

WEEE Material Sector Strategy

Introduction

The WEEE material Stream is currently legislation driven. The final consultation paper was issued on the 30th July 2004 with replies scheduled for 29th October 2004. Legislation should then be in force by early 2005 at the latest, with producer registration starting in January 2005. Producer and retailer obligations under the legislation will start in August 2005.

This is producer/retailer pays legislation with no cost impact on local authorities. Any infrastructure provision, like upgrading CA site facilities, is expected to be funded through Retailer Take-Back compliance schemes.

Please note in the context of this report Hampshire means the county of Hampshire plus the unitary Authorities of Portsmouth and Southampton.

1. What is the best judgement of current volumes (2004 base) and what are the current management routes?

The following table is data collected as part of the Hampshire Pilot WEEE De-manufacturing Project.

Type	WEEE Arisings X 1,000 Tonnes					
	2004		2014		2024	
	H'hold	Bus	H'hold	Bus	H'hold	Bus
Large Household Appliances	17.63	0.87	18.73	0.91	19.83	0.90
Total LHA	18.50		19.64		20.73	
Other	7.89	3.29	8.39	3.43	8.88	3.39
Total Other	11.18		11.82		12.17	
Total	25.52	4.16	27.11	4.34	28.71	4.29
Total Arisings	29.68		31.45		33.00	

Table 1

Currently Large Household Appliances and some large TV's are collected on request via the Local Authority bulky goods collection service, or via Retailer take back on delivery of new equipment. Some, in the order of 6%, are collected by charities or similar social businesses for refurbishment and re sale or redistribution to poorer communities.

Other equipment if it fits in the 'wheely bin' will be disposed of through the household waste collection service while the larger equipment will find its way to dealers or the local HWRC. Very little of this equipment is recycled.

Business equipment will generally be disposed of on a product by product basis with the larger equipment going straight to an appropriate operator.

Business WEEE is predominately IT equipment where a small number of charities and social businesses collect, refurbish and redistribute to poorer communities. Some may be exported.

Take back schemes exist for small weight high value equipment, mobile phones, play stations etc.

2. What are the volume projections for 2014 and 2024?

Current forward projections use an annual increase in WEEE of 3-5%, which would escalate total WEEE to approximately 38,000tonnes in 2014 and 60,000 tonnes on 2024. Such an increase is very difficult to reconcile with potential users when the number of households only increase by approximately 6%, and the working population has increased by approximately 4% and -1% in the same period. There is a danger therefore of significantly over stating potential WEEE arisings.

	2004	2014	2024
Households x1000	673	715	757
% increase	0	6.24%	5.87%
Increase in Working population x1000	789	824	813
% increase	0	4.44%	-1.33%

Table 2

WEEE arisings are function of units in use and their replacement time. Many of the larger items, which dominate a weight related criteria, are household specific and WEEE is therefore most likely to increase in line with increases in households. Fashion, technology and consumer behaviour might reduce replacement time for technology driven low weight items but not to the extent required to justify 30% over 10 year increases.

For this briefing paper the profile for households and working population, shown in table 2, are used as the basis for WEEE projections in 2014 and 2024, and shown in table 1.

Materials that could be extracted from the WEEE arisings are shown in Tables 3 & 4 below:-

Table 3 – Household WEEE Materials Streams

	Arisings	Ferrous	Non Ferrous	Plastics	Glass	Hazardous	Other
2004	25.52	12.25	1.12	5.42	2.68	0.26	3.79
2014	27.11	13.02	1.19	5.76	2.85	0.13	4.15
2021	28.71	13.78	1.26	6.09	3.02	0	4.55

Table 4 – Business WEEE Material Stream

	Arisings	Ferrous	Non Ferrous	Plastics	Glass	Hazardous	Other
2004	4.16	1.49	0.36	1.10	0.74	0.04	0.44
2014	4.34	1.55	0.37	1.14	0.78	0.04	0.45
2021	4.29	1.53	0.37	1.13	0.77	0.04	0.45

3. Estimation of reuse, recycling and recovery targets for 'business as usual', 'best practice' and 'stretch' scenarios as outlined above. Figures need to be estimated for 2010 & 2020.

In the following scenarios only household WEEE is considered as business WEEE is handled on a one on one basis and is generally not mixed. Very small SME's who are treated as households will have minimal impact on the outcome of the various scenarios.

3.1 Business as Usual

The business as usual scenario depends on how the Government implements the WEEE Directive, the battery directive and the Hazardous waste regulations.

