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Scottish Enterprise National

The Capability for Waste Electrical and Electronic Equipment Recycling in Scotland – A View from the Industry

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Confidential

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Glossary of Abbreviations

ATF	Accredited Treatment Facility
COSLA	Convention of Scottish Local Authorities
CTC	Certificate of Technical Competence
DEFRA	Department for Environment Food and Rural Affairs
DTI	Department of Trade and Industry
EEE	Electrical and Electronic Equipment
EU	European Union
ICER	Industry Council for Electronic Equipment Recycling
IT	Information Technology
LEC	Local Enterprise Company
NCH	National Clearing House
PPC	Pollution Prevention and Control
REEF	Resource Efficiency Environment Forum
RoHS	Restrictions of Hazardous Substances
SE	Scottish Enterprise
SEPA	Scottish Environmental Protection Agency
SWAG	Scottish Waste Awareness Group
TFS	Transfrontier Shipment
WAMITAB	Waste Management Industry Training and Advisory Board
WCL	Waste Carriers License
WEEE	Waste Electrical and Electronic Equipment
WML	Waste Management License
WRAP	Waste & Resources Action Programme
SEERAD	Scottish Executive, Environment and Rural Affairs Department
ETLLD	Scottish Executive Enterprise, Transport and Lifelong Learning Dept.

Preface

This study was commissioned to provide as much information on the nature of the electronic recycling sector in Scotland prior to the implementation of the WEEE Directive.

The report covers a number of areas including the policy framework within which the industry is operating, the capacity of the industry and the potential for implementation of WEEE. The opportunities and threats for the industry as perceived by the recyclers are also included.

The information and views expressed in the report are based on the views of the industry itself and are based on surveys and face-to face interviews. It was felt to be important in the first instance to produce this independent report and to ensure that the majority of the views of the industry are fairly reflected. These views are shown in italics in Chapter 4. The next stage will be to circulate the report to the key players for comment and response and to bring the appropriate agencies and the recyclers together at a seminar to gain consensus, where possible, on the way forward.

The seminar will take place during September 2005.

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WEEE Recycling Capability Scotland

Towards an Action Plan

It is clear from the results of this report that further work is required in certain areas to allow the relevant players in the sector to continue to develop future policy for the successful implementation of the WEEE Directive in Scotland. These players include the Scottish Executive, Scottish Enterprise, Local Authorities, SEPA and the private sector (including the electronic recyclers themselves). However, it is also recognised that some of the proposed areas for development may overlap with existing work, which is already being undertaken.

Develop a Partnership Strategy

One of the main areas of the feedback from the industry was the lack of a focused strategy from the Scottish Executive and following from this the lack of support infrastructure in place to support WEEE recycling (e.g. funding etc). It would be very helpful for the successful implementation of the WEEE Directive if the Scottish Executive should take a lead role in developing a Partnership Strategy for Scotland. This strategy could address some of the key areas of concern such as licensing, illegal export and targeting funding issues. Such a strategy would provide a framework for organisations such as the Scottish Executive through Scottish Executive, Environment and Rural Affairs Department (SEERAD) and Scottish Executive Enterprise, Transport and Lifelong Learning Department (ETLLD), Scottish Enterprise, SEPA and the industry to work together to maximise the positive impact of the WEEE Directive in Scotland.

Set up a Scottish Electronic Equipment Recycling Network

There was a feeling among most of the recyclers that there was a necessity for an Independent Forum for the Electronic Recycling sector. It is important to the recyclers that the Forum is both independent of the producers and is affordable. Once established, it will take a bit of work and time to gain the confidence and commitment of the recyclers. At present, they feel that they have been excluded and that the existing forums and networks have become dominated by the producers and compliance schemes. Such a Forum could perform a number of functions including dissemination of information, training and lobbying, setting up a Scottish producer compliance scheme and where appropriate developing pilot projects which would fill the gaps that are identified in the report.

The Forum would have a number of key objectives and would aim to cover as wide a cross section of the industry as possible. The key objectives would be –

Developing Partnership Approaches

One of the key findings of the study was that there was a need for partnership approaches to be developed. There was a mutual lack of understanding of roles and objectives between the public and the private sectors. Working within an Independent Forum could help break down these barriers and allow for the development of partnership approaches and a supply chain approach to electronic recycling.

Market Development

One of the common complaints from recyclers was the lack of facilities to handle and process recyclate. Work would involve identifying recyclate produced and identifying facilities**,** which could handle the material. To a certain extent this would involve matching existing operations together.

For some materials there may not be a suitable disposal route and specific feasibility studies may be required.

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Developing Training and Awareness Raising

The study identified a number of opportunities for awareness raising and training. The Forum could ensure that the views of the electronic recyclers are raised and also act as a vehicle for the training needs as identified in the report.

Liaising with Key Partners

The study identified a number of areas where the public sector could support the electronic recycling sector. The Forum would ensure that the views of the sector are incorporated into any form of public sector support. This would include liaison over licensing issues, influencing existing grant regimes, developing public awareness and marketing campaigns, and taking forward an Action Plan.

Guide to Waste Management Licensing

The sector would benefit from a sector specific Guide to Waste Management including WML regulations, duty of care, hazardous waste paperwork specific to their sector. This could be expanded to include guides to local authorities for provision of WEEE services at civic amenity sites and for large retailers for on site provision.

Delivering Waste Awareness Training

The Chartered Institution of Waste Management has developed a foundation level course, Waste Awareness Certificate course. On successful completion of the course, participants will be able to:

- Describe their responsibilities in dealing with waste
- Describe what wastes are
- Provide examples of how, where and when wastes are produced in their work
- Distinguish between different types and natures of wastes
- Understand the order of magnitude of the volumes of the different types of wastes nationally
- Explain the waste hierarchy
- Demonstrate awareness of the principal current wastes management practices

- Identify the main impacts of wastes on the environment
- Describe the differences between sustainable and non sustainable wastes management practices
- Explain the importance of legislation in promoting best practice in wastes management
- Explain the basic principles underpinning Duty of Care and how their actions are important
- Demonstrate an awareness of their employers responsibility with regard to Health & Safety issues in the handling, moving and storage of wastes
- Demonstrate how they fulfil their personal responsibilities with regard to Health & Safety issues in the handling, moving and storage of wastes
- Describe the key stages in conducting a waste audit
- List sources of further information and help

This basic course would cover many of the issues currently faced by recyclers. It would also point them in the most appropriate direction for gaining further assistance. This course would provide an ideal starting point for companies working with WEEE and their customers. It could be modified slightly to address the issues faced by this sector.

Quantity of Waste Recycled

In order that companies and regulators can show compliance with WEEE Directive a robust system for quantifying the quantity of waste from each facility must be developed. For example we need to identify how much metal and waste is produced from a scrap operation, as currently when material is sent for scrap it is counted as 100% recycling.

SEPA is currently developing good systems for recording waste management data. However, it is unclear whether it is sufficiently robust to demonstrate compliance with WEEE Directive.

Proposed work would be to identify flow of material through the main recyclers and identify the final destination for the material. This may involve following material through a range of companies involved in the “chain” prior to material reaching its final destination.

This work would be time consuming to complete and should only be concentrated on the key players. The companies involved would obviously be sensitive about the confidential nature of these enquiries. However, they would be keen to be involved in order to demonstrate that they are meeting and exceeding the Directive targets. Work would also identity system for recording data so that companies can report to SEPA in a systematic format in the future. This work could build on some of the electronic tracking systems that are already in place within the sector.

Develop Markets for WEEE categories

Research clearly indicates that markets have not been developed for a whole range of materials. This is a considerable barrier to the development of a successful electronic recycling industry within Scotland. There are two main areas where further research and feasibility studies are required to stimulate this market. Currently most work and effort is being directed towards category 1, 2 and 3 materials. There are virtually no facilities handling category 4 to 10 material. (Listed in Annex II of the WEEE Directive).

The second area is to provide disposal and recycling routes for materials listed in Annex II of the WEEE Directive. Again, very few, if any, companies are providing a service in this area.

These are the two significant growth areas when the WEEE Directive is implemented. Many companies interviewed indicated a willingness to enter these areas but felt unable to do so at this stage due to the uncertainty over the implementation of WEEE. The need for market intervention in the form of research, feasibility studies and capital grants to support the work was also highlighted by a number of companies.

Local Authorities

It was widely recognised that Local Authorities have a key role to play in the development of a viable collection infrastructure for WEEE material. The first important area is to ensure that Local Authorities are developing their waste management facilities with sufficient capacity for WEEE material.
As most local authorities are currently putting together bids for future development of their facilities this would be an ideal time to ensure facilities are being considered for WEEE material.

The second important area is to develop the potential for WEEE Collection facilities within retail parks. It was recognised that this would require dialogue between Local Authorities and the British Retail Consortium.

Chapter 1

WEEE Recycling Capability Scotland

Introduction

1.1 Background

1.1.1 The Waste Electrical and Electronic Equipment (WEEE) Directive came into force in February of 2003. The Directive was due to be implemented in the UK by August 2004[1]. However implementation has been delayed. At the time of this report, the latest implementation date given by DTI and DEFRA is January 2006.

1.1.2 To date there have been a number of consultations on the implementation of the Directive in both Scotland and the UK. A summary of the main findings of these consultations is contained later in this report.

1.1.3 Information, however, is fragmented. If Scotland is to effectively respond to the requirements of the new legislation and establish itself as a world class recycling centre, it is critical to understand the size and source of the waste stream, current waste management practices and opportunities for growth, and to start to build a knowledge of the current capability of individual establishments and the collective capability of the Scottish base as a whole.

1.1.4 Due to the shared advantage of having this information, and the urgency of its nature, Scottish Enterprise, with the support of the Scottish Executive, has commissioned an assessment and presentation of key findings on Waste Electrical & Electronic Equipment (WEEE) recycling and reuse capabilities within Scotland.

1.1.5 Following the tender process Resource Efficiency Management Ltd (REM) Ltd was commissioned to carry out this study.

1.2 WEEE Data

1.2.1 Each year the United Kingdom produces more than 434 million tonnes of waste. Approximately 1 million tonnes of this waste is electrical and electronic equipment, of which large household appliances account for 43% and IT equipment accounts for 39%. Each year an average of two million televisions are discarded[2] (estimated to increase to five million per year once the legislation is implemented).

[1] Environmental Services Association, 2005
[2] Waste Watch, 2003

On a UK level, only 50% of telecom equipment, 4% of video and sounds equipment, 26% of IT equipment and 88% of large household equipment is recycled[3]. This study presents an excellent opportunity to help maximise the environmental, social and economic benefits of this expanding market.

1.2.2 The lack of recycling and re-use of such equipment also has environmental and social impacts. The constant and continuous production of new equipment increases the impact on the environment. There is a significant amount of this material which could be re-directed from landfill. Often the equipment that ends up in landfill contains components and material that can be re-used and sold for an economic value. Alongside this, the second hand equipment, which has depreciated in value, could be made available to the part of population who normally cannot afford new equipment. Each stage in this process offers an opportunity to improve the environment, create jobs and add social value.

1.3 Secondary Data Analysis

Introduction

1.3.1 To date the subject of Waste from Electrical and Electronic Equipment (WEEE) has not been widely researched in the UK or Scotland. Several reports have been published on the subject. However, these reports offer limited supporting information for the purposes of this study. The following secondary information and material was gathered and analysed to support the study and included:

A Griffiths, P. et al (TRL) (2003) *Priority Waste Stream Project: Waste Electrical and Electronic Equipment*, SEPA

B Entec UK Ltd (2001) *Determination of the Source, Nature, Amount and Disposal of WEEE Arisings in Scotland*, Scottish Executive

C Enviros Consulting Ltd (2003) *The Potential for Recycling Small Electrical and Electronic Waste*, DEFRA

D SISTech (2003) *Best Practice in Computer Equipment Recycling & the WEEE Directive*, SISTech

A Priority Waste Stream Project: Waste Electrical and Electronic Equipment (TRL)

i) This particular study was commissioned by SEPA and carried out by TRL Ltd in 2003. It aimed to determine the size of the WEEE waste stream in Scotland, explore current management practices and identify barriers to re-use and recovery. This information was to be retrieved through a postal study focused on 116 companies that had been identified as being involved in WEEE manufacturing, production, retail and recovery in Scotland. The response from the recovery sector was 20%. However, the overall response rate was only 8%.

ii) As the study does not specify which data was used to produce the data provided and discussed below, it is difficult to establish if the report shows data from an 8% response rate or a 20% response rate. An 8% response rate is unable to provide data that is

[3] ICER, 2000

representative for a wider sample, in this case, the WEEE recovery industry. However, a 20% response rate would be able to provide statistically sound data.

iii) A factor which may have had an impact on the response rate was the use of the SEPA logo on the survey material that was distributed. It is possible that some companies were hesitant to provide detailed information knowing that the regulator would have access to this information. This may help explain the poor return rate.

iv) It is important to bear these issues in mind when looking at the figures produced and published by the TRL study.

v) The TRL report provided data on WEEE arisings in Scotland. These were estimated at 103 kilo tonnes in 2001 / 2002. Significantly, 53% of this tonnage consisted of large household appliances, WEEE category 1. This figure will be compared with the findings from the REM Ltd survey in Chapter 3.

vi) Interestingly, in term of recycling, the report indicated that companies in Scotland recovered 7,149 tonnes of WEEE during the period 2001 / 2002. From this, only 3.48 tonnes was recycled and 2.49 tonnes was re-used. This will also be compared with REM Ltd findings in Chapter 3.

vii) In addition to indicating the level of recycling and re-use carried out by Scottish recyclers, the report also stated that 86% of the WEEE handled was obtained from Scotland.

viii) It also stated that 3000 tonnes of Scottish WEEE was handled in England and Wales. The survey carried out by REM Ltd showed that there was a gap between current WEEE recycling figures and the achievable capacity in the sector. This shows that recyclers have the ability to increase their recycling tonnage if more WEEE is made available. (See Chapter 3 for more details.) With this potential available in Scotland it is interesting to note that such a high tonnage of Scottish WEEE is sent to England and Wales. In order to build a strong Scottish recycling sector, it would be beneficial to ensure that as much as possible of Scotland's WEEE is processed and recycled in Scotland.

ix) 87% of companies were operating below 100% capacity and 60% of companies were operating below 50% capacity.

x) Despite identifying the data above, the study acknowledged and highlighted the lack of robust data available. Where appropriate, the TRL data (although treated with some caution due to issues regarding response rates), will be used for comparison purposes in Chapter 3 and as such assist in estimating trends relating to WEEE arisings, recycling levels, etc**.**

B Determination of the Source, Nature, Amount and Disposal of WEEE Arisings in Scotland (Entec UK)

xi) This report was commissioned by the Scottish Executive and carried out by Entec UK Ltd in 2001.

xii) The report suggested that WEEE arisings in Scotland in 2000 would be approximately 42,000 tonnes and that this figure would grow at an average of 10% over a five year period. It also highlighted, in line with the TRL report, that large household appliances accounted for the majority of this tonnage. The Entec report also argued that the majority of recyclers in Scotland handle this particular WEEE category.

xiii) Due to focusing on manufacturers and distributors, the report did not provide data on the amount of WEEE processed. However, it did suggest that processing WEEE was not economically viable unless large quantities were collected.

C The Potential for Recycling Small Electrical and Electronic Wastes (Enviros)

xiv) This study focused on the collection and recycling of small electrical and electronic equipment and therefore excluded the categories that make up the majority of WEEE in Scotland, namely large household appliances and IT & communications equipment.

xv) The study found that there was a need to promote separate collection mechanisms for WEEE in Scotland. It was also concluded that the way to achieve this was by making use of, and building on, the existing collection infrastructure. It also gave a number of specific recommendations relating to this, including the development of a national network of 're-use centres' and that these should be branded in order to facilitate their promotion.

D Best Practice in Computer Equipment Recycling & the WEEE Directive (SISTech)

xvi) This particular study focussed on how the WEEE Directive would impact on recyclers in Scotland and providing examples of best practise that could be used to help Scottish recyclers in dealing with the Directive.

xvii) The study concluded that there was a lack of examples of best practice available from the UK and also concluded that it was out with the scope of the study to investigate any current initiatives being undertaken by local authorities. The study did not provide any data on recovery, recycling or collection and did not highlight any cases of best practice that could be used to inform the REM Ltd study.

1.4 Methodology

Introduction

1.4.1 The study aims to provide up to date and accurate baseline information that can help and assist the development of a Scottish WEEE recycling industry.

1.4.2 The majority of this study has been produced using primary research methods. Secondary research was used to identify and analyse previous material that could help inform the study. However, due to the lack of research conducted in this area such supporting information was limited.

1.4.3 The methodology detailed below was developed to ensure that as much as possible of the information gathered was correct and representative. In addition, REM Ltd developed a strong verification process that allowed us to double check the information provided through face-to-face interviews and visits to individual recycling facilities.

1.4.4 The survey developed for this study asked all WEEE recyclers to identify, in detail, which categories of WEEE they accepted for recycling along with a breakdown of the materials identified in each category. Information was also collected about the WEEE recycled at their facility, refurbished at their facility, passed to a third party including details about the location of this third party. These findings can be found in Chapter 3

1.4.5 The study also asked each respondent for the average monthly and annual recycling tonnage and what percentage of WEEE was received from each of the ten categories.

