

# Household Electrical and Electronic Waste Benchmark Survey 2005

## MAJOR HIGHLIGHTS



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*Very little of the increasing amount of electrical and electronic equipment being used in Australia is being recycled, with most of it ending up in landfill, representing a significant loss of non-renewable resources. Australian governments have been working with the electrical and electronic equipment industry to facilitate the establishment by industry of product stewardship schemes to collect and recycle used equipment (known as e-waste).*

*While e-waste is generated from a variety of sources, such as commercial premises, government offices, educational facilities, etc., e-waste from households is a particular concern due to a lack of knowledge on the amounts held or current household disposal behaviour. Earlier projections based on limited research indicated that households were storing large quantities of e-waste, which would have significant planning and cost implications on potential product stewardship schemes. As a result, the Department of Environment and Conservation (NSW), Sustainability Victoria, Environmental Protection Authority (QLD), Zero Waste SA, Department of Environment (WA), ACT No Waste and Product Stewardship Australia Ltd sought to establish baseline information about e-waste in metropolitan households in Australia.*

## What We Did

The research findings are based on 1,702 telephone interviews with households across most of the capital cities of Australia – Sydney, Melbourne, Brisbane, Adelaide, Perth and Canberra (representing 62% of all households nationally). Households in regional areas, as well as Hobart and Darwin, were not included, nor were commercial premises, government offices or educational institutions. Therefore, the results should not be considered to be representative of *all* households in Australia or to have established the *total number* of electrical and electronic equipment held in the community.

The survey covered most consumer electrical and electronic equipment types, except whitegoods. This included televisions, videos/DVDs, radios, stereos and cassette players, portable equipment (walkmans, MP3 players, etc), computer monitors and hard drives as well as a range of miscellaneous computer related items, laptops and cordless equipment (power tools, telephones, toothbrushes, shavers, digital cameras, toys, etc).

As this was a significant benchmark telephone survey, we conducted an in-home pilot survey (consisting of 20 x 1hr interviews) to help refine the survey questionnaire and to determine the best way to ensure that all of the household's electrical and electronic equipment was counted in the survey (including items stored away in the garage, for example).

Interviews were conducted between May 2 and 19, 2005. The data was extrapolated (or "weighted") to the total number of households and number of residents per household, in each city surveyed, to provide an estimate of the total amount of equipment in the survey locations. Despite an unusually high refusal rate to participate in the survey (mainly due to people having concerns about providing information about their household equipment to someone over the telephone), the findings represent a good cross-section of households across each location surveyed, including different household types and sizes, as comparable to population data from the Australian Bureau of Statistics.

**We strongly believe that the telephone survey methodology used provided an accurate measure of the extent of household e-waste in the metropolitan areas surveyed.**

## Key Insights

The major highlights of this market research are as follows...

### People have a large amount of electrical and electronic equipment in their homes.

Across all equipment types and all locations surveyed, an estimated 92.5 million items are held in households – representing an average of 22 items per household. This includes both 'big ticket' (e.g. televisions, videos/DVDs, stereos, computers etc) and 'other' items (e.g. miscellaneous computer and cordless equipment) – as summarised in the table below.

ITEMS PER HOUSEHOLD	LOCATION						
	Sydney	Melbourne	Brisbane	Perth	Adelaide	Canberra	Total
Number of Households	1.4M	1.2M	0.6M	0.5M	0.4M	0.1M	4.2M
Total Items	30.4M	27.1M	12.4M	11.1M	8.9M	2.7M	92.5M
Total Items per Household	22.2	22.7	21.1	22.4	21.2	24.1	22.2
Big Ticket Items*	16.1M	14.4M	6.6M	5.8M	4.8M	1.4M	49.2M
Big Ticket Items* per Household	11.8	12.1	11.2	11.8	11.5	13.0	11.8
Other Items**	14.3M	12.7M	5.8M	5.3M	4.1M	1.2M	43.3M
Other Items** per Household	10.4	10.6	9.9	10.6	9.7	11.1	10.4

\* Includes TVs, Videos, DVDs, Radios, Stereos, CD & Cassette players, Portable Electronics, Computer Monitors & Box Units & Laptops

\*\* Includes Miscellaneous Computer Equipment and Cordless Appliances

Understandably, the locations with more households have more items, with Sydney leading, followed by Melbourne. Households in Canberra tended to have the most items per household on average (24), followed by Melbourne at 23. Notably, there were no other consistent, major differences in results by location in the survey, indicating that similar product stewardship schemes will be required for e-waste collection across the board.

The results also show that the larger the household the more equipment is owned – especially in homes with children (29 items per household on average compared to 19 in households without children).

### By product type, TVs are by far the largest single equipment type in households – representing 11% of all equipment types included, and 2.3 per household on average.

Videos/DVDs are the next largest category, with 2.2 owned per household on average, followed by radios (2 per household).

