or Electronic Goods
- Importer of Electrical or Electronic Goods
- Distributor/Retailer of Electronic Goods
- Local Authority
- Waste Disposal/Management/Recycling Company
- Trade Association. What kind of organisations do you represent?

- Other, please state: _____

2. Which kinds of Electrical and Electronic Equipment do you handle, if any?

- Category 1. Large Household Appliances
- Category 2. Small Household Appliances
- Category 3. IT and Telecommunications
- Category 4. Consumer Equipment
- Category 5. Lighting Equipment
- Category 6. Electrical and Electronic Tools
- Category 7. Toys, Leisure and Sports Equipment
- Category 8. Medical Devices
- Category 9. Monitoring and Control Devices
- Category 10. Automatic Dispensers
- Other, please state: _____

3. If you do handle electrical/electronic products, do you have data on the number, weight and type of these electrical and electronic products?

- By Number Yes No
By Weight Yes No
By Type Yes No

4. How many employees are in your organisation (UK only)?

- | | |
|---|---|
| <input type="checkbox"/> <10 | <input type="checkbox"/> 501 to 1000 employees |
| <input type="checkbox"/> 11 to 50 employees | <input type="checkbox"/> 1001 to 5000 employees |
| <input type="checkbox"/> 51 to 250 employees | <input type="checkbox"/> > 5000 employees |
| <input type="checkbox"/> 251 to 500 employees | |

5. What is the annual turnover of your company?

- | | |
|--|--------------------------------------|
| <input type="checkbox"/> <£100 000 | <input type="checkbox"/> £5M to £10M |
| <input type="checkbox"/> £100 000 to £1M | <input type="checkbox"/> >£10M |
| <input type="checkbox"/> £1M to £5M | |

6. Where are your operational sites or offices based (tick all that apply)?

- | | |
|-----------------------------------|---|
| <input type="checkbox"/> England | <input type="checkbox"/> Northern Ireland |
| <input type="checkbox"/> Wales | <input type="checkbox"/> Other European Countries |
| <input type="checkbox"/> Scotland | <input type="checkbox"/> Internationally |

7. Where do you operate in terms of sales/services (tick all that apply)?

- | | |
|-----------------------------------|---|
| <input type="checkbox"/> England | <input type="checkbox"/> Northern Ireland |
| <input type="checkbox"/> Wales | <input type="checkbox"/> Other European Countries |
| <input type="checkbox"/> Scotland | <input type="checkbox"/> Internationally |

8. Do you currently hold a Waste Management Licence or other Environmental Permit issued by the Environment Agency (e.g discharge consent)?

- Yes Please state which: _____
 No
 Not applicable

9. If you are a waste management company, do you operate with an exemption from Waste Management Licensing?

- Yes
 No
 Not applicable

CONTENTS

INTRODUCTION.....	11
--------------------------	-----------

PART I DIRECTIVE 2002/96/EC ON WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)	17
--	-----------

Article 1: OBJECTIVES.....	19
Article 2: SCOPE.....	19
Article 3: DEFINITIONS	22
Article 4: PRODUCT DESIGN.....	23
Article 5: SEPARATE COLLECTION.....	26
Article 6: TREATMENT.....	29
Article 7: RECOVERY.....	33
Article 8: FINANCING IN RESPECT OF WEEE (PRIVATE HOUSEHOLDS)	38
Article 9: FINANCING IN RESPECT OF WEEE FROM USERS OTHER THAN PRIVATE HOUSEHOLDS (BUSINESS TO BUSINESS)	44
Article 10: INFORMATION FOR USERS.....	46
Article 11: INFORMATION FOR TREATMENT FACILITIES.....	49
Article 12: INFORMATION & REPORTING.....	52
Articles 13 & 14: ADAPTATION TO SCIENTIFIC AND TECHNICAL PROGRESS & COMMITTEE.....	55
Article 15 & 16: PENALTIES & ENFORCEMENT	56
Articles 17 & 18: TRANSPOSITION AND ENTRY INTO FORCE.....	58

PART II DIRECTIVE 2002/95/EC ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT – THE RoHS DIRECTIVE.....	59
--	-----------

Article 1: OBJECTIVES.....	61
Article 2: SCOPE.....	62
Article 3: DEFINITIONS	62
Article 4 :PREVENTION.....	63
Articles 5, 6 and 7: REVIEW AND COMITOLGY PROVISIONS	64
Article 8: PENALTIES	65
Articles 9 and 10:TRANSPOSITION AND ENTRY INTO FORCE	66

Annex A

SUMMARY OF QUESTIONS RELATED TO THE WEEE DIRECTIVE.....	67
SUMMARY OF QUESTIONS RELATED TO THE RoHS DIRECTIVE	71

Annex B

MAIN REQUIREMENTS OF THE DIRECTIVES.....	73
--	----

Annex C

PARTIAL REGULATORY IMPACT ASSESSMENT (RIA) ON DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON WASTE FROM ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE DIRECTIVE).....	75
--	----

Annex D
PARTIAL REGULATORY IMPACT ASSESSMENT ON DIRECTIVE 2002/95/EC
OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE
RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN
ELECTRICAL AND ELECTRONIC EQUIPMENT (RoHS Directive)97

Annex E
THE CONSULTATION CRITERIA107

Annex F
OFFICIAL JOURNAL TEXTS OF THE EUROPEAN UNIION.109

INTRODUCTION

The WEEE and ROHS Directives came into force on 13 February 2003. All EU Member States must transpose the Directives into national law by 13 August 2004.

What do the Directives do?

The WEEE Directive encourages and sets criteria for the collection, treatment, recycling and recovery of waste electrical and electronic equipment. It makes producers responsible for financing most of these activities (producer responsibility). Private householders are to be able to return WEEE without charge. There are targets for recycling and recovery of materials and components from the separately collected waste. The main collection, treatment, recovery and recycling requirements and producer responsibility are deferred for a year after the Directive becomes law in the UK and will come into effect on 13 August 2005. Member States are required to collect data on the sales and types of waste electrical equipment collected ahead of this.

The ROHS Directive facilitates the dismantling and recycling of waste electrical and electronic equipment by restricting the use of hazardous substances used in their manufacture. From July 2006, the use of lead, mercury, cadmium, hexavalent chromium, poly-brominated biphenyls (PBBs) and poly-brominated diphenyl ethers (PBDEs) will be banned in new products. PBBs and PBDEs are flame retardants used in plastics. The Directive provides a small number of exempted processes where the use of these materials will be allowed to continue in certain applications until alternatives are found.

The WEEE and ROHS Directives cover a very wide range of products, although some are exempt from certain requirements. The categories covered are large and small household appliances, IT and telecommunication equipment, consumer equipment (TV, video, hi-fi etc), lighting, electrical and electronic tools (with the exception of large stationary industrial tools), toys, leisure and sports equipment, medical devices (exempt from ROHS and re-use and recovery targets under WEEE), monitoring and control instruments (exempt from ROHS) and automatic dispensers

Why do we have these Directives?

These two directives aim to improve our environment. They will bring a number of specific benefits to the UK in comparison to current practice. Work commissioned by the DTI (Ecobalance/PWC 1999, updated 2002) confirms this.

Implementing the Directives' requirements should reduce risks to human health and environment through the proper treatment of waste and a reduction in hazardous substances. We also expect benefits through the conservation of raw materials and of energy resources. For most of the products covered by the study, we found that the Directives should lead to a reduction in air pollution, including CO₂ and ozone depleting substances, and water toxicity by more than 50% when compared to existing practice. In particular, the WEEE Directive will help us to divert between 133,000 and 339,300 tonnes of waste from landfill and the ROHS

Directive should help future recycling through reducing the need for special handling, allowing a reduction in recycling costs.

When will the requirements have to be met?

The timescales for the transposition of the WEEE and ROHS Directives into UK law and the timings of the main requirements are as follows:

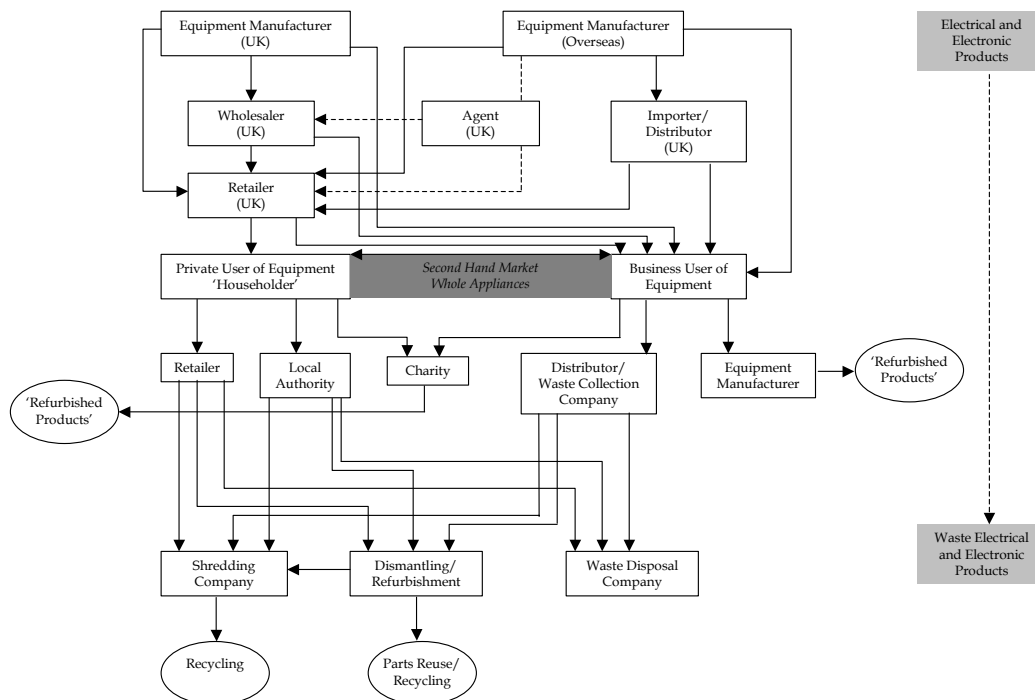
- Publication in the Official Journal of the European Communities (entry into force)– 13 February 2003.
- Directives to be transposed into UK law – 13 August 2004
- Producers financial obligations start from– 13 August 2005
- ROHS substances ban comes into effect – 1 July 2006
- UK must ensure at least 250,000 tonnes of WEEE is separately collected by – 31 December 2006
- Producers must ensure the recycling targets are met by 31 December 2006

The main requirements of the Directives are summarised in Annex B.

What happens to electrical equipment now?

Supply Chain Schematic – Electrical Products Distribution and Disposal

The following diagram shows the principal supply chain routes for the sale and disposal of electrical and electronic products in the UK. It is not intended to cover every possible scenario; simply to provide a flavour of the complexity of existing arrangements. Once the WEEE Directive requirements take effect these routes will change. Consumers, public bodies and charities as well as the private sector will all be affected.



How will I be affected?

I am a manufacturer of consumer electronics, operating in the UK and other EU markets. What do I need to do?

Your business means you fall within the definition of “producer” for the purposes of the Directive and as such, you need to:

- Prepare a variety of data on the volumes and types of electrical and electronic equipment you have placed on the UK market and exported to EU countries, and on what has been recycled by you or on your behalf.
- Registered as a producer with one of the Environment Agencies once arrangements are finalised.
- Ensure that your products, wherever possible, are designed to enable their reuse and recycling, and that they are marked with the correct labels and symbols.
- Pay your share of treatment and recycling costs for separately collected WEEE.
- Make information available on the reuse and treatment of your products that you sell in the future.

Also

- Make sure that after July 2006, any products you sell in the EU do not contain the following: lead, mercury, hexavalent chromium, cadmium, PBB or PBDE flame retardants (although some exceptions are permitted).

The way these requirements will operate in practice are not yet fixed. This discussion paper seeks your views.

What do I need to do if I am a retailer?

As a retailer, with effect from 13 August 2005, you will need to:

- Have a system that allows you to accept WEEE from householders on the sale of a similar new product.
- Let customers know about the take-back services you offer

For large items you will need to offer to take-back a similar old product on delivery of the new item. For smaller products this service needs to be in-store.

If you don't wish to offer to take back old goods in your store the Directive allows you to offer alternative arrangements (e.g. third party collection or paying towards a joint scheme) provided it is not made more difficult for last holders to return their goods.

We are particularly keen to hear what take-back arrangements you would prefer to offer.

Regulatory Impact Assessments (RIAs)

Partial RIAs have been produced for the WEEE and ROHS Directives and set out the benefits of the two pieces of legislation together with estimated costs of compliance in comparison with current practice.

The partial RIAs are attached at Annexes C and D. We would welcome comments on the estimates they contain both for the potential benefits and costs of the Directives. Please support your arguments with data wherever possible (question 47).

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PART I

**DIRECTIVE 2002/96/EC ON
WASTE ELECTRICAL AND ELECTRONIC
EQUIPMENT (WEEE)**

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Article 1: OBJECTIVES

1. **This Article outlines the purpose of the Directive, which is to reduce the relative level of waste electrical and electronic equipment (WEEE) arising and promote reuse, recycling and other forms of recovery alongside better selective treatment.**
2. It also aims to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment (producers, distributors, consumers and particularly operators involved directly in the treatment and disposal of WEEE).

Article 2: SCOPE

3. **This Article defines the overall scope (which equipment is covered) of the Directive, by describing ten categories of electrical and electronic equipment that fall within the Directive's requirements. A supplementary annex also provides specific examples.**

Summary of Article 2

- Scope defined as electrical and electronic equipment falling into the ten categories set out in the Directive (see below) and dependent on electrical currents or electromagnetic fields in order to work properly (i.e. battery or mains operated).
- Equipment for the generation, transfer and measurement of electrical currents and electromagnetic fields is also covered if it falls within the categories. In all cases there is a voltage limit of up to 1,000v AC and 1,500v DC.
- Military equipment is excluded.
- The recitals offer further interpretation by indicating that the Directive is primarily, but not exclusively, aimed at products, which are likely to arise in the municipal waste stream.
- Only whole products are covered. Equipment, which is part of another product covered by the Directive, or a component, is not covered.

Products categories defined in scope:

1. Large Household Appliances
(e.g. washing machines, cookers)
2. Small Household Appliances
(e.g. toasters, irons, hairdryers)
3. IT and Telecommunications Equipment
(e.g. PCs, copiers, phones, mobiles)
4. Consumer Equipment
(e.g. TVs, videos, hi-fis)
5. Lighting Equipment
(e.g. fluorescent lamps, but excludes filament lightbulbs)
6. Electrical and Electronic Tools (with the exception of large-scale stationary industrial tools)
(e.g. lawnmowers, sewing machines, drills)
7. Toys, Leisure and Sports Equipment
(e.g. video games, bike computers, slot machines)
8. Medical devices (with the exception of all implanted and infected products)
(e.g. ventilators, analysers)
9. Monitoring and control instruments
(e.g. smoke detectors, thermostats)
10. Automatic dispensers
(e.g. drinks dispensers, chocolate dispensers, ATMs)

Who is potentially affected?

The scope of the Directive is important for everyone involved in the life-cycle of electrical and electronic equipment but particularly important for:

- manufacturers and importers (“producers”) who will be required to meet the financial obligations associated with producer responsibility.

What the scope does not cover.

4. The Government believes that the scope of the WEEE Directive (i.e. which products are covered or not) is strictly limited to the ten categories specifically described in the text. There is no intention to go beyond this. We intend to work closely with the European Commission and other Member States to further define the requirements and minimise the differences between interpretations in other EU countries. Annex IB of the WEEE Directive contains an indicative list of products within each of the ten categories. It is not an exhaustive list. There is therefore considerable discussion as to what is or is not included.
5. The Government believes the scope does not cover vehicles, aircraft, ships or military equipment. However, there are many grey areas. We propose developing generic criteria to aid interpretation of the scope. For example, the

main function of the product might help decide which category the product should fall in or, indeed, if it is covered at all.

6. The Government believes a number of specific items may fall outside the scope of the WEEE directive. These might include musical greetings cards where the primary function is not to operate as a musical instrument or large stationary industrial equipment that is fixed to the floor. Other possible exclusions include air conditioning ducts and other built in units requiring major dismantling to remove them and gas cookers where the only electrical component is a piezoelectric device,

Q1: What criteria would you wish us to use bearing in mind the requirements laid out in the Directive? How might this be applied in practice?

Q2: Do you manufacture or import electrical products, which you believe do not fall within the scope of the Directive? Please provide details of the products and your reasons.

Options for UK implementation

7. The Government wishes to develop guidance, which reflects our understanding of the approach to the Directive during its development. It would be ideal to develop a definitive list of products covered. This, however, would be very difficult to achieve, given the pace of technological advancement and the sheer number of products already in existence.
8. The Government is currently considering which Acts of Parliament would be best suited to making regulations to transpose this Directive. Our initial view on scope, however, is that the best approach would be to supplement the regulations with non-statutory guidance, which may best be issued by the enforcement authorities. These are likely to be the environment agencies.
9. Non statutory guidance would not be included in the regulations laid before Parliament and is intended to help businesses and others interpret the requirements set out in the legislation. The advantage of this approach is that the guidance can easily be updated in light of new advice from the European Commission, experience of operating the legislation here and in other Member States, or through legal decisions in the Courts.

Q3: Do you agree with this approach? If not, what alternative would you suggest?

10. The Government recognises the importance of addressing issues of scope for business to business (B2B) sales as well as business to consumer. Some B2B sales in the control and instrumentation category are particularly complex, especially where this involves bespoke manufacturing.

Q4: Which products do you believe present particularly difficult problems and why? What criteria might be used to aid interpretation?

Article 3: DEFINITIONS

11. Article three provides definitions of the Directive's key terms.

12. The Directive carries definitions for most of the terms used, the majority are reasonably straightforward although there are one or two that could be open to interpretation. The definition of “producer” is of particular relevance as this is a “producer responsibility” Directive whereby producers pay for the treatment, recycling and some collection costs of waste electrical equipment. The Directive makes clear that a “producer” is someone who manufactures and sells under their own brand, resells under their own brand or imports goods into the EU. For the purposes of reporting and inter-EU trade a producer may also be an exporter. The Directive does not place any obligations on those businesses that export outside the EU.

13. Examples of who is intended to be a “producer”:

- A company manufacturing and selling any electrical goods, within the scope, based in the EU.
- A company assembling PCs and selling them under their own brand.
- An importer bringing relevant electrical goods into the EU and placing them on the market.
- A retailer selling their own branded products.

14. Examples of who is unlikely to be a “producer”:

- A hire-purchase company supplying finance to purchase electrical goods
- A company who puts their own logo alongside the original manufacturer (e.g. a service provider on a mobile phone) where that manufacturer has an existing presence in the UK market.

15. The UK implementing regulations or non-statutory guidance could contain further additional definitions. For example, what is intended by “large scale stationary equipment” or “placed on the market.”?

Q5: Are there other definitions that you consider are not straightforward?

Q6: What further definitions do you think would be helpful in facilitating UK implementation? Suggestions of preferred wording would be especially useful.

Q7: The definition for ‘producer’ covers the procurement of EEE from outside the European Community by telephone, fax and internet. Who might be held to be the ‘producer’ when products are delivered directly to the consumer?

Article 4: PRODUCT DESIGN

- 16. This Article instructs Member States to encourage better design of electrical and electronic equipment, to facilitate re-use, recovery and recycling.**

Summary of Article 4

- Member States shall ‘encourage’ producers to take account of dismantling and recovery during the design and production of EEE, in particular the re-use and recycling of WEEE, components and materials.
- Member States ‘shall take appropriate measures’ so that producers do not prevent WEEE from being re-used, through specific design features or manufacturing processes, unless they can demonstrate that there are safety or environmental protection reasons for this.

Who is potentially affected?

- Manufacturers
- Importers
- Business users when setting specifications for products
- The supply chain

Estimated costs

It is difficult at this stage to estimate accurately the potential costs of this Article. Views are sought through this discussion paper on potential costs.

What the Article does not require

- **This Article does not relate to consumables (e.g. videotapes, computer disks).**

Options for UK implementation

Design for recycling

17. The Government is to ‘encourage’ the design and production of EEE, which takes into account and facilitates dismantling, recovery and re-use of WEEE, their components and materials. At present, in the UK, a number of manufacturers are voluntarily looking at designing products to make dismantling easier, however, we are aware that some products (e.g. toys) cannot be designed for easy dismantling, because of safety requirements. The requirements can be approached in a variety of ways:

Option 1

18. Develop a set of guidelines (possibly sector specific) with industry, for the dismantling and recovery of WEEE and set up a voluntary scheme under

which manufacturers would agree to work to. These guidelines could be drawn up with refurbishers, dismantlers, reprocessors and producers.

19. The guidelines could contain suggestions such as:

- As far as possible, limit different plastics types and use only plastics that can readily be recycled, or
- Designing products where any hazardous components are easily identified; this could include colour coding to identify hazardous components.

20. This would demonstrate a light regulatory touch through a voluntary approach. It would also stimulate product design and could involve useful benchmarks for tracking progress in industry and encourage best practice. Care would be needed to ensure there was not a disproportionate impact on small businesses.

Option 2

21. To a) identify a current industry standard or b) develop and endorse an industry standard that could be added onto an existing environmental standard (possibly EMAS or ISO 14000 series). An industry standard would enable manufacturers to systematically identify the environmental impacts and aspects of their products.

22. Producers will be able to monitor progress of implementing good product design via an existing audit trail. This would be a voluntary initiative, which would demonstrate a light regulatory touch. It may also help to address the problem of non-compliant imported EEE.

Prevention of reuse

23. The UK must take measures to ensure that producers do not prevent WEEE from being reused as a result of specific design features and manufacturing processes. Similar options to the above apply. For both issues it is particularly important to consider how to deal with professional importers who will also need to be able to demonstrate compliance. If voluntary agreements are not able to deliver compliance then some form of legislation could be considered.

Q8: Would a negotiated voluntary agreement or legislation be the best way for the Government to encourage the design of equipment for recycling and discourage designs that prevent reuse?

Q9: Should industry standards be used to encourage design for recycling and discourage prevention of reuse? Government endorsed?

Q10: Should the voluntary agreement/legislation be generic, or specific to categories or sectors of EEE?

Q11: How should compliance with the product design provisions be monitored?

Q12: How should the Government fulfil the requirement to ensure that manufacturers do not prevent WEEE from being reused through design features or specific processes?

Article 5: SEPARATE COLLECTION

24. Article five outlines the collection facilities that the UK will need to have in place to comply with the Directive.

Summary of Article 5

- With effect from 13 August 2005, Member States are to ensure that collection facilities are available including:
- Returns to be at least free of charge to last holders and distributors (this recognises that some waste may have a value and the holder could be paid for it).
- Should be sufficient collection facilities to allow reasonable access, taking into account population density.
- Retailers and other distributors will be required to accept WEEE free of charge on a like for like basis, when a consumer buys an equivalent product.
- Retailers may fulfil their obligations through collection upon delivery of the new product, in-store collections, or third party arrangements
- Non-household WEEE is to be collected by producers or third parties acting on their behalf. For products sold prior to implementation the collection obligations are linked to the sale of new products.
- All WEEE collected must be taken to a permitted treatment facility or re-used.
- Collected WEEE must be transported in such a way as to avoid damage that would prevent equipment or components from being reused.
- Member States must collect 4kg of WEEE per head of population (approx. 250,000 tonnes) per year by 31 December 2006 – a new target will be established by 31 December 2008.

Who is potentially affected?

- Householders and business users
- Distributors (i.e Retailers)
- Producers
- Local Authorities
- Waste management and logistics organisations
- Refurbishment centres
- Social and voluntary sectors

Estimated costs

The DTI's partial Regulatory Impact Assessment (RIA) estimates the additional costs for the separate collection of WEEE in the UK as a result of implementation of the WEEE Directive in the range of £26 million to £98 million per annum from 2006. This equates to an estimate of £141 - £211 per tonne of separately collected WEEE.

The article does not require:

- **Mandatory separation of WEEE from household waste by householders (although it is encouraged),**
- **Mandatory separation of WEEE from household waste by Local Authorities,**
- **Local Authorities to take on additional burdens**
- **Mandatory kerbside collection,**
- **Mandatory in-store take-back by retailers (they can use other options)**
- **Separate collection of all products**

Options for the UK implementation.

25. In the UK, industry figures suggest that we already collect in excess of the 4kg per head target set by the Directive and work is under way to verify this. The Directive says that separate collection facilities must be available for last owners and distributors to return WEEE free of charge. Although the Directive does not impose duties directly on Local Authorities, it makes sense for us to build on existing infrastructures wherever possible and to use Civic Amenity sites and other collection mechanisms where appropriate. However, we recognise that Local Authorities can be constrained by licensing and planning permission requirements or simply do not always have the space to install separate collection containers for WEEE. Our options, therefore, include a number of possibilities that involve partnerships between different stakeholders.

26. Since it is estimated that we already collect in excess of the 4kg target, our initial view is that we should continue to use the collection mechanisms already working in the UK, where appropriate, and to build in additional resources to help us meet the requirements of the Directive. The current separate collection system consists of a mix of the following:

- Retailer collection of large items on delivery of new appliances,
- Local Authority bulky waste collections,
- Collections of large items by the charitable/voluntary sector for re-use,
- Ad hoc take-back mechanisms by retailers or manufacturers (e.g. collection of mobile phones through mail back envelopes distributed in retailers),
- Collection of business equipment e.g. at the end of the lease,
- Collection by installers.

27. In order to ensure that we meet the obligations of the Directive and build in capacity to meet potentially higher future collection targets, we will need to expand this system. There are a number of options that could be used either individually or in combination with each other, including:

- Collection of all product types by retailers either in-store, on delivery of new appliances or through third parties.
- Separate containers for WEEE at Local Authority Civic Amenity sites.

- Kerbside collections of WEEE by Local Authorities. There is an option for these to be funded through contributions by retailers in lieu of their take-back responsibilities
 - Expanded collections by social/voluntary sector.
 - “Bring” schemes for small items with containers alongside bottle and paper banks in car parks etc.
 - Making producers responsible for take-back of WEEE, where products are sold direct to the consumer with no retailer involvement.
28. There will have to be a collection duty imposed on retailers in our Regulations, setting out the various options open to them under the Directive. We may also need to build into the legislation sufficient flexibility to allow for example, retailer contributions towards kerbside collections.
29. All of these possibilities need to be considered in the terms of how much value they could add to the aim of separately collecting as much WEEE as possible against cost.