1.4.6 The survey provided details on the % of WEEE that Scottish recyclers receive from each of the Directive categories. This allowed the study to provide an estimate of the current recovery figure per category and compare this figure with the recovery target as seen in the table above.

1.4.7 It should be noted that because the recyclers were not asked to provide their tonnage of WEEE recycled but the percentage of WEEE recycled from each category, these figures are estimates and based on calculations carried out by the report author.

WEEE Industry in Scotland

1.4.8 One of the first issues, which needed to be addressed, was the range of organisations involved with handling WEEE material. There was very little information available as to the scale and extent of many of the companies' involvement. From the primary research there were four distinct sectors involved with collecting and processing WEEE material. These were the traditional charity sector, scrap industry, waste contractors and companies handling WEEE. The charity sector is involved through the sale of second hand goods through their shop network. The response back from this sector was that they were selling goods and material which was not waste therefore WEEE did not apply to this sector.

The waste contractors sector viewed it as a producer responsibility and they had no input to the process except, for example, to ensure fridges do not go to landfill.

1.4.9 The two remaining sectors did respond to the survey and in general can be sub divided into the following: -

- Scrap Sector– process concentrating on recovering the metal but no effort to recover assets and value from the material. This sector should receive material at the end of the recycling process. However, as outlined in Chapter 3 they are currently getting material prior to any asset recovery.

- Not-for-profit Sector – Most have developed from either a training project or a furniture reuse project. Many try to offer a whole package of skills when they may be more suited to concentrating on providing key parts of the recycling chain. Approximately 75% of these companies concentrate on category 1 material with the remaining 25% concentrating on category 3 materials.

- Private companies – there are a number of companies providing a high level of asset recovery and recycling of WEEE equipment. Most of these are dealing with category 3 wastes.

1.4.10 In general, the companies who responded and are involved in WEEE recycling were processing category 1, 2 and 3 materials. They were also selecting the WEEE that they handled to ensure high quality of material for reuse and recycling. From this sector, twenty eight of the fifty-five companies returned the questionnaire and twenty five took place in the face-to-face study. This represented an overall response rate of 51%. The report represents the views of the sector although the information collated is non-company specific.

Primary Research

1.4.11 This first stage of the methodology involved the identification of all companies and organisations that carry out WEEE recycling in Scotland. The list produced included both private sector and community/voluntary sector companies and organisations.

Through consultation with the project management group, a total of 61 companies and organisations were identified. From this list, 33 companies were identified as key players in the sector.

1.4.12 Following the identification of all WEEE recyclers in Scotland and the key players involved in this sector, a comprehensive contact database was developed. Each company was contacted over the telephone to verify the information gathered in the contact database and also to identify the appropriate person for receiving the survey questionnaire.

1.4.13 Once the contact database had been finalised, each company received a letter from Scottish Enterprise. This letter was sent out on December 13 2004 for the Scottish Enterprise area and January 20 2005 for the Highlands & Islands Enterprise area. The letter introduced the study, REM Ltd as the consultants carrying out the study, and also the main aims of the study.

WEEE Recyclers Survey

1.4.14 In addition, REM Ltd developed a detailed and comprehensive questionnaire that was sent to all of the identified recyclers. The questionnaire had been developed based on the requirements of the Invitation to Tender document and in co-operation with the project management group. The questionnaire contained eleven sections, as detailed below:

1. Basic Company Details

This section contained the information that was used to produce the Directory of WEEE recyclers in Scotland. It also allowed the companies to provide a brief introduction to their main activities.

2. Employment

This section provided information on the number and types of employment in the different companies and also indicated whether or not the respondent was looking to employ additional members of staff in the near future. It also provided information on the types of positions that were likely to be created in the near future.

3. Operational Details

Prior to the study it was believed that a number of the organisations involved in WEEE recycling in Scotland were charities or community/voluntary organisations. This section therefore asked each respondent to specify if it was a private sector company or a community/voluntary organisation. The section also asked for detailed information on the respondents' clients, suppliers and the main recycling related activities undertaken. The section used the 10 categories identified in the WEEE Directive and asked for detailed information on the types of WEEE accepted for recycling, WEEE recycled at the facility, WEEE refurbished at the facility, WEEE passed to third parties and also the location of the third party. Following on from this, the section asked for data on capacity and this was broken down into monthly and annual figures.

4. Recycling Processes

This section focused on getting detailed information on the % of goods received from each WEEE category and also the recycling processes undertaken in line with Annex II of the WEEE Directive.

5. Capacity

Following on from the secondary data research, this section focused on getting detailed and accurate information on both licensed and achievable recycling capacity. Companies were also given the opportunity to provide details on what they perceived to be the barriers to achieving full capacity.

6. Markets

This particular section looked at the markets that generate revenue for the Scottish recyclers. It also asked for details of where the specific materials were sold (Scotland, UK, Europe, outside Europe).

7. Transport & Logistics

Due to the large estimated tonnage of WEEE that will be recycled following the implementation of the WEEE Directive, this particular section focused on how respondents picked up and delivered WEEE. Following on from this, the section aimed to establish whether or not companies used their own transport for this. This was linked to section 9 which looks at licensing and the requirement to have a Waste Carriers License if transporting WEEE.

8. Barriers & Success Factors

In order to give an accurate and representative view of the barriers to WEEE recycling, as perceived by the recyclers, this section contained open-ended answers. The recyclers were asked for information on barriers to WEEE, how these were overcome and what needed to be done in order for WEEE to be a success.

9. Permits & Licensing

It was important to gauge the level of awareness regarding licenses and permits. This section focused on this and also aimed to identify which companies were licensed and which licenses they held. Due to the importance of this issue, SEPA was contacted and a list of all licensed companies was received. This allowed REM Ltd to cross-reference the data.

10. Promotion

During the secondary research and initial discussions around WEEE, lack of awareness was identified as an issue. Section 10 allowed the respondent to give examples of how they promote both WEEE and their company. It also allowed them to highlight that the support was required to raise awareness.

11. Further Information

When developing the questionnaire, REM Ltd focused on producing a survey that would allow recyclers to contribute with their views and opinions. This was believed to be of great importance in order for the study to give a true reflection of the Scottish WEEE recycling industry. As such, section 11 allowed each respondent to elaborate on any previous answers and add information on issues that had not been addressed.

1.4.15 As stated above, the questionnaire was e-mailed to companies. Of these 61 companies, five companies claimed not to recycle WEEE. Despite continuous efforts, the project management group was unable to find any details about AMR, who was believed to operate a WEEE recycling facility in Scotland.

1.4.16 This gave a total of 55 recycling companies. Twenty eight of the 55 companies returned the questionnaire, giving a response rate of 51%.

1.4.17 If missing the deadline for returning the questionnaire, recyclers were reminded to complete and return the questionnaire on several occasions. For those recyclers located within the Scottish Enterprise area, the first reminder was sent by e-mail on January 5 2005. The second reminder was sent by e-mail on January 12 2005, the third reminder was a telephone call made on the January 20 and the fourth reminder was also a telephone call made on February 4 2005. The recyclers located in the Highlands & Islands Enterprise area received their first reminder by e-mail on January 31, the second reminder by e-mail on February 7, the third reminder was a telephone call on February 15 and the fourth reminder was also a phone call made on February 23.

1.4.18 In an attempt to increase the number of responses, all recyclers were offered the opportunity to go through the questionnaire over the phone with a representative from REM Ltd. Due to the importance of getting as many questionnaires completed and returned as possible (in particular from those who had been identified as key players in the sector) all key recyclers were offered the opportunity to go through the questionnaire during the face-to-face interview. Five companies took advantage of this opportunity.

1.5 Secondary Research Conclusions

1.5.1 As stated above, there is a limited number of reports and research material available that can provide supporting information to this report.

1.5.2 Some of the data that has been collected in these reports may lack statistical viability as a result of low response rates. This has been taken into account when cross-referring with the data presented in Chapter 3.

1.5.3 This report will, where possible and when applicable, compare the data collected through its comprehensive survey and interviews with the information provided in previous reports.

1.6 Verification Process

1.6.1 As discussed previously, a strong verification process was developed for this study. During the face-to-face interviews of the recyclers, REM Ltd asked for verification on a number of areas, including visual verification of licenses, and also used their expertise to question and confirm the data provided by the companies.

1.6.2 In relation to permits and licensing, SEPA was also asked to verify which companies were licensed. However, it was very difficult to verify the recycling tonnage during face-to-face interviews and this figure was accepted in good faith as provided by the recyclers. Where there appeared to be obvious over-estimates, the data has been adjusted accordingly to help identify a more realistic position.

1.7 Issues & How These Were Overcome

1.7.1 Due to the lack of secondary information and data on WEEE recycling in Scotland it was found necessary to have a strong focus on primary research. It was also necessary to conduct the research to a level of detail that had not been done before in order to create comprehensive baseline data that can assist the further development of the industry.

1.7.2 Despite identifying all the key players in the sector and ensuring that the majority of these took part in the study, the data presented in Chapter 3 does not represent the entire sector at all times. This is because some companies and organisations only filled in parts of the questionnaire and left some sections blank. Due to this, the number of respondents is not constant but changes in some of the figures and diagrams.

1.7.3 There is a high degree of suspicion and distrust in this sector and as a result many recyclers were reluctant to take part in the study. This was reflected in the number of respondents who only filled out some of the sections of the questionnaire.

1.7.4 As a result of the high level of suspicion and distrust, the face-to-face interviews were developed in co-operation with the project management group. This allowed REM Ltd to identify any potential issues prior to the interviews and adjust the questions accordingly. The interviews were also conducted by two individuals to ensure that as much information as possible was verified.

Chapter 2

WEEE Recycling Capability Scotland

Legislative & Policy Framework

2.1 Legislative Framework

2.1.1 The WEEE Directive aims to tackle the growing level of electrical and electronic waste. In 2004, each person living in the EU disposed of around 14 kg of WEEE per annum. It was estimated that approximately 90% of this was disposed of without any form of pre-treatment or recovery.

2.1.2 The WEEE Directive and the RoHS Directives present a combination of opportunities to address this particular waste stream in Europe. Essentially, these Directives cover four key areas – 1) the prevention of waste; 2) collection and treatment; 3) recovery; and 4) aiding this process.

1) The prevention of waste looks at minimising the use of dangerous substances including the phasing out of lead, mercury and other- contaminants by July 1 2006, increasing the use of common component and material coding standards, and encourage the use of recycled plastic.

2) Collection and treatment focuses on achieving collection targets of 4 kg per person per year for domestic appliances and all commercial appliances, setting up collections for last holders of WEEE, free 'take back' of WEEE from private households when buying a new product, and the removal of all fluids and selective treatment of equipment.

3) The recovery aspect involves setting up systems for component, material and substance reuse and recycling of WEEE, and specific targets for different categories of WEEE ranging from 75%-90% recovery.

4) To aid in this process, the Directives impose no charge for last holders.

2.1.3 There is also a complimentary Directive in the pipeline that will influence the recycling of WEEE. At present it is in draft form. The proposed Eco Design of End Use Equipment Directive looks at how legislation can ensure that environmental considerations are taken into account in the design of new electronic and electrical equipment. As it is still in draft form, there is no implementation date for the UK as of yet.

2.1.4 Nonetheless, WEEE has been identified as a priority waste stream at both European and UK level. This study has come at a very appropriate time as it presents an opportunity to produce a comprehensive and quality study outlining present and future WEEE recycling capability in Scotland. It is also worth mentioning that, although SE National has commissioned the study, it will also look at recycling capability across Scotland including the Highlands & Islands Enterprise area.

2.2 Policy Framework

2.2.1 It is important that the study is placed within the wider policy context and that any outcomes inform and compliment other policy areas. An increase in recycling capacity will help to implement a range of key policy areas.

2.2.2 **Sustainable Development** ensures a better quality of life for everyone, now and for generations to come. A widely used international definition was published in the Brundtland Report (1987) 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs'.

2.2.3 **Smart Successful Scotland** aims to improve the Scottish economy by focusing on growing businesses, global connections, and learning and skills. These aims support the overall vision of Scotland as a country where sustained productivity growth, competitiveness and prosperity is achieved by creating, learning and connecting faster.

2.2.4 **The National Waste Plan** forms the keystones of the National Waste Strategy and is a blueprint for a move towards sustainable management of Scotland's waste. It also outlines the behavioural challenge which we face if we are to minimise the waste we generate and take advantage of the opportunities that this will bring.

2.2.5 **The Climate Change Levy** is part of the Climate Change Programme and is the added tax put on the energy used by industry, commerce and the public sector. The Levy aims to aid the UK in achieving its greenhouse gas emission targets as outline by the Kyoto Protocol and the UK Government.

2.2.6 **The Green Jobs Strategy** highlights the wealth of business and employment opportunities arising from the global shift towards sustainability. As well as outlining the potential in sectors like renewable energy, waste management and recycling, the strategy demonstrates that all businesses, regardless of type or size, can improve their productivity and competitiveness by becoming more resource efficient.

2.2.7 It is important that the range of organisations involved in the implementation of WEEE view the Directive, and indeed other EU legislation, as an opportunity and work together to develop the tremendous potential for environmental, social, and economic benefits for Scotland. This study presents Scottish Enterprise and the Scottish Executive with the opportunity to start developing this process.

2.3 Directive Targets

2.3.1 As discussed briefly above, the WEEE Directive sets targets for recovery, re-use and recycling, all of which must be achieved by December 31 2006.

2.3.2 The target for collection is 4 kg per person per year for domestic appliances and all commercial appliances. Population statistics for Scotland show a population of 5.06 million in 2003[4]. A target of 4 kg per person assumes a Scottish target of 20,240,000 kg per annum.

2.3.3 The Directive also requires:

- Setting up collections for last holders of WEEE
- Free 'take back' of WEEE from private households when buying a new product.

[4] General Register Office for Scotland, 2005

- The removal of all fluids and selective treatment of equipment.
- Setting up systems for component, material and substance reuse and recycling of WEEE.
- Specific targets for different categories of WEEE ranging from 75%-90% recovery.

2.3.4 The Directive sets two types of targets, namely collection targets and recovery/ recycling targets. As stated above, the UK collection target is 4kg of household WEEE per inhabitant per year. It does not set a collection target for WEEE from business customers.

2.3.5 The recovery / recycling targets only apply to separately collected WEEE and the targets that are to be met by December 31 2006 are as follows:

WEEE Categories	Recovery Target	Reuse and Recycling Target
1 and 10	80%	75%
3 and 4	75%	65%
2, 5, 6, 7 and 9	70%	50
Gas discharge lamps	---	80%
Category 8 - Medical equipment	No targets	No targets

(Source: Article 7, the WEEE Directive)

Chapter 3

WEEE Recycling Capability Scotland

Survey Findings on WEEE in Scotland

3.1 Introduction

3.1.1 This chapter contains the data and information gathered through the surveys conducted for this study. The main survey was aimed at WEEE recyclers in Scotland and a total of 61 companies were identified and contacted. The survey had a response rate of 51%. Each section of the survey is analysed in detail below.

3.2 WEEE Recyclers in Scotland Survey

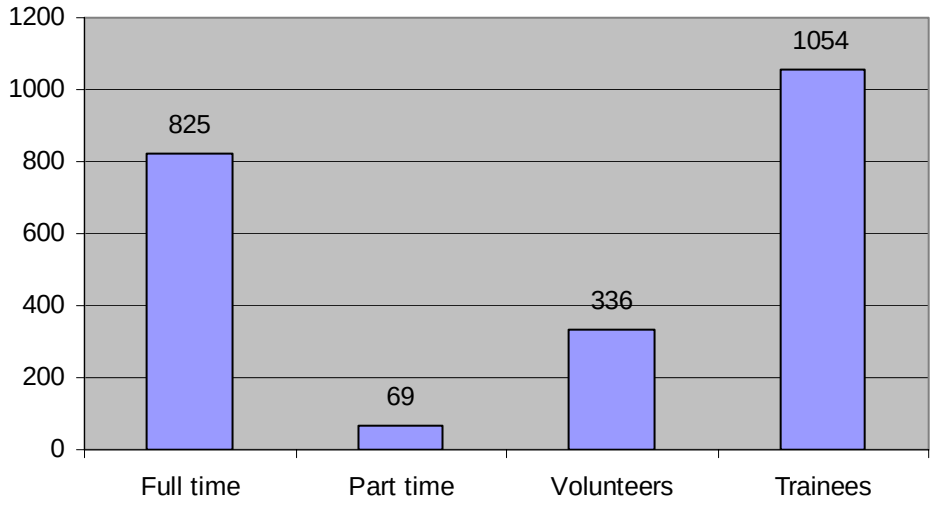
Basic Company Information

3.2.1 This part of the survey was aimed at getting as much up-to-date and accurate information as possible to inform the development of a Directory of WEEE recyclers in Scotland. The section allowed each recycler to give a brief description of their company's/organisations activities in Scotland. Based on the information given by the recyclers who participated in this section, a Directory was produced. This is now posted on the Scottish Enterprise website.

