



TCO Certified Edge – E-waste compensated

2.1 E-waste compensated

Background

According to the [United Nations University's Global e-waste monitor](#), around 50 million metric tonnes of electronic products are discarded every year. Most countries have difficulty handling these vast amounts of discarded products in a responsible and resource efficient way. In 2016, only 20 percent of electronic waste was recycled globally.

Exported e-waste risk the health of vulnerable communities

While the focus has been on collecting products, not enough effort has gone into building infrastructure for processing the waste or safely recovering used materials. This has led to a shortage of facilities where e-waste can be managed safely. Instead, e-waste is mixed with residual waste, where it is often incinerated, placed in landfill, or exported to developing countries. E-waste exporters generally choose destinations lacking effective legislation that regulates how e-waste should be handled.

The export of e-waste is driven by two main factors: the demand for low priced electronics in the importing countries, and the fact that it is cheaper to export e-waste than to handle it domestically in accordance with stricter safety regulations. Western Africa and parts of Asia are common dumping grounds. In these parts of the world, local populations make a living by extracting and selling valuable materials. Products are manually disassembled, burned in the open air or dissolved in acid by local laborers, including children, without adequate protective equipment – leading to severe health problems. Electronic products contain a number of toxic substances hazardous to human health, with documented risk to the brain nervous system, lungs and kidneys as well as links to certain cancers. Toxic residues can leak and contaminate the soil, air and water, affecting surrounding ecosystems where the local communities grow their food, hunt and fish. The hazardous substances are also spread to other continents through the air and the sea.

Aiming for e-waste neutral products

With TCO Certified Edge e-waste compensated, we provide a system for brands to help tackle this global problem. For every manufactured unit of the product, the brand ensures take back of an equal amount of e-waste that already exists on the market in a country that lacks proper e-waste recycling capacity. This can be considered a closed-loop solution for the potential e-waste created by IT products. Proper take back and responsible recycling of products is contributing to the circular economy.

How the process works:

1. The brand owner purchases an offsetting certificate from an approved collector compensating for the potential e-waste of the certified product.
2. The approved collector uses the fee to pay for the collection of the corresponding e-waste amount of end-of-life products.
3. E-waste is collected in places where there is a lack of existing recycling systems with enough capacity to handle all the waste in a responsible way, fully in line with international laws.

4. If proper recycling is not possible locally, the approved collector transports the e-waste to facilities fulfilling high environmental standards.
5. The waste is then turned into reusable materials (urban mining), in a responsible way.
6. The offsetting for the certified product is verified by an approved independent verifier.
7. The above offsetting procedure is verified annually by an approved independent verifier. For more information, see the clarification chapter.

Definitions

Approved collector: A company organizing the collection of e-waste. A public list of approved collectors can be found on tccertified.com.

2.1.1 Mandate

The e-waste generated by all manufactured units of the certified product must be offset by a corresponding amount of collected and responsibly recycled e-waste according to the e-waste equivalent estimation table in the clarification below.

The collection must fulfill all requirements listed in the clarifications below and be carried out by a collector approved by TCO Development and verified annually by an approved verifier. See clarification for more details.

Submit the following to an approved verifier:

An offsetting certificate from a collector approved by TCO Development.

Submit the following together with the application to TCO Development:

A copy of a verification report from a verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

.....
Product brand name

.....
Signature

.....
Date

.....
Model name(s) or "All certified products"

.....
Name and title in block capitals

.....
Brand owner company

2.1.2 Clarification

Collected products must represent the certified product as closely as possible. Therefore only products listed in the “e-waste equivalent estimation table” below may be collected.

New products that belong to category “3. IT AND TELECOMMUNICATIONS EQUIPMENT” of the DIRECTIVE 2012/19/EU may be accepted through a written confirmation by TCO Development and will then be added to the “e-waste equivalent estimation table”.

E-waste equivalent estimation system

As the collected products are sometimes not exactly the same type as the certified product, an e-waste equivalent estimation system is used to estimate the concentration of electronic component waste in the collected products so that it better matches the electronic component waste generated by the certified products.

The estimation system is based on the weight of the Printed Circuit Board (PCB) and battery in the collected product. These components are usually similar within a product category contrary to plastics, metal, and other materials which can differ widely within a product category depending on product design.