Q:13 What would be the best approach to meeting the retailer take-back obligations?

Q:14 Should collection obligations be placed on anyone else? If you believe that an option should not be given further consideration, please give your reasons.

Q:15 Which mechanism do you favour for meeting the collection obligations and why? Please give an estimate of the costs if possible.

Q:16 How should WEEE be collected to encourage reuse?

Article 6: TREATMENT

- 30. The Directive's treatment requirements (for all separately collected WEEE) are outlined in this Article. Member States must establish systems that utilise the best available treatment, recovery and recycling techniques.**

Summary of Article 6

- Producers or third parties acting on their behalf to ensure treatment facilities available. This can be done collectively.
- Treatment means as a minimum, removal of all fluids and selective treatment as set out in Annex II of the Directive
- Treatment facilities must be licensed and inspected by the environment agencies.
- Treatment can be carried out in other Member States or outside EU, provided shipments comply with appropriate legislation and treatment carried out equivalent to the provisions of this Directive

Who is potentially affected?

- Producers or third parties acting on their behalf
- Dismantlers, shredders, scrapyards
- Other waste management industry
- Reprocessors
- Refurbishment centres
- Social/voluntary sector
- Some Charities
- Local Authorities

Estimated costs

The DTI's partial RIA estimates the costs for treating separately collected WEEE in the UK in accordance with the requirements of the Directive in the range of £98 million -£207 million per annum from 2006. This equates to an estimate of £123 - £192 per tonne of separately collected WEEE.

What the article does **not** require:

- **Treatment of all WEEE – only that which is separately collected.**
- **Producers to set up their own treatment systems.**
- **Producers to undertake treatment work themselves.**
- **A prohibition on the export of WEEE (provided exports meet certain requirements).**

- **Treatment facilities to have environmental management systems (although these are encouraged).**

Options for UK Implementation

31. Article 6 of the WEEE Directive requires that establishments undertaking or carrying out treatment obtain a permit from the environment agencies (the competent authorities), in compliance with Articles 9 and 10 of Directive 75/442/EEC (the Waste Framework Directive (WFD)), or operate under a derogation (Article 11, WFD). In the UK these permits predominantly take the form of waste management licences. Northern Ireland is implementing Articles 9 and 10 of Directive 75/442/EEC (the Waste Framework Directive) separately, and introducing separate Waste Management Licensing.
32. While many existing WEEE treatment facilities already operate under a waste management licence, or an exemption from waste management licensing there may be a need to change these licences to ensure all the processes required by the directive are covered. Additionally, there may be other activities that are not currently regulated that will be identified as treatment within the terms of the WEEE Directive thus requiring a permit, or derogation from the permitting requirements.
33. There are a number of ways these requirements can be taken forward.

Option 1: Integrated Permitting.

34. Defra is currently reviewing the waste management licensing system following calls for a simpler system. This review is considering how the permitting requirements of the Waste Framework Directive (WFD) and similar provisions in related EC legislation (such as WEEE) may be delivered in the UK and provide a regime that effectively and efficiently meets the needs of the public, business and others.
35. The overriding objectives of the review are to:
 - ensure that the UK complies with its obligations to transpose and implement the Waste Framework Directive (75/442/EEC) and related EU/EC legislation in a way that is capable of incremental change and development to accommodate future legislation;
 - ensure protection of the environment and human health;
 - encourage sustainable waste management; and
 - meet the principles of better regulation, including the consideration of alternatives to regulation.
36. The legislative framework should allow commonality of certain issues such as public registers, commercial confidentiality, etc.
37. Within the common legislative framework there will be different requirements for obtaining a permit. A permit will need to provide for different activities or industry sectors in order to deliver controls that are proportionate to risk.

38. The advantage of this system is that it will allow more flexibility to the operator in being able to take up various waste treatment activities under one permit. It is Defra's desire to put WEEE permitting at the forefront of the permitting review and proposals will be developed to take WEEE permitting implementation forward under this premise during the spring of 2003. However, given the timescale for implementation there is a need to consider other options.

Option 2: Implement Article 6 via the current Waste Management Licensing (WML) regime:

39. At present there is no need for a separate "WEEE permitting regime" the permitting of WEEE can be done under the Waste Management Licensing regime. This approach can readily give effect to WEEE requirements with less disruption to industry and the environment agencies in respect of some existing permitted activities not affected by forthcoming directives. Any changes can be effected quickly through statutory guidance and administrative change. However, the Government will need to balance this against increased criticism of the current outmoded system, including the pre-request need for planning permission and increased licensing and modification workload for the environment agencies to give effect to new European requirements. This option would subsequently have to be retrofitted into the integrated permitting system (substantially increasing the regulatory workload and the burden on industry with a two step process).

Option 3: Developing a bespoke WEEE permitting system using the applicable sections of the End-of-Life Vehicles (ELV) Regulations as a starting point.

40. The Article 6 requirements in the WEEE Directive are similar to the Article 6 requirements of the ELV Directive. It was initially thought that it might be possible to amend the ELV Regulations in such a way that they could also cover WEEE. However, on balance, and in the interests of simplicity, it may be better for both sectors to keep the WEEE and ELV requirements separate. Given this, a third option would be to create a bespoke WEEE permitting system using the applicable parts of the ELV Regulations as a starting point.

41. The advantage of this approach would be that it would give specific effect to the WEEE Directive. However, like the Waste Management Licensing option, it would not fully implement better regulation principles and would increase licensing and modification workload for the environment agencies to give effect to new European requirements. Like option two, a stand-alone permitting system is likely to need retrofitting into any new integrated permitting system and would impose extra burdens on government, the regulators and industry

Q:17 Which permitting option do you prefer and why? Are there other alternatives? What are the cost and benefits to you of the proposed options?

Q:18 How feasible do you think the treatment operations set out in the Directive are?

Standards

42. The treatment requirements in the Directive do not specify details on what procedures are most appropriate. Treatment facilities will need to be clear about their obligations. For example, approaches and de-minimis levels will need to be agreed in relation to the requirement to “remove all liquids”. Similarly, there will need to be standardisation of requirements “to remove” the items listed in Annex II.

Q:19 Should standards be agreed for these processes? If so, who should set them? The British Standards Institute, The European Standards Organisations or through UK Regulations?

Q:20 Do you believe it is necessary to remove the required items prior to shredding or as part of that process? Why? What would be the benefits and costs?

Article 7: RECOVERY

43. This Article instructs Member States to ensure that facilities for the recovery/reuse of WEEE that is separately collected are established. It also sets recycling/component reuse targets by weight and a “Recovery” target. In this Directive “Recovery” means recycling materials, component reuse or burning with energy recovery. The recycling target is therefore a subset of the recovery target. “Recovery” should not be confused with “collection”.

Example: What does 80% recovery and 75% recycling mean in practice?

This means that if the weight of the waste equipment separately collected is 100 tonnes, that by weight at least 75 tonnes of material must be recycled into new products or the components reused (this is the 75% recycling target). Then a further 5 tonnes must either be recycled/reused as above or burnt with energy recovery to reach the 80% recovery target.

Thus, of the 100 tonnes collected the maximum that can be disposed of by, say, land filling is 20 tonnes.

Summary of Article 7

- Producers or third parties acting on their behalf to set up (or make available) recovery facilities for separately collected WEEE.
- Producers may do this collectively.
- Priority given to re-use of whole appliances and components
- Targets set for all categories, except for Category 8 (medical devices) – see below
- Targets to be reached by 31 December 2006
- Targets specify the proportion of the product to be recovered and how much of this is to be achieved through recycling
- For calculation of targets, records to be kept of input to and output from treatment facility and/or input to recovery or recycling facility, by mass.
- Commission to establish rules for monitoring compliance by 13 August 2004
- New targets by 31 December 2008
- Member States are to encourage the development of new recovery, recycling and treatment technologies.

Rates of re-use and recovery

44. All calculations are based on a percentage of product weight. The targets only apply to separately collected WEEE, not WEEE that is co-disposed with municipal waste.

Category ¹	Recovery rate	Recycling rate
1, 10	80%	75%
3, 4	75%	65%
2, 5, 6, 7 & 9	70%	50%
Gas discharge lamps	80%	80%

45. Category 8 (medical devices) is not assigned a recovery and recycling target as it was believed that most of this equipment is dealt with through specialist means, usually because of the risk of contamination.

Who is potentially affected?

- Producers or third parties acting on their behalf
- Authorised treatment facilities
- Dismantlers
- Retailers
- Local authorities
- Reuse and refurbishment charities
- Re-use and refurbishment centres
- Social/voluntary sector

Estimated costs

The DTI's partial RIA estimates the total costs of meeting the recovery targets for separately collected WEEE in the UK in accordance with the Directive in the range of £51 million - £114 million per annum. This equates to an estimate of £64 - £106 per tonne of separately collected WEEE.

What the article does not require:

- **Re-use and recovery of all WEEE – only that which is separately collected.**
- **A ban on incineration or landfill - although these are strongly discouraged and limited by the targets.**
- **Producers to set up individual re-use and recovery systems.**
- **Producers to undertake re-use and recovery work themselves.**
- **A ban on the re-use of whole appliances – re-use is encouraged by the Directive and we are required to gather data on the level of re-use of whole appliances to help establish a possible future re-use target.**

46. For the purposes of meeting the targets in Article 7, recycling needs to be counted at the input to a recycler. In the UK, there is an established recycling

¹ Categories are: (1) Large household appliances; (2) Small household appliances; (3) IT and telecommunications equipment; (4) Consumer equipment; (5) Lighting equipment; (6) Electrical and electronic tools; (7) Toys, leisure and sports equipment; (8) Medical devices; (9) Monitoring and control instruments and (10) Automatic dispensers

infrastructure in place for the majority of WEEE. There is, however, a need to develop the dismantling infrastructure to meet the requirements of the Directive.

47. In view of the large number of producers of EEE, it would be extremely burdensome and costly for producers specifically to set up systems to provide for the recovery of separately collected WEEE. Therefore, the Government is likely to assume that the producers' responsibility is primarily a financial one, not an operational one, and, rather than setting up an entirely new infrastructure, existing infrastructure will be used as far as possible. However, producers who wish to set up dedicated systems would of course be able to do so.

Options for UK implementation

Placing targets on producers and demonstrating compliance

48. Placing a recovery/recycling/reuse (component, material and substance) obligation individually on each business that is a producer, for each product they market, would be very complex and likely to result in the need for extensive monitoring with a significant associated fee. We would need to estimate the weight of waste arisings for each product and then calculate a target based on the appropriate recovery/recycling rate in the directive. The complexity of this approach is difficult to justify and the Government is not minded to pursue it. Instead, an approach in which, for example, the targets in Article 7(2) are placed jointly on the producers responsible for the products in each of these groups of Categories could be considered. This could be based on the market share of each producer for the whole category rather than by product. For those producers pursuing an entirely individual producer responsibility approach, receiving back their own products, the Directive targets would directly apply. In both cases, service providers such as compliance schemes could be used.
49. Compliance could be demonstrated by reprocessors issuing compliance notes. Unlike the system currently used for packaging this could be required by legislation and could be separate to the financing system.
50. Producers opting out of such a system would need to retain documentary, auditable evidence that the targets had been achieved for their own products. In both cases producers would have a legal obligation to demonstrate compliance.

Calculating the achievement of targets

51. Article 7(3) notes that for the purposes of calculating these targets, producers or third parties acting on their behalf shall keep records on WEEE, their components, materials or substances (a) when entering and leaving the treatment facility and/or (b) when entering the recovery or recycling facility. It will be more straightforward and less costly if counting is kept to a

minimum, as long as it can be demonstrated that the recycling, recovery and reuse has actually occurred.

Use of Protocols

52. One approach to calculating this could be that a protocol per material would be agreed between the industry and the Agencies. Under this protocol approach a certain percentage of the load would be deemed to be WEEE scrap (or plastic or glass etc) and, of that, certain percentages would be deemed to fall into
 - a. Categories 1 and 10
 - b. Categories 3 and 4
 - c. Categories 2,5,6,7 and 9
53. This would involve the Agencies working with Energy from Waste operators, Authorised Treatment Facilities including shredders, recyclers and producers to develop such protocols for each material to determine the amounts entering a reprocessor for recovery or recycling.
54. Gas discharge lamps are likely to go to a different reprocessor than most other WEEE, and may need to be counted by an alternative approach.
55. It would be far less costly and complicated to implement a protocol-based approach, rather than counting each individual item of WEEE that goes to the recycler. A similar approach has been shown to be effective under the Packaging Regulations. However, a protocols based approach may be inconsistent with the approach planned by some manufacturers who plan direct take-back and treatment of their own products.

Priority to be given to the reuse of whole appliances

56. The Directive requires Member States to give priority to the reuse of whole appliances but does not, at this stage, include a target for reuse of whole appliances. In the UK, the reuse of whole items of WEEE is already prioritised, and there is a significant amount of reuse being undertaken.
57. The Government is keen to further encourage the reuse of whole appliances where environmental benefits can be realised. However, in some instances, for example in the case of an old washing machine, the best environmental option may be to recycle the appliance rather than reuse it. Furthermore, where it is not practicable to reuse WEEE, for example in the case of small, inexpensive WEEE (eg. a broken calculator or electric toothbrush), it would not seem the best use of resources to require significant effort to be put into reuse. Therefore a priority for reuse may not need to be given to all categories of WEEE collected.
58. The Government is still considering whether more needs to be done under the terms of the Directive to encourage reuse, but if so, one possible approach may be for the Social Economy Sector to be encouraged to become more

involved in areas where they are not already, e.g. in the collection of WEEE on behalf of local authorities, and possibly retailers.

59. This would ensure that WEEE is in good condition for re-use and the UK would be in a good position to meet any future target on reuse of whole appliances that might be set, although some local authorities may find that the terms of existing waste management contracts make it difficult to do this at present.

Member States to encourage the development of new recovery, recycling and treatment technologies

60. Article 7 requires Member States to encourage the development of new recovery, recycling and treatment technologies.
61. New technologies and markets for recyclate are already being encouraged in the UK through existing Directives (e.g. ELV Directive) and Government initiatives, for example:
- The National Waste Minimisation, and Recycling Fund and Strategic Waste Fund;
 - Challenge funds to kick start recycling and waste minimisation projects to help local authorities, in England and Scotland, respectively, to improve their recycling performance and meet their recycling targets; and
 - The Waste and Resources Action Programme (WRAP) - A body set up by Government to develop markets for recyclate including the examination of new technologies.
62. There may also be further action as a result of the recently published Prime Minister's Strategy Unit Report - "Waste not Want not" which included recommendations to encourage recycling.
63. The Government is considering if any additional activity is required.

Q:21 Can you suggest an alternative to the protocols based approach for monitoring the UK's progress and compliance with the recovery and recycling targets?

Q:22 Do you have any ideas on how to develop recovery and recycling protocols for WEEE?

Q:23 If a protocol based approach were to be implemented for the recovery and recycling targets, how often should the protocols be reviewed?

Q:24 Do you have an alternative suggestion to using evidence notes of some form to prove that recovery/recycling has taken place?

Q:25 How should component reuse be measured?

Q:26 How should we measure whole appliance reuse in the future?

Article 8: FINANCING IN RESPECT OF WEEE FROM PRIVATE HOUSEHOLDS

64. **This article outlines the requirements and options for financing the treatment, recovery and disposal of WEEE separately collected from private households, in particular the obligations placed on producers.**

Summary of Article 8

- By 13 August 2005 producers finance the collection, treatment and recovery of WEEE from private households deposited at collection facilities.
- For products put on the market after 13 August 2005 producers finance operations relating to WEEE from their own products either individually or collectively.
- Producers provide financial guarantees for products they put on the market after 13 August 2005.
- For products put on the market before 13 August 2005 producers finance operations relating to WEEE proportionately, e.g. by market share.
- For 8-10 years, producers are allowed to show consumers, at the point of purchase, the costs of operations relating to WEEE for products put on the market before 13 August 2005.

Who is potentially affected?

- Manufacturers of EEE
- Re-sellers
- Importers and Exporters
- Distributors of EEE
- Consumers
- Economic operators in WEEE

Article 8 does not require:

- Producers to finance the recovery of all WEEE – only that which is separately collected.
- Producers to finance the costs of collection of WEEE before it reaches collection facilities.

Options for UK implementation

Government policy towards the Environment

65. The Government believes that environmental taxes and other economic instruments are key policy tools for achieving environmental improvements because they can provide incentives for behaviour that protects or improves the environment, and deter actions that are damaging to the environment.
66. The instruments might include taxes or other economic instruments, regulation, the provision of information, or voluntary agreements. Taxes may be used as part of a package with other measures such as tradable permit schemes, spending programmes, tax incentives, or voluntary agreements. Other measures may also be used in placed of a tax if they can achieve the same objective at lower economic cost.
67. The Government does not take a single approach to all environmental problems, but adapts it approach depending on the circumstances. The Government also considers the extent to which the potential instruments have synergies or trade-offs with other economic and social objectives and the extent to which these are acceptable.

Producer responsibility legislation

68. Essentially, there are two broad methods through which producers could fulfil their obligations under producer responsibility legislation such as the WEEE Directive. These are through the 'own marque' route of dealing with your own waste as it arises, or through a 'market share' route of dealing with a proportion of waste related to your share of the market. Financing schemes generally fall into one of these two categories, usually taking the form of either an up-front payment (when goods are placed on the market) or a downstream payment (when the waste arises).

Own Marque (own label)

69. An own marque route means that producers take financial responsibility for the waste that arises from the products they have put on the market. There are legal issues in determining which businesses are responsible for which brands, types, and marques of products, but this type of system has precedent in that it is being used to implement the End of Life Vehicles (ELV) Directive in Germany and Austria.
70. An own marque route avoids the requirement to calculate a producer obligation in advance, but it does require producers to contract with a range of collection, treatment, recovery and reprocessing businesses to ensure that there is an adequate network to first enable last holders to easily dispose of their waste free of charge and, secondly, to enable the required treatment and recovery targets to be met. Information requirements also need to be met.

71. Own marque systems usually mean that producers pay in arrears for the treatment and recovery of their waste, though they do not preclude payment in advance. Under the WEEE Directive, requiring producers to provide guarantees up-front for future waste is an attempt to ensure that producers do not avoid their financial obligations. Guarantees can take a range of forms, including a separate blocked bank account, recycling insurance, or subscription to some alternative scheme.
72. Own marque systems can be completely individual, in the sense that a producer does all the contracting with specific facilities, but they can also be undertaken collectively by a number of producers, and with third-party involvement (via, for example, a service provider), as long as it is made clear beforehand how costs are to be allocated.
73. In terms of WEEE, the ICT Milieu system in the Netherlands was an example of an own marque system undertaken in a collective manner. Producers who joined the ICT scheme would be billed in arrears according to the weight of the waste from the products they had put on the market.
74. However, from 1 January 2003 ICT Milieu switched to a financing system based on the current market share of its participants. ICT Milieu collected significant amounts of equipment that had no current producer existing on the market (so called 'orphan' products). The costs of such equipment now appear to be tied up in the market share system.

Market Share

75. A market share based system essentially means that producers are obligated to recover a certain amount of waste depending upon their presence in the market at the time. It is not always straightforward to determine presence. It can, for example, be considered in terms of value of sales or weight of sales, and over various time periods.
76. In terms of WEEE, currently there are more examples of market share based systems in existence than own marque systems, though the market share systems differ in terms of financing method.
77. In the Netherlands, the NVMP scheme places a visible fee on the purchase of a range of new electrical and electronic equipment to cover the costs of collecting and recovering WEEE. This is an 'ultimate' market share system in the sense that market shares are determined in real time, as opposed to some defined period in the past.
78. In Switzerland, SWICO charges a recycling fee on the purchase of new electrical equipment which varies by equipment group and value of equipment. In Sweden, El-Kretsen charges its members the costs of recovery of WEEE in accordance with shares based on the weight of products each producer puts on the market.

79. In Norway, El-Retur, provides free take-back of WEEE for last holders, including via retailer in-store take-back. El-Retur is something of a hybrid system in that specific sectors of the EEE market pay for WEEE from their sectors, but 'common' costs are shared. But essentially it is a market share system where producers pay fees to El-Retur based on turnover as defined by sales of new products.

Discussion

80. Own marque systems have the potential advantage of providing producers with an incentive to improve the eco-design of their products to reduce their costs following disposal. However, for some producers, for example, low volume producers and/or SMEs, the costs of contracting with an adequate network to deal with their own waste may be disproportionate to these benefits.
81. There is also the issue of the need to ensure that an adequate infrastructure for recovering waste is in place, and in advance, to enable the targets and other requirements of the Directive to be met.
82. Market share systems should, in theory at least, have an advantage over own marque systems in terms of the ability to exploit economies of scale in the recovery of waste. However, there are issues of equity. Market share systems will mean that it is likely that producers will at some stage finance the waste of other producers. Whether this is inequitable or not will depend on the relative market shares of the producers in relation to the waste arising from their own products, and possibly on the type of waste that is being addressed.
83. What appears to be clear is that market share systems are usually characterised by allowing producers to opt-out of the market share system and follow the 'own marque' route as long as they achieve comparable results. This 'opt-out' option seems consistent with producer responsibility, and can also alleviate competition concerns that can arise when a single scheme exists within a country.
84. There are also the issues of 'free-riders' and 'orphan' products. Free-riding is generally characterised as obtaining a benefit without incurring a cost and the cost is incurred by someone else. It is often claimed that market share systems encourage 'free-riding'. But the issue is whether 'free-riding' is really a matter of enforcement or financing method, though the guarantee system of the WEEE Directive is an attempt to overcome 'free-riding'.
85. 'Orphan' products are defined as those whose original producer now no longer exists on the market or cannot be identified. The question is who incurs the costs when these products arise as waste. Some claim that individual producer responsibility is the only fair method to implement producer responsibility, and that a 'guarantee' overcomes the 'orphan' problem. But even under a 'guarantee' system there may still be some 'orphans'. Some claim that it is the Government's responsibility to finance the waste from these products, whilst others argue that as the existing producers have captured the market

share of the producer who has exited, 'orphans' should be apportioned by current market share.

86. In terms of charges to consumers on the purchase of new products there are issues surrounding who sets the charge, at what rate, and for what goods. It is not always obvious that flat fees encourage efficiency or innovation, and there may also be social implications in the sense that flat charges are regressive by nature. On top of these issues, it is not always obvious that charging consumers directly on purchases of new goods represents producer responsibility. A similar issue arises for deposit/refund systems, and these have the added complication for WEEE that there can be a long time period between the deposit being paid and the refund being made. In addition, there are likely to be extra administrative burdens involved with such systems.
87. The WEEE Directive allows producers, for a transitional period only of 8-10 years, to show consumers at the point of sale of new products the costs of recovering the waste from electrical equipment which was put on the market prior to 13 August 2005.
88. In terms of the infrastructure for managing WEEE it will be important to ensure that the infrastructure is in place and that there is sufficient capacity to enable the UK to meet the requirements of the Directive. This will be an important consideration in relation to the financing mechanism the UK adopts for implementation of the Directive.

Q:27 The Directive allows the UK scope to introduce a 'visible fee' to be paid by consumers of new products to finance the waste from old products for 8-10 years.

Do you think the UK should introduce such a 'visible fee'? If so,

- **who should set the fee?**
- **at what level should the fee be set?**
- **on what products?**
- **who should administer and distribute the funds from the fee?**

Q:28 The Directive says that producers should provide a 'guarantee' to cover the costs of waste from products they put on the market after 13 August 2005. What form do you think this guarantee should take?

Q:29 Should the UK allow more than one type of guarantee to exist?

Q:30 Who should enforce the system of guarantees to ensure that there are no 'free-riders' and 'orphan' products?

Q:31 What is your preferred method for financing the costs of the WEEE Directive in the UK? Why do you prefer this method? What are the costs and benefits?

Q:32 How should the UK finance the costs of the WEEE Directive to ensure that the environmental benefits are maximised:

- **at least cost to the UK?**
- **with least impact on UK competitiveness?**
- **in the most equitable manner?**
- **with minimal administrative complexity?**

Article 9: FINANCING IN RESPECT OF WEEE FROM USERS OTHER THAN PRIVATE HOUSEHOLDS (BUSINESS TO BUSINESS)

89. This Article outlines the options for financing the collection, treatment and recovery of WEEE arising from business (non-private household) premises.

Summary of Article 9

- For products put on the market after 13 August 2005 producers finance the costs of management of WEEE.
- For products put on the market before 13 August 2005 producers finance the costs of management of WEEE. Member States may provide that users other than private households be partly or totally responsible for this financing.
- Producers and users other than private households may agree alternative financing arrangements.

Who is potentially affected?

- Manufacturers of EEE
- Re-sellers
- Importers and Exporters
- Distributors of EEE
- Users other than private households
- Economic operators in WEEE

Article 9 does not require:

- Producers to finance the recovery of all WEEE – only that which is separately collected.

Options for the UK implementation

Government policy towards the Environment

90. The Government believes that environmental taxes and other economic instruments are key policy tools for achieving environmental improvements because they can provide incentives for behaviour that protects or improves the environment, and deter actions that are damaging to the environment.
91. The instruments might include taxes or other economic instruments, regulation, the provision of information, or voluntary agreements. Taxes may be used as part of a package with other measures such as tradable permit schemes, spending programmes, tax incentives, or voluntary agreements.

Other measures may also be used in place of a tax if they can achieve the same objective at lower economic cost.

92. The Government does not take a single approach to all environmental problems, but adapts its approach depending on the circumstances. The Government also considers the extent to which the potential instruments have synergies or trade-offs with other economic and social objectives and the extent to which these are acceptable.