Employment

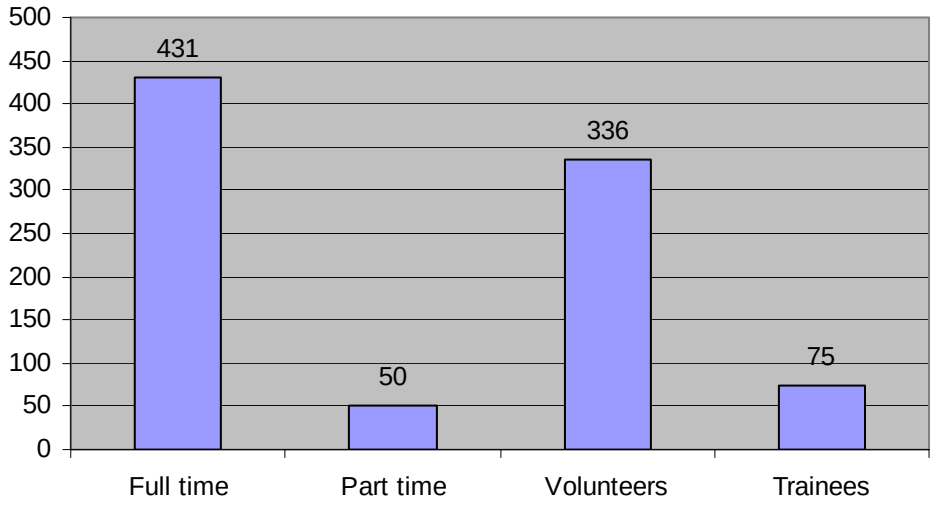
3.2.2 The aim of this section was to gather information on the number of people working in the WEEE recycling industry in Scotland. This included data on full time, part time, voluntary and trainee employment, the number of companies looking to employ additional staff over the next three to six months and the type of positions they were looking to fill. The data gathered is presented below.

Figure 1a: The number of people working in the WEEE recycling sector in Scotland



3.2.3 On closer analysis of this data one large company has included all UK staff and not just staff working directly with WEEE. To present a more accurate picture the data for this company has been removed from the total and the amended data is shown in figure 1b.

Figure 1b: The number of people working in the WEEE recycling sector in Scotland (amended)



3.2.4 Based on the information received through the questionnaire it is clear that the Scottish WEEE recycling industry is diverse in many ways and this was also clear from the variety in the employment data.

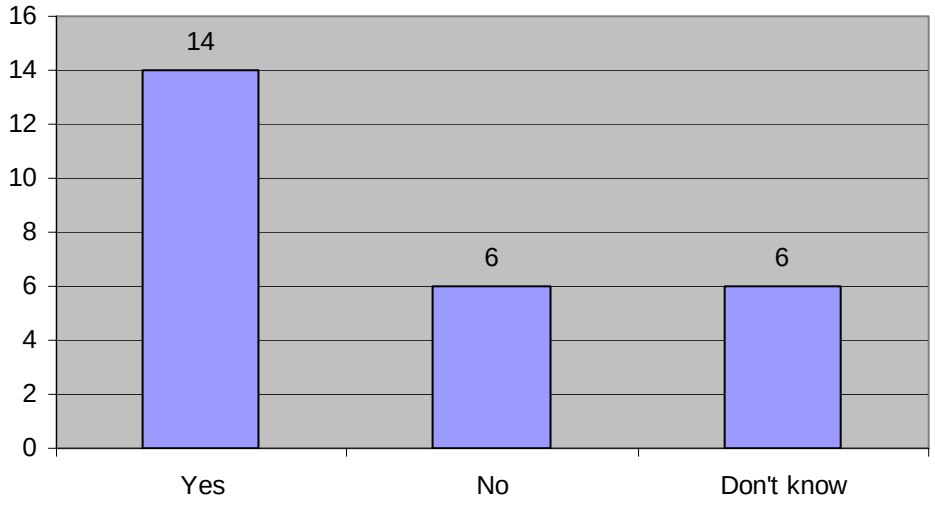
3.2.5 Figure 1b above shows that the number of people involved in WEEE recycling in Scotland is 892. Out of this total 336 are volunteers leaving a total number of employees, (both full-time, part-time and trainees) of 556. Based on the number of respondents to our survey, this gives an average of twenty employees per company.

Community and voluntary organisation had, on average, higher employee numbers and this was largely due to providing training facilities and having trainees, and also the involvement of

volunteers. It has to be mentioned that during the face-to-face interviews it was not evident that there was an average of twenty employees. Most companies had a lot fewer employees witnessed during the visits.

3.2.6 Prior to the study and the primary research it was believed that many recyclers see the WEEE Directive as an opportunity to grow and expand their business. In order to gauge the validity of this assumption, the questionnaire gathered data on future employment in the sector.

Figure 2: Are you looking to employ additional staff within the next three to six months?

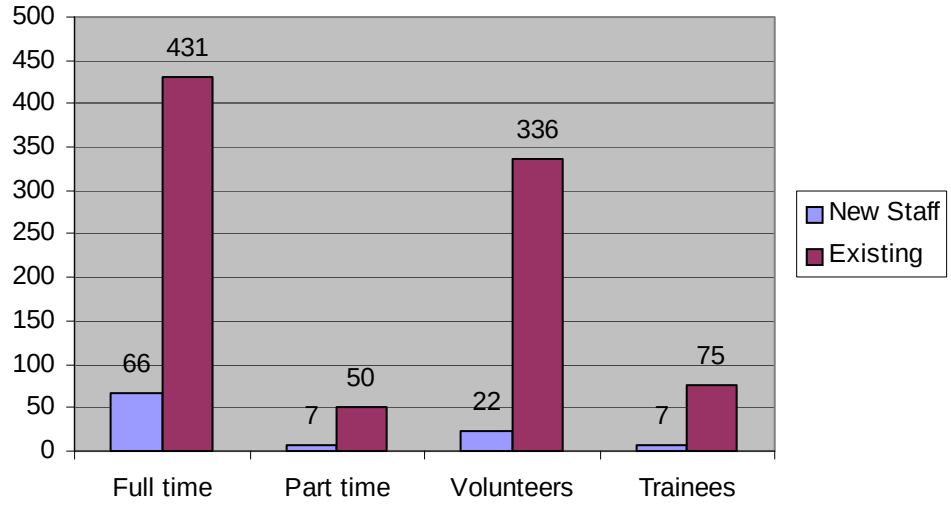


3.2.7 As illustrated by figure 2 above, just over 50% of respondents stated that they would be increasing staff numbers over the next three to six months. This increase in staff numbers was due to perceived new opportunities being identified as the WEEE legislation is implemented. The total number of expected new jobs over the next six months represents 11% of the total. This increase supports the argument that companies view the WEEE Directive as a piece of legislation that will have a positive impact. Conversely, the increase in employment opportunities is not larger due to the uncertainty over the current market place and how WEEE will be implemented.

3.2.8 In terms of companies who either answered no or do not know, this represents 46% of the total. In a number of cases, the answer no will represent a decrease in jobs as operations are closed down or activity is reduced. This loss of employment will reduce any increase discussed above but over all there will be a net gain of employment within the next six months.

3.2.9 Figure 3 illustrates that the majority of new positions would be for full time staff with a potential for creating sixty-six new full-time positions and seven part-time positions. These numbers further support the view that the sector identifies the WEEE Directive as a piece of legislation that will have a positive impact on their business.

Figure 3: If yes, how many new members of staff are you likely to employ?



3.2.10 Despite the largely positive potential employment prospects that are described above, the follow up face-to-face interviews showed that being employed in WEEE recycling in Scotland is not always a desirable job. Many of the companies interviewed were operating on very tight budgets and low margins and facilities for staff were generally poor. This issue is further addressed in Chapter 4.

Operational Details

3.2.11 The aim of this section was to get an overview of the types of businesses involved in WEEE recycling, specific details on suppliers and clients, the types of activities undertaken by the businesses, the types of material accepted for recycling and refurbishment, the types of material that was recycled at the facility, the material that was passed to a third party, the location of this third party, the average monthly and annual recycling tonnage and finally, a comparison of these figures with 2003.

3.2.12 This section provides detailed data on the operations that are currently taking place in Scotland and give a better understanding of what happens to the different types of WEEE. To avoid confusion with regards to the classification of WEEE, this section used the categories identified in the WEEE Directive. These categories are then aggregated into the four NCH categories later in the report.

Findings

3.2.13 Each recycler was asked to identify if they were a private sector company or a community / voluntary organisation.

3.2.14 The survey identified a fifty-fifty split between private sector companies and voluntary / community organisations. The majority of voluntary / community organisations have moved into handling WEEE material via two routes. The first route has evolved from established furniture repair and re-use operations, where the main emphasis is on re-use of large household appliance.

3.2.15 The second route has evolved from the refurbishment and recycling of WEEE material to provide training opportunities. Many of the voluntary / community organisations will also be registered charities and most will be set up as ‘not-for-profit’ companies where they need to reinvest any profits back into delivering the stated aims of the business.

3.2.16 Not-for-profit companies can offer a number of advantages to this sector which private sector organisations cannot. These are as follows:

- Access to a wide range of funding
- Access to staff
- Provision of collection and storage service on the back of existing services

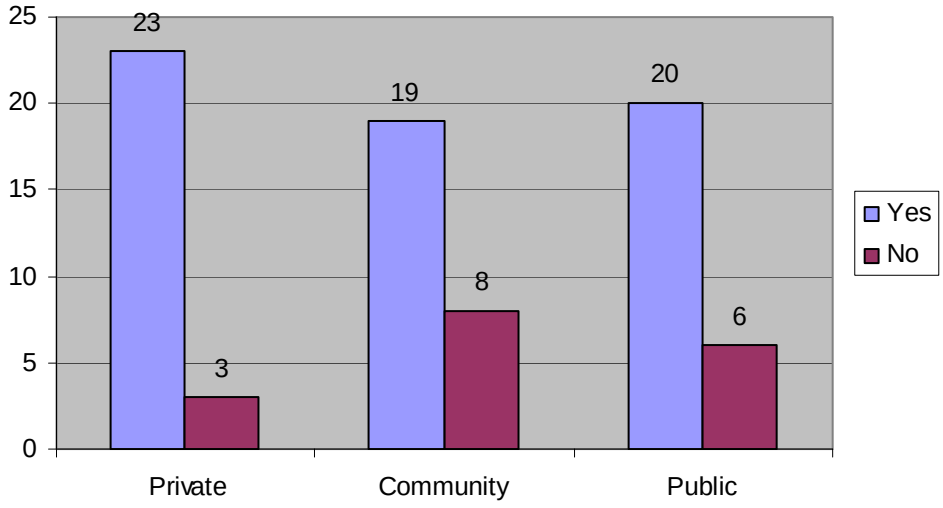
3.2.17 In many cases this makes them ideal for this type of work and they have received significant levels of financial support. It should be noted that in some areas they do appear to lack the key skills required to recover the maximum value from the material.

3.2.18 Most of the private sector companies which were interviewed regard these organisations with some suspicion. However, a small number of private companies have developed good working relationships and have existing contracts or service level agreements in place.

Suppliers & Clients

3.2.19 The recyclers were also asked to identify the types of suppliers and clients that they had.

Figure 4: Which of the below best describes your suppliers / clients?



3.2.20 As can be seen from figure 4, above, the majority of recyclers had suppliers and clients in the private sector. Looking at the percentages, 88% had private sector suppliers and clients, 70% had community sector suppliers and clients and 77% had public sector suppliers and clients.

3.2.21 This shows that the majority of recyclers have contracts with the private sector. It was, therefore, interesting to note that many recyclers claimed that there was a lack of private sector contracts available and that this was seen as a barrier to reaching full recycling capacity. (See Chapter 4 for further details).

3.2.22 The majority of recyclers also had clients in the public sector and this may be explained by the current practice for collection of category 1 material (large household appliance).

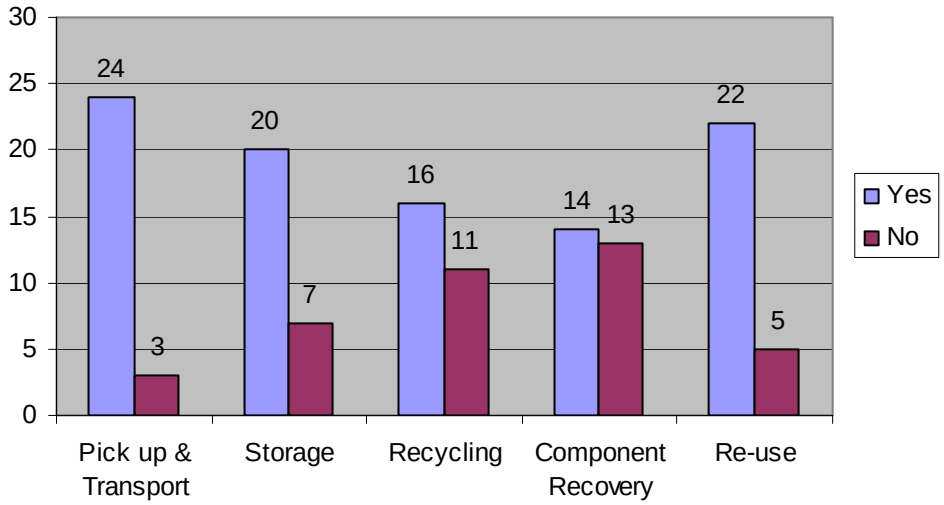
The collection of this material is centred on local authorities and collection is either via civic amenity sites or bulky uplift / house clearance services. This service is largely provided by Local Authority staff. However, a number of 'not-for-profit' companies have accessed a steady revenue stream by entering a service level agreement with Local Authorities to provide this service. The not-for-profit company gets the benefit of improved revenue and the Local Authority gets the benefit from an improved collection service and an increase in their recycling rate.

3.2.23 The above system works well for category 1 material but there is no similar mechanism in place for other categories. Since other categories are generally low in weight, in poor condition and of lower value, there is no incentive for Local Authorities to provide such a service.

3.2.24 The current situation with category 3 material (IT and telecommunication equipment) is less clear. Companies would appear to be competing for the same work, although some of the not-for-profit companies will then forward material on to the larger recyclers under an agreed contract. There is an opportunity for not-for-profit companies to provide a collection service and a degree of processing prior to dispatch to the key recyclers. This would allow the larger recyclers to provide a national network and provide a service more consistent with the clearing house model.

3.2.25 After collecting information on clients and suppliers, the survey focused on identifying the main activities undertaken by each individual recycler.

Figure 5: Which of the following activities does your company undertake?



3.2.26 Figure 5, above, shows that 89% of recyclers are involved in the pick up and transport of WEEE, 74% store WEEE at their facilities, 59% recycle WEEE, 52% are involved in WEEE component recovery and 81% are involved in the re-use of WEEE.

3.2.27 It is also clear from figure 5 that most of the companies involved feel that a pick up and transport service is part of the service they should provide. Many of the companies had recently introduced charges for this service and this provides core revenue. As discussed above, in relation to figure 4, there may be an opportunity for not-for-profit companies to provide the collection and uplift service on behalf of the key recyclers.

3.2.28 Figure 5 shows that just over half of the companies provided component recovery, and it must be queried whether the full economic value is being recovered from the material due to this. If not being recovered, the disposal route for components would appear to be either through shredding (scrap), export or to other recyclers. A supply chain system (as discussed in Chapter 4) could help ensure that the amount of valuable materials being shredded or exported is kept to a minimum.

3.2.29 Figure 5 also shows reuse being very prominent. However, this is restricted by the quality of material being received and the demand for refurbished products. An important issue here is the decreasing price for new IT equipment, making refurbished equipment less competitive. At present the stages for not-for-profit companies are refurbish, and if you cannot refurbish, send for scrap. They need to move away from this towards a system where they refurbish, and then dismantle for parts that can be reused (asset strip) and then scrapped. The asset strip would appear to be technical and is only undertaken by the key recyclers. Partnerships and service level agreements could be developed to promote this exchange of skills.

Recovery Per WEEE Directive Category

3.2.30 Full details of recovery by category are included in appendix 3. These have been split into four categories; accepted for recycling, recycled at facility, refurbished at facility and passed to third party. The difficulty with this data is that no data was provided from the companies in terms of quantities of waste, which they recycled at facility, refurbished at facility and passed to third party. In most cases this was not recorded. From the information provided for the main three categories (1 to 3) which were handled by companies, it is clear that as well as recycling material at their own facility they also make extensive use of refurbishing and passing material on to third parties. On account of this study there may be an element of double counting of recycling rates, which is difficult to quantify without having detailed discussions with the larger recyclers.

Figure 6: Recovery by Category of Waste[5]

	Accepted for recycling (%)	Recycled at facility (%)	Refurbished at facility (%)	Passed to 3rd party (%)
Category 1	100	43	39	96
Category 2	100	52	22	74
Category 3	100	55	47	46

3.2.31 Analysis of data for category 4 to category 10 identifies a clear reduction in companies providing a service for these types of material. Most companies, which accept these materials, do so as “part of the service” and clear methods for recovering value from these materials have not been established in the same way as category 1 to category 3 material.

3.2.32 Having established the types of main activities of the recyclers and the types of material that are being recycled and re-furbished, this section then focuses on gathering data on the average recycling tonnage currently achieved in Scotland. The monthly and annual totals are presented in figure 6.