The weight of the PCB and battery gives a good indication of the concentration of electronic component waste as they constitute the majority of the electronic component weight in most products and often also cause the most negative environmental impact. However, this does not mean that the collection should only focus on these two components. The goal should, when possible, always be to collect the whole product so that all the parts can be taken care of in an environmentally responsible way.

E-waste equivalent estimation table: currently accepted products for collection and offsetting

Product	PCB weight unit	Battery weight unit
Phone	1	1
Tablet	3	3
Notebook	9	9

A PCB unit is not equal to a PCB. The weight of a PCB may vary between product types. A mobile phone PCB is the smallest denominator in this estimation system. This means that it is necessary to collect and recycle three phones to offset one tablet, or nine phones to offset one notebook. As an example, a printer or TV with a PCB is currently entirely outside the scope of this calculation.

Verification

The verification of the offsetting is carried out in three steps.

1. The brand owner sends a copy of the offsetting certificate to an approved independent verifier (<https://tcocertified.com/verification-organizations/>) that confirms the validity with the approved collector.
2. Each year, an approved, independent verifier compares all purchased offsetting to all received e-waste at the recycling facilities used by the approved collector (at the end of the offsetting chain). (<https://tcocertified.com/verification-organizations/>).
3. TCO Development may carry out spot checks in any part of the collection process to verify that the requirements in this mandate are fulfilled.

Requirements and recommendations to be an approved collector

Requirements (mandatory to be an approved collector)

1. The approved collector must have a code of conduct for the collection of products, that is consistent with the following:
 - a. ILO's eight core conventions: 29, 87*, 98*, 100, 105, 111, 138 and 182.
 - b. UN Convention on the Rights of the Child, Article 32.
 - c. All applicable local and national health and safety and labor laws effective in the country of manufacture and a 60 hour working week, including overtime.
 - d. The collection must not compete with any existing mandatory or regulatory take-back systems in the region that is functional and have the capacity to handle the products to be collected by the approved collector.
 - e. Only products that are no longer relevant for use may be recycled. To ensure this the approved collector must pay less for the product than its second-hand market price in the area where the product is collected.
2. Approved collectors must have functioning processes in place for shipping the e-waste to responsible recyclers within 1 year of collection. E-waste should not be stored for an indefinite period.
 - a. Proof of Basel notification documents if the waste needs to be shipped across borders.
 - b. Proof of a management system (process or manual, etc) for logistics and permitting.
 - c. Proof of at least one contract with a recycler fulfilling the requirements of this mandate.
3. Approved collectors must have an auditable administration and tracking system
 - a. The approved collector must have a system for tracking the e-waste and for registration of all parties in the collection network. It must be possible for an auditor to access the system to verify that it is correct.
4. Products must be recycled in a facility compliant with local legislation and all relevant EU standards and regulations, or equivalent.
 - a. The approved collector must send a list of the facilities that will be used to the verifier.

- b. The approved collector must send proof from the recycling facility that they meet local and EU standards and regulations or equivalent. If the country where the facility is placed in issue licenses for recycling this must be provided. Otherwise, a declaration from the recycler is accepted.
- 5. Each collected device can only be used once in one offsetting certificate, and cannot be used in any other offsetting schemes the approved collector is involved in, including internal schemes.
 - a. During the annual review, the approved collector must be able to prove that all collections are attributed to only one offsetting scheme.
- 6. Agreements should be formulated to encourage the collection of complete products.
 - a. Provide a copy of the agreements to the approved verifier and indicate where this is specified
- 7. TCO Development has the right to do initial and continuous due diligence reviews to verify the credibility of the collector.

Recommendations (not currently mandatory to be an approved collector)

- 1. At least 50% of the e-waste should be collected within the informal sector, with the aim of supporting this sector.
 - a. Provide proof of this (for example through the tracking system).
- 2. If there is an existing local take-back system, but it's not deemed functional, cooperation with such a scheme is preferred.
 - a. Provide correspondence or agreements proving cooperation.
- 3. The collection should be done with local businesses to ensure a systematic investment in capacity in the regions where collections are carried out.
 - a. This must be written in the collector's code of conduct.
- 4. At least 20% of the offsetting price should be invested as a payout for the waste being collected.
 - a. Spot checks on financial auditing