DATA TYPE:	EQUIPMENT SUMMARY: MAJOR ITEMS – TOTAL (All Locations)							
	TVs	Videos/ DVDs	Radios	Stereos / Cassettes	Portables	PC Monitors	PC Units / Hard Drives	Laptops
% Households with 1+ Unit	99%	91%	87%	88%	57%	67%	66%	23%
Average Number of Units/H'hold	2.3	2.2	2.0	1.5	1.4	1.0	1.0	0.3
Number of Items	9.7M	9.1M	8.3M	6.5M	5.9M	4.3M	4.2M	1.2M
% of All Equipment Types	11%	10%	9%	7%	6%	5%	5%	1%

NB: Only includes equipment held in households. Portables include Walkmans, MP3 players, etc.

From the survey, miscellaneous PC items (including keyboards, mice, printers, modems, etc) together represent 29% of all equipment counted (or 26.11 million items), at an average of 6.3 items per household. When considering all computer related equipment, including monitors, hard drives and laptops, this represents 42% of all surveyed equipment held in homes; an estimated 9.2 items per household, or 38.4 million items in total.

DATA TYPE:	EQUIPMENT SUMMARY: MISCELLANEOUS PC ITEMS – TOTAL (All Locations)							
	Keyboards	Mice	Printers	Modems	Speakers	Scanners	Copy Machines	Fax Machines
% Households with 1+ Unit	68%	70%	67%	58%	60%	36%	17%	22%
Average Number of Units/H'hold	1.1	1.2	0.9	0.7	1.5	0.4	0.2	0.2
Number of Items	4.62M	5.16M	3.73M	3.05M	6.17M	1.61M	0.79M	0.99M
% of All Equipment Types	5%	6%	4%	3%	7%	2%	1%	1%

Cordless equipment represents a further estimated 16% of all items, with an average of 4.1 units per household.

DATA TYPE:	EQUIPMENT SUMMARY: CORDLESS ITEMS – TOTAL (All Locations)								
	Phones	Power Tools	Vacuums	Kitchen Appliances	Shavers	Electric Tooth Brushes	Digital Cameras	Video Cameras	Other Cordless Nett*
% Households with 1+ Unit	72%	52%	18%	8%	24%	35%	46%	26%	7%
Average Number of Units/H'hold	1.0	1.0	0.2	0.1	0.3	0.6	0.5	0.3	0.2
Number of Items	4.08M	4.23M	0.81M	0.43M	1.22M	2.31M	2.27M	1.17M	0.66M
% of All Equipment Types	4%	5%	1%	0%	1%	2%	2%	1%	1%

\* Includes: torches, remote control toys and other toys

## Importantly, the vast majority of equipment is working and in use: around 93%.

Only a relatively small amount – around 4% – of working equipment is currently being stored in households whilst not being used. Even less equipment being stored in homes is not in working order – around 3% overall.

The largest categories of equipment that are in working order but being stored are computer monitors (9%) and computer box units (8%). The percentage of other types of equipment in working order but not in use tends to be around 5% or less.

The percentage of equipment in non-working order<sup>1</sup> held by households was quite low, particularly for stereos (2%), TVs (3%) and portables (3%). In terms of numbers of items, the largest amounts are videos/DVDs, followed by TVs, then PC box units and monitors.

DATA TYPE:	EQUIPMENT SUMMARY: MAJOR ITEMS – TOTAL (All Locations)							
	TVs	Videos/ DVDs	Radios	Stereos / Cassettes	Portables	PC Monitors	PC Units/ Hard Drives	Laptops
% Working	97%	96%	99%	98%	97%	95%	95%	94%
Number Working	9.44M	8.76M	8.18M	6.30M	5.75M	4.08M	3.97M	1.16M
% Working / In Use	92%	93%	95%	96%	92%	86%	87%	N/A
Number Working in Use	9.0M	8.42M	7.90M	6.18M	5.48M	3.70M	3.62M	N/A
% Working/ In Storage	5%	4%	3%	2%	5%	9%	8%	N/A
Number Working / Storage	0.45M	0.34M	0.28M	0.12M	0.28	0.39M	0.35M	N/A
% Not in Working Order	3%	4%	1%	2%	3%	5%	5%	6%
Number Not Working	0.27M	0.32M	0.09M	0.15M	0.17M	0.20M	0.20M	0.08M

<sup>1</sup> Note that working order was not asked separately for all equipment categories.

**A vast array of brands is owned, across three key product types – TVs, PC monitors and PC boxes.**

In total, 163 TV brands were cited, 152 brands of PC monitors, and 176 PC box unit brands. For TVs, the top ten brands represent 62% of all TV units owned, while the vast majority of brands mentioned (85% of them) each represented just 1% or less of all TVs.

For PC monitors, the top ten brands represent 46% of all screens owned (excluding the 7% of non-branded units), while almost one in five did not know the brand (18%).

MEASURE	RESULTS BY ITEM		
	TVs	PC Monitors	PC Box Units
% Top 10 branded	62	46	35
% Unbranded	-	7	21
% Don't know	10	18	24
Total No. Brands	163	152	176
Total No. Units	9.74M	4.29M	4.18M

A particularly high proportion of PC box units were non-branded (21% - three times the most frequently mentioned brand at 7%), while the top ten branded items represent 35% of all units owned. Similar to PC monitors, a fairly high proportion did not know the brand – almost one in four (24%).