Business to Business (B2B) WEEE

93. Following agreement of the Directive, concern has been expressed about the current wording of Article 9 in relation to its potential impact on the accounting position of producers. The current wording of Article 9 could have implications for the balance sheets of producers if they are made responsible for the recovery of all B2B electrical equipment irrespective of when it was first placed on the market.
94. A new wording of Article 9 has thus been agreed in principle by the European Commission, Council and European Parliament.
95. The new wording changes Article 9 such that producers would be required to accept B2B WEEE free of charge from the last business holder only on a one-for-one basis when supplying new products, which replace products of equivalent type.
96. This wording reduces the potential accounting impact on producers from Article 9.
97. However, it means that the costs of equipment which are disposed of and not replaced would need to be borne by somebody else. One option is that where a business user of EEE is not replacing his equipment, the current practice in terms of disposal should remain, i.e. that the last holder should be responsible for the treatment and recycling of his WEEE.

Q:33 How do you think Article 9 should be implemented to ensure that the environmental benefits are maximised in the most cost effective manner to the UK?

Q:34 Do you think business users of EEE who dispose of their equipment without replacing it should be responsible for financing the treatment and recovery of this WEEE? If not, who should finance these costs?

Article 10: INFORMATION FOR USERS

98. This Article imposes obligations on Member States to ensure that the end-users of electrical and electronic equipment receive adequate information on the waste collection systems available to them, together with information about their role in contributing to the overall levels of re-use, recycling and recovery. This Article also covers the meaning of the crossed out wheellie bin (separate collection) symbol, as well as the requirement for producers to mark equipment with this symbol.

Summary of Article 10

Users to be informed of:

- The benefits of disposing of WEEE separately.
- Return and collection systems that are available.
- Their role in the management of WEEE.
- The potential environmental and health effects of hazardous substances in electrical and electronic equipment.
- The meaning of the symbol in Annex IV of the Directive (the crossed out wheeled bin, denoting that the product should not be disposed of in household waste, but separately collected).
- Member States to encourage consumers to participate in separate collection of WEEE and facilitate re-use and recovery.
- All products (or packaging, instructions and warranty) to be marked with the crossed out wheeled bin symbol after 13 August 2005
- Option for Member States to require producers and/or retailers to provide some or all of the above information

Who is potentially affected?

- Producers
- Retailers
- Consumers
- Importers

Estimated costs

The DTI's partial RIA estimates the total costs of the requirements to provide information to users of EEE at around £18 million per annum from 2005.

What the article does not require:

- **Prosecution of consumers who do not use separate collection**

Options for UK implementation

99. Producers do not currently mark their products with the symbol given in Annex D of the Directive. Ideally there should now be agreement amongst Member States as to the size, format and appropriate marking methods. The UK is taking this forward with the Commission and others.
100. Users of Electrical and Electronic Equipment (EEE) currently receive little or no information regarding the disposal or recovery of the equipment at the end of its life. Most domestic users are free to dispose of WEEE via their wheeled bins / refuse sacks, local authority bulky waste collection service, or at their local Civic Amenity site. Some electrical retailers offer a collection service for WEEE when customers purchase a similar new appliance; this type of service tends to be restricted to larger domestic appliances.
101. Whilst existing arrangements result in a significant quantity of WEEE (mainly “White Goods”) being separately collected and recycled, separate collection of other categories of WEEE is rare and haphazard. This is especially the case in respect of smaller items such as personal care products, entertainment equipment and small kitchen appliances. Little is done to discourage householders from disposing of WEEE with other municipal waste.

Option 1

102. The marking requirement must apply to all EEE Products placed on the market from 13 August 2005 and the symbol used must be that which appears in the Directive. The simplest approach to implementing this requirement would be to place a statutory obligation on all producers, including professional importers, to use the approved symbol from the required date on all new items of EEE. Items not displaying the correct markings could be removed from the market and/or producers fined. A regulator would need to be identified and given powers to take action in respect of products not displaying the appropriate markings.
103. This approach should promote compliance with the requirements of the Directive, establish a level playing field for importers and UK based manufacturers and minimise the emergence of a range of inconsistent and confusing markings.
104. The UK could seek to meet all of the other requirements of article 10 through a general statutory requirement placed on nominated parties. These parties could include producers, retailers and possibly, Waste Collection Authorities.
105. Retailers as the main contact point with customers would be expected to provide information to consumers on all aspects of this article.
106. The advantage of a more flexible approach would be to give the nominated parties the freedom to develop communication strategies appropriate to their size, nature and customer base. However, this flexibility

would give rise to difficulties in comparing and assessing the adequacy of the various strategies for providing consumers with information.

Option 2

107. The basic approach would be as for Option 1 but with a more prescriptive approach to the manner in which the information was to be conveyed. This approach would lead to greater certainty as to what was required and could simplify the assessment of compliance. However, there would be a risk of stifling innovation and imposing disproportionate burdens on some businesses.

Q:35 Who should be responsible for providing end-users with the information in Article 10, and why?

Q:36 What action or sanction do you think would be appropriate in the case of an inadequate strategy or failing to act on an approved strategy?

Q:37 Do you consider that the requirements of Article 10 (other than product marking) could be met in a more collective way? If so, how might such a system operate, how would it be funded and how might compliance be monitored and assessed?

Q:38 Do you consider that there will be any difficulties in achieving the marking requirement for the products? Please explain in detail those difficulties you envisage.

Article 11: INFORMATION FOR TREATMENT FACILITIES

108. This Article requires manufacturers to provide information to treatment facilities on the primary contents of electrical and electronic equipment placed on the market, including – in particular - the existence of any hazardous substances.

Summary of Article 11

- Producers to provide re-use and treatment information for new electrical and electronic equipment within one year of it being put on the market.
- Information to identify, as far as is needed, different components and materials in order to comply with the Directive as well as the location of dangerous substances.
- Information to be made available to refurbishment centres, treatment and recycling facilities.
- May be in the form of manuals or electronic media (e.g. CD-ROM or online).
- From 13 August 2005, producers must clearly mark products with brand and mark specifying that it was placed on the market after this date.
- European Commission to promote standards for brand and date markings.

Who is potentially affected?

- Producers
- Treatment facilities
- Re-use centres
- Reprocessors
- Social/voluntary sector

Estimated costs

The DTI's partial RIA estimates the total costs of the requirements to provide information to treatment facilities at around £7 million per annum from 2005.

What the article does not require:

- Full dismantling manuals for all products
- Disclosure of proprietary information
- Dismantling studies for all products
- Lists of every component

Options for UK implementation

109. At present, there is no requirement for producers of Electrical and Electronic Equipment (EEE) to provide treatment and recycling facilities with information relating to the composition, construction or disassembly of the end-of-life equipment.

110. Such information would not only assist treatment facilities to optimise the efficiency of their operations but would also identify potential hazards that operators should be made aware of.

111. The UK will need to put in place arrangements to ensure that treatment sites and reprocessors have access to the information they need.

Option 1

112. It would be possible to require producers, as a condition of registration (see Article 12), to agree to make available suitable information on new products as they are placed on the market. It is suggested that the information is placed on the producer's website where possible. Short leaflets would be an alternative, especially for SMEs. This requirement could be integrated with that for product marking.

113. This approach has the advantage that the information would be easy to update and equally available to all interested parties. There would be cost savings to producers by not requiring them to produce, distribute and update hard copies of manuals. Treatment facilities would only access information relevant to their operations and would not receive large numbers of manuals for products that they do not treat.

114. There are a number of potential difficulties with this approach. Not all businesses, especially smaller businesses, currently have a website. A further difficulty would be the dispersion of information across a large number of websites and the lack of a common format. Information for many products could reside on websites with no obvious connection to the equipment or brand in question. This approach would be time-consuming for treatment sites dealing with a wide range of equipment and brands. It would also be relatively burdensome for the regulatory body to confirm that adequate information had been made available.

Option 2

115. A refinement of option 1 would be to establish a single dedicated website on which all product information could be displayed in a common format. An administrator for the site would need to be identified and producers would need to be obliged to supply the necessary information to that administrator. This option might result in modest additional costs for producers mainly associated with presenting their information in a common format and financing the operation of the collective website. However, the existence of a single site should result in a better service and substantial savings for treatment sites and reprocessors.

Option 3

116. Potential option of introducing electronic tagging (i.e. bar-coding) on all new EEE, as currently being piloted in Finland. This could aid treatment

facilities with the knowledge for dismantling WEEE and identification of hazardous substances. Additionally the proposal could also be combined with other statistical requirements of the Directive, for example electronic tagging which would allow for more accurate cost allocation schemes and specialized treatment processes. It would be a single source of readily usable statistics and would consolidate varying information. (It could be combined with Option 2)

117. This option provides a wealth of accurate information with fewer inconsistencies and could easily be built upon. However, new technology would need to be developed, which may be costly and it would only start to work for new EEE put onto the market.

Option 4

118. The lightest regulatory touch would be a requirement for the relevant information to be provided on request within a set time frame. This might avoid the need to develop manuals or fact sheets for many common products where the dismantlers are very familiar with disassembly processes. The Government would need to be assured that such a system ensured compliance with the Directive.

Q:39 Which option do you favour and why?

Q:40 Do you have a website? If so, do you think that placing the information required by this article will be possible? What would be the costs?

Q:41 If there was to be a single website, do you have any views as to who should operate it, the cost of operating it and how these costs might be met (e.g. a flat fee, per product, etc)?

Article 12: INFORMATION & REPORTING

- 119. This places obligations on Member States to maintain registers of producers and to collect data on the quantities and categories of electrical and electronic equipment placed on the market. Also requires Member States to submit regular reports to the European Commission.**

Summary of Article 12

- Member States to keep a register of producers.
- Member States to provide annual information on:
 - quantity and category of electrical and electronic equipment put on the market.
 - by weight or numbers.
 - WEEE collected, reused, recycled and recovered, by weight or numbers.
 - WEEE exported, by weight or numbers.
- Substantiated estimates may be used
- Member States to ensure producers supplying by distance communication provide information for quantities and categories of electrical and electronic equipment put on the market of Member States where purchasers reside.
- Member States to send above information to European Commission bi-annually
- Format of Member States' reports to be decided
- Member States to provide for information exchange, particularly for treatment operations.

Who is potentially affected?

- Producers
- Retailers
- Refurbishment/Re-use centres
- Social/voluntary sector
- Local Authorities
- Regulators

Estimated costs

The DTI's partial RIA estimates the total costs of the requirements for information and reporting to be a maximum of around £12 million per annum from 2005.

What the article does not require:

- **Laborious tracking of each piece of equipment from collection to recycling or re-use.**
- **Tracking of every gram of material.**

Options for UK implementation

120. Whilst the precise content and format of the reports to be submitted to the European Commission have yet to be confirmed, it is clear that the UK will need to collect information on the producers of Electrical and Electronic Equipment (EEE), the quantity of various categories of EEE placed on the market and the fate of such equipment once it has entered the waste stream.
121. Producers of EEE do not currently need to register or provide a detailed periodic declaration of the types and quantities of EEE placed on the market.
122. Statutory record keeping or reporting requirements of one sort or another exist for some pathways for WEEE. However existing systems (e.g. Waste Transfer Notes) do not provide an accurate picture of the size of the various flows or the categories of WEEE to which they relate.
123. Consequently, the existing statutory requirements for records and returns are insufficient to meet the needs of this Article of the WEEE Directive
124. There is a requirement to collate a register of producers. The requirement to register with a regulatory body or nominated third party would probably need to be a statutory requirement backed by appropriate monitoring and sanctions. More flexible arrangements would carry a significant risk of “free-riders” and frustration of the aims of the Directive. Part of the registration process could be a requirement for producers to provide periodic reports to the regulatory body or an approved third party on the quantities and categories of EEE put on the market. [Such a register will be necessary for regulating the financing aspects of the Directive set out in Articles 8 and 9]
125. Information also needs to be collected from treatment sites and reprocessors in respect of WEEE reused, recovered or recycled. [This is a requirement under Article 7(3)]. Treatment facilities could be placed under a statutory obligation (perhaps as a condition of their permit or a general binding rule in the case of sites operating under a derogation) to supply the necessary information on the reuse, recovery or recycling of WEEE. Some industry protocols backed by robust sampling methodologies may need to be established where treated WEEE is recycled in a mixture with other waste types as described under Article 7.

Q:42 How do you think the registration system should operate, for example, would you favour an annual registration process or continuous registration with periodic submission of data?

Q:43 What sanctions should there be in respect of producers who fail to register on time or fail to supply accurate data?

Q:44 Do you favour an alternative approach for obtaining information on producers, their products and the fate of WEEE? If so, how would the information be obtained and what would be the cost implications of the alternative approach?

Q:45 How might reprocessing of UK WEEE overseas be monitored and verified?

Q:46 How should distance selling be dealt with?

Articles 13 & 14: ADAPTATION TO SCIENTIFIC AND TECHNICAL PROGRESS & COMMITTEE

126. These Articles enable changes to be made to some elements of the Directive after appropriate consultation procedures have been undertaken and outlines the formal mechanism by which the European Commission can establish a technical adaptation committee.

Summary of Articles 13 & 14

Process can examine and amend:

- Annex IB (particularly with a view to adding household luminaires, filament light bulbs and solar panels).
- Annex II (particularly to take into account new treatment technologies).
- Annex III (requirements for treatment facilities) and Annex IV (crossed out wheelie bin symbol).

European Commission must consult widely before amending Annexes.

Who is potentially affected?

All stakeholders, but particularly

- Producers
- Treatment facilities
- Refurbishment/Re-use centres
- Reprocessors
- Waste management industry
- Social/voluntary sector
- Local Authorities

What the article does **not** allow:

- Changes to the annexes without debate and consultation
- Changes outside the specified areas

Options for implementation:

127. The UK takes changes to the Directive and its Annexes very seriously. We are committed to ensuring that our implementing Regulations use a light regulatory touch, wherever possible and that we bear in mind the costs and benefits of the provisions of the Directive. We will engage with the European Commission and European institutions to ensure that due consideration is given to the feasibility and environmental benefits of all amendments. We will also consult with UK stakeholders on any proposals for future amendments to the Directive.

Article 15 & 16: PENALTIES & ENFORCEMENT

128. These Articles instructs Member States both to set appropriate penalties for breach of the Directive's requirements and to ensure that implementation of those requirements is subject to appropriate inspection and monitoring.

Summary of Articles 15 & 16

- Provides for Member States to set their own penalties
- Penalties to be effective, proportionate and dissuasive
- Inspection and monitoring to be carried out enabling verification of proper implementation

Who is potentially affected?

All stakeholders, but particularly

- Producers
- Treatment facilities
- Refurbishment/Re-use centres
- Reprocessors
- Waste management industry
- Social/voluntary sector
- Local Authorities

What the article does not require:

- Penalties for consumers who do not use separate collection systems

Options for implementation:

129. In order for the WEEE Directive to be successfully implemented in the UK, we need to have an effective enforcement regime with penalties that are severe enough to discourage obligated parties from shirking their responsibilities. The Directive could be implemented under section 2 (2) of the European Communities Act alone or combined with section 93 of the Environment Act. The maximum penalties are as follows - under section 2(2) of the European Communities Act 1972 on summary conviction a term of imprisonment of 3 months or a fine of up to £5,000. Where the offence is tried on indictment the maximum penalties are a term of imprisonment for two years and the fine is unlimited.

130. Under section 95 of the Environment Act the maximum penalty on summary conviction is a fine up to £5,000. Where the offence is tried on indictment the fine is unlimited.

131. The competent bodies for the enforcement of the UK implementation of the WEEE Directive will be the Environment Agency, as regards England and Wales, the Scottish Environment Protection Agency as regards Scotland and the Northern Ireland Environment and Heritage Service as regards Northern Ireland.

Articles 17 & 18: TRANSPOSITION AND ENTRY INTO FORCE

132. Article 17 sets the date by which Member States are required to have the necessary legislation in place. It also permits the use of voluntary agreements in place of Regulations for some of the Directive's requirements and says that the European Commission will compile a report on the overall effectiveness of the Directive after five years. Article 18 tells us that the Directive came into force on the day it was published in the Official Journal (13 February 2003).

Summary of Articles 17 & 18

- Member States are required to implement the WEEE Directive into national law by 13 August 2004.
- Voluntary agreements may be used instead of Regulations for the implementation of Article 6(6) on environmental management schemes; Article 10(1) on information for users and Article 11 on information for treatment facilities, subject to certain criteria.
- The European Commission is to submit a report on the effectiveness of the Directive to the Council and European Parliament 5 years after entry into force. The information in the report will be used to inform amendments to the Directive.

Who is potentially affected?

- **All stakeholders**

PART II

DIRECTIVE 2002/95/EC ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT – THE RoHS DIRECTIVE

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INTRODUCTION

The Directive on the Restriction of the use of certain Hazardous Substances (RoHS) will primarily affect the manufacturers of electrical and electronic equipment, but it will also have an impact upon those who import these goods into the European Union, those who export to other Member States, those who rebrand other manufacturers' equipment as their own and relevant parts of the manufacturing supply chain.

The Directive restricts the use of lead, mercury, cadmium, hexavalent chromium and certain brominated flame retardants (polybrominated biphenyls – PBBs - and polybrominated diphenyl ethers – PBDEs) in the manufacture of new electrical and electronic equipment from 1 July 2006. It contains a list of exemptions for some applications (where no current replacement for the restricted substance is available) and sets out a committee procedure for reviewing that list.

Current estimates of the costs of implementing this Directive in the UK, outlined in the partial Regulatory Impact Assessment, range from £55 million to £96 million per annum for capital and operating costs, and between £148 million to £500 million per annum for R&D costs. The vast majority of the latter costs relate to the banning of lead.

Article 1: OBJECTIVES

1. The purpose of the Directive is “to approximate the laws of the Member States on the restrictions of the use of hazardous substances in electrical and electronic equipment and contribute to the protection of human health and the environmentally sound recovery and disposal of waste electrical and electronic equipment”.
2. The Directive is an Article 95 “Single Market” Directive, which means that the over-arching aim is to avoid anything that may create barriers to trade and distort competition and, thereby, have an impact on the functioning of the single market within the European Community.
3. As a single market Directive it sets absolute criteria that should be met. Member States may not go beyond these requirements by, for example, banning additional substances. The RoHS Directive therefore differs from the WEEE Directive, which sets minimum standards that may be exceeded.

Article 2: SCOPE

4. The scope of the RoHS Directive is the same as Annex 1 of the Waste Electrical and Electronic Equipment (WEEE) Directive, with the exception of categories 8 (medical devices) and 9 (monitoring and control instruments), but it applies to all products regardless of whether they are intended for household or commercial use. In addition, the scope also covers electric light bulbs and household luminaries.
5. Article 2.3, however, states that the Directive does **not** apply to spare parts that are used for the repair or re-use of equipment put on the market before 1 July 2006.

Q:1 Concern has been expressed about the term “put on the market”. Does this mean equipment manufactured after 30 June 2006, all equipment leaving the manufacturer’s premises after this date or all equipment on sale to the final user after this date?

The Government would welcome your views on what you consider to be the most practicable and unambiguous interpretation. Our initial view is that it should apply to goods leaving the factory gate (or, where manufacture takes place outside the single market, on entry to the EU).

Q: 2 Concern has also been expressed about the application of Article 2.3. We believe that the exemption for spare parts applies only to equipment that has been “put on the market” on or before 30 June 2006, but would welcome views and comments if you believe that this interpretation may cause problems.

Article 3: DEFINITIONS

6. The Directive uses the same definitions for ‘electrical and electronic equipment’ and ‘producer’ as are used in the WEEE Directive, which is designed to create consistency and clarity for all upon whom the Directive has an impact.

Q:3 The scope of the RoHS Directive applies to an enormous range of electrical and electronic equipment. Do you believe the Directive’s definition of ‘electrical and electronic equipment’ is adequate for the UK Regulations? If not, what changes might be helpful?

Q:4 The definition for ‘producer’ covers the procurement of EEE from outside the European Community by telephone, fax and internet. Who might be held to be the ‘producer’, and thereby responsible for ensuring that the equipment does not contain the restricted substances, in these circumstances?

Article 4 : PREVENTION

7. The Directive instructs the UK to ensure that all new electrical and electronic equipment placed on the market from 1 July 2006 (within the scope outlined in Article 2) does not contain lead, mercury, cadmium, hexavalent chromium, PBBs and PBDEs. A number of exemptions are given in the Annex to the Directive, namely: -
 - Mercury in compact fluorescent lamps, not exceeding 5 mg per lamp
 - Mercury in straight fluorescent lamps for general purposes, not exceeding halophosphate (10mg), triphosphate with normal lifetime (5mg) and triphosphate with long lifetime (8mg)
 - Mercury in straight fluorescent lamps for special purposes
 - Mercury in lamps not specifically mentioned in the Annex
 - Lead in glass of cathode ray tubes, electronic components and fluorescent tubes
 - Lead as an alloying element in steel containing up to 0.35% lead by weight, aluminium containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight
 - Lead in high melting temperature type solders (i.e. tin-lead solder alloys containing more than 85% lead)
 - Lead in solders for servers, storage and storage array systems (until 2010)
 - Lead in solders for network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunication
 - Lead in electronic ceramic parts (e.g. piezoelectronic devices)
 - Cadmium plating, except for applications banned under the Directive relating to restrictions on the marketing and use of certain dangerous substances and preparations
 - Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.
8. Article 4.3 goes on to say that the European Commission will review the list of substances covered by the Directive in the light of new scientific evidence, (the procedures for undertaking this are outlined in Articles 5, 6 and 7).
9. Article 2.3 of the WEEE Directive (Scope) excludes electrical and electronic equipment that is intended specifically for military purposes. The UK believes that this exclusion should also apply to the scope of the RoHS Directive, although no explicit link to the RoHS Directive is made.

Q:5 Are the exemptions to the RoHS Directive both clear and practicable? If not, how would you frame them?

Q:6 The UK considers that products intended specifically for military purposes should be exempt from the Regulations implementing the Directive. We would welcome your views on this.

Articles 5, 6 and 7: REVIEW AND COMITOLGY PROVISIONS

10. Article 5 of the Directive is concerned with the potential amendment of the text in the light of scientific and technical progress through the establishment of a Committee set up under Article 7.
11. Article 5.1(a) charges the Committee with the establishment of maximum concentration values for each of the substances covered by the Directive, that is acceptable levels of those substances in “specific materials or components” of the products within the overall scope. At a first meeting of the Committee (15 January 2003), the European Commission proposed that the maximum concentration values for the RoHS Directive should be the same as those that have been agreed for the End of Life Vehicles (ELV) Directive. The ELV levels are 0.1% for lead, hexavalent chromium and mercury and 0.01% for cadmium. (Please note that these values are **not** agreed for the RoHS Directive, they are merely proposals at this stage. The ELV Directive also mentions that the specified levels are tolerated only if the substances have not been “intentionally introduced”, but the European Commission has not made any statements about such a qualification for the RoHS Directive at this stage).
12. Article 5.1(b) enables the Committee to exempt materials and components of electrical and electronic equipment from the requirements of the Directive if their elimination or substitution with other substances is technically or scientifically impracticable or would cause other undesirable impacts.
13. Article 5.1(c) instructs the Committee to undertake a review of all the exemptions in the Annex at least every four years with a view to considering the deletion of those where the exemption is no longer valid.
14. Article 5.2 commits the European Commission to consult with relevant stakeholders before any potential amendments to the text are implemented.
15. Article 6 instructs the European Commission to review the impact of the Directive before 13 February 2005 and, in particular, to present proposals for bringing categories 8 (medical devices) and 9 (monitoring and control instruments) of Annex 1 of the WEEE Directive within the scope. This does not mean that these two categories will come within the scope of the RoHS Directive at that time, but that their inclusion must be considered.
16. Article 7 is the formal means of establishing, what is known as, the Technical Adaptation Committee. A number of specified applications for its consideration are listed in the tenth paragraph of the Annex to the Directive, namely: -
 - Deca BDE
 - Mercury in straight fluorescent lamps for special purposes
 - Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications
 - Light bulbs.

17. Deca BDE is a substance used in the plastics and textile industries as one of the PBDE flame retardants. A risk assessment of its impact on the environment has already been completed and further environmental testing is currently underway. This should be completed by the end of April 2003. In view of the urgency in reaching a conclusion on whether risk management is necessary, a contract for a risk reduction strategy has already been let and should be completed in around six months. The UK believes that the European Commission should await the outcome of this work before any further consideration of its inclusion within the scope of the RoHS Directive is undertaken.

Q:7 Do you agree with the European Commission's initial proposals for the maximum concentration values? If not, can you suggest alternative values and support your views with relevant evidence?

Q:8 The proposals for the maximum concentration values apply to "specific materials and components". The Directive does not contain a definition for "components". The Government would welcome suggestions for a definition that is both clear and practicable.

Q:9 Do you believe there is a case for additional exemptions that might be considered under the Committee procedure outlined above? If so, what other exemptions would you wish to see brought forward for consideration and what are the environmental, technical or scientific reasons for them?

Q:10 Do you support the UK's view that a decision on the possible inclusion of Deca BDE should be delayed until the risk reduction strategy has been completed?

Q:11 Do you have any comments on the other specified applications listed in paragraph 10 of the Annex? If so, could you outline these and support your comments with any supporting evidence for them?

Q:12 Can you suggest maximum concentration levels for the flame retardants (PBBs and PBDEs)?

Article 8: PENALTIES

18. Article 8 instructs Member States to set appropriate penalties for the breach of any national legislation that implements the Directive's requirements.
19. The UK proposes to introduce the standard penalties for persons found to be in breach of the subsequent Regulations. On summary conviction, these are a term of imprisonment not exceeding three months and/or a fine of up to £5000. Where the offence is tried on indictment the maximum penalties are a term of imprisonment for two years and the fine is unlimited.
20. To establish compliance with the Directive, formal testing procedures will need to be established for each of the banned substances. Local authority

trading standards officers are likely to be the enforcement agency for the purposes of the RoHS Directive.

Q:13 To establish compliance with the Directive, formal testing procedures will need to be established for each of the banned substances. Which methods would you wish to see used and can you support your suggestions with evidence of their technical viability?

Articles 9 and 10: TRANSPOSITION AND ENTRY INTO FORCE

21. Article 9 requires Member States to bring the necessary laws and regulations into place before 13 August 2004.
22. Article 10 says that the Directive enters into force on the day of its publication in the Official Journal. This was 13 February 2003.