Figure 7: Average WEEE recycling tonnage data

	Tonnage
Per month	2,353.35
Per annum	28,024.18

3.2.33 Analysis of data suggests the majority of the recycling is being delivered by a relatively small number of recyclers. Over 90% of the above total is generated from seven large recycling companies and in fact one recycler delivers over 50% of the above total, primarily through a large throughput of large household appliances.

3.2.34 If further analysis of recycling capacity in Scotland is required, attention should focus on these key players and encourage them to develop partnerships with smaller organisations. It is

[5] Columns add to greater than 100%. This is the result of double counting and errors due to lack of detailed quantative information.

assumed likely that these key players will also be receiving the waste, which other companies cannot handle and which may have been counted twice by this study. This would result in a reduction of the recycling total by approximately 3,000 tonnes per annum to 25,000 tonnes per annum.

3.2.35 According to the TRL report (2003) Scottish recovery companies handled at least 7,149 tonnes of WEEE in the period 2001 / 2002.

Figure 7 above show that the average monthly recycling figure is 2,353 tonnes and the annual average recycling tonnage is 28, 024 tonnes. This shows a large increase in the amount of WEEE recovered and recycled in Scotland.

3.2.36 Although, it is likely that that the tonnage has increased per annum since 2001, it is also possible that the TRL study underestimated these figures due to the low response rate from their postal survey.

Meeting WEEE Directive Targets

3.2.37 As discussed previously in the section entitled 'Directive Targets', the number of people living in Scotland in 2003 was approximately 5.06 million. The 4 kg per person collection target amounts to a Scottish WEEE collection target of 20,240,000 kilograms per annum, or 20,240 tonnes per annum. According to the average annual tonnage as seen figure 7, it would appear that Scotland is already achieving its WEEE collection target. Based on the figures provided by the industry itself, at present the 'per person' figure for Scotland is approximately 5.54 kg.

3.2.38 However, one issue that emerged from the face-to-face interviews is the accuracy of the tonnage that was given by a number of companies in the questionnaire. Some companies reported a very high recycling tonnage but from the face-to-face interviews it was clear that the facilities they had available on site in Scotland were unable to cope with such a tonnage. For example, one small company claimed to recycle 350,000 tonnes of WEEE per annum. On inspection of the infrastructure at the plant this was clearly not possible. To take account of these unrealistic claims the data has been adjusted accordingly.

These new figures in figure 7 are based on other data provided by the relevant companies which appeared to be more realistic. The other companies where invalid data was suspected generally had low throughputs and the annual tonnages discussed above will not be significantly affected.

3.2.39 As discussed above, Scotland appears to be more than meeting the collection target of 4 kg of WEEE per person per annum. However, the Directive also has targets for recovery per category as seen in Chapter 2 based on article 7 of the WEEE Directive. According to the Entec report (2001), Scotland produced 42,000 tonnes of WEEE in 2000 and it was estimated that this figure would increase by 10% every year. This means that in 2004, Scotland should have produced 61,492 tonnes of WEEE. Assuming this is correct that would equate to 12 kg per person per annum. This is not a particular issue at present but as the Directive is enforcing the following sections will cause some difficulty in proving compliance:-

- Para 16 – "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."

- Article 5, paragraph 5 – "Member States, shall establish a new mandatory target by December 31 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."

3.2.40 Although the current target is being achieved it is likely that the collection target will get harder. At present we are achieving the target because we have an infrastructure for large household goods. The items remaining will be lower quality and weight, and it will be very difficult to achieve targets using current infrastructure.

Trends in Electronic Recycling

Figure 8: Comparing 2004 recycling tonnage data with 2003 recycling tonnage data

	No of respondents
Increase	9
Decreased	2
Stagnant	3

3.2.41 According to figure 8, above, the majority of the recyclers, 64%, reported an increase in their recycling output compared to 2003. Only 14% reported a decrease in the recycling capability whilst 21% recyclers had the same recycling output as in the previous year.

Recycling Processes

3.2.42 In order to obtain detailed information on the current recycling processes in Scotland, section 4 of the questionnaire looked at the percentage of WEEE received by each recycler from the ten WEEE Directive categories. In line with Annex II of the Directive, each recycler was also asked to identify which substances, preparations and components were removed from their WEEE and also the specific components and their treatment. The summary of these findings is outlined in figure 9 below.

Findings

Figure 9: % of goods received annually from the WEEE categories

Category	% of Goods
Large Household	28.90
Small Household	3.26
IT & Telecom's	56.74
Consumer Equipment	1.88
Lighting Equipment	2.43
El & Electrical Tools	5.80
Toys, Leisure, Sport Eq	0.06
Medical Equipment	0.39
Monitoring & Control Eq	0.22
Automatic Dispensers	0.33

3.2.43 Figure 9 shows that the majority of WEEE received annually by the recyclers come from category 1, large household appliances and category 3, IT and telecommunications equipment.

3.2.44 The TRL report discussed in Chapter 1 stated that 53% of WEEE in Scotland came from large household appliances. Figure 9, above, shows that only 28.9% of the WEEE received by recyclers in Scotland comes from this category. This difference could be due to a decrease in the amount of category 1 waste since 2003, or it could indicate that a large amount of this waste is sent for recycling outside Scotland. This was the case with one of the Local Authorities who sent their category 1 waste to England.

3.2.45 As discussed in Chapter 1, 82% of the 1 million tonnes of WEEE that is produced per annum in the UK comes from these two categories. It is therefore not surprising that these represent such a high percentage of the material received.

3.2.46 A number of different models have been proposed to act as delivery vehicles for the WEEE Directive, one of these being the National Clearing House (NCH). The format of the NCH is still subject to debate and future agreement. Currently as part of this model, operators and designated collection facilities would have access to the NCH's collection service which would arrange for the collection from civic amenity sites and other designated central collection sites on demand and free of charge. In order to secure collection through the NCH, operators of designated collection facilities would be expected to register details of their operations, locations, access arrangements and which categories of WEEE they cater for.

In order to simplify this process, the NCH model proposes to re-group, or combine, the ten WEEE categories into four categories. There was general support from companies for a reclassification of categories in order to simplify the system.

Figure 10: Percentage of goods received annually from the four proposed NCH categories

Category	WEEE Categories	%	Tonnage
1	Large household appliances, automatic dispensers.	29.23	8191.4
2	IT/telecoms, consumer equipment.	58.62	16427.7
3	Small household appliances, electrical/electronic tools, toys, leisure/sports equipment, monitoring/control equipment	9.34	2617.4
4	Lighting equipment	2.43	681

3.2.47 Figure 10, above, shows that the vast majority of WEEE received annually by Scottish recyclers is derived from NCH categories 1 and 2.

3.2.48 As the survey also gathered data on the amount of WEEE being recycled per annum, on average, it was possible to calculate the tonnage being recycled from each of these four categories, as seen in figure 10.

3.2.49 The companies interviewed were primarily either dealing with category 1 or category 2 material with the odd minor exception. Companies dealing with category 1 waste were primarily in the not-for-profit sector, with one noticeable large exception. Companies handling category 2 waste were split between the private and not-for-profit sector. With category 2 waste, frequently the not-for-profit sector selected the best equipment to refurbish and then sent the waste for recycling to the private sector.

Again, this may produce an element of double counting within these figures. Very few companies actively targeted category 3. However, some did accept this material as part of the service they supplied. One company did specialise in category 3 waste, but acted more as a salvage and resale contractor and did little in the way of recycling or refurbishment of equipment. Only one company was involved in processing category 4 waste.

3.2.50 Responses to the removal of components as per annex II of the WEEE Directive was very patchy.

The data in figure 11 below shows that there are a number of substances that are not being removed by some Scottish recyclers, including the fluorescent coating on CRT's. At present there is only one company processing CRT's in Scotland. This company has invested a significant sum of money to provide a system for removing the fluorescent coating and recycle (and re-use) some of the component parts. The most common form of extraction from WEEE is the category including external electric cables and printed circuit boards from mobiles and boards greater than 10 cm².

Figure 11:

In line with Annex II of the WEEE Directive, do you remove any of the following as part of your process?

No	Processes	Yes	%
1	Capacitors containing Polychlorinated Biphenyls (PCB's)	4	13.8
2	Mercury containing components i.e. switches	4	13.8
3	Batteries	8	27.5
4	Printed circuit boards from mobiles and boards > 10cm²	10	34.5
5	Toner cartridges, liquid and pasty, colour toners	7	24
6	Plastic containing brominated flame retardants	5	17
7	Asbestos waste and components containing asbestos	2	6.9
8	Cathode Ray Tubes (CRT)	5	17
9	Chlorofluorocarbons, hydrochloroflourocarbons, hydrocarbons, hydroflourcarbons	3	10
10	Gas discharge lamps (GDL)	2	6.9
11	Liquid crystal displays of surface > 100 cm² and GDLs	3	10
12	External electric cables	11	38
13	Components containing refractory ceramic fibres	3	10
14	Components containing radioactive substances	3	10
15	Electrolyte capacitors containing substances of concern	3	10
16	Removal of fluorescent coating on CRTs	1	3.5
17	Extraction/treatment of gases that are ozone depleting	1	3.5
18	Removal of mercury from GDLs	0	0

3.2.51 Frequently companies were relying on other parts of the sector to provide this service for them, and were not fully aware of where these services were provided. It is clear from figure 11 that items which are perceived to have a value will be removed. One company had developed a very innovative technique for removing ink from ink cartridges and sending the plastic cartridge for recycling and the waste ink for specialist disposal.

3.2.52 Our research would indicate that there is a lack of facilities to process material listed in figure 11. There are therefore opportunities for company's to specialise in these areas. This opportunity will increase as the requirements of the WEEE legislation are implemented and regulated. At present there is little regulatory pressure for companies to ensure safe recycling of these components.

Capacity

3.2.53 This section focused on the recycling capacity of each recycler and the difference between the licensed capacity and the currently achievable capacity. The section also allowed the recyclers to identify barriers to achieving maximum capacity and to elaborate on these barriers.

Figure 12: What is your licensed recycling capacity?

Tonnage	No of responses	Average per Company
79,598	9	7,236

3.2.54 It should be noted that three licensed sites provide 60,000 tonnes of this capacity, which equates to over 75% of the total licensed capacity.

3.2.55 The licensed capacity is generally a reflection of SEPA's charging policy rather than a reflection of the actual site capacity. SEPA currently has charging bands for less than 5,000 tonnes per annum, 5,000 to 25,000 tonnes per annum, 25,000 to 75,000 tonnes per and annum and over 75,000 tonnes per annum.

3.2.56 When you consider that fifteen out of twenty one sites (71%) handle less than 1,000 tonnes per annum, and 38% handle less than 100 tonnes per annum it is clear that the charging bands are not suited for this type of operation. This situation would be even worse if the unlicensed sites were included.

Figure 13: Are you operating to the maximum of your licensed capacity?

Response	No
Yes	1
No	12

3.2.57 Analysis of the data confirms that all sites do have spare licensed capacity to allow for expansion. The one respondent who specified they had no spare capacity also has other restrictions, for example space, which prevent them increasing their licensed capacity.

3.2.58 Out of the seven large recycling companies, which are responsible for delivering over 90% recycling of WEEE, all have sufficient licensed capacity to allow expansion; apart from one of the seven, which does not hold a waste management licence.

Figure 14: If no, what capacity can you currently achieve?

Tonnage	No of respondents	Average
30,210	11	2,746.36

3.2.59 This question requested information on **licensed capacity** which companies could achieve. Organisation, which did not hold a Waste management Licence, generally did not answer this question. Out of the eleven seen in figure 14 above, ten were licensed. The majority of these licensed operators were in the private sector with two notable exceptions within the not-for-profit sector. The remaining companies interviewed did not respond to this question as it asked for licensed capacity.

The accuracy of these figures is difficult to verify, as some companies were reluctant to show a copy of their waste management licence. Frequently the limit set on a Waste Management Licence has more to do with which charging band it falls under in terms of SEPA licence fees than with operational constraints. Most companies were not operating to their licensed capacity and frequently other factors, for example space and lack of manpower (as per figure 15) would prevent them reaching this capacity. From information provided by licensed companies they are currently able to achieve approximately 40% of their licensed capacity. Lack of space is a particular issue as

under Waste Management Licensing regulations you cannot increase the boundary of the site. This makes it much harder for companies to expand into the neighbouring warehouses.

Figure 15: Are there, in your opinion, barriers to achieving full capacity?

Response	No.
Yes	9
No	2
Don't know	1

3.2.60 The variety of reasons for not achieving capacity have been listed in figure 16 below. The barriers listed below are raw comments from respondants.

Figure 16: If yes, which barriers have you identified?

No	Barriers
1	Lack of space for storage purposes
2	Lack of transport facilities, despite the purchase of two new vehicles in August 2004
3	Lack of developmental financing/grants
4	New premises required for WEEE activities
5	Not enough supply of material
6	Indecision by Government
7	Poor policing by SEPA of illegal competition
8	Lack of funding
9	Lack of paid staff
10	Lack of volunteer workforce
11	Full implementation of CRT disposal regulations using best available technology
12	Implementation of WEEE Directive
13	Willingness by central government to embrace the opportunity to utilise and promote the proximal facilities in Scotland already provided by the private sector.
14	Industrial decline in Scotland
15	Red tape
16	Available funding
17	Capital investment
18	Lack of material
19	Lack of companies willing to pay for recycling
20	Accessing sufficient goods for re-use or refurbishment
21	Local authority and access to goods
22	At present refurbishing but will need to move to recycling
23	Identifying take back of materials and organising with large companies for take back

3.2.61 The barriers to the recycling operations, as seen in figure 16 above, will be discussed in more detail in Chapter 4. Not surprisingly, the largest barrier to all companies was lack of sufficient revenue. Whether this was via lack of grants (or the uncertainty of reapplying for grants) or lack of revenue from processing the equipment, this was a common factor. Many of the companies were actively looking at charging for the uplift and collection service they currently provide to try and improve their revenue stream. This then put the companies in direct competition with other waste collection services and unless the client had very strong views that their WEEE equipment should be disposed correctly many of the recycling companies were finding it difficult to access material.

3.2.62 The second largest barrier was a general feeling of lack of support for their work from customers, regulator and support organisations.

Markets

3.2.63 This section identifies the main revenue streams for companies and aims to identify where any support could be best directed. Most private recyclers were generating revenue from asset stripping of material or sale of recyclate. There was also recognition within all the large companies that they needed to start charging for their services. This was gradually being implemented under a number of guises. For example, some companies charged a collection and transport fee, others were placing a charge on uplift of computer monitors. There was general recognition that charges were required to make the business sustainable.

3.2.64 The not-for-profit companies were less effective at recovering the asset value of material as they tended to have to supply material to the large recyclers after they had refurbished what they could. They were also less likely to apply a handling charge as that made them less likely to receive the goods. The only exception to applying a charge for collection was where they were operating under a service level agreement with for example a Local Authority. They were more reliant on grants for capital and operational costs.

3.2.65 An effort was also made to try and identify where the companies made profit from the sale of the recycled material. Some companies were operating almost entirely internationally with no material being sold in Scotland while others were selling material locally. The difficulty was trying to identify the various chains of material as it was passed from one recycler to another. For example, motors were sold to a company who then exported them to India. The company specified material was sold to the Scottish market. However, the ultimate market was outwith the UK.

3.2.66 It would be interesting, based on the understanding gained from this survey, to carry out an audit to identify the ultimate destination of the recycled material. On the basis of the findings of this report the recycled material is frequently passing through a number of companies and the end result in terms of recycling or reuse of the product is not certain.

Findings

Figure 17:

What percentage of your revenue is generated from markets in Scotland, Rest of UK, Europe or Outside Europe ?

Markets	%
Scotland	80.2
Rest of UK	6.6
Europe	5.7
Outside Europe	7.5

3.2.67 The above figures are based on information provided by the companies themselves, but again should be considered with some caution, as frequently companies were not aware of the final outlet for their material. The not-for-profit companies currently secured their revenue from grants, charging a collection and handling fee and sale of material. The market for sale of material is diminishing due to reducing prices of new IT equipment. For large household goods the value primarily lies within the scrap value of the material, and although material may be purchased in Scotland the ultimate outlet for the scrap may be worldwide. One of the recyclers for large household goods was recovering assets in the form of motors, which were then re-sold. Again the ultimate market for these motors could be international. The revenue shown in the above table is primarily from sale of component parts to international markets as shown in figure 22.

Figure 18:

What percentage of your recycled materials is sold to markets in Scotland, Rest of UK, Europe and Outside Europe ?

Materials	% Scotland	% Rest of UK	% Europe	% Outside Europe
Electronic components	2	10	10	78
PC's	90	10	0	0
Laptops	90	10	0	0
Minicomputers	90	10	0	0
Metals	95	10	0	0
Metals	100	0	0	0
Precious metals	0	0	0	100
Telecom components	0	5	10	85
Plastics	0	100	0	0
Plastics	0	80	20	0
Fridge compressors	25	0	0	75
ODS's	0	100	0	0
IT components	20	15	15	50
Glass	100	0	0	0
Cables	100	0	0	0
Printers	90	10	0	0
Notebook/notepad	90	10	0	0
CRT panel glass	0	100	0	0
CRT funnel glass	0	0	100	0
Concrete	100	0	0	0

3.2.68 One of the barriers discussed with a number of companies was the lack of facilities available to accept plastics, particularly for example plastic from CRT's or from refrigeration equipment. It was felt that some sector specific guidance was required for the recycling of plastic.