Table 5 - Household WEEE - Business AS Usual

Note SC= Separately Collected	2004			2014			2024		
	Arisings	Charity	SC	Arisings	Charity	SC	Arisings	Charity	SC
Total	25.52	2.30	16.93	27.11	2.44	17.99	28.71	2.58	19.04
LHA	17.63	1.76	15.86	18.73	1.87	16.85	19.83	1.98	17.84
Total Other	7.89	0.53	1.07	8.39	0.57	1.13	8.88	0.60	1.20

The probable WEEE arisings and disposal quantities are shown in Table 3.

Within Hampshire, and generally nationally, collection, treatment and recycling of LHA is a mature and commercially viable operation and is unlikely to change significantly with this scenario. Most will continue to go out of county to approved treatment facilities. At least 90% LHA arisings will be handled without any significant change in infrastructure.

Quantities for collection and processing are largely driven by legislative separate collection targets which currently stand at 4kg per capita for household WEEE. If WEEE targets increase by 4kg every 4 years starting in 2008 then it is likely that these targets will be met by the separate collection of LHA's through to 2016.

However all separately collected WEEE, even if in excess of collection targets, must be treated and recycled. Enthusiastic consumer participation could easily distort the current picture and drive the need for non LHA de-manufacturing facilities.

Similarly designation of some items of WEEE – TV's and PC Monitors – as hazardous could exclude these items from landfill via the household waste stream and drive short term capacity issues. Lessons need to be learnt from the 'fridge mountain' where treatment capacity to manage the short term 'mountain' has led to over capacity and poor returns. Should this occur then immediately an extra 4,000 tonnes per annum could arise.

Today, excluding LHA's, 7,900 tonnes of WEEE is being exported or going to landfill. (We assume that re-used goods will re-enter the recycling loop after about 4 years). Data we have from Sweden suggest hazardous substance account for 1% by weight; therefore 79 tonnes of hazardous substances are untreated.

This should decrease to 0.5% or 40tonnes by 2014. After this time we can expect the ROHS Directive to be fully implemented and legacy equipment to have been recycled. Hence the weight of hazardous substances should decline to near zero by 2024.

MRS Hampshire

Hampshire opportunities created by a business as usual scenario will be limited to non LHA at a cost of collecting and treating WEEE in accordance with the regulations in the order of £300 per tonne.

3.2 Best Practice

The 'best practice' scenario is based on the experiences of the NVMP scheme in the Netherlands, based largely around a consumer awareness programme and CA site collection points. To match this practice separately collected WEEE will be 58% for non LHA WEEE that will not fit in the wheely bin, 20% for WEEE that previously went into the wheely bin, and 55% for IT and Telecoms equipment. LHA is unchanged at 90%.

Transposing these to a Hampshire scenario give the data in Table 4.

Table 6 - Household WEEE - Best Practice

	2004			2014			2024		
	Arising	Charity	SC	Arising	Charity	SC	Arising	Charity	SC
Total	25.52	2.30	19.42	27.11	2.44	20.63	28.71	2.58	21.84
LHA	17.63	1.76	15.86	18.73	1.87	16.85	19.83	1.98	17.84
Total Other	7.89	0.53	3.55	8.39	0.57	3.78	8.88	0.60	4.00

Separately collected non LHA WEEE therefore increases from approximately 1 tonne for business as usual to nearly 4 tonnes best practice. Likely cost would then be in the order of £200 per tonne.

3.3 Stretch Scenario

The 'stretch' scenario is challenging but reasonable having due regard for the equipment design changes expected to meet the re-use and recycling culture being promoted by the WEEE & ROHS Directives.

In the long term as producers embrace the requirements to eliminate hazardous substances and design for reuse and recyclability we can expect the dynamics of collection, treatment, recovery and recycling to change. This will be particularly relevant where reclaimed WEEE can provide new material at reduced cost. In this situation material suppliers will need to 'mine' consumers for WEEE in order to maintain continuity of supply

Introduction of regular or on demand door step collection systems with delivery direct to ATF's is likely to by pass traditional CA sites and reverse the trend to focus on these sites and their WEEE collection facilities.

With an appropriate on line, technology driven collection infrastructure that meets the needs of the consumer we should be targeting 100% separate collection for non LHA WEEE that will not fit in the Wheely bin, 20% of WEEE that fits in the Wheely bin and 100% of IT and telecoms equipment.