**SUMMARY OF QUESTIONS RELATED TO THE WEEE
DIRECTIVE**

Question 1 (Related to Article 2) - What criteria would you wish us to use bearing in mind the requirements laid out in the Directive? How might this be applied in practice?

Question 2 (Related to Article 2) - Do you manufacture or import electrical products, which you believe do not fall within the scope of the Directive? Please provide details of the products and your reasons.

Question 3 (Related to Article 2) - Do you agree with this approach? If not, what alternative would you suggest?

Question 4 (Related to Article 2) - Which products do you believe present particularly difficult problems and why? What criteria might be used to aid interpretation?

Question 5 (Related to Article 3) - Are there other definitions that you consider are not straightforward?

Question 6 (Related to Article 3) - What further definitions do you think would be helpful in facilitating UK implementation? Suggestions of preferred wording would be especially useful.

Question 7 (Related to Article 3) - The definition for 'producer' covers the procurement of EEE from outside the European Community by telephone, fax and internet. Who might be held to be the 'producer' when products are delivered directly to the consumer?

Question 8 (Related to Article 4) - Would a negotiated voluntary agreement or legislation be the best way for the Government to encourage the design of equipment for recycling and discourage designs that prevent reuse?

Question 9 (Related to Article 4) - Should industry standards be used to encourage design for recycling and discourage prevention of reuse? Government endorsed?

Question 10 (Related to Article 4) - Should the voluntary agreement/legislation on product design be generic, or specific to categories or sectors of EEE?

Question 11 (Related to Article 4) - How should compliance with the product design provisions be monitored?

Question 12 (related to Article 4) - How should the Government fulfil the requirement to ensure that manufacturers do not prevent WEEE from being reused through design features or specific processes?

Question 13 (Related to Article 5) - What would be the best approach to meeting the retailer take-back obligations?

Question 14 (Related to Article 5) - Should collection obligations be placed on anyone else? If you believe that an option should not be given further consideration, please give your reasons.

Question 15 (Related to Article 5) - Which mechanism do you favour for meeting the collection obligations and why? Please give an estimate of the costs if possible.

Question 16 (Related to Article 5) - How should WEEE be collected to encourage reuse?

Question 17 (Related to Article 6) - Which permitting option do you prefer and why? Are there other alternatives? What are the cost and benefits to you of the proposed options?

Question 18 (related to Article 6) - How feasible do you think the treatment operations set out in the Directive are?

Question 19 (related to Article 6) - Should standards be agreed for these processes? If so, who should set them? The British Standards Institute, The European Standards Organisations or through UK Regulations?

Question 20 (related to Article 6) - Do you believe it is necessary to remove the required items prior to shredding or as part of that process? Why? What would be the benefits and costs?

Question 21 (Related to Article 7) - Can you suggest an alternative to the protocols based approach for monitoring the UK's progress and compliance with the recovery and recycling targets?

Question 22 (Related to Article 7) - Do you have any ideas on how to develop recovery and recycling protocols for WEEE?

Question 23 (Related to Article 7) - If a protocol based approach were to be implemented for the recovery and recycling targets, how often should the protocols be reviewed?

Question 24 (related to Article 7) - Do you have an alternative suggestion to using evidence notes of some form to prove that recovery/recycling has taken place?

Question 25 (Related to Article 7) - How should component reuse be measured?

Question 26 (related to Article 7) - How should we measure whole appliance reuse in the future?

Question 27 (Related to Article 8) - The Directive allows the UK scope to introduce a 'visible fee' to be paid by consumers of new products to finance the waste from old products for 8-10 years.

Do you think the UK should introduce such a 'visible fee'? If so,

- **who should set the fee?**
- **at what level should the fee be set?**
- **on what products?**
- **who should administer and distribute the funds from the fee?**

Question 28 (Related to Article 8) - The Directive says that producers should provide a 'guarantee' to cover the costs of waste from products they put on the market after 13 August 2005. What form do you think this guarantee should take?

Question 29 (Related to Article 8) - Should the UK allow more than one type of guarantee to exist?

Question 30 (Related to Article 8) - Who should enforce the system of guarantees to ensure that there are no 'free-riders' and 'orphan' products?

Question 31 (Related to Article 8) - What is your preferred method for financing the costs of the WEEE Directive in the UK? Why do you prefer this method? What are the costs and benefits?

Question 32 (Related to Article 8) - How should the UK finance the costs of the WEEE Directive to ensure that the environmental benefits are maximised:

- at least cost to the UK?
- with least impact on UK competitiveness?
- in the most equitable manner?
- with minimal administrative complexity?

Question 33 (Related to Article 9) - How do you think Article 9 should be implemented to ensure that the environmental benefits are maximised in the most cost effective manner to the UK?

Question 34 (Related to Article 9) - Do you think business users of EEE who dispose of their equipment without replacing it should be responsible for financing the treatment and recovery of this WEEE? If not, who should finance these costs?

Question 35 (Related to Article 10) - Who should be responsible for providing end-users with the information in Article 10, and why?

Question 36 (Related to Article 10) - What action or sanction do you think would be appropriate in the case of an inadequate strategy or failing to act on an approved strategy?

Question 37 (Related to Article 10) - Do you consider that the requirements of Article 10 (other than product marking) could be met in a more collective way? If so, how might such a system operate, how would it be funded and how might compliance be monitored and assessed?

Question 38 (Related to Article 10) - Do you consider that there will be any difficulties in achieving the marking requirement for the products? Please explain in detail those difficulties you envisage.

Question 39 (Related to Article 11) - Which option do you favour and why?

Question 40 (Related to Article 11) - Do you have a website? If so, do you think that placing the information required by this article will be possible? What would be the costs?

Question 41 (Related to Article 11) - If there was to be a single website providing information for treatment facilities, do you have any views as to who should operate it, the cost of operating it and how these costs might be met (e.g. a flat fee, per product, etc)?

Question 42 (Related to Article 12) - How do you think the producer registration system should operate, for example, would you favour an annual registration process (as under the Packaging Regulations) or continuous registration with periodic submission of data?

Question 43 (Related to Article 12) - What sanctions should there be in respect of producers who fail to register on time or fail to supply accurate data?

Question 44 (Related to Article 12) - Do you favour an alternative approach for obtaining information on producers, their products and the fate of WEEE? If so, how would the information be obtained and what would be the cost implications of the alternative approach?

Question 45 (Related to Article 12) - How might reprocessing of UK WEEE overseas be monitored and verified?

Question 46 (Related to Article 12) - How should distance selling be dealt with?

Question 47 (Related to the partial RIAs) – Do you agree with the estimates for the potential benefits and costs outlined? If not please provide your own estimates with supporting data wherever possible.

SUMMARY OF QUESTIONS RELATED TO THE RoHS DIRECTIVE

Question 1 (Related to Article 2) – Concern has been expressed about the term “put on the market”. Does this mean equipment manufactured after 30 June 2006, all equipment leaving the manufacturer’s premises after this date or all equipment on sale to the final user after this date? The Government would welcome your views on what you consider to be the most practicable and unambiguous interpretation. Our initial view is that it should apply to goods leaving the factory gate (or, where manufacture takes place outside the single market, on entry to the EU).

Question 2 (Related to Article 2) – Concern has also been expressed about the application of Article 2.3. We believe that the exemption for spare parts applies only to equipment that has been sold to the end user on or before 30 June 2006, but would welcome views and comments if you believe that this interpretation may cause problems.

Question 3 (Related to Article 3) – The scope of the RoHS Directive applies to an enormous range of electrical and electronic equipment. Do you believe the Directive’s definition of ‘electrical and electronic equipment’ is adequate? If not, what changes would you wish to see?

Question 4 (Related to Article 3) – The definition for ‘producer’ covers the procurement of EEE from outside the European Community by telephone, fax and internet. Who should be held to be the ‘producer’, and thereby responsible for ensuring that the equipment does not contain the restricted substances, in these circumstances?

Question 5 (Related to Article 4) – Are the exemptions to the RoHS Directive both clear and practicable? If not, how would you frame them?

Question 6 (Related to Article 4) – The UK considers that products intended specifically for military purposes should be exempt from the Regulations implementing the Directive. We would welcome your views on this.

Question 7 (Related to Article 5) – Do you agree with the European Commission’s initial proposals for the maximum concentration values? If not, can you suggest alternative values and support your views with relevant evidence?

Question 8 (Related to Article 5) – The proposals for the maximum concentration values apply to “specific materials and components”. The Directive does not contain a definition for “components”. The Government would welcome suggestions for a definition that is both clear and practicable.

Question 9 (Related to Article 5) – Do you believe there is a case for additional exemptions that might be considered under the Committee procedure outlined above? If so, what other exemptions would you wish to see brought forward for consideration and what are the environmental, technical or scientific reasons for them?

Question 10 (Related to Article 7) Do you support the UK's view that a decision on the possible inclusion of Deca BDE should be delayed until the risk reduction strategy has been completed?

Question 11 (Related to Article 7) – Do you have any comments on the other specified applications listed in paragraph 10 of the Annex? If so, could you outline these and support your comments with any supporting evidence for them?

Question 12 (related to Article 7) – Can you suggest maximum concentration levels for the flame retardants (PBBs and PBDEs)?

Question 13 (Related to Article 8) – To establish compliance with the Directive, formal testing procedures will need to be established for each of the banned substances. Which methods would you wish to see used and can you support your suggestions with evidence of their technical viability?

MAIN REQUIREMENTS OF THE DIRECTIVES

WEEE

Product design

- Product designs should take into account and facilitate dismantling, recovery and recycling.
- Manufacturers should not “design out” re-use, unless there are over-riding reasons (safety or environmental).

Collection

- Free takeback of WEEE from private households, including retailer takeback
- A collection target for household WEEE of 4 kg per head of population per annum to be achieved by 31 December 2006.

Treatment

- Removal of all fluids and certain substances (e.g. lead, mercury) and components that contain them
- To be carried out by permitted operators
- Premises must have adequate storage facilities (i.e. weatherproof and with impermeable floors etc) for removed substances and components
- Possible derogation from permitting for small businesses (still subject to inspection though).

Recovery

- Setting of minimum recovery and recycling targets according to product category
- Targets divided into overall recovery element, of which a certain amount must be achieved through recycling, component or substance re-use (as opposed to, for example, incineration with energy recovery).
- Targets range from 50% - 80%
- Targets to be reached by 31 December 2006.

Financing

- Producers to pay for collection (from a central point), treatment and recovery/recycling of household WEEE from 13 August 2005
- Producers must provide a guarantee that waste will be managed for products they place on the market after 13 August 2005.
- Products put on the market before 13 August 2005 are to be financed proportionally by producers, through collective schemes.
- All costs arising from business to business WEEE to be dealt with by producers, although Member States have the option of making users partly or wholly responsible for these costs.
- Costs may be shown to consumers for up to 8-10 years from 13 August 2005.

Information

- Member States to draw up register of producers of electrical and electronic equipment.
- Separate collection symbol (crossed out wheelee bin) to appear on all products from 13 August 2005.
- Users to be told of their role in contributing to the collection of WEEE, what collection/return facilities are available etc.
- Users to be told of the health and environmental hazards from hazardous substances used in electrical and electronic equipment.
- Treatment facilities to be given appropriate information to identify components, materials and the location of hazardous substances in products.
- Member States to record amount of goods on market and levels of recycling achieved.

ROHS

- Requires substitution of lead, mercury, cadmium, hexavalent chromium, PBB and PBDE flame retardants
- Comes into effect 1 July 2006
- Some uses for which substitution is not currently possible or is impractical are exempted
- Regular review of exemptions

PARTIAL REGULATORY IMPACT ASSESSMENT (RIA) ON DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON WASTE FROM ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE DIRECTIVE)

Background

1. This partial RIA discusses the potential costs and benefits to UK businesses, charities and the voluntary sector of Directive 2002/96/EC of the European Parliament and of the Council on Waste from Electrical and Electronic Equipment (WEEE).

Issue and Objective

2. Economic growth and technological developments have accelerated the production and use of Electrical and Electronic Equipment (EEE), and the rate at which EEE is replaced. Waste from EEE is a priority waste stream of the European Commission because it is growing faster than other forms of waste and can contain certain hazardous substances.

3. The main aim of the WEEE Directive is the prevention of WEEE and the reuse, recycling and recovery of WEEE so as to reduce the disposal of this type of waste. The Directive also seeks to improve the environmental performance of all operators involved in the life cycle of EEE and in particular, operators directly involved in the treatment and disposal of WEEE

Risk Assessment

4. The main risks from WEEE result from its current means of disposal. WEEE disposed of untreated either via landfill or incineration can have a potentially hazardous impact on the environment and on human health. In addition, disposal of WEEE in landfill or via incineration can lead to the loss of resources which could otherwise have been recycled. The risks of harm to the environment and human health from the disposal of WEEE specifically, and the risks to resource productivity from the loss of potentially recyclable resources in WEEE are extremely difficult to quantify, but do exist.

Options

5. The UK has a range of options by which it could implement the WEEE Directive. These principally relate to the methods through which WEEE can be separately collected from other forms of waste, and how the costs of the Directive are financed. There are also options in terms of the means through which the treatment and recovery of WEEE is achieved, and by what means the information and reporting requirements are met. Options are discussed below where they relate to the specific Articles of the Directive.

Issues of Equity and Fairness

6. The environmental benefits of the WEEE Directive are expected to fall broadly equally across different economic and social classes and across different geographical regions in the UK. There may be some more specific local benefits in areas, for example, which have relatively high landfill, and greater benefit to members of society who could be more prone to any potential adverse effects from the current disposal methods for WEEE.

7. Producers of EEE are likely to bear the majority of the costs of treating and recovering WEEE. Distributors of EEE and business users of EEE are likely to bear costs in relation to the free take-back of WEEE. Local Authorities *may* bear some costs as a result of the increased separate collection of WEEE, but they will benefit from avoiding the costs associated with the current landfilling or incineration of this WEEE.

8. In as far as the costs borne by producers and/or distributors are passed on to consumers of EEE they will also bear some costs. The European Commission estimates that the WEEE Directive will result in average price increases of 1 per cent for most EEE products, and 2-3 per cent for some products, such as refrigerators and televisions.

Identifying the Benefits

9. The WEEE Directive will contribute to the Government's sustainable development objectives, and to its objectives on waste as set out in the various *Waste Strategies*.²

10. These benefits will include reductions in the amount of landfill, which is consistent with the Government's waste objectives and with the aims of the Landfill Directive. They will also include improvements to air quality and water quality, contributions to reductions in disamenity, contributions to resource productivity, and positive impacts in terms of raising awareness amongst businesses and consumers in relation to waste more generally.

Quantifying and Valuing the Benefits

11. In terms of landfill avoided, the WEEE Directive could lead to around 133,000 tonnes to 339,000 tonnes of landfill being avoided per annum in the UK. These benefits represent the savings in resources used to landfill and the externalities from landfill reflected in the Landfill Tax. These benefits are estimated to be in the range

² *Waste Strategy 2000*, Part 1 and Part 2, Cm 4693-1, Cm 4693-2; *National Waste Strategy: Scotland*, ISBN 1-901322-13-2; *Northern Ireland Waste Management Strategy*, March 2000, ISBN 0-37-08386-X.

of £2 million to £13 million in 2006.³ However, these estimates of benefit are indicative only given that they depend on changes to gate fees and the landfill tax in the future.

12. In 1999, the DTI commissioned Ecobalance UK to undertake an assessment of the potential costs and benefits pertaining to the 2nd draft of the WEEE Directive. In 2002, the DTI asked PriceWaterhouseCoopers (PWC) to update this report in the light of the Common Position text of the Directive. Table 1 below presents results for the total volume of WEEE considered in the PWC report.⁴ The majority of the indicators show that the WEEE Directive is expected to have a significant positive impact on the environment compared to the environmental impacts from the current methods of disposal in the UK. The actual level of benefits achieved will depend on the eventual volume of WEEE separately collected via UK implementation of the Directive.

Table 1: Total WEEE Environmental Impact compared to current UK situation

Outputs/impacts	Unit	Current UK	WEEE directive	Current UK	WEEE Directive
Waste (hazardous)	Kg	3.96E+07	4.52E+07	100%	114%
Waste (total)	Kg	2.40E+08	1.53E+08	100%	64%
E Total Primary Energy	MJ	4.83E+09	2.85E+09	100%	59%
CML-Air Acidification	G eq. H+	8.73E+07	4.46E+07	100%	51%
CML-Eutrophication (water)	G eq. PO4	2.46E+06	3.37E+06	100%	137%
CVCH-Air	m3	1.26E+14	6.01E+13	100%	48%
CVCH-Water	Litre	1.30E+10	1.37E+10	100%	106%
EB(R*Y)-Depletion of non renewable resources	yr-1	2.83E+08	3.52E+06	100%	1%
IPCC-Greenhouse effect (direct, 20 years)	kg eq. CO2	4.39E+09	3.80E+08	100%	9%
WMO-Depletion of the ozone layer (high)	G eq. CFC-11	6.45E+08	2.33E+07	100%	4%

13. In terms of additional benefits relating to reductions in disamenity, through for example, less fly-tipping, and benefits from helping to raise awareness of waste in general, the WEEE Directive should make a positive contribution, but valuing these benefits is not straightforward.

Business Sectors Affected

14. Given the wide-ranging nature of the WEEE Directive there is some uncertainty as to how many businesses will be affected, both directly and indirectly, by the requirements of the Directive. However, the range of business sectors likely to be affected will include:

- EEE Producers (Manufacturers) – including importers and exporters;
- EEE Distributors (Retailers and wholesalers);
- Dismantlers who deal with WEEE;
- Secondary metal merchants who deal with WEEE;
- Shredders who deal with WEEE;

³ Calculated as an estimate of the range of gate fees in 2006 (where it is estimated that currently landfill costs in the UK range between £20-£40 per tonne) plus the externality element of the Landfill Tax in 2006 multiplied by the estimated range of tonnages avoided.

⁴ This report is available at the DTI website: www.dti.gov.uk/sustainability/weee/index.htm

- Recyclers who deal with WEEE;
- Reprocessors who deal with materials from WEEE
- Landfill operators

15. It is difficult at this stage to estimate the exact number of businesses that will be affected by the WEEE Directive. But using data from the SIC 92 index, over 100,000 businesses could be affected because they either manufacture or import or export EEE, distribute EEE on a commercial basis, or deal with WEEE. In addition Charities and Voluntary Organisations who are involved with WEEE will also be affected.

Total Compliance Costs

Article 4: Product Design

16. It is difficult at this stage to estimate accurately the potential costs of this Article. Views are sought on potential costs.

Article 5: Separate Collection

17. Data on both the arisings of WEEE and the amount of WEEE collected in the UK is generally rather sketchy. It is confined to two separate reports – ICER and E-SCOPE.⁵ Both the ICER and E-SCOPE figures suggest that the UK is currently exceeding the minimum separate collection target of 4kg per inhabitant required under the Directive.

18. The current UK situation for separate collection of household WEEE consists mainly of collection of large household appliances (white goods) by: Local Authorities as ‘bulky waste’ collected on demand; retailer takeback of old for new appliances during home delivery; delivery to Civic Amenity sites by final holders themselves; and collection by charities and voluntary organisations (VOs) following donation by the final holder.

19. These collection routes cater for virtually all household white goods discarded (such as refrigerators, washing machines, and cookers), some brown goods (such as televisions) and some ICT (Information and Communications Technology) equipment (such as PCs). For Business-to-Business WEEE it is likely that the main collection routes are through business collection of old equipment on delivery of new equipment (via the manufacturer or a third party), via contracts with waste management companies, and disposal via charities and VOs.

20. In implementing Article 5 the UK has a range of options for the separate collection of WEEE. The main options are: Kerbside collection by Local Authorities or a third-party (whether scheduled or on-demand); Bring systems – return by the last holder to Civic Amenity sites and/or to separate bins at various locations; and Retailer takeback either in-store or via alternative arrangements.

⁵ See References.

21. It is important in assessing the potential costs of the Directive to the UK to distinguish between the current total costs for the separate collection of WEEE and the additional costs of separate collection that are a consequence of the Directive itself.

(a) White goods

22. Indicative estimates derived from work undertaken by the DTI and PriceWaterhouseCoopers suggest that it may cost around £172 per tonne for Local Authorities to collect-on-demand large household appliances. Retailer take-back on delivery is estimated to cost around £162 per tonne. Estimates for the costs of separate collection by charities are around £75 per tonne. These estimates are assumed to rise in line with estimates of general inflation to 2006.

23. Estimates suggest that WEEE arisings are increasing by 3-5 per cent per annum across Europe.⁶ Based on 4 per cent growth, and the ICER estimates, UK arisings of white goods in 2006 will be around 536,000 tonnes. Based on these figures the cost of the separate collection of 88 per cent of this, or 472,000 tonnes of large household appliances, in the UK in 2006 can be estimated at around £77.5 million per annum.⁷ It is assumed in this partial RIA that the current collection routes for large household appliances will continue after the Directive is implemented because this infrastructure is in place and is well established. This leaves the question of any additional volumes that will be separately collected following the implementation of the Directive.

24. ICER estimates for 1998 suggest that some 12 per cent of large household appliances that arose as waste were unaccounted for. Given that the Directive is likely to increase the awareness of WEEE amongst consumers we can assume that this unaccounted for tonnage is bought back into the waste stream following the introduction of the Directive.

25. Based on the growth estimate to 2006 this will give a figure for the additional separate collection of white goods arising of 64,000 tonnes. If this additional WEEE was collected in the same manner as the current collection of large household appliances this would lead to an additional separate collection cost of some £11.6 million per annum.

(b) Non-white goods

26. For WEEE which is not large household appliances ('Non-white goods'), current estimates suggest that relatively little of these waste arisings enter recycling processes and this implies that the vast majority of this type of waste is not separately collected. Of arisings in 1998 of 523,000 tonnes for 'non-white' WEEE estimated by ICER, 102,745 tonnes (some 20 per cent) were estimated as entering recycling processes.

⁶ AEA Report. See References.

⁷ Using the 1998 ICER estimate of 345,000 tonnes, and increasing this by 4 per cent per year; 74 per cent of the total is estimated to be collected by Local Authorities at a base cost of £172 per tonne, 20 per cent is estimated to be collected by retailers at £162 per tonne, and 6 per cent is estimated to be collected by charities at £75 per tonne.

27. Little information is available on how this type of WEEE which is recycled is actually separately collected. Based on information for large appliances we can assume that retailers collect 20 per cent of 'non-white' WEEE as well (given that it includes such items as televisions). If we assume that charities collect the same proportion of 'non-white' as 'white' WEEE then this would mean they collect 6 per cent of non-white WEEE. This leaves the remaining 74 per cent. It is unlikely that Local Authority collection on demand is responsible for much of this WEEE. We thus assume that it enters recycling processes by largely being delivered to civic amenity sites by final holders.

28. Assuming growth of WEEE of 4 per cent per annum, 'non white' WEEE can be estimated to be 716,000 tonnes in 2006. Using the collection routes outlined above gives an estimate for the separate collection of almost 20 per cent of this 'non-white' WEEE in 2006 of £17.8 million.⁸

29. To obtain the additional costs resulting from the Directive, this partial RIA considers four alternative scenarios, two of which are based on the experience from the Netherlands following the introduction of the NVMP scheme.

Scenario A: UK separate collection increases to same rate as in NVMP

30. In the Netherlands the NVMP scheme was established in 1998 to increase the collection and recycling of WEEE. A separate scheme was also set-up to deal with ICT equipment. One estimate for the additional collection costs for 'non-white' WEEE in the UK can be obtained by assuming that the level of separate collection currently achieved in the Netherlands will also be achieved in the UK once the WEEE Directive is implemented. This would give separate collection rates of 20 per cent for small households WEEE, 58 per cent for brown goods and 55 per cent for ICT equipment.

31. In total this would give an estimate for 'non-white' WEEE separately collected under the Directive of 259,000 tonnes in 2006 compared to the base case estimate of 141,000 tonnes in 2006 (based on current estimates of waste that enters recycling processes) - additional separate collection of 118,000 tonnes.

32. The DTI established with PWC three alternative collection routes for how the total 'non-white' WEEE could be separately collected once the Directive is implemented. These are where the majority of 'Non-white' WEEE is either delivered to Civic Amenity sites by final holders; or collected by Local Authorities or a third party by a scheduled kerbside system; or delivered to a retailer through in-store takeback.

33. Based on current cost estimates of £106 per tonne for Civic Amenity sites, £147 per tonne for scheduled kerbside collection, £162 per tonne for retailer collection on delivery, and £232 per tonne for retailer in-store take-back, these three alternative

⁸ The 137,000 tonnes are assumed to be collected in the following proportions: 20 per cent of this is estimated to be collected by retailers on delivery at a base cost of £162 per tonne, 74 per cent is estimated as being collected via civic amenity sites at £106 per tonne, and 6 per cent is estimated to be collected by charities at £75 per tonne.

routes imply total costs for the separate collection of total 'non-white' WEEE under the WEEE Directive of: Route I (Civic Amenity sites): £31.9 million; Route ii (kerbside collection): £38.9 million; and Route iii (retailer in-store takeback): £49.6 million. These total costs imply additional costs for the separate collection of 'non-white' WEEE in the range of £14.1 million to £31.8 million in 2006.

Scenario B: UK separate collection increases by same proportion as in NVMP

34. Figures from the NVMP and ICT schemes suggest that from 1999 to 2000 percentage increase in separate collection for a range of WEEE arisings were as follows: 'Small' WEEE – 1000 per cent increase; Brown goods – 49 per cent increase; ICT equipment – 120 per cent increase.⁹

35. Using ICER estimates extrapolated to 2006 for arisings of different categories of WEEE and applying the Dutch experience to this gives the following estimates for increases in the separate collection of 'non-white' WEEE:

- Small household WEEE – estimates suggest that around 1 per cent of these arisings enter recycling processes in the UK. Increasing this in line with Dutch experience would lead to 10 per cent separate collection in 2006 – an increase of 10,500 tonnes over the base case situation in 2006.
- Brown goods – estimates suggest that some 4.5 per cent of these arisings enter recycling processes in the UK. Increasing this in line with Dutch experience would lead to almost 7 per cent separate collection in 2006 - an increase of 2,400 tonnes over the base case situation in 2006.
- ICT equipment – estimates suggest that around 41 per cent of ICT equipment enters recycling processes in the UK.¹⁰ Increasing this by the Dutch experience would lead to 90 per cent of ICT arisings being separate collected – an increase of 157,000 tonnes over the base case situation in 2006.