Transport & Logistics

3.2.69 Collection and logistics for receiving material was generally operated around the company van / small lorry doing a collection round of customers. Most companies delivered this service themselves. However, a number would use courier organisations. A number of companies had no van and hired in when required.

3.2.70 The companies interviewed would appear to cover the same areas in many cases so collection system as a whole will not be particularly effective. There is potential for companies, especially not-for-profit companies, to provide a collection service to the larger recyclers.

3.2.71 For waste and recyclate being sent off site, companies, generally, used haulage companies to ensure cost effective transportation. Small high value items were moved by air freight.

Figure 19:

How do you collect / receive the material from your supply chain?

	Yes	No
Road	23	0
Rail	1	22
Mail	1	22
Air	3	20
Sea	3	20

3.2.72 It is clear that collection of material is primarily by road. Due to the diverse nature of their customers it is unlikely that this would change significantly. The use of rail, mail, air and sea were confined primarily to one large recycler who handled material from European markets.

Figure 20:

How are your recycled materials delivered to your clients?

	Yes	No
Road	21	2
Rail	2	21
Mail	1	22
Air	3	20
Sea	4	19

3.2.73 Again for sending recyclate to clients, road transportation is the predominant mode of transport used for moving WEEE material. The use of rail, mail, air and sea were confined primarily to the large recyclers and were used for high value component parts. It is interesting to note that one additional customer did use rail to transport recyclate.

Figure 21:

If you pick up, transport or deliver WEEE, do you use your own transport?

Response	No.
Yes	17
No	5

3.2.74 Most companies either provided their own vehicles or they hired in registered waste carriers to transport WEEE material. More and more of the companies were viewing the collection and delivery of WEEE material as a service and they were applying the appropriate charge to their customers. This is an ongoing change, as historically WEEE material would have been picked up for free. A factor in this has been the classification of computer monitors as hazardous and the current hazardous waste paperwork fee.

Barriers and Success Factors

3.2.75 Due to the diverse nature of the companies interviewed the barriers were many and varied. The three principle recurring themes were -

- Regulation and uncertainty on how it would affect their business.
- Lack of support from customers and external agencies to achieving their aims of recycling material. (Note: - principle aim is to ensure customers have to recycle WEEE so that they can charge for their service)
- Market for Recyclate and assets from WEEE material.

3.2.76 Most companies viewed WEEE Implementation as an opportunity. However, there was a general criticism of the lack of information and very few had made expansion plans on the basis of WEEE Implementation.

Findings

Figure 22

If the WEEE Directive is a success, what would the implications be for your company / organisation?

	Yes	No
Increased capacity	17	6
Diversify	13	10
Employ more staff	17	6
Increase revenue	19	4

3.2.78 Figure 22 above shows that the majority of companies would increase their capacity if the WEEE Directive was a success. The same number of companies also stated that would employ additional staff. Only thirteen companies would look to diversify which suggests that there is room to increase capacity within the activities that companies are currently operating. The majority also stated that their revenue would increase if the Directive was a success. Barriers, overcoming barriers and success factors are also discussed in more detail in Chapter 4.

Permits & Licensing

3.2.79 Facilities, which handle WEEE material, should be licensed under Waste Management Licensing Regulations 1994 (and subsequent amendments) or The Pollution Prevention and Control (PPC) (Scotland) Regulations 2000. All the sites interviewed were either licensed under Waste Management Licensing Regulations 1994 or not licensed at all. Some companies had specified that they were exempt from Waste Management Licensing Regulations 1994 under the exemptions listed in Schedule 3, and in fact one company had an exemption issued from SEPA. Out of the forty three exemptions listed under Schedule 3 there are no exemptions, which would cover the activities being carried out by the companies interviewed.

3.2.80 Recent classification of fridges and hazardous waste had resulted in a large number of the companies interviewed applying to SEPA to modify their Waste management Licence to allow them to accept hazardous waste. A number had considered the cost involved and decided not to accept hazardous waste at their facility.

3.2.81 The requirement to be regulated under PPC Regulations is new and no companies interviewed were covered by PPC. It is the industries perception that this may change with fridges and computer monitors being classified as hazardous waste. This is based on their interpretation of clause (c) Section 5.4, Recovery activities.

> "Unless part of a Part A activity described in another Chapter of this Schedule, recovery activities (within the meaning of Council Directive 91/689/EEC) involving hazardous waste in excess of 10 tonnes per day and falling within the following descriptions:……"

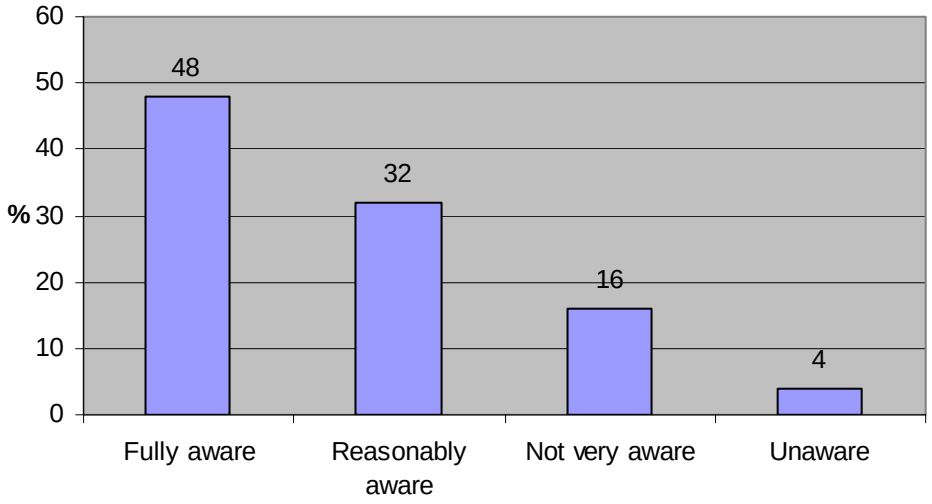
3.2.82 Under the Waste management licence, companies have to demonstrate they are "fit and proper person". One of the aspects of doing that is a member of staff must have a Certificate of Technical Competence issued by WAMITAB (Waste Management Industry Training and Advisory Board).

3.2.83 The other legal requirement is that companies must either use a registered waste carrier or if they uplift and deliver waste themselves they must be a registered carrier. There was some confusion that although charities are classified as exempt organisations they must still be registered with SEPA as exempt organisations. Most companies were aware of the requirement to hold a waste carriers registration and as the costs are low the majority held such a licence.

Findings

Figure 23

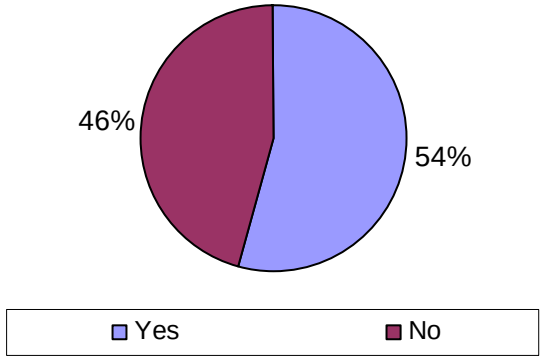
How aware are you of the licensing requirements for WEEE recycling in Scotland?



3.2.84 Most companies felt that they were generally aware of the environmental legislation affecting their sector, however they felt that on the whole their customers were not aware of the legislation. Many of the companies felt, for example, that local authorities should be doing more to prevent WEEE material going to landfill. Local authorities make the point that WEEE legislation is a "producer responsibility" and effectively not part of their remit. They are involved in category 1 material as they have historically recovered scrap value and can show these against their recycling targets.

Figure 24

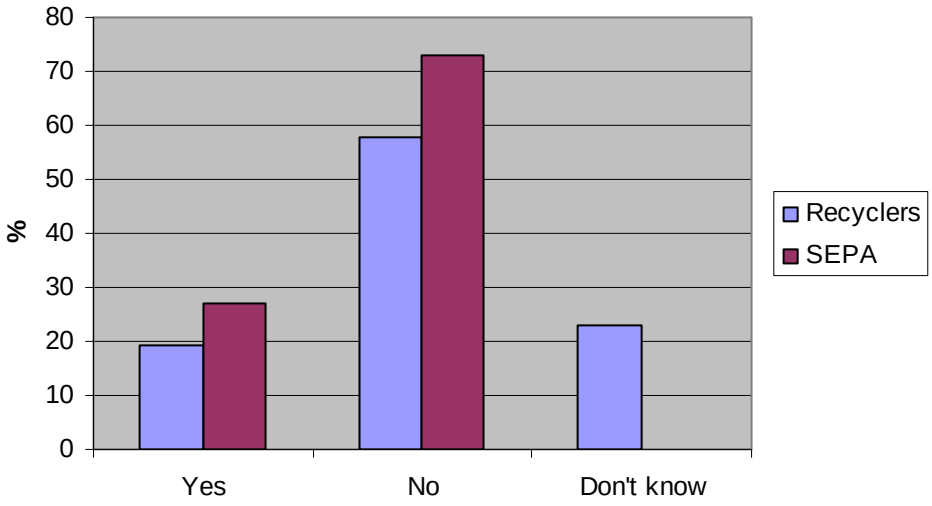
Have you heard of the new SEPA regulation 'Accredited Treatment Facility (ATF)' that will be introduced shortly?



3.2.85 Most companies who had heard of the "Accredited Treatment Facility" were not fully aware of what was being proposed. The ones which had not heard of it generally fell into the category of companies which were not operating under a Waste Management Licence.

Figure 25

Are you exempt from licensing under the current SEPA regulations?



3.2.86 Figure 25, above, shows the percentage of recyclers who claims to have a license and this number was then compared with a list received from SEPA. Interestingly, and as can be seen from the above graph, SEPA had more registered licenses than the number of recyclers claiming to have a license. This was also the same for those who said that they did not have a license. As the respondents were able to state that they didn't know their licensing status, this may be the reason for the difference in the above graph.

3.2.87 It is clear from the figures above that over 50% of the sites are operating without a WML. Most of the large private sector companies did hold a relevant WML, with a number of notable exceptions. Within the not for profit sector there were only two companies with the relevant WML in place. Companies operating without a WML used a variety of, what they perceive to be grey areas within the legislation to continue to operate.

The grey areas perceived by industry currently used were-

- To claim an exemption from Waste Management Licensing Regulations under the Waste Management Licensing Regulations 1994. Although no such exemption exists there was one site where an exemption had been issued by SEPA.

- Defining waste as product for testing rather than waste, and hence removing the need for a WML. Technically this is a very fine line and will hinge on the legal definition for waste, which is "Any substance or object… which the holder discards or intends or is required to discard". Most companies using this argument were handling material, which the customer "intended to discard".

- SEPA should be encouraging re-use and recycling therefore it is acceptable to operate without a WML.

3.2.88 The companies operating with a WML obviously viewed the current situation as unfair. Companies operating without a WML viewed the extra costs as a serious issue and many, particularly in the not for profit sector would not survive. For this sector there is a definite need for a reduced (or zero) level of charging for the small tonnages being handled.

A small number of sites operated under two different WML's, with the associated extra costs incurred.

3.2.89 Due to new regulations sites, which handled recently classified hazardous waste (fridges, TV's, light tubes etc) had to apply for a modification to their WML by 31st Dec. 2004 if they wished to continue to accept this material. Companies with a WML have, or are in the process of modifying their WML. This involves both management time and a modification fee to SEPA. In addition if a company handles more than 10 tonnes of hazardous waste per day the site will now be regulated under the Pollution Prevention Control Act.

3.2.90 Although not on the initial questionnaire, as it was a recent change, companies were asked how they currently handled the recently classified hazardous waste. Companies were either split into consigning waste under special waste paperwork and trying to identify methods for charging the customer or operating under a similar method discussed above by defining waste as product for testing rather than waste.

3.2.91 The situation with waste carriers registration is less clear as many Not for Profit companies will be registered charities. Although they are exempt from being a registered waste carrier they must be registered with SEPA as an exempt waste carrier. Where companies were not registered waste carriers they frequently used contractors who were waste carriers.

Figure 26

Number of companies with a License as recorded in SEPA's official records

Yes	No
10	16

3.2.92 From interviews carried out the vast majority of companies are carrying out an activity which should be regulated under the Waste Management Licensing (WML) system. The difficulty for some companies was that they were operating on such a small scale that the WML fees would effectively put them out of business. The scaling of charges particularly for this sector needs to be reviewed by SEPA.

Figure 27

How many of your employees hold a WAMITAB Certificate of Technical Competence?

No of Employees	No of Companies
0	12
1	5
2	4
3	2
4	1
5	1

3.2.93 Generally companies who held a WML had one or more members of staff who held a WAMITAB Certificate of Technical Competence. With sites needing to update their WML to allow them to accept hazardous waste, companies will need to ensure staff update their WAMITAB Certificate of Technical Competence accordingly.

Figure 28

If not currently licensed, are you intending to apply for a license?

Yes	No	Don't Know
7	0	4

3.2.94 Most companies in the "Don't know" category are ones which are liable to go out of business if they are required to go down this route. In fact since the report interviews one Not for Profit company has closed down.

Figure 29:

Which license / registration will you be applying for?

Type of License	Yes	No
Waste Management License	4	3
Waste Carriers Registration	3	4
Certificate of Technical Competence	3	4

3.2.95 Many of the companies interviewed are managed by staff from the electronics industry who have little or no knowledge of the waste management sector. The legislation that applies to this sector is primarily waste management legislation and staff are often not sufficiently experienced in this. This makes it difficult for them to understand SEPA requirements. SEPA should consider providing sector specific guidance on WML requirements and review existing level of fees for sites with small throughputs.

Promotion

3.2.96 In order to get a better understanding of the promotion of the Scottish WEEE recycling industry, each company and organisation was asked to provide information on how they promote themselves, how they raise awareness about the need for WEEE recycling and also to identify what they think should be done in this area.

3.2.97 The questions in this section were open ended to allow companies and organisations to give a better reflection of their promotional activities. The findings are discussed in more detail below.

Findings

3.2.98 The majority of companies used the local media for advertising purposes including newspapers and radio stations. A number of companies also used the Internet to promote their services. Some had their details listed in the yellow pages, whilst others relied on word of mouth. This again exemplifies the diversity within the sector where some companies carry out very little promotion whilst others use a variety of methods and media. It was also common for many recyclers to attend event and seminars and some would participate in these by giving presentations.

3.2.99 The majority of the recyclers felt that the promotion that they carried out raised the awareness of the WEEE Directive and the need to recycle WEEE. It was also highlighted that it was the Scottish Executives remit to carry out awareness-raising for the WEEE Directive and not the recyclers. The recyclers were too busy promoting their business and services.

3.2.100 In order to improve the promotion and awareness of the Directive, funding was identified as the main issue. It was suggested that such funding should be used to carry out a broader central promotional campaign covering all aspects of the WEEE Directive.

3.3 Conclusions

3.3.1 From the work carried out and analysis of the responses made a number of conclusions can be drawn. For ease of reference these have been given headings. More general conclusions are also drawn in chapter 4.

EU Directive Target

3.3.2 Information in the above section confirms we are achieving the core target of 4 kg collection of WEEE per inhabitant. There are a number of areas where it is less clear whether we are meeting the requirements of the directive and these present further opportunities or areas for further action. They are as follows-

- It has been assumed that if material has been accepted by one of the companies covered by this survey that the material would be recycled (or reused). There is currently no system for checking whether actual recycling is being carried out or whether material is been sent in a chain to other facilities. Information available via SEPA on the public register provides weight of waste in and weight of waste and recyclate out. Although the destination of waste and recyclate is recorded it is not available on the public register.

- There was a general lack of knowledge regarding what should happen to material as per figure 10, Annex II of the Directive. A number of companies do have the knowledge and expertise and they should be used to develop consistent standards for other companies. Once WEEE legislation is implemented and regulated there are significant opportunities available for companies to specialise in this area.

- The vast majority of companies do not currently have a system to verify and show compliance with article 7 of the Directive, which requires them to demonstrate quantity of material recovered and recycled.

Collection and Treatment Infrastructure Quality

3.3.3 There is currently no national infrastructure for collecting WEEE and many companies are offering competing collection services. A loose infrastructure could be developed around the Not for Profit companies, which would cover a significant portion of Scotland. This would only work effectively if partnerships were developed between the respective companies. There is also a lack of facilities where the general public can bring WEEE material for disposal.

3.3.4 One area where there is a network and collection infrastructure is for the disposal of refrigeration equipment. Refrigeration equipment differs slightly from other WEEE material in that there is a clear ban on refrigeration equipment entering landfill. This has resulted in local authorities providing collection and storage facility and then treatment being provided by one key recycler. Although the Directive contains an implied ban on WEEE material going to landfill, Local Authorities view it as a "producer responsibility" and not their problem. The use of local authority recycling facilities would help provide the necessary infrastructure, however there are costs involved for the local authorities.

3.3.5 There is also potential for an increase in capacity from either new start companies or unlicensed sites becoming licensed. There is one company, which has only recently commenced operations in Scotland, who have plans for significant expansion in Scotland (and the rest of the UK).