Furthermore soft handling of the collected WEEE should improve the amount suitable for re use from 10% to 25%. While free distribution can still take place it will not be unreasonable to expect to obtain a viable income.

These collection targets translate into approximately 6 tonnes of non LHA WEEE separately collected in 2014 compared to 4 tonnes as best practice and 1 tonne as business as usual. This data is summarised in table 5.

Table 7 - Household WEEE - Stretch

	2004			2014			2024		
	Arisings	Charity	SC	Arisings	Charity	SC	Arisings	Charity	SC
Total	25.52	5.74	21.71	27.11	6.10	23.06	28.71	6.46	24.42
LHA	17.63	4.41	15.86	18.73	4.68	16.85	19.83	4.96	17.84
Total Other	7.89	1.33	5.85	8.39	1.42	6.21	8.88	1.50	6.57

The stretch scenario will be re use and recycle driven. Regular soft collections will deliver good quality equipment for re-use as well input to a dismantling process that generates competitively priced, high quality material streams.

Income from both re-use and processed material stream should create a scenario where the WEEE obligations are cost neutral to the producer, while providing competitive material prices.

4. What changes/additions to collection systems are needed to achieve the targets?

If we ignore the take back schemes that already exist for LHA's then collection of non LHA WEEE is the issue.

This could be integrated into LHA take back or regular kerbside collection of dry recyclables. However damage and contamination caused in this process is likely to prohibit this method from the stretch scenario.

To maximise re-use and minimise contamination of equipment destined for recovery of high quality materials streams 'soft' collection is required. Regular or on demand door step collections could be needed and expansion of the charitable organisations collection and distribution infra structure should be encouraged. This could provide a candidate for a Hampshire wide retailer take back compliance scheme.

Bring Banks and 'Round Robin' regular collections are options for 'best practice' and 'business as usual'.

5. What new handling /processing infrastructure is needed to achieve the targets and a broad indication of spatial needs.

Commercially viable businesses exist for the reuse and/or recycling of LHA's and there is no reason to suppose that this business sector will not continue to provide adequate capacity.

A small number of businesses exist for the re-use and recycling of IT equipment. These are mainly charity and social enterprises that are focusing on the business sector as they continuously upgrade. Old equipment is refurbished and distributed to poorer areas of the community and exported to third world countries. Little is being done for the

discarded IT from household and considerable potential exists in this area. Care needs to be taken in long term planning as a short term blip could be caused by the hazardous equipment regs and this needs to be managed without generating unsustainable capacity.

To manage the non LHA WEEE (7,900 tonnes in 2004) could require the setting up of distributed or consolidated collection and de-manufacturing facilities. The focus should be on generating value from re-use and recovered materials to offset collection and processing costs.

Furthermore the facility will need to be flexible. In the period up to 2014 legacy equipment not designed for recycling and containing hazardous substances are likely to require a significant level of manual intervention. However as the designs become recyclable and the ROHS Directive eliminates hazardous substances segregation by product and manufacturer will start to dominate,

6. *Is achieving the targets dependent on market development?*

'Meaningful' markets need to be developed for those material streams that cannot be recycled back into EEE.

Meeting targets is also dependant on producers embracing the true commercial benefits of using materials extracted from the WEEE stream. It is unlikely, in the long term, that consumers will pay more for sustainable products and producers must be encouraged to generate commercial advantage by designing for reuse and recycling.

7. *Are the targets dependent education & other societal changes?*

Householders will need to be educated regarding the negative impact of WEEE on the environment and educated to identify and separate WEEE from the household waste stream.

8. *What are the key financial/affordability issues?*

While the legislation promotes 'producer pays' this will most likely lead to a consumer cost, and current projections suggest an increase of 1 to 4%.

However in the long term we expect that consumer pressure would drive producers to recognise that designing for recycling/sustainability is a competitive advantage and can lead to cost reduction.

9. *Are there any issues where we need EU, UK Government, regional action, help?*

Ensure that the legislation maintains its environmental objectives and has 'teeth' to drive sound practice.

Need harmonisation of the legislation to ensure UK is not at a competitive advantage/disadvantage.

Legislation should not discriminate against products using recycled materials. Raw materials 'mined' from WEEE should not be treated any differently from raw materials extracted from the natural environment. An example is the REACH legislation that is likely to penalise recycled plastics with expensive testing for which virgin material is exempt. Raw materials extracted from the WEEE stream do not carry the overhead of the 'environmental rucksack' and therefore should be inherently lower cost and legislation should ensure that this premise is a reality.