36. In total this would give an estimate for additional separate collection of 'Non-white' WEEE of 170,000 tonnes. Using this figure and the three collection routes outlined above gives an estimate for the costs of separate collection for 'non-white' WEEE of: Route i: £39.1 million; Route ii: £45.5 million; Route iii: £57.9 million. These total costs imply additional costs for the separate collection of 'non-white' WEEE in the range of £21.3 million - £40.1 million in 2006.¹¹

⁹ After the introduction of the Decree in Holland, the separate collection of small household WEEE (e.g. kettles, electric shavers) rose from 2 per cent to 20 per cent of arisings. Separate collection of brown goods rose from 39 per cent to 58 per cent. For ICT equipment, separate collection rose from 25 per cent to 55 per cent.

¹⁰ This estimate excludes Local Area Network hardware (LAN).

¹¹ For the estimated 138,000 tonnes the three scenarios for separate collection are:
Scenario 1 – Civic amenity bring system 75 per cent, retailer collection on delivery 19 per cent, collection by charities 6 per cent;
Scenario 2 – Local Authority scheduled kerbside collection 75 per cent, retailer collection on delivery 19 per cent, collection by charities 6 per cent;
Scenario 3 - retailer in store takeback 56 per cent, retailer collection on delivery 19 per cent, civic amenity bring system 19 per cent. These scenarios are mutually exclusive and intended to give a range for possible costs.

Scenario C: 100 per cent separate collection for large 'non-white' WEEE, 10 per cent for small WEEE¹²

37. One of the aims of the WEEE Directive is to encourage the separate collection of WEEE so that is not disposed of with Municipal Solid Waste (MSW). One assumption is thus that all brown goods and all ICT equipment may be separately collected from MSW once the Directive is implemented. However, it is likely that the majority of small electrical items (such as electric shavers) may still be disposed of with MSW even after the Directive comes into force. An assumption that initially 10 per cent of this type of WEEE is separately collected may not be unreasonable.

38. Using these figures gives an estimate for additional tonnes of 'non-white' WEEE that will be separately collected under the Directive in 2006 of 294,000 tonnes. Using this figure and the three collection routes outlined above gives an estimated for the costs of separate collection for 'non-white' WEEE of: Route i: £53.8 million; Route ii: £64.9 million; Route iii: £82.7 million. These total costs imply additional costs for the separate collection of 'non-white' WEEE in the range of £36 million to £64.9 million in 2006.

Scenario D: 100 per cent separate collection for all WEEE

39. Based on extrapolation of estimates of current UK arisings this would mean that in 2006 all 1,252,000 tonnes of WEEE arising in the UK would need to be separately collected. Using this figure gives an estimate for additional tonnes of 'non-white' WEEE that will be separately collected under the Directive in 2006 of 400,000 tonnes. Based on the three collection routes outlined above gives an estimated for the costs of separate collection for 'non-white' WEEE of: Route i: £65.9 million; Route ii: £81.9 million; and Route iii: £104.4 million. These total costs imply additional costs for the separate collection of 'non-white' WEEE in the range of £48.1 million to £86.6 million in 2006.

Total goods

40. The upshot of all this is that the DTI's current best estimate is that the introduction of the Directive will lead to a range of additional costs for the separate collection of WEEE in the region of:

- £11.6 million per annum from 2006 for white goods, plus *one* of the following scenarios:
- £14.1-£31.8 million in 2006 for non-white goods under Scenario A; or
- £21.3-£40.1 million in 2006 for non-white goods under Scenario B; or
- £36-£64.9 million in 2006 for non-white goods under Scenario C; or
- £48.1-£86.6 million in 2006 for non-white goods under Scenario D.

¹² Large WEEE is defined here as all WEEE that cannot be disposed of in dustbins, black bags and wheelie bins with MSW. It includes brown goods, such as TVs, and ICT equipment, such as PCs.

Article 6: Treatment

41. Information from industry suggests that very little WEEE in the UK is treated at present, with the general exception of fridges, which are treated in accordance with separate ODS (Ozone Depleting Substances) Regulations.¹³

42. Labour costs are likely to provide the vast majority of the variable cost element for treating WEEE given that draining, dismantling and separating equipment will be largely a manual exercise. These costs are likely to vary considerably between different EEE products. It is possible that through learning these costs could fall over time.

43. One industry estimate is that currently it would cost £250 - £300 to dismantle and treat one tonne of PCs to the requirements of the Directive. Based on average weight estimates of 20 kg for a PC this is equivalent to a current cost estimate of £5 - £6 to dismantle an individual PC.¹⁴ ICER estimates are that, excluding Local Area Networks (LANs), 30 per cent of ICT equipment discarded by weight is PCs. Of the remaining ICT, estimates for the average weight of this are that it weighs at least twice that of a PC. We assume that it takes half the time to dismantle this equipment as a PC, given that most PCs have CRTs (Cathode Ray Tubes).

44. For brown goods, estimates from ICER that some 66 per cent of arisings by weight are televisions. A TV weighs on average around 26 kg. It is likely that dismantling would take less time than a PC because PCs have more components than TVs. A figure of half the time for a PC may not be unreasonable. For white goods, a weighted average gives around 47 kg per appliance. We can assume that these take half the time to dismantle and treat as a PC (because they have no CRTs and little glass in general). For small household appliances, estimates from ICER suggest that the average weight of this equipment is around 2kg. We can assume that given their size these items take on average one-quarter of the time taken to dismantle and treat a PC.

45. The above figures enable us to estimate the costs of dismantling and treating WEEE under our four different scenarios.

Scenario A: UK separate collection increases to same rate as in NVMP

46. Under this scenario the following tonnes of WEEE are assumed to be separately collected in 2006:

- 536,500 tonnes of white goods
- 57,000 tonnes of brown goods
- 23,500 tonnes of small households goods
- 178,500 tonnes of ICT equipment

¹³ Treatment requirements under ODS regulations are considered a cost of these regulations and not of the WEEE Directive.

¹⁴ This is approximately equivalent to 20 to 25 minutes of labour based on estimates of current average labour costs – estimated as average wages plus 30 per cent of average wages to reflect non-wage costs..

47. Based on these figures the following cost estimates for dismantling and treatment can be obtained:

- ICT equipment: 30 per cent of this discarded by weight is PCs. This gives a weight of 53,500 tonnes, which is equivalent to approximately 2.7 million units of PCs. Industry estimates are that 20 per cent of PCs are refurbished. If the remaining 80 per cent are recycled under the Directive, multiplying this figure by the cost of the time taken to dismantle and treat a PC, gives a cost of £12.8 million - £15.3 million in 2006. The remaining ICT is 125,000 tonnes. Assuming that the average weight for this ICT is 50 kg, this gives 2.5 million units. If we assume that these units take as half as long to dismantle as a PC, total costs will be in the range of £7.5 million - £8.9 million in 2006.
- Brown goods: 66 per cent of arisings by weight are estimated to be televisions. This gives around 1.45 million units. If it takes on average twelve minutes to dismantle and treat a TV, the costs will be in the range of £3.3 million - £3.9 million in 2006. The remaining brown goods represent 19,400 tonnes. This gives 3.9 million units. If we assume these units take half the time of a PC to dismantle and treat then these costs will be £11.6 million - £13.9 million in 2006.
- White goods: refrigerators and freezers represent 30 per cent of white goods arisings by weight. In 2006 this will be equivalent to 161,000 tonnes. Given a weighted average of 42 kg per unit, this gives 3.9 million units of which 2.8 million will be refrigerators.¹⁵ Excluding fridges and freezers gives 376,000 tonnes, at a weighted average of 50 kg gives 7.5 million units. If we assume it takes half the time to dismantle and treat these as a PC (because they have no CRTs and relatively little glass in general), costs will range from £22.4 million - £26.9 million in 2006.
- Small households goods: the average weight of these equipments is estimated at around 2 kg. For the estimated 23,500 tonnes, this gives 11.8 million units. If we assume it takes one-quarter the time to dismantle and treat these as a PC, costs will be in the range of £11.7 million - £14.0 million in 2006.

48. The above leads to an estimate for the costs of dismantling and treating WEEE under scenario A in the range of £104.1 million to £118 million in 2006.

Scenario B: UK separate collection increases by same proportion as in NVMP

49. Under this scenario and based on the same methodology as for scenario A, estimates for the costs of dismantling and treating WEEE under scenario B are in the range of £98 million - £110.7 million in 2006.

¹⁵ If removing the hydrocarbons and hydrofluorocarbons from these fridges required under the Directive cost the same as the recent ODS regulation for CFCs this would cost around £35 million per annum.

Scenario C: 100 per cent separate collection for large 'non-white' WEEE, 10 per cent for small WEEE

50. Under this scenario and based on the same methodology as for scenario A, estimates for the costs of dismantling and treating WEEE under scenario C are in the range of £125.6 million - £143.7 million in 2006.

Scenario D: 100 per cent separate collection for all WEEE

51. Under this scenario and based on the same methodology as for scenario A, estimates for the costs of dismantling and treating WEEE under scenario C are in the range of £178 million - £206.9 million in 2006.

52. In total then, the costs for treating WEEE in accordance with the requirements of the Directive are estimated to be in the range of £98 million -£206.9 million from 2006.

Article 7: Recovery

53. Article 7 outlines the recovery targets for WEEE required under the Directive. It says that by 31 December 2006 the following recovery targets shall be achieved¹⁶:

- Category 1 items - 80 per cent recovery, 75% re-use and recycling;
- Categories 3 and 4 items – 75 per cent recovery, 65% re-use and recycling;
- Category 2,5,6,7,9 and 10 items – 70 per cent recovery, 50 per cent re-use and recycling.
- Gas discharge lamps – 80 per cent re-use and recycling;

54. Estimates of current recycling rates in the UK for a range of WEEE products suggest that these are significantly below most targets set out in the Directive. The 1999 Ecobalance report suggested that washing machines were recycled up to 52 per cent, refrigerators up to 50 per cent, personal computers (PCs) up to 24 per cent, telephones up to 8 per cent, whilst televisions and vacuum cleaners were hardly recycled at all.¹⁷

55. Recent estimates from the shredding industry suggest recycling rates in the UK are currently 60 per cent for refrigerators; 85 per cent for washing machines; and 90 per cent for cookers. It is assumed that the current recycling rates in the UK are achieved because it is economic to do so. Additional recycling is thus currently not cost-effective. Costs incurred in meeting the increased recovery targets of the Directive over and above current practice are thus likely to be additional costs of the Directive.

56. The DTI's current 'best' estimate for the costs of meeting the recovery targets set out in Article 7 are based on discussions with a range of industry representatives. The estimates are based on the information outlined in Table 2 below. This provides

¹⁶ The targets are minimum percentages by average weight per appliance. Re-use of whole appliances, which is given priority under the Directive, is not taken into account in calculation of the targets.

¹⁷ Source: Ecobalance 1999.

estimates for the material composition of different EEE equipment, the materials required to be recycled or recovered to meet the targets of the Directive, and estimates of the costs of recycling and recovering materials.

57. The material composition of different EEE products varies widely. Large household appliances have significant amounts of metals. Televisions and ITC equipment are predominately constructed of non-metals. Industry estimates vary in terms of the material composition of EEE products, because different companies make products from different materials and because over time material composition changes. The figures in Table 2 are based on the estimates produced in the Ecobalance report and from those produced in the ICER report.

58. White goods (large household appliances) are currently separately collected and recycled due to their relatively high metals content. The metals they contain are predominately ferrous metals, i.e. iron and steel.

59. Non-ferrous metals include aluminium, copper, and the precious metals, gold, palladium, silver, and platinum. Non-ferrous metals are found in varying amounts in both white goods and some brown goods. Precious metals, in small amounts, are often found in ICT equipment.

60. The fact that a range of WEEE products are currently separately collected and recycled suggests that the recovery of ferrous and non-ferrous metals is economic. For precious metals it is likely that treating WEEE to obtain these metals is currently only economic up to a certain level given the small amounts of precious metals within an individual item and the time and effort required to obtain these metals.

61. Plastics are found in most types of EEE and are widely used in the casing and housing of products. Glass is also found in many EEE products, but is predominately used in cathode ray tubes (CRTs) in televisions and in monitors for ITC equipment.

62. Currently the vast majority of both plastics and glass from WEEE are either landfilled or incinerated, whether the WEEE enters a recycling process or not. Information from local councils suggests that the current costs of landfill in the UK ranges from £20 to £40 per tonne. Estimates for the incineration of MSW are that a typical gate fee is around £30 per tonne. Incineration of WEEE with energy recovery is likely to be more expensive than this. One estimate for this is £50 per tonne.

63. Industry estimates suggest that currently the recycling of plastics costs in the range of £300 -£450 per tonne. This is made up of the separate costs of sorting, granulation, and compounding. An industry estimate for the current cost of recycling glass is £300 per tonne. This is based on estimates for glass from computer monitors.

64. To meet the recovery target currently set out in the Common Position text of the Directive the four scenarios for separate collection provide the following cost estimates.

Table 2: Estimates of Material Composition of EEE equipment

Material composition (per cent)	White goods	Brown goods	ICT equipment	Small EEE	Current Estimated Costs per tonne
Ferrous metals	60	18	30	20	£0
Non-ferrous metals	5	2	10		£0
Plastics	10-20	15-25	30	60	£300-£450
Glass	3	45-55	20		£300
Other	12-22	10	10	20	
Recovery targets of Article 7	80%	75%	75%	70%	
Materials assumed to be recycled to meet targets	65% metals; 10% plastics	20% metals; 45% plastics and/or glass	40% metals; 25% plastics and/or glass	20% metals; 30% plastics	
Energy recovery (incineration)	5%	10%	10%	20%	£50
Material sent to Landfill	20%	25%	25%	30%	£20-£40

Scenario A: UK separate collection increases to same rate as in NVMP

- For white goods it is assumed that of the 536,500 tonnes separately collected in 2006 all the metals will be recycled as at present, and that this is economic. 10 per cent of plastics are assumed to be recycled costing between £21 million - £29.8 million. 5 per cent of material is assumed to be recovered at a cost of £1.5 million. This gives a total cost estimate for meeting the recovery targets for white goods of £22.5 million - £31.3 million.
- For brown goods, it is assumed that of the 57,000 tonnes separately collected in 2006 all metals are recycled as at present and that this is economic. 45 per cent of plastics or glass are assumed to be recycled at a cost of £9.3 million - £11.6 million. 10 per cent is assumed to be recovered at a cost of £0.3 million. This gives a total cost estimate for meeting the recovery targets for brown goods in the range of £9.6 million - £11.9 million.
- For ICT equipment, it is assumed that of the 178,500 tonnes separately collected in 2006 all metals are recycled as at present and that it is economic. 25 per cent of plastics or glass are assumed to be recycled at a cost of £17.1 million - £24.5 million. 10 per cent of material is recovered at a cost of £1 million. This gives a total cost estimate for meeting the recovery targets for ICT equipment in the range of £18.1 million - £25.5 million.
- For small household appliances, it is assumed that of the 23,500 tonnes separately collected in 2006 all metals are recycled as at present and that this is economic. 30 per cent of plastics are assumed to be recycled at a cost of £2.6 million - £3.6 million. 20 per cent of material is recovered at a cost of £0.2 million. This gives a total cost for meeting the recovery targets for small household appliances of £2.8 million - £3.8 million.

67. These calculations give an estimate for the total costs of meeting the Directive's recovery targets for scenario A in the range of £51.4 million - £71.1 million per annum.

Scenario B: UK separate collection increases by same proportion as in NVMP

68. Under this scenario and based on the same methodology as for scenario A, estimates for the costs of meeting the Directive's recovery targets for scenario B are in the range of £52.8 million - £74.6 million per annum.

Scenario C: 100 per cent separate collection for large 'non-white' WEEE, 10 per cent for small WEEE

69. Under this scenario and based on the same methodology as for scenario A, estimates for the costs of meeting the Directive's recovery targets for scenario C are in the range of £70.8 million - £97.7 million per annum.

Scenario D: 100 per cent separate collection for all WEEE

70. Under this scenario and based on the same methodology as for scenario A, estimates for the costs of meeting the Directive's recovery targets for scenario D are in the range of £82.3 million - £114 million per annum.

Article 8: Financing of WEEE from private households

71. Article 8 says that by 13 August 2005, producers of EEE should provide for the financing of the collection, treatment, recovery, and environmentally sound disposal of WEEE from private households deposited at collection facilities. For products put on the market after 13 August 2005 the Directive says that producers should be responsible for financing waste relating to their own products. With respect to this, producers are required to provide a 'guarantee', which may take the form of participation in an appropriate scheme, recycling insurance, or a blocked bank account.

72. WEEE from products put on the market before 13 August 2005 ("historic waste") is to be financed proportionately by producers existing in the relevant market when the respective costs occur. For a transitional period of 8 to 10 years, producers are allowed to show consumers the costs incurred in the disposal of WEEE.

73. The Government believes that environmental taxes and other economic instruments are key policy tools for achieving environmental improvements because they can provide incentives for behaviour that protects or improves the environment, and deter actions that are damaging to the environment.

74. The instruments might include taxes or other economic instruments, regulation, the provision of information, or voluntary agreements. Taxes may be used as part of a package with other measures such as tradable permit schemes, spending programmes, tax incentives, or voluntary agreements. Other measures may also be used in place of a tax if they can achieve the same objective at lower economic cost.

75. The Government does not take a single approach to all environmental problems, but adapts its approach depending on the circumstances. The Government also considers the extent to which the potential instruments have synergies or trade-offs with other economic and social objectives and the extent to which these are acceptable.

Producer responsibility legislation

76. Essentially, there are two broad methods through which producers could fulfil their obligations under producer responsibility legislation such as the WEEE Directive. These are through the 'own marque' route of dealing with your own waste as it arises, or through a 'market share' route of dealing with a proportion of waste related to your share of the market. Financing schemes generally fall into one of these two categories, usually taking the form of either an up-front payment (when goods are placed on the market) or a downstream payment (when the waste arises).

Own Marque (own label)

78. An own marque route means that producers take financial responsibility for the waste that arises from the products they have put on the market. There are legal issues in determining which businesses are responsible for which brands, types, and marques of products, but this type of system has precedent in that it is being used to implement the End of Life Vehicles (ELV) Directive in Germany and Austria.

79. An own marque route avoids the requirement to calculate a producer obligation in advance, but it does require producers to contract with a range of collection, treatment, recovery and reprocessing businesses to ensure that there is an adequate network to first enable last holders to easily dispose of their waste free of charge and, secondly, to enable the required treatment and recovery targets to be met. Information requirements also need to be met.

80. Own marque systems usually mean that producers pay in arrears for the treatment and recovery of their waste, though they do not preclude payment in advance. Under the WEEE Directive, requiring producers to provide guarantees up-front for future waste is an attempt to ensure that producers do not avoid their financial obligations. Guarantees can take a range of forms, including a separate blocked bank account, recycling insurance, or subscription to some alternative scheme.

81. Own marque systems can be completely individual, in the sense that a producer does all the contracting with specific facilities, but they can also be undertaken collectively by a number of producers, and with third-party involvement (via, for example, a service provider), as long as it is made clear beforehand how costs are to be allocated.

82. In terms of WEEE, the ICT Milieu system in the Netherlands was an example of an own marque system undertaken in a collective manner. Producers who joined the ICT scheme would be billed in arrears according to the weight of the waste from the products they had put on the market.

83. However, from 1 January 2003 ICT Milieu switched to a financing system based on the current market share of its participants. ICT Milieu collected significant amounts of equipment that had no current producer existing on the market (so called 'orphan' products). The costs of such equipment now appear to be tied up in the market share system.

Market Share

84. A market share based system essentially means that producers are obligated to recover a certain amount of waste depending upon their presence in the market at the time. It is not always straightforward to determine presence. It can, for example, be considered in terms of value of sales or weight of sales, and over various time periods.

85. In terms of WEEE, currently there are more examples of market share based systems in existence than own marque systems, though the market share systems differ in terms of financing method.

86. In the Netherlands, the NVMP scheme places a visible fee on the purchase of a range of new electrical and electronic equipment to cover the costs of collecting and recovering WEEE. This is an 'ultimate' market share system in the sense that market shares are determined in real time, as opposed to some defined period in the past.

87. In Switzerland, SWICO charges a recycling fee on the purchase of new electrical equipment which varies by equipment group and value of equipment. In Sweden, El-Kretsen charges its members the costs of recovery of WEEE in accordance with shares based on the weight of products each producer puts on the market.

88. In Norway, El-Retur, provides free take-back of WEEE for last holders, including via retailer in-store takeback. El-Retur is something of a hybrid system in that specific sectors of the EEE market pay for WEEE from their sectors, but 'common' costs are shared. But essentially it is a market share system where producers pay fees to El-Retur based on turnover as defined by sales of new products.

Discussion

89. Own marque systems have the potential advantage of providing producers with an incentive to improve the eco-design of their products to reduce their costs following disposal. However, for some producers, for example, low volume producers and/or SMEs, the costs of contracting with an adequate network to deal with their own waste may be disproportionate to these benefits.

90. There is also the issue of the need to ensure that an adequate infrastructure for recovering waste is in place, and in advance, to enable the targets and other requirements of the Directive to be met.

91. Market share systems should, in theory at least, have an advantage over own marque systems in terms of the ability to exploit economies of scale in the recovery of waste. However, there are issues of equity. Market share systems will mean that it is likely that producers will at some stage finance the waste of other producers. Whether this is inequitable or not will depend on the relative market shares of the

producers in relation to the waste arising from their own products, and possibly on the type of waste that is being addressed.

92. What appears to be clear is that market share systems are usually characterised by allowing producers to opt-out of the market share system and follow the 'own marque' route as long as they achieve comparable results. This 'opt-out' option seems consistent with producer responsibility, and can also alleviate competition concerns that can arise when a single scheme exists within a country.

93. There are also the issues of 'free-riders' and 'orphan' products. Free-riding is generally characterised as obtaining a benefit without incurring a cost and the cost is incurred by someone else. It is often claimed that market share systems encourage 'free-riding'. But the issue is whether 'free-riding' is really a matter of enforcement or financing method, though the guarantee system of the WEEE Directive is an attempt to overcome 'free-riding'.

94. 'Orphan' products are defined as those whose original producer now no longer exists on the market or cannot be identified. The question is who incurs the costs when these products arise as waste. Some claim that individual producer responsibility is the only fair method to implement producer responsibility, and that a 'guarantee' overcomes the 'orphan' problem. But even under a 'guarantee' system there may still be some 'orphans'. Some claim that it is the Government's responsibility to finance the waste from these products, whilst others argue that as the existing producers have captured the market share of the producer who has exited, 'orphans' should be apportioned by current market share.

95. In terms of charges to consumers on the purchase of new products there are issues surrounding who sets the charge, at what rate, and for what goods. It is not always obvious that flat fees encourage efficiency or innovation, and there may also be social implications in the sense that flat charges are regressive by nature. On top of these issues, it is not always obvious that charging consumers directly on purchases of new goods represents producer responsibility. A similar issue arises for deposit/refund systems, and these have the added complication for WEEE that there can be a long time period between the deposit being paid and the refund being made. In addition, there are likely to be extra administrative burdens involved with such systems.

96. The WEEE Directive allows producers, for a transitional period only of 8-10 years, to show consumers at the point of sale of new products the costs of recovering the waste from electrical equipment which was put on the market prior to 13 August 2005.

97. In terms of the infrastructure for managing WEEE it will be important to ensure that the infrastructure is in place and that there is sufficient capacity to enable the UK to meet the requirements of the Directive. This will be an important consideration in relation to the financing mechanism the UK adopts for implementation of the Directive.

Article 9: Financing in respect of WEEE from users other than private households

98. Following agreement of the Directive, concern has been expressed about the current wording of Article 9 in relation to its potential impact on the accounting position of producers. The current wording of Article 9 could have implications for the balance sheets of producers if they are made responsible for the recovery of all B2B electrical equipment irrespective of when it was first placed on the market.

99. A new wording of Article 9 has thus been agreed in principle by the European Commission, Council and European Parliament.

100. The new wording changes Article 9 such that producers would be required to accept B2B WEEE free of charge from the last business holder only on a one-for-one basis when supplying new products which replace products of equivalent type.

101. This wording reduces the potential accounting impact on producers from Article 9.

102. However, it means that the costs of equipment which are disposed of and not replaced would need to be borne by somebody else. One option is that where a business user of EEE is not replacing his equipment, the current practice in terms of disposal should remain, i.e. that the last holder should be responsible for the treatment and recycling of his WEEE.

Article 10: Information for users

103. Article 10 says that users of EEE in private households should be given information about the return and collection systems available to them, and their role in contributing to the re-use and recycling of WEEE. Producers and/or distributors should provide this information in the instructions for use or at point of sale.

104. Article 10 also says that from 13 August 2005, producers should appropriately mark EEE with a crossed-out wheellie bin symbol to discourage disposal in rubbish bins or similar means of municipal waste collection.

105. Such marking of EEE products does not take place currently. Thus the costs of this requirement are additional costs from the Directive. Cost estimates for Article 10 have been hard to come by. One industry estimate for the costs of producing a sticky label with the crossed-out wheellie bin symbol is that it would cost 5 pence per label. If this is applied to the 222 million units of EEE estimated by ICER as being sold in the UK each year¹⁸ the total cost would be £11.1 million per annum.