3.3.6 In summary, although companies are collecting and recycling WEEE material there is currently not a collection infrastructure as envisaged within the WEEE Directive.

Regulation of Sites

3.3.7 Our research has confirmed that most of the large operators do have a valid waste management licence in place and are operating within the regulatory framework. There are however a number who are not working within the regulatory framework. The majority of the Not for Profit sector are currently operating outwith the regulatory framework. In many cases this is a barrier to future expansion, as they cannot access WEEE material as the company / council supplying the material will be breaking their Duty of Care by passing waste to an unlicensed facility.

3.3.8 The scale for charges to SEPA and the increased costs for training and manpower are totally disproportionate to the activities being carried out by some of the smaller organisations, and it is understandable why they have not gone down the regulatory route. If the small Not for Profit organisations are going to play a part in the WEEE infrastructure a much more simplified licensing and charging scheme is required.

3.3.9 For the larger sites the licenses should be strengthened to ensure the correct data is being recorded. This will provide the necessary data to show compliance with the Directive.

3.3.10 One of the areas of concern for Local Authorities is the increased costs in terms of WML's and training as they need to gear up to accept hazardous waste. This is currently one of the barriers to Local Authorities providing part of the collection infrastructure.

Treatment Capacity

3.3.11 Total Scottish WEEE arisings are difficult to quantify accurately. However, two recent research findings suggest WEEE tonnage of the following order of magnitude.

3.3.12 Caledonian Waste Management Centre (2003) has suggested "the amount of waste electrical and electronic equipment will increase to 300,000-350,000 tonnes per annum by 2008".

According to the Entec report (2001), Scotland produced 42,000 tonnes of WEEE in 2000 and it was estimated that this figure would increase by 10% every year. A projection on this basis gives a figure of 61,492 tonnes of WEEE in Scotland in 2004.

3.3.13 Even using the much more conservative Entec report figures, by 2006 approximately 80,000 tonnes of WEEE will be produced which will exceed the existing licensed capacity.

3.3.14 Although the licensed capacity equated to almost 80,000 tonnes per annum, responses from companies suggested they could increase activities to handling 30,000 tonnes per annum from a level of 28,000 tonnes per annum. Companies expected to be able to increase capacity by 7%, which is well short of the increase by 166% to achieve the licensed capacity. The limiting factors are most likely to be space and staff. An increase in licensed capacity can also be expected as new sites gain WML.

3.3.15 In addition to the points listed above two of the factors, which are limiting an increasing in capacity, are access to waste material and access to treatment and disposal routes. Companies are currently delivering a service for the relatively high quality of material they are receiving. Access to more material will result in a decrease in quality, which will mean access to treatment, and disposal routes will become more important.

3.3.16 The figures collected in this study on WEEE recovered and recycled suggest we are currently recycling 28, 024 tonnes per annum. Most companies will explain that 100% of all waste accepted will be recycled. Frequently where they cannot recycle material they will pass on to another company. Clearer guidance is required for companies to record this information and ensure they can show compliance with recycling targets.

Key Findings

3.3.17 Key findings from this section can be summarised as follows: -

- Scottish WEEE Arisings

  Report estimates that over 60,000 tonnes of WEEE material will be generated in 2004 (ref. Section 3.3.12).

- WEEE Recovery and Disposal

  Figures currently supplied by the industry suggest that over 28,000 tonnes is currently handled by recycling facilities in Scotland. Insufficient information is available to confirm that that is the total quantity of waste actually recycled (ref. Section 3.2.32).

- WEEE Recovery Capacity

  Current licensed recovery capacity is almost 80,000 tonnes per annum, with a number of new facilities due to become licensed in the near future. Companies confirmed that they could increase handling capacity to 30,000 tonnes per annum from a level of 28,000 tonnes per annum (ref. Section 3.2.53)

- WEEE Collection Infrastructure

  Section 3.2.69 details the transport logistics for moving material. The predominant method is currently via road. Due to the lack of integration between companies there is considerable cross over of collection systems (ref. Section 3.2.69).

Chapter 4

WEEE Recycling Capability Scotland – *The Industry View*

Barriers, Threats & Opportunities

4.1 Introduction

4.1.1 This section of the report focuses on the qualitative information provided by the recyclers. It should be borne in mind that because **the recyclers themselves provided this information**, it was not always possible to verify the information.

4.1.2 During the course of the interviews it was explained that the information provided would remain confidential. Again there was some suspicion as to why this information was being requested and for what purpose it would be used. In an industry where margins are low and making profit is dependent on volume, good market information is valuable.

The language in the first section on barriers is left as offered by the recyclers as it was felt important that their views are made available to the appropriate public agencies. There then follows a section on the sector's views on how to overcome these barriers in the future. These ideas from the sector are then added to the information gleaned from the recyclers during the production of the report, and combined with the information provided from the questionnaire and face to face interviews, are translated into threats and potential opportunities to assist in the successful implementation of WEEE.

4.2 Barriers as Perceived by the Sector

4.2.1 Awareness and Information

- *There is a lack of awareness and education on the WEEE legislation in general. In particular there is little understanding of how the WEEE legislation will impact on the sector and how individuals and companies should be recycling WEEE.*

- *There is a lack of any direction on the implementation of the WEEE legislation. SEPA and the Executive are not providing clear and consistent information. Often information from different parts of SEPA is inconsistent. SEPA is not the appropriate body to assist in information dissemination and dialogue as SEPA is the regulator.*

- *The format of the Clearing House is very unclear and the sector cannot envisage a sensible way forward at this time.*

- *There is a lack of promotion of the companies and facilities available in Scotland and the investment undertaken by these companies*

- *Much of the discussion, consultation and information distribution has centred on manufacturers and distributors with very little contact with the recyclers. Most industry organisations are dominated by the producer and are expensive to join. Attending ICER meetings requires a fair amount of expense and travelling time.*

- *A Forum where information was made available to recyclers and discussion was focussed could be very helpful.*

4.2.2 Support

- *No large scale funding support seems to be available to develop the sector. Funding which is available would appear to be too complicated and require unnecessary time and effort to apply for. The Waste Resources Action Programme's (WRAP) Scottish capital grant scheme was cited as an example of this by several companies. WRAP is a major Government programme established to accelerate resource efficiency by creating stable and efficient markets for recycled materials and products and removing barriers to waste minimisation, re-use and recycling. It is a 'not-for-profit' company backed by funding from DEFRA, DTI and the devolved administrations. WRAP works with the public, private and community sectors with the aim of promoting resource efficiency within the UK.*

- *Plenty of funding seems to be available to the public and voluntary sectors, which then compete against the private companies in the sector. This is not a level playing field. Examples of this type of funding include the Sustainable Action Grant, the Strategic Waste Fund, the New Opportunities Fund and the Landfill Tax Credit Scheme.*

- *The promotion of the WEEE Directive is a UK Government and Scottish Executive function. At present, it would seem to be left to the recyclers to raise awareness among the public.*

- *The Executive and Scottish Enterprise should build in some safeguards to ensure that when a business within the sector fails, there is a system for the re-sale of the equipment. Often good quality recycling equipment is left to go to scrap when it could be re-used.*

4.2.3 Markets

- *There is a lack of specialised markets for recyclable materials particularly plastic. If markets were more readily available companies would have incentives to look at way of stripping down equipment. REMADE have not yet created new markets and seem to do a lot of work with the public sector.*

- *Producers are not interested in refurbishment and they are the ones driving the agenda. The market for refurbished equipment is diminishing and there is great difficulty establishing a customer base for refurbished products. The ever-reducing price of new computers makes it very difficult to sell refurbished equipment.*

- *Many companies do not wish to pay for recycling. Profit is currently made from providing uplift and haulage. There is a problem identifying suitable take-back material and co-ordinating with large organisations to take the material back.*

- *One of the main barriers to progress is negotiating access to white goods via Local Authorities. The market seems to be well tied up and entry for local companies is often impossible.*

- *There will be a problem creating a proper market unless WEEE material can be sourced from the manufacturers. If the materials are sourced from households then, unless regulated by the Local Authority, there is a strong possibility that the materials will be in poor condition.*

- *Local Authorities seem not to want to take action until forced to do so. They do not see it as their job to be assisting in the implementation of WEEE. They may need to be given clear direction on what is required, but they also need to be provided with the necessary level of funding.*

- *There is a need to ensure that products are refurbished and re-used and that this process conforms to the proximity principle. In order to achieve this, there is a pressing need for local infrastructure for handling waste and recycling. If we are not careful everything will end up overseas.*

4.2.4 TransFrontier Shipment (TFS)

- *There is a lack of uniformity in TFS across Europe. The industry has to deal with different regulations in each country. The future cost of TFS bonds and the time and barriers of the application process will make any already existing operations become uneconomical. The main barriers are fees, bonds and the increased administration required to comply with the regulations.*

4.2.5 Permits, Licensing, Administration & Regulation

- *There is lack of awareness of the legislation around classifying computer monitors as hazardous waste and the need to consign them from premises to premises. Some companies are already using hazardous waste paperwork while most are not. It is not so clear whether this system will be used when uplifting goods from customers premises as it is unclear whether recyclers can recover the cost.*

- *SEPA regulation is handled very poorly with little guidance provided. There does not seem to be any enforcement and where there is it is it is patchy. SEPA often turn a blind eye to the licensing issue with the voluntary sector and therefore there is not a level playing field between the public and private sectors. SEPA does need to strongly enforce the existing legislation both in terms of the exporting of waste and the licensing of facilities. At present there are no real incentives / penalties to make this type of recycling attractive.*

- *SEPA is not good at working with companies at the development stage. The experience of SEPA officers is often limited. The staff who visit the site often have little knowledge of the sector or the culture of the organisations they are dealing with.*

- *The Waste Management License application process and the annual costs applied by SEPA often decrease the viability of the project. There is a problem with the scale and extent of SEPA charges. There is a strong view of SEPA from the sector that the organisation was very poor in terms of the standard of regulation provided and the subsequent charging regime. A sliding scale of charges with a lower threshold for smaller companies would help.*

- *The sector view is that SEPA have become very financially orientated and that charging has become a form of revenue generation encouraged by the Scottish Executive.*

- *There was a strong perception that a key barrier to maximising recycling capacity is the red tape and bureaucracy involved. The sector already has a lot of paperwork and WEEE is very much viewed as adding to it. Other major barriers are filling in forms and delays to the legislation being implemented.*

- *It was felt that opportunities were being lost. In terms of the detail of the legislation it was felt that it was too much to deal with 10 Categories and that the 4 NCH combined categories would be better.*

- *There is a lack of guidance on legislation for small charitable organisations - the legislation does not fit this type of organisation. Neither do the licensing arrangements.*

- *Re-use is not considered to be a part of the WEEE Directive. Recycling is viewed as more important. There is a fear that there will be limited legislative and financial supports for existing reuse projects.*

4.2.6 Views of the sector by the sector

- *Some WEEE recycling operations are being run on a shoestring with conditions of employment that are pretty bleak. If registering for Health & Safety etc they would probably be out of business – never mind waste management licenses.*

- *WEEE recycling is often peripheral to what are essentially scrap yard businesses. This often does not help to promote sustainable best practice in the industry.*

- *There is a lack of reprocessing facilities in Scotland. Hence some waste has to move south of the border.*

- *There is a lack of storage space and transport facilities.*

4.3 Overcoming Barriers as Perceived by the Sector

4.3.1 Advice & Guidance

- *Clear guidance on WEEE implementation and regulations around recycling facilities is required. If the guidance was clear many companies would look to establish a partnership with either manufacturers or recyclers.*

- *Clear guidance on what is essentially hazardous / non hazardous waste should be provided.*

- *The format and operation of the Clearing House must be made as clear as possible.*

- *Public education and awareness campaigns*

- *The logical system for establishing a WEEE network would be to base it around existing local authority recycling facilities.*

- *Much can be done to encourage re-use. It is also important that refurbishing is used before material is sent to shredders.*

- *Making it clear who is going to be responsible for driving the WEEE agenda forward.*

- *The Executive has to pull the processes together and provide clear policy and clear guidelines*

- *Develop a training package in re-designing products to enhance and increase the amount of recycling which can be achieved.*

4.3.2 Supply Chain

- *Electronic recycling companies should be at the top end of the market where they can access relatively good quality equipment via companies providing installation of new*

equipment. Recyclers have expressed a willingness to go into partnership with either the manufacturing side or the recycling side (or both). Scottish Enterprise and the Executive should encourage such partnerships.

4.3.3 Support

- *Scottish Enterprise could provide support and assistance through marketing the expertise built up in Scottish recycling companies to overseas clients.*
- *Identify new funding areas and funding support streams This would allow waste to continue to be recycled in Scotland.*

4.3.4 SEPA

- *Recognition from SEPA that the existing scale of charges does not suit small-scale operations – fee scaled according to throughput and size of the operation.*
- *Proper and consistent enforcement of regulation and legislation.*
- *Level playing field for all recyclers.*
- *There is no incentive for private sector to recycle WEEE properly. Need to both encourage and enforce properly and publicly. Public information on what is happening in China and other places would help.*

4.4 Threats

Introduction

4.4.1 The evidence is of suspicion, lack of trust and cynicism in the sector. The recycling companies felt neglected. Often this was expressed as a feeling that the recyclers were regarded by the Executive and Scottish Enterprise as not being part of the mainstream electronics sector. There is also a strong perception that recycling involves low skill, lots of dirty processes and is a 'bad neighbour' development. The sector struggles to overcome these perceptions. The industry also appears to be over-surveyed and there is a high degree of uncertainty about where the Scottish Executive / DEFRA / DTI is going to take the WEEE Directive.

4.4.2 In addition, there is also frustration that nothing appears to be happening and that strategic business planning and preparation cannot take place.

The Sector

4,4.3 As discussed previously in this report, the Scottish electronics recycling sector consists of a variety of company types that can make it difficult to define it as a single industry or sector.

4.4.4 At the far end of the market there are companies which are not interested in recycling; companies that may be destroying a number of materials which could be recycled in their dash for high volume. This type of operation is usual in the case of recycled materials such as plastic casings. These are often destroyed without any recycling of the added value material from the rest of the system. On the other hand there are companies which are looking at extracting as much value as possible from printed circuit boards and components. It would appear sensible that, where these circumstances exist, some sort of partnership approach would be appropriate between the

companies looking for the added value and the companies looking for high volumes in materials such as casings, plastics etc. At present, what could be termed scrap yards are destroying good components as they only see value for themselves in casings . Cooperation with a company which is recycling components could add value to both operations.

Licensing

4.4.5 This was a particularly difficult part of the study to analyse and make recommendations on due to the sensitive nature of the information requested and the high level of suspicion from the recyclers with regards to the perceived role of the Regulator.

4.4.6 The companies that had all the licenses required for their operations felt a great deal of indignation and felt hard done by due to what they believed was a lack of a level playing field with, particularly, the voluntary sector. The argument that was put forward was that it would seem appropriate and fair that all those dealing with WEEE should be required to have the appropriate licenses.

4.4.7 Currently, many voluntary and community organisations believe they are exempt from the licensing regulations. It would appear that, due to the nature of these organisation and the benefits that they provide to the local community, SEPA are being lenient with those organisations which are required to have licences but do not have them.

4.4.8 There is also a great deal of frustration that the policy from the centre of SEPA does not filter out to the individual officers visiting sites. It is felt that SEPA seems sympathetic to the sector at an official level but that this is often not the case at a local level. The culture of this sector, not to make too fine a point, is often very much based on the old traditional scrap yard mentality. In order to ensure that the relationship between the recyclers and SEPA is as good as possible, it is important that both have an understanding of each other's culture. One idea to improve the situation was that there should be training provided to SEPA staff about their understanding of the sector. Perhaps a training programme should also be provided to the industry, through nominees or through a forum, to understand the roles and complex nature of SEPA.

4.4.9 Based on the above, there appears to be a gap between SEPA's policy and practice. This would need to be addressed in order for the sector to benefit from a fair and effective licensing framework.

Illegal Export

4.4.10 There is great concern amongst those companies who are trying to establish themselves in WEEE recycling that larger companies, often covertly, are shipping monitors back to Asia / China for cash value. The result being that the WEEE is not recycled. There seemed to be some visual evidence to support this from the study, as there was very little practical recycling taking place when visiting most of the recycling companies. Interestingly, most of the companies interviewed referred to this practice but no one mentioned any names or admitted to doing it. Several companies also refused to take part in the study.

It was not possible to verify the recycling processes of these companies.

4.4.11 Based on the number of companies raising this issue it is necessary to point out this specific concern. However, it was not within the scope of this study to mention any names or organisations or to pursue this issue any further with the recyclers. This is perhaps an issue that SEPA could take forward.

4.4.12 It may be useful for SEPA, to carry out spot checks on these recycling processes. This may help alleviate the problem.