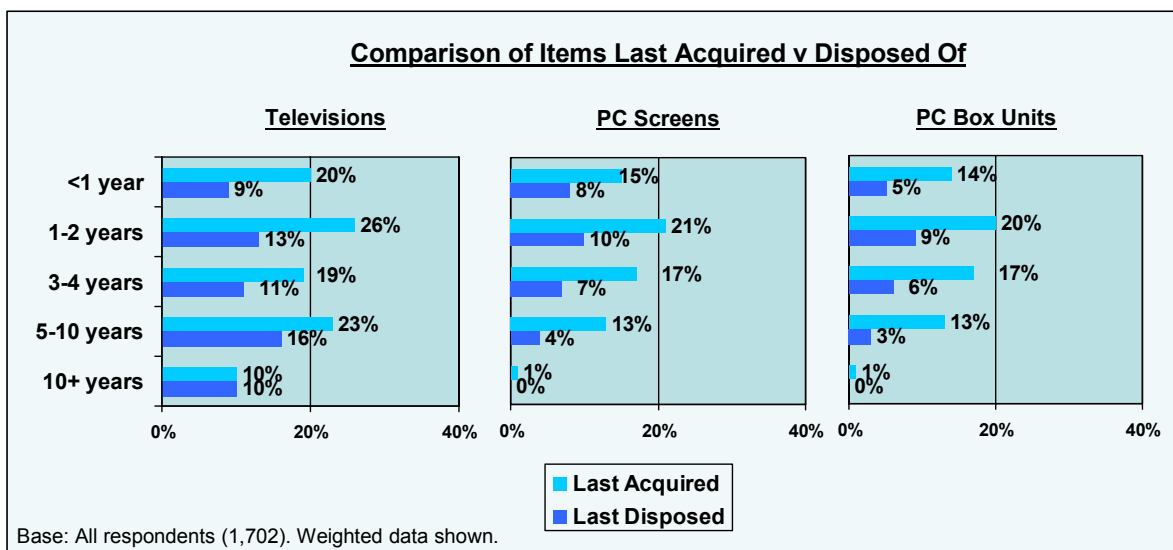
**Disposal rates...**

For some equipment categories respondents were asked when they had last disposed of one of these items. Fewer than 1 in 10 households had disposed of each type of item in the last 12 months.

DISPOSAL RATES – LAST 12 MONTHS (% of Households Disposed of 1+ Units)			
TVs	PC Monitors	PC Box Units	Portables
9%	8%	5%	4%

BASE: All respondents (n=1,702). Weighted data shown.

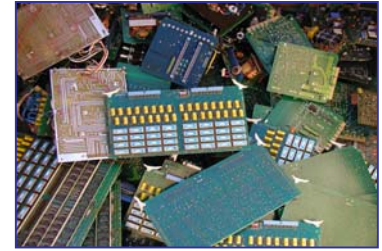
Respondents were also asked when they had last acquired one of these items. In comparing this to when they had last disposed of an item of this type (in the charts below), a key finding emerges: percentage of households acquiring items is significantly greater than the percentage of households disposing of them. Around twice as many households had acquired TVs and computer screens as had disposed of them within the last 12 months, and almost three times as many computer box units.



**This means that the issue of household e-waste is a rapidly growing one!**

## A Range of Disposal Methods...

For some equipment categories (see table below), respondents were asked about the methods of disposal they had ever used for these types of equipment (not just in the last 12 months).



Source: John Gertsakis, Product Ecology

DISPOSAL METHOD – TOP MENTIONS ONLY (Ranked by Mentions)	EQUIPMENT TYPE BY DISPOSAL METHOD (%)			
	TVs	PC Monitors	Box Units	Portables
Gave away to family / friends	26	31	35	8
Council pick-up collection service	26	22	19	10
Took to local tip/council depot	17	10	12	12
Sold privately to another person	5	5	6	3
Gave to repair shop / PC mechanic / second hand dealer	4	2	2	1
Took to charity shops / collection bins	3	7	8	5
Used as trade in	2	3	4	0
Wheelie bin / normal garbage bin	1	2	3	51
<b>BASE: TOTAL ITEMS DISPOSED OF</b>	4.35M	2.03M	1.66M	2.20M



The survey found that giving items away for re-use is the most common form of disposal, followed by council pick-up / collection. An anomaly is evident in the 51% of portable items having been disposed of via the normal garbage bin and essentially ending up as landfill. This is also evident for cordless equipment – which had occurred in 54% of households<sup>2</sup>.



Source: Sustainability Victoria

**Arguably, it appears that item size plays a key role in disposal methods, in that it is 'easier' for people to deposit smaller items in the garbage.**

**Further details on this market research can be obtained from the Department of Environment and Conservation (NSW)**

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<sup>2</sup> Note that the base for the cordless equipment result (number of households) is different from other categories (total number of items disposed of), due to disposal method not being asked for each cordless item, given interview length constraints.