106. One industry estimate for the cost of production of a plastic mould with the crossed-out wheellie bin sign is £5,000. Industry estimates are that there are some 200,000 variations of consumer electronic products on the market at any one time. In addition, industry estimates that the average life of an EEE product is 18 years. These

¹⁸ This figure is for 1998 and applies to EEE products in the 10 categories of the WEEE Directive.

estimates imply costs of £55.5 million per annum for plastic moulds for marking EEE products.¹⁹

107. If we assume that large products are marked via a plastic mould and small products are marked with a label then based on ICER figures for total sales of small electronic appliances (non-white goods), labelling these would cost £8 million per annum. Further, if we assume that of the 200,000 product variations, 20,000 of these are in large appliances²⁰ then producing moulds for these would cost £10 million per annum. This gives an estimate for the total cost of marking products of around £18 million per annum.²¹

Article 11: Information for treatment facilities

108. Article 11 says that producers should provide information on different EEE components and materials, and the location of dangerous substances and preparations in EEE to treatment facilities to enable them to comply with the Directive. Such information is currently not required for WEEE in the UK. Thus the costs of this requirement are additional costs from the Directive. Cost estimates for Article 10 have been difficult to obtain but Article 17 of the Directive allows Member States the scope to transpose these information requirements by means of voluntary agreements.

109. The Directive does not require manuals to be produced for treatment facilities. An industry estimate is that if the information were provided via two-A4 page leaflets, each leaflet would cost £100 to produce. If all information were provided to treatment facilities in this way costs are estimated at some £6.6 million per annum.²²

110. If information were provided electronically via a CD-ROM system annual costs are likely to be significantly lower. The IDIS system provides information electronically on vehicles, for businesses who deal with ELVs. Whilst setting-up such a system for WEEE will entail some not-insignificant investment costs, once established the running costs of such a system are likely to be relatively low. Electronic systems are the preferred option for businesses who will dismantle and treat WEEE once the Directive is implemented.

Article 12: Information and Reporting

111. Article 12 says that Member States shall provide information to the European Commission on the producers of EEE, quantities of EEE put on their market, and WEEE collected and re-used, and recycled and recovered by weight and, if this is not

¹⁹ £55.5 million per annum is calculated as £5,000 multiplied by 200,000 product variants divided by 18 years.

²⁰ Product variations are likely to be less wide ranging for large appliances than for smaller appliances.

²¹ £8 million is calculated as 5 pence times 160,000 product sales per annum. £10 million is calculated as £5,000 multiplied by 20,000 product variations divided across 18 years (the average life of products as estimated by industry).

²² £6.6 million is calculated as £100 multiplied by 200,000 product variations divided by 18 years for the average life of a product multiplied by 6 to reflect the industry estimate that every 3 years all product variations are changed.

possible, by numbers. In addition, Article 12 requires Member States to send a report to the Commission on the implementation of the Directive at three-yearly intervals.

112. The Environment Agency (EA) says that the producer responsibility costs of reporting to the EA and the EA's costs of collating data and passing this to the DTI are difficult to assess at present. However, it is possible to use the producer responsibility costs under the Packaging Regulations to provide an estimate of possible costs. If each business provided information to the EA either directly or through a compliance scheme, then based on the Packaging Regulations, the cost of this would be around £460 per company.

113. The number of producers potentially affected by the WEEE Directive could be up to 25,350. The total cost of this, based on individual costs of the packaging regulations, is around £11.5 million per annum. But, this figure is likely to represent the maximum cost, because the information required under the Directive is likely to be somewhat simpler than that required from companies involved with packaging.

Compliance costs for a typical business

114. Given the wide-ranging nature of the Directive and the number of businesses that could potentially be affected it is difficult to assess the compliance costs for a typical business at this stage.

Competition Assessment

115. The WEEE Directive is a wide-ranging and complex Directive that does not enable a straightforward assessment of its potential implications for competition in the UK to be made. However, applying the Cabinet Office Regulatory Impact Unit's (RIU) Competition Filter suggests the following:

- In terms of both producers and distributors of EEE there appears to be significant competition in the UK, particularly given the level of imports and the range of selling techniques;
- The costs of the Directive will fall on producers and distributors in relation to the amount of goods they put on the market;
- New firms are unlikely to be affected differently by the Directive compared to existing firms;
- The market for EEE is characterised by rapid technological change;
- The ability of firms to sell the type of products they want is unlikely to be significantly restricted by the Directive.

116. The above suggests that a preliminary assessment suggests that the WEEE Directive is unlikely to have a significant impact on competition in the UK.

Small firms Impact Test

117. The DTI, via the Small Business Service (SBS) has established a working group made up of representatives of small businesses which meets on a regular basis to discuss all aspects of the WEEE Directive.

Summary and Conclusions

118. The WEEE Directive is a wide-ranging and complex Directive. This makes it difficult to estimate the potential costs and benefits to the UK with any significant degree of certainty.

119. In terms of the potential benefits, this partial RIA says the following:

- The majority of the environmental impacts from the current disposal methods for WEEE in the UK are likely to improve significantly under the Directive.
- In terms of landfill avoided the Directive could lead to 133,000 to 339,300 tonnes of landfill being avoided per annum. Based on a valuation of resources used in landfill and externalities from landfill, this represents a benefit of £2 million to £13 million per annum by 2006.
- The WEEE Directive should contribute to reductions in fly-tipping of WEEE, contribute to resource productivity, and contribute to raising the awareness amongst businesses and consumers to waste in general.

120. In terms of the potential costs, this partial RIA says the following:

- A range of cost estimates for the collection, treatment and recovery of WEEE based on four alternative scenarios for the rate of separate collection following the implementation of the Directive, and including costs of information and reporting are:
 - For Scenario A: £217 million to £269 million per annum.
 - For Scenario B: £220 million to £273 million per annum.
 - For Scenario C: £280 million to £354 million per annum.
 - For Scenario D: £356 million to £455 million per annum.
- Some 60-70 per cent of these costs relate to treatment and recovery of WEEE, which will fall on producers of EEE. Some 10-20 per cent relate to costs for separate collection which will fall on distributors of EEE.

121. Using this 'bottom-up' approach for the UK, the cost estimates suggest a range of costs for WEEE in the UK under the Directive of £273 - £363 per tonne. This compares to the European Commission's separate cost estimate of £205 - £374 per tonne on average for the fifteen European Union Member States outlined in its Explanatory Memorandum to the Directive.²³

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PARTIAL REGULATORY IMPACT ASSESSMENT ON DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (RoHS Directive)

Background

1. This partial RIA discusses the potential costs and benefits to UK businesses, charities and the voluntary sector of Directive 2002/95/EC of the European Parliament and of the Council on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS).

Issues and Objective

2. Economic growth and technological developments have accelerated the production and use of Electrical and Electronic Equipment (EEE), and the rate at which EEE is replaced.

3. EEE can contain some substances, which are potentially hazardous to both human health and the environment during the manufacturing of EEE and following the disposal of EEE as waste (WEEE). The Directive restricts the use of lead, mercury, cadmium, hexavalent chromium, mercury, and two brominated flame retardants (PBB) and (PBDE) in new EEE products placed on the European market after 1 July 2006.

4. The ROHS Directive is a ‘single market Directive’ (Article 95). To ensure that the single market can continue to function fairly and efficiently the Directive provides a ‘level playing field’, by setting the same standards across all Member States, for the environmental measures it contains.

Risk Assessment

5. The substances restricted by the ROHS Directive have been identified by the European Commission as having the potential to negatively impact on both human health and the environment. The extraction of these raw materials, the refining process, their use in manufacturing EEE and their eventual disposal can cause damage to the environment (in terms of pollution risks to animals and biodiversity) and damage to human health (from occupational exposure and exposure following disposal).

6. In the UK, occupational exposure is controlled by the Health and Safety Executive. The main risks to the general population are via the disposal of untreated WEEE when it is landfilled or incinerated. There is potential for substances to leach, or be emitted to air, following landfilling or incineration. However, generally the use of the

substances in EEE covered by the ROHS Directive is relatively small compared to their use in other applications; it is therefore difficult to quantify the risks of harm from the substances used specifically in EEE.

Options

7. As the ROHS Directive is an Article 95 Directive, the UK needs to implement the Directive in a consistent manner with other Member States.

Issues of Equity and Fairness

8. All the different elements of the supply chain for EEE - producers of the substances, component suppliers, product assemblers and manufacturers²⁴ – are likely to be affected by the RoHS Directive. How the costs of the Directive are distributed will depend on the market structure of the particular EEE sector concerned. The extent to which costs are passed on to consumers will mean that they will bear some costs, but this is likely to vary across sectors and products.

9. In terms of the producers of these substances, it is estimated that EEE accounts for only a small proportion of total applications. Lead in EEE is estimated to account for only some 2 per cent of total uses, while for cadmium, hexavalent chromium and mercury the proportions are estimated to be 10 per cent, 15 per cent and 22 per cent respectively. Thus the impact on primary metal producers is, in most cases, likely to be limited. However, the UK is the largest producer of refined lead in Europe, and thus for this substance may be more affected than other Member States.

10. In the short term component suppliers are likely to bear the majority of the costs. However, in the medium to long term they are likely to pass these additional costs on to products assemblers and/or manufacturers. The magnitude of this pass-on will depend on the relevant market structure. Where component suppliers are located within the UK, the whole cost will fall on UK business. However, the majority of components used in the UK are imported and thus the final impact on UK business will derive generally from the proportion of total costs, which are passed on to final product assemblers/manufacturers in the UK.

11. The environmental benefits to the UK from the RoHS Directive are likely to be spread fairly evenly across different social and economic classes and different geographical regions. However, those more susceptible to the negative impacts that can result from these substances, such as children, the elderly, and pregnant women are likely to benefit more.

Identifying the Benefits

12. The main benefit of the ROHS Directive will be the potential reduction in harm to human health and the environment as a consequence of the restriction on use of the listed heavy metals and brominated flame retardants in new electronic products. The hazards to human health and the environment are influenced by waste volume

²⁴ Component supply and assembly may be undertaken in house by manufacturers or may be out sourced. This is likely to vary from company to company.

arising, emission rates (from waste), population exposures (to emissions), and dose response functions (to exposure).

13. The main exposure pathways for the relevant substances are soil, water and air. The restriction of use in new products will have the likely effect of reducing the quantity of hazardous substances in all three pathways.

Quantifying and Valuing the Benefits

Lead

14. Total consumption of lead in the UK in 2000 was estimated at 325,000 tonnes. It has been estimated that, approximately 2,000 to 4,500 tonnes of lead from WEEE is discharged to landfill every year.²⁵ In 1999 the estimated total emissions from EEE to air was 11 tonnes.²⁶ A restriction on the use of lead in new EEE products will reduce the amount of lead being landfilled and help reduce lead emissions to air. It will also contribute to reducing blood lead level in the UK. However, the blood lead level in the UK has declined from 0.12mg/day in 1980 to 0.024 mg/day in 1997, and is already below the “Provisional tolerable weekly intake” (PTWI) level set by the World Health Organisation (WHO). Thus, although it is extremely difficult to quantify the benefits that may result from the restricting of lead in new EEE products, it is likely that given the current exposure rates in the UK the potential benefits from the ROHS Directive may be somewhat limited.

Cadmium

15. In 2000, total consumption of refined cadmium in the UK amounted to approximately 584 tonnes. However, it is estimated that only 40 tonnes of cadmium was used in EEE, and its use has been declining in recent years. The restriction on cadmium in new EEE products will reduce emissions of cadmium post landfilling and incineration. However, the average intake of cadmium in the UK is below the PTWI level set by the WHO, and below the limit value suggested by the CSTEE²⁷. Added to this that cadmium in EEE accounts for only approximately 8-10 per cent of its total use, the restriction on cadmium in new EEE products is likely to have limited additional environmental and health gains in the UK.

Hexavalent Chromium (CrVI)

16. The quantity of hexavalent chromium used in the UK was estimated as approximately 900 tonnes in 2000. It is estimated that EEE accounted for 15 per cent of total use. A study conducted in the USA (Environment Protection Agency) suggested that CrVI in EEE products was responsible for approximately 10 per cent

²⁵ The ICER report says that between 12,000 and 27,000 tonnes of lead are annually found in WEEE landfilled. We divide this figure by six considering that the UK GDP is approximately one-sixth of the EU GDP (16 per cent).

²⁶ Published in July 2001. Total emission were 553, of which 2 per cent are attributable to EEE.

²⁷ CSTEE, Opinion on: *Position Paper on ‘Ambient Air Pollution by Cadmium Compounds – Final version October 2000’*, 12 June 2001.

of land and water chromium contamination in the USA²⁸. The restriction on its use in new EEE products may thus lead to an approximate decrease in CrVI releases of up to up to 10 per cent in the UK.

Mercury

17. The European Commission estimates that 22 per cent of consumption of mercury is used in EEE products. The restriction on the use of mercury should reduce emissions of mercury in the UK. The UK's PWTI is already below that established by the WHO, but the hazardousness of mercury is likely to mean that any reduction in exposure will bring benefits.

Brominated flame retardants

18. Plastics used in EEE account for around 56 per cent of the brominated flame retardants market, while PBBs and PBDEs account for approximately 1 and 9 per cent of the total market of flame retardants respectively. According to a Danish estimate, WEEE represents about 78 per cent of the total content of brominated flame retardants in waste.²⁹ It is estimated that in 1994 the UK used about 60 tonnes of PBBs, while there may be some 400 tonnes of PBDEs used in EEE each year in the UK. However, Deca-BDE is currently exempt from the Directive, and Tetra-BDE and Penta-BDE are generally no longer used in EEE in the UK. Therefore the impact of the Directive will depend largely on the reduction of Octa-BDE, which is estimated to be 25 per cent of the 1994 estimate.

Business Sectors Affected

19. Given the wide-ranging nature of the RoHS Directive there is inevitable uncertainty about the total numbers of businesses that could ultimately be affected. The range of business sectors that could be affected, either directly or indirectly, include:

- Producers of raw or refined materials and producers of secondary materials (reprocessors);
- Component suppliers of EEE;
- Product assemblers of EEE;
- Manufacturers of EEE.

20. There are two refined lead producers in the UK, some hexavalent chromium producers, while there are no producers of mercury and brominated flame retardants. There is one zinc smelter in the UK, which produces cadmium as a by-product. Since the use of lead, hexavalent chromium and cadmium in EEE is estimated to be less than 10 per cent of total consumption, the restriction on the use of these substances in new EEE products expected to have a relatively small impact on the producers of raw and refined materials.

²⁸ The Digest of Environmental Statistics reports that the estimated total chromium emissions to air in 1999 were 67 tonnes. It is not possible however to estimate the quote attributable to EEE.

²⁹ Source: Explanatory Memorandum for a Proposal for a Directive on Waste and Electrical and Electronic Equipment, European Commission, 13 June 2000.

21. It is likely that manufacturers of Electrical and Electronic Equipment and component suppliers will be directly affected. Whilst the restricted substances enter the production stream in the manufacturing of single components, the products, which then use these components, may need to be adapted or indeed re-designed to ensure that they can function with the new components. It is also possible that some firms will be vertically integrated and therefore R&D, production of components and final assembly of products will be done in-house in which case such firms will be directly affected at all levels. Where product design in manufacturing as a result of changes in components does not need to change, then manufacturing firms towards the end of the supply chain will be indirectly affected. It is difficult at this stage to estimate exact numbers given that the restricted substances will be used in some specific products more than in others, and so some sectors are likely to be more affected than others. In addition, within a particular business sector not all firms will be affected equally because some will produce no, or relatively little EEE, while some will deal with no, or relatively little WEEE.

Total Compliance costs

22. It is very difficult to quantify the precise costs of the Directive given its complexity and scope of impact. In addition there is currently limited information available about the extent and cost of substituting the banned substances. Research and tests, which are necessary to fulfil the Directives' requirements, are still ongoing and the results are uncertain. Furthermore, many of the components, containing the substances listed in the ROHS Directive, are not produced in the UK, therefore it is difficult to know what proportion of these costs will be sustained in the UK.

23. The substitution of the substances listed in the ROHS Directive is a process already under way and in some cases undertaken voluntarily by many manufacturers. The European Commission reports that leading European companies in the electronic industry have proclaimed an official policy of avoiding PBB and PBDE in their products. Cadmium is being replaced in electroplating as well as CrVI. Japanese companies signed a voluntary agreement to phase out the use of lead in specific areas of consumer electronics by 2005³⁰.

24. In order to comply with the Directive EEE manufacturers will have to sustain: costs of redesigning manufacturing machinery, general R&D costs to find and test alternative substances, and higher recurring operating costs.

Capital costs (costs of redesigning machinery)

25. Costs of redesigning manufacturing machinery are one-off costs. Industry has estimated these costs to be in the range of £400 million to 570 million for the retooling of lead-use machineries (e.g. the substitution or refurbishment of solder bath machines and surface mount ovens). The annualised cost will be in the region of £40 million to £57 million assuming the average life of these machines is 10 years.³¹

³⁰Phase out lead solders in new products by 2003 and in all products by 2005.

³¹ And assuming straight line depreciation.

26. According to one industry estimate, investment costs for the conversion from CrVI to trivalent chromium (CrIII) in plating plants are largely negligible. Although there is the necessity to substitute the plating equipment, the costs of new machinery will be broadly the same. Therefore, the only cost will be in terms of the opportunity cost of having to bring the investment forward as a consequence of the restrictions under the Directive.

R&D costs

27. R&D investment is required to find, test and develop substitutes for the banned substances. Once an alternative has been developed, it is necessary to test its reliability and assess its performance under a range of different conditions. Many components require a very high degree of reliability and thus the development phase can take several years. Therefore estimating the value of such costs is difficult, especially as there is no guarantee of successful results.

28. Orgalime (a trade association of electronics manufacturers in Europe) estimates a cost across Europe of €15 billion for “*new investment to deal with required technological change*”. This implies costs to the UK of the order of £1.7 billion³². At the time this estimate was made this would imply costs to the UK in the region of £500 million per annum up to the date the Directive came into force.

29. One large EEE manufacturer estimates that R&D costs to develop and test substitutes for lead are approximately 9.5 per cent of its total R&D expenditures. If we apply this to R&D expenditures of the electrical and electronics sector in the UK (which is approximately £1,558 million per year³³), we obtain an estimate for the R&D costs for the substitution of lead of approximately £148 million per annum in the UK. Industry estimates suggest that R&D investment to replace CrVI and cadmium are relatively small.

Operating costs

30. It is estimated that annual operating costs (costs of using different processes and different substances) will be in general higher than those incurred in using the banned substances. This is due to:

- Increased costs of substances and components; substitutes for lead, cadmium and in some cases brominated flame retardants are generally more expensive.
- Increased costs of energy (alternative processes may require more energy to perform the same procedure); lead-free soldering, chromium passivation and brominated flame retardants use more energy,
- The need to use a greater quantity of material (alternative processes need more material to achieve the same results); particularly for hexavalent chromium and cadmium.

³² Orgalime estimates €15 billion for ‘new investment’. These are interpreted as costs of the final implementation of ROHS (R&D costs). €15 billion equates to approximately £10 billion. UK GDP is approximately one-sixth of EU GDP so dividing this by six gives £1.7 billion.

³³ Source: Business Enterprise Research and Development 2000.

31. The operating costs of alternatives will depend on the price of alternative raw materials. If the price of alternative metals, for example, fell then the costs of substitution would be lower. Operating costs are also related to the cost of energy; Using a tin-silver-copper alloy to replace lead in solder, for instance, requires a higher temperature for the soldering process.

32. The European Commission estimates that additional operating costs of using tin-based solders at around €150 million per year for Europe as a whole. Applying this to the UK results in an estimate of approximately £15 million per annum.³⁴ An alternative estimate from industry is that additional operating costs for lead alone, would total around £200 million extra per year (with the possibility of reductions over time).

33. The total costs of metal currently utilized in tin-lead solders (as 63 per cent tin and 37 per cent lead) are approximately £21 million; the most common and indeed most expensive substitute is a tin-silver-copper (Sn-Ag-Cu) solder (as 95.8 per cent tin, 3.5 per cent silver and 0.7 per cent copper). If we assume that all tin lead solders are replaced with Sn-Ag-Cu solders the total cost of the metal will be approximately £52 million.³⁵ Therefore, the additional costs of the substitution of lead solders with alternative alloys solders (i.e tin-silver-copper solders) is approximately £31 million per annum. There will also be an increase energy required for heating and cooling boards (during the wave soldering and re-flow soldering processes). Estimates indicate an increase in energy usage of between 6 to 18 per cent. Assuming that energy prices remain constant in real terms this will result in additional costs of between £2.5 million and £7 million per annum.³⁶

34. Alternatives to CrVI are generally more expensive than CrVI itself - purchase prices for CrIII systems are 2-3 times higher; this could result in additional costs of approximately £50,000 to £100,000 per annum.³⁷ The application costs, for the passivation process, are also higher, by approximately 50 per cent, but this is a relatively small element of the total process.

35. Substitution of mercury in lamps may reduce lamp life; implying more lamps will be needed to achieve the same results over time. However, non-mercury switches are for the time being cheaper than mercury switches (prices range from £1.66 to £9.99 for mercury and £0.32 to £7.85 for non-mercury switches). The costs of substitution of mercury are thus unlikely to be large.

36. There may be other operating costs in terms of extra component costs, however no estimate is currently available. Estimates for the cost of the impact of lower

³⁴ This figure is obtained extrapolating the European figure (£95 million) to the situation of the UK, assuming that the UK GDP is approximately 16 per cent of the EU GDP.

³⁵ We assume that approximately 60 per cent of lead in EEE is used in solders.

³⁶ This figure is based on the energy consumption for electrical and electronic sector (516,000 tonnes of oil equivalent) and a price of £76 per tonne of oil fuel Source: The energy report, DTI, 2000.

³⁷ Based on the assumptions that all 140 tonnes of Chromium VI are substituted with Chromium III and that the cost of Chromium VI is £350 per tonne.

throughput in the soldering process, resulting in the need to use more material, are also not available currently.

Other costs

37. There will also be other costs, which currently are not possible to quantify: These include:

- Information costs: to inform businesses of the requirements of the Directive. These costs are likely to fall on the public sector.
- Monitoring and enforcement costs of complying with the Directive. These costs will fall on the public sector and obligated businesses.

Total costs

38. Total additional costs of the substitution of the substances listed in the ROHS Directive, capital and operating costs, are currently estimated to range between £55 million to £96 million per annum.

39. R&D costs are currently estimated to range between £148 million and £500 million per annum. These costs will only be incurred up to the time the restrictions of the Directive come into force in the UK.

Compliance costs for a typical business

40. Due to the complex structure of the market and the range of sectors involved including producers of the substances, component suppliers, EEE manufacturers and assemblers, it is not possible to identify a typical business that could be affected by the RoHS Directive.

Small business “Litmus Test”

41. The RoHS Directive could disproportionately affect small businesses, as they may not have the financial resources to undertake R&D projects to develop substitutes. They may also find difficulty in absorbing the additional costs, to comply with the Directive. The DTI, via the Small Business Service (SBS) has established a working group constituted of representatives of small business, which meets regularly to discuss the progress and future implementation of the ROHS Directives.

Competition Assessment

42. It is extremely difficult to assess the potential impacts on competition from such a wide-ranging and complex Directive as the RoHS Directive. In terms of the potential markets affected, EEE is generally a competitive industry characterised by a large number of firms both domestically and internationally. With regard to incumbent firms versus potential new entrants, the Directive sets the same standards for both, and so should not present a barrier to entry.

43. There may be some impact on market structure is smaller firms are unable to finance the necessary R&D, but a considerable proportion of components may be

bought in from suppliers and so the manufacturer may not have to undertake all the R&D itself. The range of products available may reduce if appropriate substitutes cannot be found, but in an industry that is noted for its innovation and rapid technological development this is unlikely to be a widespread problem.

44. Thus an initial assessment of the competition impacts of the ROHS Directive using the RIU's Competition Filter suggests that the Directive will not have a significant detrimental impact on competition in the UK.

Summary and Conclusions

45. Implementation of the RoHS Directive in the UK will entail a reduction in the use of certain hazardous substances in EEE and therefore should result in reductions in risks to human health and the environment. However, it is not easy to *quantify* the resulting benefits.

46. The costs of the RoHS Directive include costs for the redesigning of manufacturing machinery, costs of phasing out the restricted substances, higher recurring operating costs, and the R&D costs to find and test alternative substances. There will be also some information, monitoring and enforcement costs.

47. Current estimates of these costs, outlined in this partial RIA, range from £55 million to £96 million per annum for capital and operating costs, and between £148 million to £500 million per annum for R&D costs. The vast majority of the latter costs relate to the banning of lead.

48. The figures above suggest that over the next 10 years³⁸ the additional average annual costs of the Directive could be around £120 million. This is made up of: additional capital costs assuming that machinery is replaced in the in the early months of 2006, prior to the restrictions; additional operating costs following the restrictions; and additional R&D costs in the run-up to the date the restrictions come into force. However, these estimates should only be considered as being indicative given the difficulty of estimating costs for a complex Directive such as this.

³⁸ From 1 January 2003.

THE CONSULTATION CRITERIA

1. *Timing of consultation should be built into the planning process for a policy (including legislation) or service from the start, so that it has the best prospect of improving the proposals concerned, and so that sufficient time is left for it at each stage.*
2. *It should be clear who is being consulted, about what questions, in what timescale and for what purpose.*
3. *A consultation document should be as simple and concise as possible. It should include a summary, in two pages at most, of the main questions it seeks views on. It should make it as easy as possible for readers to respond, make contact or complain.*
4. *Documents should be made widely available, with the fullest use of electronic means (though not to the exclusion of others) and effectively drawn to the attention of all interested groups and individuals.*
5. *Sufficient time should be allowed for considered responses from all groups with an interest. Twelve weeks should be the standard minimum period for a consultation*
6. *Responses should be carefully and open-mindedly analysed, and the results made widely available, with an account of the views expressed, and the reasons for decisions finally taken.*
7. *Departments should monitor and evaluate consultations, designating a consultation co-ordinator who will ensure the lessons are disseminated.*

The complete code is available on the Cabinet Office's web site, address www.cabinet-office.gov.uk/servicefirst/index/consultation.htm.

COMMENTS OR COMPLAINTS

If you wish to comment on the conduct of this consultation or make a complaint about the way this consultation has been conducted, please write to Mr P Martin, DTI Consultation Co-ordinator, Room 725, 1 Victoria Street, London SW1H 0ET or telephone him on 020 7215 6206 or email philip.martin@dti.gsi.gov.uk

OFFICIAL JOURNAL TEXTS OF THE EUROPEAN UNION.