The Voluntary and Community Sector

4.4.13 It would seem that for parts of the voluntary sector who are involved in the recycling of WEEE, this does not seem to be their core business. From the interviews and research conducted it is clear that most of these voluntary organisations / projects are set up as training projects aimed at getting people job ready or trained for qualifications to get into the labour market. Recycling is often a by-product. It does not generate any substantial income but merely serves as a feel good factor for bigger electronic companies and organisations such as Local Authorities, which are distributing free goods into the community for social reasons. A substantial number of the private sector recycling companies interviewed felt strongly that this social partnership approach between Local Authorities and the community / voluntary sector had unfair market advantages and was diverting potentially high quality WEEE from their supply chain. There may be opportunities for a partnership approach which will allow the voluntary sector to continue the training element and act as a feeder to private sector companies engaged in re-use and recycling. Again, it has to be borne in mind that there is some suspicion within the private sector about this type of approach. Some sharing of ideas and preparatory groundwork would have to be undertaken before these types of partnerships would develop.

4.5 Opportunities

Supply Chains

4.5.1 It may be worthwhile looking into a 'supply chain partnership' where the voluntary sector, whose main purpose for working in the sector is to provide training and the income derived from training, would assist in the disassembly (which requires the highest element of training). The private recycling companies can then take all the remaining valuable materials for recycling.

4.5.2 Further down the supply chain there are scrap dealers who can recycle high volumes of plastics, casings, cabling, metals etc. It is also possible that some of the companies involved in the higher added value recycling may engage in some aspects of the training once the basic job ready training has taken place with voluntary/ community sector group. The remaining plastics, casings could be passed on down the supply chain.

Civic Amenity Sites & Retail Parks

4.5.3 It appears that Local Authorities, apart from helping to meet their recycling targets, will not have many drivers for getting involved in the WEEE recycling process. However, the Scottish Executive has received a substantial amount of money through the Recycle Landfill Tax Credit schemes which could assist in WEEE recycling. There are also funds available for upgrading Civic Amenity sites, and perhaps some disassembly, could take place at these sites. This would mean that if the previous supply chain partnership was to work; some disassembly into different recyclable materials may take place at newly created magnet civic amenity sites that had been upgraded for the purpose of WEEE.

4.5.4 Smaller civic amenity sites could become feeders to these sites. Electronic recyclers, whether it is CRT's, fridges etc, would be able to get their components in bulk for the process that they utilise from these sites. This would also assist in ensuring the high quality of WEEE available for recycling.

4.5.5 Similarly, there was enthusiasm for developing magnet WEEE sites around retail park developments. Most of these retail parks already have good transport links and are used to having high volumes of transport delivering and retrieving goods. They often have good security systems and are often more accessible to the public than some Civic Amenity sites which are often regarded as 'bad neighbour' development. Members of the public are also used to travelling to these sites to purchase WEEE and there is scope for take back schemes being operated from retail parks in partnership with recyclers.

This also has the advantage of raising awareness of recycling and what the legislation is trying to achieve by appealing to the customers as they purchase. This would be similar to the system of charging for the recycling costs of tyres that is already in place at tyre retail outlets such as KwikFit.

Tracking Software

4.5.6 Due to the requirements of the WEEE Directive, producers and producer consortiums will be looking for an efficient and effective audit trail to be available for each item of WEEE. This will provide a detailed history of recycling for each component and will help ensure that none of their products end up in the grey markets in Asia. At present, not many Scottish recyclers have such systems in place to provide this service. The lack of such audit trail systems may jeopardise the recyclers' ability to secure contracts with large-scale producers and producer consortiums. During the face to face interviews it became clear that a small number of companies in Scotland have developed sophisticated software capable of providing such a detailed audit trail for WEEE equipment. This type of software may help Scottish recyclers secure market advantage while also helping them prepare for the requirements of the WEEE Directive.

Carbon Emissions

4.5.7 The WEEE Directive also offers an opportunity to help develop a profitable and well established Scottish recycling industry as an opportunity to lower Scotland's carbon emissions and contributing to reaching emission reduction targets. It would also be possible to enter into carbon emission trading markets by selling the carbon difference between emissions through 'business as usual' and reduced emissions as a result of increased recycling and reuse. This is an opportunity that could create additional economic benefits for Scotland but would require some future research.

Increasing WEEE Recycling Capacity

4.5.8 Our research would indicate that there is a lack of facilities to process material listed in figure 10 as per Annex II of the WEEE Directive. There are therefore opportunities for companies to specialise in these areas. This opportunity will increase as the requirements of the WEEE legislation are implemented and regulated. At present there is little regulatory pressure for companies to ensure safe recycling of these components.

Support from Public Agencies

4.5.9 From the survey responses and the interviews carried out it has become clear that the electronic recycling sector does not spend a lot of time thinking about policy. They are already busy trying to develop their businesses or in a lot of cases engaged in fire fighting to keep their businesses alive. When they were asked about policy during the interviews it was mainly perceived as a threat. During the face-to-face interviews it was very difficult to try and begin to develop any constructive thoughts on policy. Understandably, the recyclers took a narrow approach and were only concerned with their particular area of the sector rather than generically about WEEE recycling in Scotland.

4.5.10 However, from the face to face interviews, the potential areas of support from public agencies that have been identified so far include:

- *There is very little awareness of the impending WEEE Directive both for households, retailers and for industry itself. There is an opportunity to embark on a public awareness campaign across these sectors to help increase participation levels as the legislation is implemented.*

- *It was also suggested that there could be some from of 'green tax break' in the form of a reduction in Corporation Tax for companies who participate in WEEE recycling schemes.*

- *In terms of regulation, there is an opportunity for SEPA to offer clear and consistent advice on the issue of what licenses are appropriate and how they will regulate the sector.*

- *There is also the opportunity to develop and provide training packages for members of staff from SEPA to help them understand the industry and the industry's needs. This should involve both local and corporate members of SEPA staff. Similarly, the recyclers need to understand the regulatory requirements of SEPA and what steps they are taking to assist in the successful implementation of WEEE.*

- *There is also the opportunity for SEPA to develop 'spot checks' of recycling processes to tackle issues such as illegal export of WEEE material.*

- *There is also the opportunity to review existing streams of funding such as the WRAP capital grant scheme and make it more suitable and accessible to the electronic recycling sector. Perhaps, as EU legislation is regarded as an opportunity, existing funding streams can be identified and shaped to assist Scottish companies in the implementation of the legislation and to help these companies gain competitive advantage.*

- *There is an opportunity to create an Independent Forum for the electronic recycling sector. This would be a forum focussed on the needs of the electronic recyclers and would require access to up to date policy developments, and, at least in the short term, support from the Enterprise Network and the Scottish Executive. Most of the companies interviewed supported the idea of such a Forum but felt that the membership cost should be kept relatively low to ensure that it was accessible to the whole sector.*

- *Finally, if there is to be a vibrant recycling sector, and within that a thriving electronic recycling sector, there is a need to dispel the image of fridge mountains, low skilled employment and scrap yards. Following on from this, there is an opportunity to market electronics recycling as part of the green jobs agenda and to recognise some of the achievements of some of the more successful members of the sector.*

Chapter 5

WEEE Recycling Capability Scotland

Recommendations

5.1 Introduction

5.1.1 Earlier in this study it is recognised that the Scottish WEEE recycling sector has a number of characteristics which will help inform the recommendations made in this chapter. The main factors influencing these recommendations are:

- Scottish WEEE arisings

  Report estimates that over 60,000 tonnes of WEEE material will be generated in 2004 (ref. Section 3.3.12).

- Scottish WEEE recovery and disposal

  Figures currently supplied by the industry suggest that over 28,000 tonnes is currently handled by recycling facilities in Scotland. Insufficient information is available to confirm that that is the total quantity of waste actually recycled (ref. Section 3.2.32).

- Scottish WEEE recovery capacity

  Current licensed recovery capacity is almost 80,000 tonnes per annum, with a number of new facilities due to become licensed in the near future. Companies confirmed that they could increase handling capacity to 30,000 tonnes per annum from a level of 28,000 tonnes per annum (ref. Section 3.2.53)

- Scottish WEEE collection infrastructure

  Section 3.2.69 details the transport logistics for moving material. The predominant method is currently via road. Due to the lack of integration between companies there is considerable cross over of collection systems (ref. Section 3.2.69).

5.1.2 In addition, the recommendations are based on the information gathered through the survey and face-to-face interviews with the Scottish WEEE recyclers.

5.1.3 The recommendations have been grouped under the same heading as the ‘Opportunities’ in Chapter 4 where appropriate.

5.2 Supply Chains

5.2.1 In Section 4.5.1 supply chain issues were presented as an opportunity. It may be appropriate for some recyclers to consider the industry more as a supply chain in reverse and identify the areas where their expertise fits. There are a large number of companies trying to "do it all" when they may be more successful and more suited to carrying our recycling within a section of the supply chain.

5.2.2 Following from this, there is potential for public, private and voluntary sector partnerships which would help maximise the amount of WEEE collected and also add value to the supply chain. Local Authorities will play a key role in the collection of WEEE, and the voluntary sector is mainly interested in providing training (where often their main source of income is derived). Partnerships with private sector recyclers may add value to this from activity. Again, it may be appropriate for recycling companies from different areas of the supply chain to be involved.

5.2.3 At this stage the idea of supply chain partnership working should be raised during the 'awareness raising' following the circulation of this report and any potential partnerships coming forward as part of this process should be encouraged. Due to suspicion, some sharing of ideas and preparatory groundwork would have to be undertaken before these types of partnerships would develop. A funding guide highlighting the various forms of financial support available for this type of activity to the relevant partners may also be helpful.

5.3 Civic Amenity Sites and Retail Parks

5.3.1 The stated target of recycling 4 kg of WEEE material per Scottish inhabitant is being achieved. However, it is unlikely that future targets will be met using the existing infrastructure.

5.3.2 The collection system as envisaged by the Directive is not in place. The obvious collection point is to utilise local authority facilities. They will need some financial incentive from producers and also direction from Scottish Executive.

5.3.3 Recovery and recycling activities are being targeted at category 1, 2 and 3 materials. There is currently very little infrastructure or support for any of the other categories.

5.3.4 The WEEE Stakeholder Group should examine the potential for magnet Civic Amenity sites to be created which will provide the infrastructure to support all categories of WEEE collection. Some disassembly may take place at these sites. At the same time it is worth examining the potential for 'take back' sites linked to retail parks as highlighted in Section 4.5.5.

5.4 Tracking Software

5.4.1 Effective and efficient tracking of WEEE will be crucial to the successful implementation of WEEE. This may determine whether producers or producer consortia will engage with Scottish recyclers. Section 4.5.6 highlights the various forms of tracking that is taking place at the moment. There are a number of electronic tracking systems, which are well developed and will provide an effective solution to the tracking of WEEE. However, a number of recycling companies are operating paper based systems which they felt were more than adequate to meet the requirement of the Directive. It may be worth carrying out some evaluation of the wider issues relating to monitoring and tracking with a view to ensuring that appropriate tracking of WEEE will be in place.

5.5 Carbon Emissions

5.5.1 There may be an opportunity to link the carbon savings achieved through the recycling of WEEE to the target of reducing Scotland's carbon emissions. This will also help the UK achieve its Kyoto targets. If there was sufficient reduction in carbon emissions it may be possible to engage with an appropriate carbon trading scheme which may generate revenue. This opportunity would require further research and discussions with WRAP and the Carbon Trust.

5.6 Increasing WEEE Recycling Capacity

5.6.1 In Section 4.5.8 a lack of facilities to process material listed in figure 10 as per Annex II of the WEEE Directive was identified. Capital investment was often identified as a barrier to developing these types of facilities. However, there is also an issue regarding regulation as to the safe disposal of this material. There is also a need for the public sector agencies to consider how they might encourage this type of opportunity.

5.6.2 During the research it became apparent that there are increased opportunities for Scotland as a whole to improve its WEEE performance. From the feedback from the sector, it would seem that there is a pressing need to encourage an increase in the capacity for CRT recycling. At present, one Scottish company has invested in new technology to recycle CRTs but given the potential UK market of 12 million (WRAP, ICER reports) there is an opportunity to increase both capability and capacity within the Scottish Recycling sector. There are also similar opportunities in component recycling and the recycling of plastic casings. However, given the uncertainty surrounding the implementation of WEEE, very few of the recyclers seemed willing to undertake any significant capital investment. Again this could be linked to public agency support as sources of funding such as the WRAP capital grant, if targeted properly, could help stimulate these gaps in the sector.

5.7 Support from Public Sector Agencies

5.7.1 There is a need for sector specific guidance on recycling of plastic from WEEE material. This could be addressed by, for example, funding from WRAP to identify appropriate recycling methods.

5.7.2 There is very little awareness of the impending WEEE Directive within households, retailers and the electronic industry itself. There is a need for targeted awareness raising campaigns to be carried out at a national level so that the various players understand the requirements of the WEEE legislation.

5.7.3 There is a need for coordination of the various support agencies to identify each other's role in assisting in the successful implementation. There appears to be lots of advice and support available but accessing this support while trying to run a business is often difficult. The production of a WEEE support and funding guide may be worth considering.

5.7.4 It is recommended that the existing streams of funding, such as the WRAP capital grant scheme, should be reviewed and made more suitable and accessible to the electronics recycling sector. Perhaps, as EU legislation is regarded as an opportunity, existing funding streams can be identified and shaped to assist Scottish companies in the implementation of the legislation and to help these companies gain competitive advantage.

5.7.5 In Section 4.5.10 of the report one recycler raised the idea of some form of 'green tax', whereby companies may receive some break / reduction in terms of corporation tax if they participate in WEEE recycling schemes. This idea should be explored further with the appropriate Government Department.

5.7.6 One recycler suggested that it would be worthwhile to develop a training package in re-designing products to increase their recyclable content. This recommendation should be passed to the Envirowise programme team who already offer assistance to SMEs in the form of Design Track Visits and training seminars.

5.7.7 As many of the recyclers feel that ICER is too expensive and does not deal with Scotland specifically, there is room to develop an independent Scottish Electronic Recyclers Forum. Such a Forum could initially focus primarily on WEEE recycling in Scotland. As well as promoting the interests of the Scottish recycling community the Forum would also present an opportunity to consult with the recyclers over any new or emerging issues.

5.7.8 Finally, if there is to be a vibrant recycling sector there is a need to dispel the image of fridge mountains, low skilled employment, and scrap yards. This would require the sector to be re-branded, marketed and focussed on the examples of good practice already being undertaken in Scotland. This again could form part of the activities of the Forum, with the sector being promoted as part of the Scottish Executive's Green Jobs Strategy.

5.8 Legislation and Regulation

5.8.1 Guidance is required for providing an accurate system for recording recycling rates to show compliance with legislation. This should be done in such a way that it is easy to verify by the regulator. This is linked to the monitoring and tracking section.

5.8.2 Clarity is also needed on Waste Management Licensing requirements for sites and it would be useful if the regulatory authority could uniformly enforce this.

5.8.3 A review of SEPA charges for small sites accepting less than 100 tonnes per annum should be carried out to make the operating of these sites more viable. Enforcement of existing charges would end a number of operations, which focus primarily on reuse.

5.8.4 Companies entering this market must be provided with clear and unambiguous direction from SEPA as to the licensing requirements. The current issue of 50% of sites being licensed and 50% unlicensed should be resolved.

5.8.5 Further work is required on the definition of recycling and the final destination of recyclate. It is strongly suspected that in some cases recycling of waste is not being carried out but merely exported. Stronger controls and regulation from SEPA would help reduce this type of activity.

5.8.6 As stated in Chapter 4, there is a great deal of frustration regarding the consistency of SEPA's policy. It is also felt that officially SEPA seem sympathetic to the sector but that this is often not the case at a local level. There also appears to be a lack of understanding of the sector and its culture on the part of SEPA's local representatives and vice versa from the sector's point of view.
To improve this situation, it is recommended that a training programme be developed for SEPA staff to improve their understanding of the sector. Similarly, a training programme should be provided to the industry, through nominees or through the Independent Forum, to understand the roles and complex nature of SEPA.

