



Distance to recycling facility key to environmental impact

Researchers from Spain and Germany have analysed the environmental impact of the disposing of waste electrical appliances and concluded that, under current regulatory practices, distance to the recycling facility plays a key role in determining whether recycling is more environmentally-friendly than landfill disposal. The study makes clear recommendations on the maximum travel distances to collect and dispose of electrical waste to avoid negative environmental impacts. The authors also advise authorities and manufacturers to look for alternatives to recycling, such as charitable donations or resale.

In addition, the findings may help inform manufacturers, who are now required to take back all equipment after use for subsequent treatment, when designing recycling networks.

The researchers looked at the composition of four types of product: washing machines, refrigerators, televisions and personal computers, and focused on the disposal phase of their life-cycle. They compared disposal using landfill sites with typical separating and recycling practices. The difference in environmental impact between the two possible end-of-life scenarios was measured using categories such as the production of winter smog, the production of acid rain and the use of fossil fuels. The range of distances travelled to collect and dispose of waste, and type of vehicle used were also considered.

Having combined the impact of these factors, the researchers calculated breakeven points for distances travelled to collect and dispose of appliances. For washing machines this is 113 km; for refrigerators 262 km; for television sets 363.5 km, and for personal computers 345.5 km. For distances above these, the negative impacts outweigh the environmental benefits. In all cases, transport was less polluting using a lorry than a van.

There is growing recognition of the need for a more sustainable approach to consumption of goods, especially in the electronics industry where short product life-cycles and rapidly advancing technology lead to huge volumes of relatively new goods being discarded. Although some equipment is sent for recycling, the annual volume of waste generated is increasing between 3 and 5% in Europe alone. The current annual estimate is 6.5 million tonnes, and this is expected to rise to 12 million tonnes by 2015, equivalent to 14 kg per person per year. The majority of these goods find their way to landfill sites, but the waste of potentially recyclable materials and the increasing scarcity of landfill sites have led to a shift in placing greater emphasis on recycling.

Source: Y. Barba-Gutiérrez, B. Adenso-Díaz and M. Hopp (2008) "An analysis of some environmental consequences of European electrical and electronic waste regulation Resources, Conservation and Recycling (Elsevier), 52 (3).

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Additional information: The EC LIFE programme co-financed numerous projects dealing with waste electrical and electronic equipment. For more information see the relevant [thematic project list](#) or read the recent LIFE Focus brochure "[LIFE and waste recycling: Innovative waste management options in Europe](#)". This also included an article on the Greek ICOL project (LIFE02 ENV/GR/000360), which successfully optimized its collection of waste lube oils ([project summary](#), [website](#), [layman's report](#)).