DIRECTIVES ON:

**WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT
(WEEE)**

AND

**THE RESTRICTION OF CERTAIN HAZARDOUS SUBSTANCES
IN ELECTRICAL AND ELECTRONIC EQUIPMENT**

DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 27 January 2003
on waste electrical and electronic equipment (WEEE)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the Opinion of the Economic and Social Committee ⁽²⁾,

Having regard to the Opinion of the Committee of Regions ⁽³⁾,

Acting in accordance with the procedure laid down in Article 251 of the Treaty in the light of the joint text approved by the Conciliation Committee on 8 November 2002 ⁽⁴⁾,

Whereas:

- (1) The objectives of the Community's environment policy are, in particular, to preserve, protect and improve the quality of the environment, protect human health and utilise natural resources prudently and rationally. That policy is based on the precautionary principle and principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.
- (2) The Community programme of policy and action in relation to the environment and sustainable development (Fifth Environmental Action Programme) ⁽⁵⁾ states that the achievement of sustainable development calls for significant changes in current patterns of development, production, consumption and behaviour and advocates, *inter alia*, the reduction of wasteful consumption of natural resources and the prevention of pollution. It mentions waste electrical and electronic equipment (WEEE) as one of the target areas to be regulated, in view of the application of the principles of prevention, recovery and safe disposal of waste.
- (3) The Commission Communication of 30 July 1996 on review of the Community strategy for waste management states that, where the generation of waste cannot be avoided, it should be reused or recovered for its material or energy.
- (4) The Council in its Resolution of 24 February 1997 on a Community strategy for waste management ⁽⁶⁾ insisted on the need for promoting waste recovery with a view to reducing the quantity of waste for disposal and saving natural resources, in particular by reuse, recycling, composting and recovering energy from waste and recognised that the choice of options in any particular case must have regard to environmental and economic effects but that until scientific and technological progress is made and life-cycle analyses are further developed, reuse and material recovery should be considered preferable where and in so far as they are the best environmental options. The Council also invited the Commission to develop, as soon as possible, an appropriate follow-up to the projects of the priority waste streams programme, including WEEE.
- (5) The European Parliament, in its Resolution of 14 November 1996 ⁽⁷⁾, asked the Commission to present proposals for Directives on a number of priority waste streams, including electrical and electronic waste, and to base such proposals on the principle of producer responsibility. The European Parliament, in the same Resolution, requests the Council and the Commission to put forward proposals for cutting the volume of waste.
- (6) Council Directive 75/442/EEC of 15 July 1975 on waste ⁽⁸⁾ provides that specific rules for particular instances or supplementing those of Directive 75/442/EEC on the management of particular categories of waste may be laid down by means of individual Directives.
- (7) The amount of WEEE generated in the Community is growing rapidly. The content of hazardous components in electrical and electronic equipment (EEE) is a major concern during the waste management phase and recycling of WEEE is not undertaken to a sufficient extent.
- (8) The objective of improving the management of WEEE cannot be achieved effectively by Member States acting individually. In particular, different national applications of the producer responsibility principle may lead to substantial disparities in the financial burden on economic operators. Having different national policies on the management of WEEE hampers the effectiveness of recycling policies. For that reason the essential criteria should be laid down at Community level.

⁽¹⁾ OJ C 365 E, 19.12.2000, p. 184 and OJ C 240 E, 28.8.2001, p. 298.

⁽²⁾ OJ C 116, 20.4.2001, p. 38.

⁽³⁾ OJ C 148, 18.5.2001, p. 1.

⁽⁴⁾ Opinion of the European Parliament of 15 May 2001 (OJ C 34 E, 7.2.2002, p. 115), Council Common Position of 4 December 2001 (OJ C 110 E, 7.5.2002, p. 1) and Decision of the European Parliament of 10 April 2002 (not yet published in the Official Journal). Decision of the European Parliament of 18 December 2002 and Decision of the Council of 16 December 2002.

⁽⁵⁾ OJ C 138, 17.5.1993, p. 5.

⁽⁶⁾ OJ C 76, 11.3.1997, p. 1.

⁽⁷⁾ OJ C 362, 2.12.1996, p. 241.

⁽⁸⁾ OJ L 194, 25.7.1975, p. 47. Directive as last amended by Commission Decision 96/350/EC (OJ L 135, 6.6.1996, p. 32).

- (9) The provisions of this Directive should apply to products and producers irrespective of the selling technique, including distance and electronic selling. In this connection the obligations of producers and distributors using distance and electronic selling channels should, as far as is practicable, take the same form and should be enforced in the same way in order to avoid other distribution channels having to bear the costs of the provisions of this Directive concerning WEEE for which the equipment was sold by distant or electronic selling.
- (10) This Directive should cover all electrical and electronic equipment used by consumers and electrical and electronic equipment intended for professional use. This Directive should apply without prejudice to Community legislation on safety and health requirements protecting all actors in contact with WEEE as well as specific Community waste management legislation, in particular Council Directive 91/157/EEC of 18 March 1991 on batteries and accumulators containing certain dangerous substances ⁽¹⁾.
- (11) Directive 91/157/EEC needs to be revised as soon as possible, particularly in the light of this Directive.
- (12) The establishment, by this Directive, of producer responsibility is one of the means of encouraging the design and production of electrical and electronic equipment which take into full account and facilitate their repair, possible upgrading, reuse, disassembly and recycling.
- (13) In order to guarantee the safety and health of distributors' personnel involved in the take-back and handling of WEEE, Member States should, in accordance with national and Community legislation on safety and health requirements, determine the conditions under which take-back may be refused by distributors.
- (14) Member States should encourage the design and production of electrical and electronic equipment which take into account and facilitate dismantling and recovery, in particular the re-use and recycling of WEEE, their components and materials. Producers should not prevent, through specific design features or manufacturing processes, WEEE from being reused, unless such specific design features or manufacturing processes present overriding advantages, for example with regard to the protection of the environment and/or safety requirements.
- (15) Separate collection is the precondition to ensure specific treatment and recycling of WEEE and is necessary to achieve the chosen level of protection of human health and the environment in the Community. Consumers have to actively contribute to the success of such collection and should be encouraged to return WEEE. For this purpose, convenient facilities should be set up for the return of WEEE, including public collection points, where private households should be able to return their waste at least free of charge.
- (16) In order to attain the chosen level of protection and harmonised environmental objectives of the Community, Member States should adopt appropriate measures to minimise the disposal of WEEE as unsorted municipal waste and to achieve a high level of separate collection of WEEE. In order to ensure that Member States strive to set up efficient collection schemes, they should be required to achieve a high level of collection of WEEE from private households.
- (17) Specific treatment for WEEE is indispensable in order to avoid the dispersion of pollutants into the recycled material or the waste stream. Such treatment is the most effective means of ensuring compliance with the chosen level of protection of the environment of the Community. Any establishment or undertakings carrying out recycling and treatment operations should comply with minimum standards to prevent negative environmental impacts associated with the treatment of WEEE. Best available treatment, recovery and recycling techniques should be used provided that they ensure human health and high environmental protection. Best available treatment, recovery and recycling techniques may be further defined in accordance with the procedures of Directive 96/61/EC.
- (18) Where appropriate, priority should be given to the reuse of WEEE and its components, subassemblies and consumables. Where reuse is not preferable, all WEEE collected separately should be sent for recovery, in the course of which a high level of recycling and recovery should be achieved. In addition, producers should be encouraged to integrate recycled material in new equipment.
- (19) Basic principles with regard to the financing of WEEE management have to be set at Community level and financing schemes have to contribute to high collection rates as well as to the implementation of the principle of producer responsibility.
- (20) Users of electrical and electronic equipment from private households should have the possibility of returning WEEE at least free of charge. Producers should therefore finance collection from collection facilities, and the treatment, recovery and disposal of WEEE. In order to give maximum effect to the concept of producer responsibility, each producer should be responsible for financing the management of the waste from his own products. The producer should be able to choose to fulfil this obligation either individually or by joining a collective scheme. Each producer should, when placing a product on the market, provide a financial guarantee to prevent costs for the management of WEEE from orphan products from falling on society or the remaining producers. The responsibility for the financing of the management of historical waste should be shared by all existing producers in collective financing schemes to which all producers, existing on the market when the costs occur,

⁽¹⁾ OJ L 78, 26.3.1991, p. 38. Directive as amended by Commission Directive 98/101/EC (OJ L 1, 5.1.1999, p. 1).

contribute proportionately. Collective financing schemes should not have the effect of excluding niche and low-volume producers, importers and new entrants. For a transitional period, producers should be allowed to show purchasers, on a voluntary basis at the time of sale of new products, the costs of collecting, treating and disposing in an environmentally sound way of historical waste. Producers making use of this provision should ensure that the costs mentioned do not exceed the actual costs incurred.

(21) Information to users about the requirement not to dispose of WEEE as unsorted municipal waste and to collect WEEE separately, and about the collection systems and their role in the management of WEEE, is indispensable for the success of WEEE collection. Such information implies the proper marking of electrical and electronic equipment which could end up in rubbish bins or similar means of municipal waste collection.

(22) Information on component and material identification to be provided by producers is important to facilitate the management, and in particular the treatment and recovery/recycling, of WEEE.

(23) Member States should ensure that inspection and monitoring infrastructure enable the proper implementation of this Directive to be verified, having regard, *inter alia*, to Recommendation 2001/331/EC of the European Parliament and the Council of 4 April 2001 providing for minimum criteria for environmental inspections in the Member States ⁽¹⁾.

(24) Information about the weight or, if this is not possible, the numbers of items of electrical and electronic equipment put on the market in the Community and the rates of collection, reuse (including as far as possible reuse of whole appliances), recovery/recycling and export of WEEE collected in accordance with this Directive is necessary to monitor the achievement of the objectives of this Directive.

(25) Member States may choose to implement certain provisions of this Directive by means of agreements between the competent authorities and the economic sectors concerned provided that particular requirements are met.

(26) The adaptation to scientific and technical progress of certain provisions of the Directive, the list of products falling under the categories set out in Annex IA, the selective treatment for materials and components of WEEE, the technical requirements for storage and treatment of WEEE and the symbol for the marking of EEE should be effected by the Commission under a committee procedure.

(27) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽²⁾,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Objectives

The purpose of this Directive is, as a first priority, the prevention of waste electrical and electronic equipment (WEEE), and in addition, the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste. It also seeks to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, e.g. producers, distributors and consumers and in particular those operators directly involved in the treatment of waste electrical and electronic equipment.

Article 2

Scope

1. This Directive shall apply to electrical and electronic equipment falling under the categories set out in Annex IA provided that the equipment concerned is not part of another type of equipment that does not fall within the scope of this Directive. Annex IB contains a list of products which fall under the categories set out in Annex IA.

2. This Directive shall apply without prejudice to Community legislation on safety and health requirements and specific Community waste management legislation.

3. Equipment which is connected with the protection of the essential interests of the security of Member States, arms, munitions and war material shall be excluded from this Directive. This does not, however, apply to products which are not intended for specifically military purposes.

⁽¹⁾ OJ L 118, 27.4.2001, p. 41.

⁽²⁾ OJ L 184, 17.7.1999, p. 23.

Article 3

Definitions

For the purposes of this Directive, the following definitions shall apply:

- (a) 'electrical and electronic equipment' or 'EEE' means equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields falling under the categories set out in Annex IA and designed for use with a voltage rating not exceeding 1 000 Volt for alternating current and 1 500 Volt for direct current;
- (b) 'waste electrical and electronic equipment' or 'WEEE' means electrical or electronic equipment which is waste within the meaning of Article 1(a) of Directive 75/442/EEC, including all components, subassemblies and consumables which are part of the product at the time of discarding;
- (c) 'prevention' means measures aimed at reducing the quantity and the harmfulness to the environment of WEEE and materials and substances contained therein;
- (d) 'reuse' means any operation by which WEEE or components thereof are used for the same purpose for which they were conceived, including the continued use of the equipment or components thereof which are returned to collection points, distributors, recyclers or manufacturers;
- (e) 'recycling' means the reprocessing in a production process of the waste materials for the original purpose or for other purposes, but excluding energy recovery which means the use of combustible waste as a means of generating energy through direct incineration with or without other waste but with recovery of the heat;
- (f) 'recovery' means any of the applicable operations provided for in Annex IIB to Directive 75/442/EEC;
- (g) 'disposal' means any of the applicable operations provided for in Annex IIA to Directive 75/442/EEC;
- (h) 'treatment' means any activity after the WEEE has been handed over to a facility for depollution, disassembly, shredding, recovery or preparation for disposal and any other operation carried out for the recovery and/or the disposal of the WEEE;
- (i) 'producer' means any person who, irrespective of the selling technique used, including by means of distance communication in accordance with Directive 97/7/EC of the European Parliament and of the Council of 20 May 1997 on the protection of consumers in respect of distance contracts ⁽¹⁾:
 - (i) manufactures and sells electrical and electronic equipment under his own brand,

- (ii) resells under his own brand equipment produced by other suppliers, a reseller not being regarded as the 'producer' if the brand of the producer appears on the equipment, as provided for in subpoint (i), or
- (iii) imports or exports electrical and electronic equipment on a professional basis into a Member State.

Whoever exclusively provides financing under or pursuant to any finance agreement shall not be deemed a 'producer' unless he also acts as a producer within the meaning of subpoints (i) to (iii);

- (j) 'distributor' means any person who provides electrical or electronic equipment on a commercial basis to the party who is going to use it;
- (k) 'WEEE from private households' means WEEE which comes from private households and from commercial, industrial, institutional and other sources which, because of its nature and quantity, is similar to that from private households;
- (l) 'dangerous substance or preparation' means any substance or preparation which has to be considered dangerous under Council Directive 67/548/EEC ⁽²⁾ or Directive 1999/45/EC of the European Parliament and of the Council ⁽³⁾.
- (m) 'finance agreement' means any loan, lease, hiring or deferred sale agreement or arrangement relating to any equipment whether or not the terms of that agreement or arrangement or any collateral agreement or arrangement provide that a transfer of ownership of that equipment will or may take place.

Article 4

Product design

Member States shall encourage the design and production of electrical and electronic equipment which take into account and facilitate dismantling and recovery, in particular the reuse and recycling of WEEE, their components and materials. In this context, Member States shall take appropriate measures so that producers do not prevent, through specific design features or manufacturing processes, WEEE from being reused, unless such specific design features or manufacturing processes present overriding advantages, for example, with regard to the protection of the environment and/or safety requirements.

Article 5

Separate collection

1. Member States shall adopt appropriate measures in order to minimise the disposal of WEEE as unsorted municipal waste and to achieve a high level of separate collection of WEEE.

⁽²⁾ OJ L 196, 16.8.1967, p. 1. Directive as last amended by Commission Directive 2001/59/EC (OJ L 225, 21.8.2001, p. 1).

⁽³⁾ OJ L 200, 30.7.1999, p. 1. Directive as amended by Commission Directive 2001/60/EC (OJ L 226, 22.8.2001, p. 5).

⁽¹⁾ OJ L 144, 4.6.1997, p. 19.

2. For WEEE from private households, Member States shall ensure that by the 13 August 2005:

- (a) systems are set up allowing final holders and distributors to return such waste at least free of charge. Member States shall ensure the availability and accessibility of the necessary collection facilities, taking into account in particular the population density;
- (b) when supplying a new product, distributors shall be responsible for ensuring that such waste can be returned to the distributor at least free of charge on a one-to-one basis as long as the equipment is of equivalent type and has fulfilled the same functions as the supplied equipment. Member States may depart from this provision provided they ensure that returning the WEEE is not thereby made more difficult for the final holder and provided that these systems remain free of charge for the final holder. Member States making use of this provision shall inform the Commission thereof;
- (c) without prejudice to the provisions of (a) and (b), producers are allowed to set up and operate individual and/or collective take-back systems for WEEE from private households provided that these are in line with the objectives of this Directive;
- (d) having regard to national and Community health and safety standards, WEEE that presents a health and safety risk to personnel because of contamination may be refused for return under (a) and (b). Member States shall make specific arrangements for such WEEE.

Member States may provide for specific arrangements for the return of WEEE as under (a) and (b) if the equipment does not contain the essential components or if the equipment contains waste other than WEEE.

3. In the case of WEEE other than WEEE from private households, and without prejudice to Article 9, Member States shall ensure that producers or third parties acting on their behalf provide for the collection of such waste.

4. Member States shall ensure that all WEEE collected under paragraphs 1, 2 and 3 above is transported to treatment facilities authorised under Article 6 unless the appliances are reused as a whole. Member States shall ensure that the envisaged reuse does not lead to a circumvention of this Directive, in particular as regards Articles 6 and 7. The collection and transport of separately collected WEEE shall be carried out in a way which optimises reuse and recycling of those components or whole appliances capable of being reused or recycled.

5. Without prejudice to paragraph 1, Member States shall ensure that by 31 December 2006 at the latest a rate of separate collection of at least four kilograms on average per inhabitant per year of WEEE from private households is achieved.

The European Parliament and the Council, acting on a proposal from the Commission and taking account of technical and economic experience in the Member States, shall establish a new mandatory target by 31 December 2008. This may take the form of a percentage of the quantities of electrical and electronic equipment sold to private households in the preceding years.

Article 6

Treatment

1. Member States shall ensure that producers or third parties acting on their behalf, in accordance with Community legislation, set up systems to provide for the treatment of WEEE using best available treatment, recovery and recycling techniques. The systems may be set up by producers individually and/or collectively. To ensure compliance with Article 4 of Directive 75/442/EEC, the treatment shall, as a minimum, include the removal of all fluids and a selective treatment in accordance with Annex II to this Directive.

Other treatment technologies ensuring at least the same level of protection for human health and the environment may be introduced in Annex II under the procedure referred to in Article 14(2).

For the purposes of environmental protection, Member States may set up minimum quality standards for the treatment of collected WEEE. Member States which opt for such quality standards shall inform the Commission thereof, which shall publish these standards.

2. Member States shall ensure that any establishment or undertaking carrying out treatment operations obtains a permit from the competent authorities, in compliance with Articles 9 and 10 of Directive 75/442/EEC.

The derogation from the permit requirement referred to in Article 11(1)(b) of Directive 75/442/EEC may apply to recovery operations concerning WEEE if an inspection is carried out by the competent authorities before the registration in order to ensure compliance with Article 4 of Directive 75/442/EEC.

The inspection shall verify:

- (a) the type and quantities of waste to be treated;
- (b) the general technical requirements to be complied with;
- (c) the safety precautions to be taken.

The inspection shall be carried out at least once a year and the results shall be communicated by the Member States to the Commission.

3. Member States shall ensure that any establishment or undertaking carrying out treatment operations stores and treats WEEE in compliance with the technical requirements set out in Annex III.

4. Member States shall ensure that the permit or the registration referred to in paragraph 2 includes all conditions necessary for compliance with the requirements of paragraphs 1 and 3 and for the achievement of the recovery targets set out in Article 7.

5. The treatment operation may also be undertaken outside the respective Member State or the Community provided that the shipment of WEEE is in compliance with Council Regulation (EEC) No 259/93 of 1 February 1993 on the supervision and control of shipments of waste within, into and out of the European Community ⁽¹⁾.

WEEE exported out of the Community in line with Council Regulation (EEC) No 259/93, Council Regulation (EC) No 1420/1999 ⁽²⁾ of 29 April 1999 establishing common rules and procedures to apply to shipments to certain non-OECD countries of certain types of waste and Commission Regulation (EC) No 1547/1999 ⁽³⁾ of 12 July 1999 determining the control procedures under Council Regulation (EEC) No 259/93 to apply to shipments of certain types of waste to certain countries to which OECD Decision C(92)39 final does not apply, shall only count for the fulfilment of obligations and targets of Article 7(1) and (2) of this Directive if the exporter can prove that the recovery, reuse and/or recycling operation took place under conditions that are equivalent to the requirements of this Directive.

6. Member States shall encourage establishments or undertakings which carry out treatment operations to introduce certified environmental management systems in accordance with Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19 March 2001 allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) ⁽⁴⁾.

Article 7

Recovery

1. Member States shall ensure that producers or third parties acting on their behalf set up systems either on an individual or on a collective basis, in accordance with Community legislation, to provide for the recovery of WEEE collected separately in accordance with Article 5. Member States shall give priority to the reuse of whole appliances. Until the date referred to in paragraph 4, such appliances shall not be taken into account for the calculation of the targets set out in paragraph 2.

2. Regarding WEEE sent for treatment in accordance with Article 6, Member States shall ensure that, by 31 December 2006, producers meet the following targets:

- (a) for WEEE falling under categories 1 and 10 of Annex IA,
- the rate of recovery shall be increased to a minimum of 80 % by an average weight per appliance, and

⁽¹⁾ OJ L 30, 6.2.1993, p. 1. Regulation as last amended by Commission Regulation (EC) No 2557/2001 (OJ L 349, 31.12.2001, p. 1).

⁽²⁾ OJ L 166, 1.7.1999, p. 6. Regulation as last amended by Commission Regulation (EC) No 2243/2001 (OJ L 303, 20.11.2001, p. 11).

⁽³⁾ OJ L 185, 17.7.1999, p. 1. Regulation as last amended by Commission Regulation (EC) No 2243/2001.

⁽⁴⁾ OJ L 114, 24.4.2001, p. 1.

- component, material and substance reuse and recycling shall be increased to a minimum of 75 % by an average weight per appliance;

(b) for WEEE falling under categories 3 and 4 of Annex IA,

- the rate of recovery shall be increased to a minimum of 75 % by an average weight per appliance, and
- component, material and substance reuse and recycling shall be increased to a minimum of 65 % by an average weight per appliance;

(c) for WEEE falling under categories 2, 5, 6, 7 and 9 of Annex IA,

- the rate of recovery shall be increased to a minimum of 70 % by an average weight per appliance, and
- component, material and substance reuse and recycling shall be increased to a minimum of 50 % by an average weight per appliance;

(d) for gas discharge lamps, the rate of component, material and substance reuse and recycling shall reach a minimum of 80 % by weight of the lamps.

3. Member States shall ensure that, for the purpose of calculating these targets, producers or third parties acting on their behalf keep records on the mass of WEEE, their components, materials or substances when entering (input) and leaving (output) the treatment facility and/or when entering (input) the recovery or recycling facility.

The Commission shall, in accordance with the procedure laid down in Article 14(2), establish the detailed rules for monitoring compliance, including specifications for materials, of Member States with the targets set out in paragraph 2. The Commission shall submit this measure by 13 August 2004.

4. The European Parliament and the Council, acting on a proposal from the Commission, shall establish new targets for recovery and reuse/recycling, including for the reuse of whole appliances as appropriate, and for the products falling under category 8 of Annex IA, by 31 December 2008. This shall be done with account being taken of the environmental benefits of electrical and electronic equipment in use, such as improved resource efficiency resulting from developments in the areas of materials and technology. Technical progress in reuse, recovery and recycling, products and materials, and the experience gained by the Member States and the industry, shall also be taken into account.

5. Member States shall encourage the development of new recovery, recycling and treatment technologies.

Article 8

Financing in respect of WEEE from private households

1. Member States shall ensure that, by 13 August 2005, producers provide at least for the financing of the collection, treatment, recovery and environmentally sound disposal of WEEE from private households deposited at collection facilities, set up under Article 5(2).

2. For products put on the market later than 13 August 2005, each producer shall be responsible for financing the operations referred to in paragraph 1 relating to the waste from his own products. The producer can choose to fulfil this obligation either individually or by joining a collective scheme.

Member States shall ensure that each producer provides a guarantee when placing a product on the market showing that the management of all WEEE will be financed and that producers clearly mark their products in accordance with Article 11(2). This guarantee shall ensure that the operations referred to in paragraph 1 relating to this product will be financed. The guarantee may take the form of participation by the producer in appropriate schemes for the financing of the management of WEEE, a recycling insurance or a blocked bank account.

The costs of collection, treatment and environmentally sound disposal shall not be shown separately to purchasers at the time of sale of new products.

3. The responsibility for the financing of the costs of the management of WEEE from products put on the market before the date referred to in paragraph 1 (historical waste) shall be provided by one or more systems to which all producers, existing on the market when the respective costs occur, contribute proportionately, e.g. in proportion to their respective share of the market by type of equipment.

Member States shall ensure that for a transitional period of eight years (10 years for category 1 of Annex IA) after entry into force of this Directive, producers are allowed to show purchasers, at the time of sale of new products, the costs of collection, treatment and disposal in an environmentally sound way. The costs mentioned shall not exceed the actual costs incurred.

4. Member States shall ensure that producers supplying electrical or electronic equipment by means of distance communication also comply with the requirements set out in this Article for the equipment supplied in the Member State where the purchaser of that equipment resides.

Article 9

Financing in respect of WEEE from users other than private households

Member States shall ensure that, by 13 August 2005, the financing of the costs for the collection, treatment, recovery and environmentally sound disposal of WEEE from users other than private households from products put on the market after 13 August 2005 is to be provided for by producers.

For WEEE from products put on the market before 13 August 2005 (historical waste), the financing of the costs of management shall be provided for by producers. Member States may, as an alternative, provide that users other than private households also be made, partly or totally, responsible for this financing.

Producers and users other than private households may, without prejudice to this Directive, conclude agreements stipulating other financing methods.

Article 10

Information for users

1. Member States shall ensure that users of electrical and electronic equipment in private households are given the necessary information about:

- (a) the requirement not to dispose of WEEE as unsorted municipal waste and to collect such WEEE separately;
- (b) the return and collection systems available to them;
- (c) their role in contributing to reuse, recycling and other forms of recovery of WEEE;
- (d) the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment;
- (e) the meaning of the symbol shown in Annex IV.

2. Member States shall adopt appropriate measures so that consumers participate in the collection of WEEE and to encourage them to facilitate the process of reuse, treatment and recovery.

3. With a view to minimising the disposal of WEEE as unsorted municipal waste and to facilitating its separate collection, Member States shall ensure that producers appropriately mark electrical and electronic equipment put on the market after 13 August 2005 with the symbol shown in Annex IV. In exceptional cases, where this is necessary because of the size or the function of the product, the symbol shall be printed on the packaging, on the instructions for use and on the warranty of the electrical and electronic equipment.