Appendix 1

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Appendix 2

Category 1	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Large cooling equipment	4	1	1	4
Refrigerators & freezers	6	1	2	9
Other large storage appliances	5	1	1	5
Washing machines and clothes dryers	7	3	4	7
Dish washing machines	6	3	3	6
Cookers	7	3	4	7
Electric stoves and electric hot plates	7	3	4	7
Microwaves	7	3	3	7
Other large cooking appliances	6	3	3	5
Electric heating appliances & electric radiators	7	3	2	6
Other large heating appliances	6	3	2	4
Electric fans and air conditioner appliances	5	3	1	3
Other fanning, ventilation and conditioning equipment	4	2	0	3
Other	2	2	1	3

Category 2	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Vacuum cleaners/carpet sweepers	7	3	3	6
Other cleaning appliances	5	3	1	3
Textile processing appliance	5	3	1	3
Care of clothing appliances	6	3	2	5
Toasters & Fryers	6	3	1	4
Grinders, coffee machines etc	5	3	1	3
Electric knives	5	3	2	4
Body care appliances	3	1	0	2
Watches/clocks	3	1	0	4
Scales	4	2	0	2
Other	1	1	0	1

Category 3	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Central data processing	7	5	2	1
Mainframes	8	5	3	3
Minicomputers	14	8	8	5
Printers/printer units	15	6	9	9
PC's	17	9	14	11
Laptops	16	8	13	10
Notebooks/notepads	15	6	11	8
Copying equip	12	6	6	4
Typewriters	11	6	3	5
Calculators	9	5	2	4
User terminals/systems	11	8	4	5
Fax/Telex	10	6	3	4
Telephones	11	6	2	4
Pay phones	7	5	2	3
Mobiles	10	5	2	5
Answering systems	8	5	2	3
Other	3	2	0	0

Category 4	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Radios	10	4	4	7
TVs	11	0	3	8
Video cameras	8	4	3	4
Video recorders	10	4	4	5
Hi-Fi's	10	4	4	7
Audio amplifiers	9	4	4	4
Music instruments	2	1	2	1
Other	5	3	2	1

Category 5	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Luminsries	2	0	0	4
Fluorescent lamps	2	0	0	4
Discharge lamps	2	0	0	4
Sodium lamps	2	0	0	4
Other	0	0	0	0

Category 6	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Drills/Saws	5	3	1	1
Sewing machines	5	3	1	3
Sanding/grinding equip	5	3	1	1
Nailing/screwing equip	4	2	0	1
Welding/soldering equip	3	1	0	1
Spreading equip	3	1	0	1
Gardening equip	5	3	1	2
Other	2	1	0	2

Category 7	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Cars/train sets	4	1	0	3
Game consoles	6	3	0	3
Video games	5	2	0	3
Computers for sports activities	6	3	0	3
Sport equip	5	2	0	2
Coin slot machines	4	2	0	1
Other	2	1	0	0

Category 8	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Radiotherapy equip	2	0	0	1
Cardiology	3	1	0	1
Dialysis	2	0	0	1
Pulmonary ventilators	2	0	0	1
Nuclear medicine	2	0	0	1
Lab equip	2	0	0	1
Analyzers	2	0	0	1
Freezers	4	1	0	2
Fertilisation tests	1	0	0	1
Other	2	0	0	1

Category 9	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Smoke detectors	2	2	0	0
Heating regulators	2	1	0	0
Thermostats	2	1	0	0
Measuring equip	6	3	0	1
Other	5	2	1	1

Category 10	Accepted for recycling	Recycled at facility	Refurbished at facility	Passed to 3rd party
Hot drink dispensers	4	3	0	2
Can dispensers	4	2	0	2
Solid product dispensers	4	2	0	1
Money dispensers	5	3	0	1
Other	4	3	0	1

Appendix 3

SURVEY
Waste Electrical & Electronic Equipment (WEEE)
Recycling Capability in Scotland

Note that your responses will mainly be used to update the information that Scottish Enterprise already holds on your company. **Responses provided in Sections X to X will be treated as <u>confidential</u>, and will only be published in aggregate form.**
<u>Only</u> your responses to Section 1 may be published on Scottish Enterprise Web Sites or in online directories.
Use Section 8 if you wish to expand on your responses to any question or to make additional comments.

<u>SECTION 1 – BASIC COMPANY DETAILS</u>

1.1 Please amend/complete as appropriate.

Company Name:	«Organisation»		
Address:	«Address1» «Address2» «Address3» «Address4» «Town» «County»		
Post Code:	«PostCode_in» «PostCode_out»		
Telephone:	«Telephone»	**Fax:**	
Email:		**Web Address:**	
Year established at this site:			
Local enterprise area of your business			

1.2 Please provide a brief description of your company's business in Scotland. Note that this description should be suitable for publication on Scottish Enterprise Web Sites or in online directories. *(50 words MAX please).*

<u>SECTION 2 – EMPLOYMENT & TURNOVER</u>

2.1 How many people are employed in your business?

Full time: Part time: Volunteers: Trainees:

2.2 Are you looking to employ additional staff within the next 3-6 months?

☐ Yes ☐ No ☐ Don't know

2.3 If yes, how many new members of staff are you likely to employ?

Full time: Part time: Volunteers: Trainees:

SECTION 3 – OPERATIONAL DETAILS

3.1 Which of the below best describes your company? **(tick one box only)**

1	Private sector company	☐
2	Community/Voluntary sector organisation	☐

3.2 Which of the below best describes your suppliers/clients? (tick all that apply)

1	Private sector company	☐
2	Community/Voluntary sector organisation	☐

Please specify which industries: _____

1	Private sector company	☐
2	Community/Voluntary sector organisation	☐

Please specify the type of organisations: _____

1	Private sector company	☐
2	Community/Voluntary sector organisation	☐

Please specify the type of organisations: _____

3.3 Which of the following activities does your company undertake? (tick all that apply)

1	WEEE pick up and transportation	☐
2	WEEE storage	☐
3	WEEE recycling	☐
4	WEEE component recovery	☐
5	WEEE re-use	☐

3.4 Please tick the boxes that apply to your company's/organisation's operations.

Category 1 Large Household Appliances		Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party?	Location of 3rd party
A	Large cooling appliances	☐	☐	☐	☐	
B	Refrigerators & Freezers	☐	☐	☐	☐	
C	Other large refrigeration, conservation & food storage appliances	☐	☐	☐	☐	
D	Washing machines & Clothes dryers	☐	☐	☐	☐	
E	Dish washing machines	☐	☐	☐	☐	
F	Cooking	☐	☐	☐	☐	
G	Electric stoves & Electric hot plates	☐	☐	☐	☐	
H	Microwaves	☐	☐	☐	☐	
I	Other large cooking & and food processing appliances	☐	☐	☐	☐	
J	Electric heating appliances & Electric radiators	☐	☐	☐	☐	
K	Other large heating appliances	☐	☐	☐	☐	
L	Electric fans & Air conditioner appliances	☐	☐	☐	☐	
M	Other fanning, exhaust ventilation & conditioning equipment	☐	☐	☐	☐	
O	Other:	☐	☐	☐	☐	

Category 2 Small Household Appliances		Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party?	Location of 3rd party
A	Vacuum cleaners & Carpet sweepers	☐	☐	☐	☐	
B	Other cleaning appliances	☐	☐	☐	☐	
C	Appliances for sewing, knitting, weaving, & other processing for textiles	☐	☐	☐	☐	
D	Irons & other ironing, mangling and care of clothing appliances	☐	☐	☐	☐	
E	Toasters & Fryers	☐	☐	☐	☐	
F	Grinders, coffee machines & equipment for opening/sealing containers/packages	☐	☐	☐	☐	
G	Electric knives	☐	☐	☐	☐	
H	Appliances for hair cutting, tooth brushing, Shaving, massage or other body care	☐	☐	☐	☐	
I	Clocks, watches & equipment for measuring, Indicating & registering time purposes	☐	☐	☐	☐	
J	Scales	☐	☐	☐	☐	
K	Other:	☐	☐	☐	☐	

	Category 3 IT & Telecommunications	**Accepted for recycling?**	**Recycled at facility?**	Refurbished at facility?	**Passed to 3rd party?**	**Location of 3rd party**
A	Centralised data processing	☐	☐	☐	☐	
B	Mainframes	☐	☐	☐	☐	
C	Minicomputers	☐	☐	☐	☐	
D	Printers & printer units	☐	☐	☐	☐	
E	Stationary PCs (inc CPU, mouse, screen & keyboard)	☐	☐	☐	☐	
F	Laptops (inc CPU, mouse, screen & keyboard)	☐	☐	☐	☐	
G	Notebook & notepad computers	☐	☐	☐	☐	
H	Copying equipment	☐	☐	☐	☐	
I	Electrical & electronic typewriters	☐	☐	☐	☐	
J	Pocket & desk calculators	☐	☐	☐	☐	
K	User terminals & systems	☐	☐	☐	☐	
L	Facsimile & Telex	☐	☐	☐	☐	
M	Telephones & cordless telephones	☐	☐	☐	☐	
N	Pay telephones	☐	☐	☐	☐	
O	Mobile phones	☐	☐	☐	☐	
P	Answering systems	☐	☐	☐	☐	
Q	Other:	☐	☐	☐	☐	

Category 4 Consumer Equipment		Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party?	Location of 3rd party
A	Radio sets	☐	☐	☐	☐	
B	Television sets	☐	☐	☐	☐	
C	Video cameras	☐	☐	☐	☐	
D	Video recorders	☐	☐	☐	☐	
E	Hi-fi recorders	☐	☐	☐	☐	
F	Audio amplifiers	☐	☐	☐	☐	
G	Musical instruments	☐	☐	☐	☐	
H	Other recording or reproducing sound/images inc signals and distribution through telecomms	☐	☐	☐	☐	

Category 5 **Lighting Equipment**		Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party	Location of 3rd party
A	Luminaires for fluorescent lamps	☐	☐	☐	☐	
B	Straight & compact fluorescent lamps	☐	☐	☐	☐	
C	High intensity discharge lamps	☐	☐	☐	☐	
D	Low pressure sodium lamps	☐	☐	☐	☐	
E	Other:	☐	☐	☐	☐	

Category 6 **Electrical & Electronic Tools**		Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party?	Location of 3rd party
A	Drills & Saws	☐	☐	☐	☐	
B	Sewing machines	☐	☐	☐	☐	
C	Equipment for turning/milling/sanding/grinding, shearing/punching/folding/bending of wood, metal or other material	☐	☐	☐	☐	
D	Tolls for riveting/nailing/screwing	☐	☐	☐	☐	
E	Tolls for welding/soldering or similar use	☐	☐	☐	☐	
F	Equipment for spraying/spreading/dispersing/ or other treatment of liquid or gaseous	☐	☐	☐	☐	
G	Tools for mowing or other gardening activities	☐	☐	☐	☐	
H	Other:	☐	☐	☐	☐	

Category 7 Toys, Leisure & Sports Equipment		Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party	Location of 3rd party
A	Electric trains & car racing sets	☐	☐	☐	☐	
B	Hand-held video game consoles	☐	☐	☐	☐	
C	Video games	☐	☐	☐	☐	
D	Computers for biking/diving/running/rowing	☐	☐	☐	☐	
E	Sports equipment with electrical/electronic Components	☐	☐	☐	☐	
F	Coin slot machines	☐	☐	☐	☐	
G	Other:	☐	☐	☐	☐	

Category 8 **Medical Devices**		Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party	Location of 3rd party
A	Radiotherapy equipment	☐	☐	☐	☐	
B	Cardiology	☐	☐	☐	☐	
C	Dialysis	☐	☐	☐	☐	
D	Pulmonary ventilators	☐	☐	☐	☐	
E	Nuclear medicine	☐	☐	☐	☐	
F	Laboratory equipment for *in-vitro* diagnosis	☐	☐	☐	☐	
G	Analysers	☐	☐	☐	☐	
H	Freezers	☐	☐	☐	☐	
I	Fertilisation tests	☐	☐	☐	☐	
J	Other appliances for illness/injury/disability	☐	☐	☐	☐	

	Category 9 **Monitoring & Control Instruments**	Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party?	Location of 3rd party
A	Smoke detectors	☐	☐	☐	☐	
B	Heating regulators	☐	☐	☐	☐	
C	Thermostats	☐	☐	☐	☐	
D	Measuring/weighing or adjusting appliances for household or as laboratory equipment	☐	☐	☐	☐	
E	Other monitoring & control instruments used in industrial installations	☐	☐	☐	☐	

	Category 10 **Automatic Dispensers**	Accepted for recycling?	Recycled at facility?	Refurbished at facility?	Passed to 3rd party?	Location of 3rd party
A	Automatic dispensers for hot drinks	☐	☐	☐	☐	
B	Automatic dispensers for hot or cold bottles or cans	☐	☐	☐	☐	
C	Automatic dispensers for solid products	☐	☐	☐	☐	
D	Automatic dispensers for money	☐	☐	☐	☐	
E	All other appliances which deliver automatically all kinds of products	☐	☐	☐	☐	

3.5 What is you average monthly recycling tonnage? _____Tonnes

3.6 What is you average annual recycling tonnage? _____Tonnes

3.7 How does this figure compare with 2003?

4.1 What percentage of the WEEE you receive annually comes from these categories?

(see above for a breakdown of these categories)

1	Large household apps	%	6	Electrical & electronic tools	%
2	Small household apps	%	7	Toys, leisure & sports equip	%
3	IT & telecomms	%	8	Medical equip	%
4	Consumer equip	%	9	Monitoring & control equip	%
5	Lighting equip	%	10	Automatic dispensers	%

4.2 In line with Annexe II of the WEEE Directive, do you remove any of the following as part of your process?

1	Substances, preparations and components that are removed from your WEEE	
A	Capacitors containing Polychlorinated Biphenyls (PCB's)	☐
B	Mercury containing components such as switches or backlighting lamps	☐
C	Batteries	☐
D	Printed circuit boards of mobile phones and other circuit boards greater than 10 square centimetres	☐
E	Toner cartridges, liquid and pasty, as well as colour toner	☐
F	Plastic containing brominated flame retardants	☐
G	Asbestos waste and components containing asbestos	☐
H	Cathode ray tubes (CRT)	☐
I	Chlorofluorocarbons (CFC), hydrochloroflourocarbons (HCFC), hydrocarbons (HC) or hydroflourocarbons (HFC)	☐
J	Gas discharge lamps	☐
K	Liquid crystal displays (inc casing) of surface greater than 100 square cm and all those back-lighted with gas discharge lamps	☐
L	External electric cables	☐
M	Components containing refractory ceramic fibres	☐
N	Components containing radioactive substances	☐
O	Electrolyte capacitors containing substances of concern	☐
2	Specific components and their treatment	
A	Removal of the fluorescent coating on CRTs	☐
B	Extraction and treatment of gases that are ozone depleting or have global warming potential that are found in foams and refrigeration circuits	☐
C	Removal of mercury from gas discharge lamps	☐

For all other recycling methods, please specify:

	Component	Method
1		
2		
3		
4		
5		
6		
7		
8		
9		

5.1 What is your licensed recycling capacity? _____Tonnes

5.2 Are you operating to the maximum of your licensed capacity?

☐ Yes ☐ No

5.3 If no, what capacity can you currently achieve? _____Tonnes

5.4 Are there, in your opinion, barriers to achieving full capacity?

☐ Yes ☐ No ☐ Don't know

5.5 If yes, what barriers have you identified?

1	
2	
3	
4	
5	

SECTION 6 - MARKETS

6.1 What percentage of your revenue is generated from markets in:

1	Scotland	%
2	Rest of UK	%
3	Europe	%
4	Outside Europe	%

6.2 What percentage of your recycled materials are sold to markets in:

	Component Reference from Q 15 (i.e. 9C = thermostats)	Scotland	Rest of UK	Europe	Outside Europe
1		%	%	%	%
2		%	%	%	%
4		%	%	%	%
5		%	%	%	%
6		%	%	%	%
7		%	%	%	%
8		%	%	%	%
9		%	%	%	%
10		%	%	%	%
11		%	%	%	%
12		%	%	%	%
13		%	%	%	%
14		%	%	%	%
15		%	%	%	%
16		%	%	%	%

7.1 How do you collect/receive the materials from your supply chain?

1	Road transport	☐
2	Rail transport	☐
3	Mail delivery	☐
4	Air transport	☐
5	Sea transport	☐

7.2 How are you recycled materials delivered to your clients?

1	Road transport	☐
2	Rail transport	☐
3	Mail delivery	☐
4	Air transport	☐
5	Sea transport	☐

7.3 If you pick up, transport or deliver WEEE, do you use your own transport for this?

☐ Yes ☐ No

SECTION 8 – BARRIERS & SUCCESS FACTORS

8.1 What barriers have you encountered in the WEEE recycling industry in Scotland?

8.2 How did you overcome these barriers?

8.3 If the WEEE Directive is seen as an opportunity for recycling in Scotland, what, in your opinion, would need to be done in order for the Directive to be a success **(e.g. increased business support)**

1	
2	
3	
4	

8.4 If the WEEE Directive is a success, what would the implications be for your company/organisation?

1	I would increase capacity.	☐
2	I would diversify.	☐
3	I would employ more staff.	☐
4	It would increase revenue.	☐
5	Other	☐

If other, please specify:

SECTION 9 – PERMITS & LICENSING

9.1 How aware are you of the licensing requirements for WEEE recycling in Scotland?

1	Fully aware	☐
2	Reasonably aware	☐
3	Not very aware	☐
4	Unaware	☐

9.2 Have you heard of the new SEPA regulation, 'Accredited Treatment Facility' (ATF), that will be introduced shortly?

☐ Yes ☐ No

9.3 Are you exempt from licensing under the current SEPA regulations?

☐ Yes ☐ No ☐ Don't know

9.4 Do you have a license for the any of the following activities?

1	Waste management licence	☐
2	Waste carriers certificate	☐
3	None of the above	☐

9.4 How many of your employees hold a WAMITAB Certificate of Technical Competence?

number of employees ☐ None

9.5 If you are not currently licensed, are you intending to apply for any of the above licenses?

☐ Yes ☐ No ☐ Don't know

9.6 If yes, which of the below will you apply for?

1	Waste management licence	☐
2	Waste carriers certificate	☐
3	Certificate of Technical Competence	☐

SECTION 10 - PROMOTION

10.1 How does the organisation/scheme promote itself?

10.2 How does it raise awareness surrounding the need for WEEE recycling?

10.3 Could more be done in this area? What support is required?

SECTION 11 - FURTHER INFORMATION

11.1 Please use this space to expand on answers to earlier questions and to provide any other information you feel is relevant to the Survey:

Thank you very much for making the time to complete the questionnaire.
The information you have provided will be used for the purpose of promoting and assisting the electronics sector in Scotland, and the details you have entered in Sections 1 may appear on Scottish Enterprise Web Sites or in online directories.