

Part V: Costs of Recycling WEEE

Financing Mechanisms

In Canada, electronic products stewardship programs minimize or eliminate the industry's financial responsibility and pass it on to consumers in the form of a front-end or back-end fee. Many different financing models exist, so knowing how a program is funded is critical to understanding the design and operation of e-waste take-back systems as well as the potential for program success.

Environmental Handling Fee (EHF)

An environmental handling fee (also called an electronic handling fee, an advance disposal fee, or an advance disposal surcharge) is an industry developed and imposed fee charged per unit collected by the obligated steward (OEM, distributor, supplier, or retailer). EHF provide manufacturers incentives for modifying design to reduce the environmental burden of their products by shifting the costs associated with product end-of-life management to the producers, and in turn consumers, rather than having these costs be the responsibility of governments and taxpayers.

Final users, when purchasing a new product, accept full responsibility for the entire life cycle of the product, including getting the product to a collection depot for recycling. The fee is not a government tax, nor is it a refundable deposit. All revenue generated from EHF funds the recycling program, including its administration, depot operation, public education, and the collection, transportation, storage, and recycling of collected electronics. All fees collected stay within the individual program. For example, funds from EHF collected in Ontario go only towards covering the costs of OES. Moreover, each program is designed so that the cost of managing products in one category is not subsidized by fees paid in another.

In each province that uses the EHF model, sales taxes (e.g., the harmonized GST in Ontario) are applicable to the EHF.

How are EHF determined?

Since EHF are intended to reflect the actual cost of recycling a particular item, they are not uniform across product categories and will vary depending on a myriad of factors. The size, weight, and quantity of e-waste diverted from landfill for recycling is one factor affecting EHF. For example, the EHF on a cellular phone is much lower compared to that on an office photocopier because the latter is much more expensive to recycle. Another factor taken into consideration when setting an EHF is whether a product is made up of little or many recyclable components. A product with few recyclable components or that is more difficult to

disassemble will have a higher EHF than a product with many recyclable components or that is easy to take apart. EHF can also vary depending on the total product weight per category, the costs of program administration and of collection and recycling, as well as the actual and forecasted amount of product in the market (i.e., product sales and forecasts). To ensure that EHF are set at appropriate levels, they are regularly reviewed and adjusted.

Visible vs. hidden fees

Manufacturers or retailers most often have a choice of how to raise the necessary funds. On one hand, they can choose to make the fee hidden. In this case, fees paid by brand owners on products are passed on in the supply chain to the consumer at point of purchase with the fee incorporated into the product's price. On the other hand, they may choose to display the fee as a separate charge applied at the retail point of sale. Visible fees can act as an educational tool because they send a clear signal at the point of purchase to consumers that there are environmental and financial costs associated with recycling e-waste. Regardless of which model is adopted, the EHF is charged only once in the supply chain.

Table 23 presents EHF by province as of May 2013. Entries of N/A represent product categories that a particular province does not collect or for which no fee is charged.

System Costs

Managing WEEE is costly. From an operational standpoint, costs are incurred for collection, which requires a series of procedures to ensure that the safety and health of all staff handling WEEE materials is maintained. Consolidation and transportation and finally processing of WEEE also incur net costs, even after processors sell off their commodities to downstream or end-use markets.

Collection and Handling Costs

The greatest costs to the system are payments that must be made to the collectors, transporters, and processors of the collected WEEE. Some provinces, such as Ontario, publish the values of collection, transportation, and processing incentives. In some other provinces, the fees paid out per tonne for these services can be determined by dividing the total fees paid out by the number of tonnes processed.

Table 24 shows the net per tonne cost of collection, transportation, and processing in each province where the number is available or can be determined from financial