4. Member States may require that some or all of the information referred to in paragraphs 1 to 3 shall be provided by producers and/or distributors, e.g. in the instructions for use or at the point of sale.

*Article 11***Information for treatment facilities**

1. In order to facilitate the reuse and the correct and environmentally sound treatment of WEEE, including maintenance, upgrade, refurbishment and recycling, Member States shall take the necessary measures to ensure that producers provide reuse and treatment information for each type of new EEE put on the market within one year after the equipment is put on the market. This information shall identify, as far as it is needed by reuse centres, treatment and recycling facilities in order to comply with the provisions of this Directive, the different EEE components and materials, as well as the location of dangerous substances and preparations in EEE. It shall be made available to reuse centres, treatment and recycling facilities by producers of EEE in the form of manuals or by means of electronic media (e.g. CD-ROM, online services).

2. Member States shall ensure that any producer of an electrical or electronic appliance put on the market after 13 August 2005 is clearly identifiable by a mark on the appliance. Furthermore, in order to enable the date upon which the appliance was put on the market to be determined unequivocally, a mark on the appliance shall specify that the latter was put on the market after 13 August 2005. The Commission shall promote the preparation of European standards for this purpose.

*Article 12***Information and reporting**

1. Member States shall draw up a register of producers and collect information, including substantiated estimates, on an annual basis on the quantities and categories of electrical and electronic equipment put on their market, collected through all routes, reused, recycled and recovered within the Member States, and on collected waste exported, by weight or, if this is not possible, by numbers.

Member States shall ensure that producers supplying electrical and electronic equipment by means of distance communication provide information on the compliance with the requirements of Article 8(4) and on the quantities and categories of electrical and electronic equipment put on the market of the Member State where the purchaser of that equipment resides.

Member States shall ensure that the information required is transmitted to the Commission on a two-yearly basis within 18 months after the end of the period covered. The first set of information shall cover the years 2005 and 2006. The information shall be provided in a format which shall be established within one year after the entry into force of this Directive in accordance with the procedure referred to in Article 14(2) with a view to establishing databases on WEEE and its treatment.

Member States shall provide for adequate information exchange in order to comply with this paragraph, in particular for treatment operations as referred to in Article 6(5).

2. Without prejudice to the requirements of paragraph 1, Member States shall send a report to the Commission on the implementation of this Directive at three-year intervals. The report shall be drawn up on the basis of a questionnaire or outline drafted by the Commission in accordance with the procedure laid down in Article 6 of Council Directive 91/692/EEC of 23 December 1991 standardising and rationalising reports on the implementation of certain Directives relating to the environment⁽¹⁾. The questionnaire or outline shall be sent to the Member States six months before the start of the period covered by the report. The report shall be made available to the Commission within nine months of the end of the three-year period covered by it.

The first three-year report shall cover the period from 2004 to 2006.

The Commission shall publish a report on the implementation of this Directive within nine months after receiving the reports from the Member States.

*Article 13***Adaptation to scientific and technical progress**

Any amendments which are necessary in order to adapt Article 7(3), Annex IB, (in particular with a view to possibly adding luminaires in households, filament bulbs and photovoltaic products, i.e. solar panels), Annex II (in particular taking into account new technical developments for the treatment of WEEE), and Annexes III and IV to scientific and technical progress shall be adopted in accordance with the procedure referred to in Article 14(2).

Before the Annexes are amended the Commission shall *inter alia* consult producers of electrical and electronic equipment, recyclers, treatment operators and environmental organisations and employees' and consumer associations.

*Article 14***Committee**

1. The Commission shall be assisted by the Committee set up by Article 18 of Directive 75/442/EEC.

2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. The Committee shall adopt its rules of procedure.

⁽¹⁾ OJ L 377, 31.12.1991, p. 48.

*Article 15***Penalties**

Member States shall determine penalties applicable to breaches of the national provisions adopted pursuant to this Directive. The penalties thus provided for shall be effective, proportionate and dissuasive.

*Article 16***Inspection and monitoring**

Member States shall ensure that inspection and monitoring enable the proper implementation of this Directive to be verified.

*Article 17***Transposition**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 13 August 2004. They shall immediately inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or be accompanied by such reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

2. Member States shall communicate to the Commission the text of all laws, regulations and administrative provisions adopted in the field covered by this Directive.

3. Provided that the objectives set out in this Directive are achieved, Member States may transpose the provisions set out in Articles 6(6), 10(1) and 11 by means of agreements between the competent authorities and the economic sectors concerned. Such agreements shall meet the following requirements:

- (a) agreements shall be enforceable;
- (b) agreements shall specify objectives with the corresponding deadlines;
- (c) agreements shall be published in the national official journal or an official document equally accessible to the public and transmitted to the Commission;
- (d) the results achieved shall be monitored regularly, reported to the competent authorities and the Commission and made available to the public under the conditions set out in the agreement;
- (e) the competent authorities shall ensure that the progress reached under the agreement is examined;
- (f) in case of non-compliance with the agreement Member States must implement the relevant provisions of this Directive by legislative, regulatory or administrative measures.

4. (a) Greece and Ireland which, because of their overall:
 - recycling infrastructure deficit,
 - geographical circumstances such as the large number of small islands and the presence of rural and mountain areas,
 - low population density, and
 - low level of EEE consumption,

are unable to reach either the collection target mentioned in the first subparagraph of Article 5(5) or the recovery targets mentioned in Article 7(2) and which, under the third subparagraph of Article 5(2) of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste ⁽¹⁾, may apply for an extension of the deadline mentioned in that Article,

may extend the periods referred to in Articles 5(5) and 7(2) of this Directive by up to 24 months.

These Member States shall inform the Commission of their Decisions at the latest at the time of transposition of this Directive.

- (b) The Commission shall inform other Member States and the European Parliament of these decisions.

5. Within five years after the entry into force of this Directive, the Commission shall submit a report to the European Parliament and the Council based on the experience of the application of this Directive, in particular as regards separate collection, treatment, recovery and financing systems. Furthermore the report shall be based on the development of the state of technology, experience gained, environmental requirements and the functioning of the internal market. The report shall, as appropriate, be accompanied by proposals for revision of the relevant provisions of this Directive.

*Article 18***Entry into force**

This Directive shall enter into force on the day of its publication in the *Official Journal of the European Union*.

*Article 19***Addressees**

This Directive is addressed to the Member States.

Done at Brussels, 27 January 2003.

For the European Parliament

The President

P. COX

For the Council

The President

G. DRYS

⁽¹⁾ OJ L 182, 16.7.1999, p. 1.

ANNEX IA

Categories of electrical and electronic equipment covered by this Directive

1. Large household appliances
 2. Small household appliances
 3. IT and telecommunications equipment
 4. Consumer equipment
 5. Lighting equipment
 6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
 7. Toys, leisure and sports equipment
 8. Medical devices (with the exception of all implanted and infected products)
 9. Monitoring and control instruments
 10. Automatic dispensers
-

ANNEX IB

List of products which shall be taken into account for the purpose of this Directive and which fall under the categories of Annex IA

1. Large household appliances

Large cooling appliances

Refrigerators

Freezers

Other large appliances used for refrigeration, conservation and storage of food

Washing machines

Clothes dryers

Dish washing machines

Cooking

Electric stoves

Electric hot plates

Microwaves

Other large appliances used for cooking and other processing of food

Electric heating appliances

Electric radiators

Other large appliances for heating rooms, beds, seating furniture

Electric fans

Air conditioner appliances

Other fanning, exhaust ventilation and conditioning equipment

2. Small household appliances

Vacuum cleaners

Carpet sweepers

Other appliances for cleaning

Appliances used for sewing, knitting, weaving and other processing for textiles

Irons and other appliances for ironing, mangling and other care of clothing

Toasters

Fryers

Grinders, coffee machines and equipment for opening or sealing containers or packages

Electric knives

Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care appliances

Clocks, watches and equipment for the purpose of measuring, indicating or registering time

Scales

3. IT and telecommunications equipment

Centralised data processing:

Mainframes

Minicomputers

Printer units

Personal computing:

Personal computers (CPU, mouse, screen and keyboard included)

Laptop computers (CPU, mouse, screen and keyboard included)

Notebook computers
Notepad computers
Printers
Copying equipment
Electrical and electronic typewriters
Pocket and desk calculators
and other products and equipment for the collection, storage, processing, presentation or communication of information by electronic means
User terminals and systems
Facsimile
Telex
Telephones
Pay telephones
Cordless telephones
Cellular telephones
Answering systems
and other products or equipment of transmitting sound, images or other information by telecommunications

4. Consumer equipment

Radio sets
Television sets
Videocameras
Video recorders
Hi-fi recorders
Audio amplifiers
Musical instruments
And other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound and image than by telecommunications

5. Lighting equipment

Luminaires for fluorescent lamps with the exception of luminaires in households
Straight fluorescent lamps
Compact fluorescent lamps
High intensity discharge lamps, including pressure sodium lamps and metal halide lamps
Low pressure sodium lamps
Other lighting or equipment for the purpose of spreading or controlling light with the exception of filament bulbs

6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)

Drills
Saws
Sewing machines
Equipment for turning, milling, sanding, grinding, sawing, cutting, shearing, drilling, making holes, punching, folding, bending or similar processing of wood, metal and other materials
Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses
Tools for welding, soldering or similar use
Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means
Tools for mowing or other gardening activities

7. Toys, leisure and sports equipment
 - Electric trains or car racing sets
 - Hand-held video game consoles
 - Video games
 - Computers for biking, diving, running, rowing, etc.
 - Sports equipment with electric or electronic components
 - Coin slot machines
 8. Medical devices (with the exception of all implanted and infected products)
 - Radiotherapy equipment
 - Cardiology
 - Dialysis
 - Pulmonary ventilators
 - Nuclear medicine
 - Laboratory equipment for *in-vitro* diagnosis
 - Analysers
 - Freezers
 - Fertilization tests
 - Other appliances for detecting, preventing, monitoring, treating, alleviating illness, injury or disability
 9. Monitoring and control instruments
 - Smoke detector
 - Heating regulators
 - Thermostats
 - Measuring, weighing or adjusting appliances for household or as laboratory equipment
 - Other monitoring and control instruments used in industrial installations (e.g. in control panels)
 10. Automatic dispensers
 - Automatic dispensers for hot drinks
 - Automatic dispensers for hot or cold bottles or cans
 - Automatic dispensers for solid products
 - Automatic dispensers for money
 - All appliances which deliver automatically all kind of products
-

ANNEX II

Selective treatment for materials and components of waste electrical and electronic equipment in accordance with Article 6(1)

1. As a minimum the following substances, preparations and components have to be removed from any separately collected WEEE:
 - polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) ⁽¹⁾,
 - mercury containing components, such as switches or backlighting lamps,
 - batteries,
 - printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,
 - toner cartridges, liquid and pasty, as well as colour toner,
 - plastic containing brominated flame retardants,
 - asbestos waste and components which contain asbestos,
 - cathode ray tubes,
 - chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
 - gas discharge lamps,
 - liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps,
 - external electric cables,
 - components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labelling of dangerous substances ⁽²⁾,
 - components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation ⁽³⁾,
 - electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume)

These substances, preparations and components shall be disposed of or recovered in compliance with Article 4 of Council Directive 75/442/EEC.
2. The following components of WEEE that is separately collected have to be treated as indicated:
 - cathode ray tubes: The fluorescent coating has to be removed,
 - equipment containing gases that are ozone depleting or have a global warming potential (GWP) above 15, such as those contained in foams and refrigeration circuits: the gases must be properly extracted and properly treated. Ozone-depleting gases must be treated in accordance with Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer ⁽⁴⁾.
 - gas discharge lamps: The mercury shall be removed.
3. Taking into account environmental considerations and the desirability of reuse and recycling, paragraphs 1 and 2 shall be applied in such a way that environmentally-sound reuse and recycling of components or whole appliances is not hindered.
4. Within the procedure referred to in Article 14(2), the Commission shall evaluate as a matter of priority whether the entries regarding:
 - printed circuit boards for mobile phones, and
 - liquid crystal displaysare to be amended.

⁽¹⁾ OJ L 243, 24.9.1996, p. 31.

⁽²⁾ OJ L 343, 13.12.1997, p. 19.

⁽³⁾ OJ L 159, 29.6.1996, p. 1.

⁽⁴⁾ OJ L 244, 29.9.2000, p. 1. Regulation as last amended by Regulation (EC) No 2039/2000 (OJ L 244, 29.9.2000, p. 26).

ANNEX III

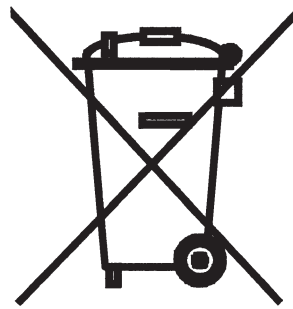
Technical requirements in accordance with Article 6(3)

1. Sites for storage (including temporary storage) of WEEE prior to their treatment (without prejudice to the requirements of Council Directive 1999/31/EC):
 - impermeable surfaces for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,
 - weatherproof covering for appropriate areas.
2. Sites for treatment of WEEE:
 - balances to measure the weight of the treated waste,
 - impermeable surfaces and waterproof covering for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,
 - appropriate storage for disassembled spare parts,
 - appropriate containers for storage of batteries, PCBs/PCTs containing capacitors and other hazardous waste such as radioactive waste,
 - equipment for the treatment of water in compliance with health and environmental regulations.

ANNEX IV

Symbol for the marking of electrical and electronic equipment

The symbol indicating separate collection for electrical and electronic equipment consists of the crossed-out wheeled bin, as shown below. The symbol must be printed visibly, legibly and indelibly.



DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 27 January 2003
on the restriction of the use of certain hazardous substances in electrical and electronic equipment

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 95 thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee ⁽²⁾,

Having regard to the opinion of the Committee of Regions ⁽³⁾,

Acting in accordance with the procedure laid down in Article 251 of the Treaty in the light of the joint text approved by the Conciliation Committee on 8 November 2002 ⁽⁴⁾,

Whereas:

- (1) The disparities between the laws or administrative measures adopted by the Member States as regards the restriction of the use of hazardous substances in electrical and electronic equipment could create barriers to trade and distort competition in the Community and may thereby have a direct impact on the establishment and functioning of the internal market. It therefore appears necessary to approximate the laws of the Member States in this field and to contribute to the protection of human health and the environmentally sound recovery and disposal of waste electrical and electronic equipment.
- (2) The European Council at its meeting in Nice on 7, 8 and 9 December 2000 endorsed the Council Resolution of 4 December 2000 on the precautionary principle.
- (3) The Commission Communication of 30 July 1996 on the review of the Community strategy for waste management stresses the need to reduce the content of hazardous substances in waste and points out the potential benefits of Community-wide rules limiting the presence of such substances in products and in production processes.
- (4) The Council Resolution of 25 January 1988 on a Community action programme to combat environmental pollution by cadmium ⁽⁵⁾ invites the Commission to pursue without delay the development of specific measures for such a programme. Human health also has

to be protected and an overall strategy that in particular restricts the use of cadmium and stimulates research into substitutes should therefore be implemented. The Resolution stresses that the use of cadmium should be limited to cases where suitable and safer alternatives do not exist.

- (5) The available evidence indicates that measures on the collection, treatment, recycling and disposal of waste electrical and electronic equipment (WEEE) as set out in Directive 2002/96/EC of 27 January 2003 of the European Parliament and of the Council on waste electrical and electronic equipment ⁽⁶⁾ are necessary to reduce the waste management problems linked to the heavy metals concerned and the flame retardants concerned. In spite of those measures, however, significant parts of WEEE will continue to be found in the current disposal routes. Even if WEEE were collected separately and submitted to recycling processes, its content of mercury, cadmium, lead, chromium VI, PBB and PBDE would be likely to pose risks to health or the environment.
- (6) Taking into account technical and economic feasibility, the most effective way of ensuring the significant reduction of risks to health and the environment relating to those substances which can achieve the chosen level of protection in the Community is the substitution of those substances in electrical and electronic equipment by safe or safer materials. Restricting the use of these hazardous substances is likely to enhance the possibilities and economic profitability of recycling of WEEE and decrease the negative health impact on workers in recycling plants.
- (7) The substances covered by this Directive are scientifically well researched and evaluated and have been subject to different measures both at Community and at national level.
- (8) The measures provided for in this Directive take into account existing international guidelines and recommendations and are based on an assessment of available scientific and technical information. The measures are necessary to achieve the chosen level of protection of

⁽¹⁾ OJ C 365 E, 19.12.2000, p. 195 and OJ C 240 E, 28.8.2001, p. 303.

⁽²⁾ OJ C 116, 20.4.2001, p. 38.

⁽³⁾ OJ C 148, 18.5.2001, p. 1.

⁽⁴⁾ Opinion of the European Parliament of 15 May 2001 (OJ C 34 E, 7.2.2002, p. 109), Council Common Position of 4 December 2001 (OJ C 90 E, 16.4.2002, p. 12) and Decision of the European Parliament of 10 April 2002 (not yet published in the Official Journal), Decision of the European Parliament of 18 December 2002 and Decision of the Council of 16 December 2002.

⁽⁵⁾ OJ C 30, 4.2.1988, p. 1.

⁽⁶⁾ See page 24 of this Official Journal.

human and animal health and the environment, having regard to the risks which the absence of measures would be likely to create in the Community. The measures should be kept under review and, if necessary, adjusted to take account of available technical and scientific information.

- (9) This Directive should apply without prejudice to Community legislation on safety and health requirements and specific Community waste management legislation, in particular Council Directive 91/157/EEC of 18 March 1991 on batteries and accumulators containing certain dangerous substances ⁽¹⁾.
- (10) The technical development of electrical and electronic equipment without heavy metals, PBDE and PBB should be taken into account. As soon as scientific evidence is available and taking into account the precautionary principle, the prohibition of other hazardous substances and their substitution by more environmentally friendly alternatives which ensure at least the same level of protection of consumers should be examined.
- (11) Exemptions from the substitution requirement should be permitted if substitution is not possible from the scientific and technical point of view or if the negative environmental or health impacts caused by substitution are likely to outweigh the human and environmental benefits of the substitution. Substitution of the hazardous substances in electrical and electronic equipment should also be carried out in a way so as to be compatible with the health and safety of users of electrical and electronic equipment (EEE).
- (12) As product reuse, refurbishment and extension of lifetime are beneficial, spare parts need to be available.
- (13) The adaptation to scientific and technical progress of the exemptions from the requirements concerning phasing out and prohibition of hazardous substances should be effected by the Commission under a committee procedure.
- (14) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽²⁾.

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Objectives

The purpose of this Directive is to approximate the laws of the Member States on the restrictions of the use of hazardous substances in electrical and electronic equipment and to contri-

bute to the protection of human health and the environmentally sound recovery and disposal of waste electrical and electronic equipment.

Article 2

Scope

- Without prejudice to Article 6, this Directive shall apply to electrical and electronic equipment falling under the categories 1, 2, 3, 4, 5, 6, 7 and 10 set out in Annex IA to Directive No 2002/96/EC (WEEE) and to electric light bulbs, and luminaires in households.
- This Directive shall apply without prejudice to Community legislation on safety and health requirements and specific Community waste management legislation.
- This Directive does not apply to spare parts for the repair, or to the reuse, of electrical and electronic equipment put on the market before 1 July 2006.

Article 3

Definitions

For the purposes of this Directive, the following definitions shall apply:

- 'electrical and electronic equipment' or 'EEE' means equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields falling under the categories set out in Annex IA to Directive 2002/96/EC (WEEE) and designed for use with a voltage rating not exceeding 1 000 volts for alternating current and 1 500 volts for direct current;
- 'producer' means any person who, irrespective of the selling technique used, including by means of distance communication according to Directive 97/7/EC of the European Parliament and of the Council of 20 May 1997 on the protection of consumers in respect of distance contracts ⁽³⁾:
 - manufactures and sells electrical and electronic equipment under his own brand;
 - resells under his own brand equipment produced by other suppliers, a reseller not being regarded as the 'producer' if the brand of the producer appears on the equipment, as provided for in subpoint (i); or
 - imports or exports electrical and electronic equipment on a professional basis into a Member State.

Whoever exclusively provides financing under or pursuant to any finance agreement shall not be deemed a 'producer' unless he also acts as a producer within the meaning of subpoints (i) to (iii).

⁽¹⁾ OJ L 78, 26.3.1991, p. 38. Directive as amended by Commission Directive 98/101/EC (OJ L 1, 5.1.1999, p. 1).

⁽²⁾ OJ L 184, 17.7.1999, p. 23.

⁽³⁾ OJ L 144, 4.6.1997, p. 19. Directive as amended by Directive 2002/65/EC (L 271, 9.10.2002, p. 16).

Article 4

Prevention

1. Member States shall ensure that, from 1 July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE). National measures restricting or prohibiting the use of these substances in electrical and electronic equipment which were adopted in line with Community legislation before the adoption of this Directive may be maintained until 1 July 2006.

2. Paragraph 1 shall not apply to the applications listed in the Annex.

3. On the basis of a proposal from the Commission, the European Parliament and the Council shall decide, as soon as scientific evidence is available, and in accordance with the principles on chemicals policy as laid down in the Sixth Community Environment Action Programme, on the prohibition of other hazardous substances and the substitution thereof by more environment-friendly alternatives which ensure at least the same level of protection for consumers.

Article 5

Adaptation to scientific and technical progress

1. Any amendments which are necessary in order to adapt the Annex to scientific and technical progress for the following purposes shall be adopted in accordance with the procedure referred to in Article 7(2):

- (a) establishing, as necessary, maximum concentration values up to which the presence of the substances referred to in Article 4(1) in specific materials and components of electrical and electronic equipment shall be tolerated;
- (b) exempting materials and components of electrical and electronic equipment from Article 4(1) if their elimination or substitution via design changes or materials and components which do not require any of the materials or substances referred to therein is technically or scientifically impracticable, or where the negative environmental, health and/or consumer safety impacts caused by substitution are likely to outweigh the environmental, health and/or consumer safety benefits thereof;
- (c) carrying out a review of each exemption in the Annex at least every four years or four years after an item is added to the list with the aim of considering deletion of materials and components of electrical and electronic equipment from the Annex if their elimination or substitution via design changes or materials and components which do not require any of the materials or substances referred to in

Article 4(1) is technically or scientifically possible, provided that the negative environmental, health and/or consumer safety impacts caused by substitution do not outweigh the possible environmental, health and/or consumer safety benefits thereof.

2. Before the Annex is amended pursuant to paragraph 1, the Commission shall *inter alia* consult producers of electrical and electronic equipment, recyclers, treatment operators, environmental organisations and employee and consumer associations. Comments shall be forwarded to the Committee referred to in Article 7(1). The Commission shall provide an account of the information it receives.

Article 6

Review

Before 13 February 2005, the Commission shall review the measures provided for in this Directive to take into account, as necessary, new scientific evidence.

In particular the Commission shall, by that date, present proposals for including in the scope of this Directive equipment which falls under categories 8 and 9 set out in Annex IA to Directive 2002/96/EC (WEEE).

The Commission shall also study the need to adapt the list of substances of Article 4(1), on the basis of scientific facts and taking the precautionary principle into account, and present proposals to the European Parliament and Council for such adaptations, if appropriate.

Particular attention shall be paid during the review to the impact on the environment and on human health of other hazardous substances and materials used in electrical and electronic equipment. The Commission shall examine the feasibility of replacing such substances and materials and shall present proposals to the European Parliament and to the Council in order to extend the scope of Article 4, as appropriate.

Article 7

Committee

1. The Commission shall be assisted by the Committee set up by Article 18 of Council Directive 75/442/EEC ⁽¹⁾.

2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to Article 8 thereof.

The period provided for in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. The Committee shall adopt its rules of procedure.

⁽¹⁾ OJ L 194, 25.7.1975, p. 39.

*Article 8***Penalties**

Member States shall determine penalties applicable to breaches of the national provisions adopted pursuant to this Directive. The penalties thus provided for shall be effective, proportionate and dissuasive.

*Article 9***Transposition**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 13 August 2004. They shall immediately inform the Commission thereof.

When Member States adopt those measures, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

2. Member States shall communicate to the Commission the text of all laws, regulations and administrative provisions adopted in the field covered by this Directive.

*Article 10***Entry into force**

This Directive shall enter into force on the day of its publication in the *Official Journal of the European Union*.

*Article 11***Addressees**

This Directive is addressed to the Member States.

Done at Brussels, 27 January 2003.

For the European Parliament

The President

P. COX

For the Council

The President

G. DRYS

ANNEX

Applications of lead, mercury, cadmium and hexavalent chromium, which are exempted from the requirements of Article 4(1)

1. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.
2. Mercury in straight fluorescent lamps for general purposes not exceeding:
 - halophosphate 10 mg
 - triphosphate with normal lifetime 5 mg
 - triphosphate with long lifetime 8 mg.
3. Mercury in straight fluorescent lamps for special purposes.
4. Mercury in other lamps not specifically mentioned in this Annex.
5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.
6. Lead as an alloying element in steel containing up to 0,35 % lead by weight, aluminium containing up to 0,4 % lead by weight and as a copper alloy containing up to 4 % lead by weight.
7. — Lead in high melting temperature type solders (i.e. tin-lead solder alloys containing more than 85 % lead),
 - lead in solders for servers, storage and storage array systems (exemption granted until 2010),
 - lead in solders for network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunication,
 - lead in electronic ceramic parts (e.g. piezoelectric devices).
8. Cadmium plating except for applications banned under Directive 91/338/EEC ⁽¹⁾ amending Directive 76/769/EEC ⁽²⁾ relating to restrictions on the marketing and use of certain dangerous substances and preparations.
9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.
10. Within the procedure referred to in Article 7(2), the Commission shall evaluate the applications for:
 - Deca BDE,
 - mercury in straight fluorescent lamps for special purposes,
 - lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications (with a view to setting a specific time limit for this exemption), and
 - light bulbs,as a matter of priority in order to establish as soon as possible whether these items are to be amended accordingly.

⁽¹⁾ OJ L 186, 12.7.1991, p. 59.

⁽²⁾ OJ L 262, 27.9.1976, p. 201.