Table 23: Fees for WEEE in Canadian provinces, 2013 **Effective August 1, 2013

CATEGORY	BC	AB	SK	MB	ON	QC	NS	NFL**	PEI
Desktop computers	\$5.50	\$4.40	\$15.00	\$15.00	\$3.00	\$7.50	\$10.50	\$10.50	\$10.50
Portable computers	\$1.20	\$1.20	\$3.00	\$3.00	\$1.50	\$1.65	\$2.10	\$2.50	\$2.10
Display devices ≤ 29 inches	\$9.00	\$4.00	\$9.25	\$9.25	\$12.25	\$12.25	\$11.50	\$12.25	\$11.50
Display devices ≥ 29 inches	\$31.75	\$10.00	\$23.25	\$23.25	\$39.50	\$42.50	\$40.00	\$42.50	\$40.00
Computer printers	\$6.50	\$4.80	\$8.00	\$8.00	\$10.35	\$8.75	\$6.50	\$7.75	\$6.50
Computer peripherals	\$0.90	N/A	\$1.10	\$1.10	\$0.75	\$1.25	\$0.90	\$1.05	\$0.90
Desktop computer scanners	\$6.50	\$4.80	N/A	\$8.00	N/A	\$8.75	\$6.50	\$7.75	\$6.50
Personal or portable audio/visual playback or recording systems	\$0.40	N/A	\$0.40	\$0.40	\$0.75	\$0.45	\$0.40	\$0.45	\$0.40
Home audio/visual systems	\$3.50	N/A	\$3.50	\$3.50	\$7.10	\$3.75	\$3.50	\$4.00	\$3.50
Home theatre in a box (HTIB) systems	\$6.00	N/A	\$6.00	N/A	\$7.10	\$7.75	\$6.00	\$7.20	\$6.00
Vehicle audio/visual systems	\$2.75	N/A	\$2.75	\$2.75	\$4.00	\$3.25	\$2.75	\$3.25	\$2.75
Non-cellular phones and answering machines	\$0.85	N/A	\$0.85	\$0.85	\$1.50	\$1.15	\$0.85	\$1.00	\$0.85
Floor-standing printing devices	N/A	\$4.80	N/A	N/A	\$173.75	\$42.50	N/A	N/A	N/A
Floor-standing copiers and multifunctional devices	N/A	\$4.80	N/A	N/A	\$173.75	\$42.50	N/A	N/A	N/A
Label, barcode, and card printers	N/A	\$4.80	N/A	N/A	N/A	\$8.75	N/A	N/A	N/A
Cellular devices and pagers	N/A	N/A	N/A	N/A	\$0.05	\$0.10	N/A	N/A	N/A

Table 24: Collection and handling costs by province, 2012

COSTS	BC	AB	SK	ON	NS	PEI
Net collection costs per tonne	\$141	\$130	\$100	\$150	\$71	\$59
Net transportation costs per tonne	\$106	\$50–\$200	N/A	\$50–\$120	\$74	\$40
Net processing costs per tonne	\$379	\$700	N/A	\$150–\$600	\$230	\$273
Total per tonne	\$626	\$880–\$1030	N/A	\$350–\$870	\$375	\$372

records. Costs should not be directly compared with each other, as each program may have different operating parameters.

Overall, total net costs of programs have been decreasing. This decrease is partially because the fees paid out to processors have been dropping. In BC, the average fees paid out to processors per tonne fell from an average of \$687/tonne to \$379/tonne, a reduction of 45%. In Ontario, OES dropped the range of fees paid out to processors from \$450–\$850/tonne to \$150–\$650/tonne. These cost declines may be explained by a number of factors, which include more Canadian processors competing with each other, better economies of scale, improved markets for commodities and a harmonized service agreement being administered by EPRA.

They may also be attributable to the fact that selection criteria for processors has shifted from one that previously placed emphasis on the importance of a high recycling rate to one that prioritizes costs. For example, according to the final revised program plan (OES, July 2009), the processor “recycling rate” accounted for 50% of the selection score and the costs only 30%. In 2011, OES released a new set of selection criteria, increasing the importance of cost to 55%

of the total score, while reducing recycling efficiency (i.e., the recycling rate) to only 20%.

Who Pays for WEEE Collection and Recycling?

Canada’s e-waste stewardship programs attempt to offset these costs, which were traditionally picked up by consumers directly or by ratepayers, through municipal property taxes. This shift in the cost burden promotes free collection for all generators of WEEE.

Nearly all Canadian WEEE programs rely on consumer-based fees or “eco-fees” to generate the funds to pay for the programs. For the most part, these funds are originally levied by the program operator (by province) and are paid by the EEE steward (usually the brand owner or first importer). In most cases, these eco-fees are passed on directly to the retailer and then the consumer.

However, in some jurisdictions, namely the province of Québec, all associated fees, including “eco-fees,” are required to be embedded in the product price. So although there may be no visible fee attached to the product, in most cases, producers will increase the shelf price accordingly.