E-WASTE

IS YOUR PRODUCT COMPLIANT?

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EXECUTIVE SUMMARY

Most producers developing goods for the global market are prepared to meet the requirements for electrical safety, EMC and restricted substances; however, many are unaware of the global requirements for disposal of end-of-life or excess Electrical and Electronic Equipment (EEE).

These requirements are generally categorized as Electronic Waste (or "E-Waste") regulations. Unfortunately, *a product can be tested and certified to all applicable technical standards, but not be compliant for import to a region if the requirements for the most efficient and environmentally-friendly development and disposal of the product have not been met.*

> The development of e-waste initiatives has grown rapidly in an effort to keep pace with the purchase and disposal of electronic equipment. The Global E-Waste Monitor 2017 tells us that 44.7 million metric tons of e-waste were collected internationally in 2016, which is the equivalent of 4,500 Eiffel Towers![1]

Reclamation of metals and alloys in EEE, such as silver, gold, and copper, is one important benefit of regulating e-waste; however, protection for human health and the environment from the release of harmful chemicals contained in EEE are of the utmost importance.

As a manufacturer or importer, you will want to know that your product is E-Waste compliant for its designated markets!
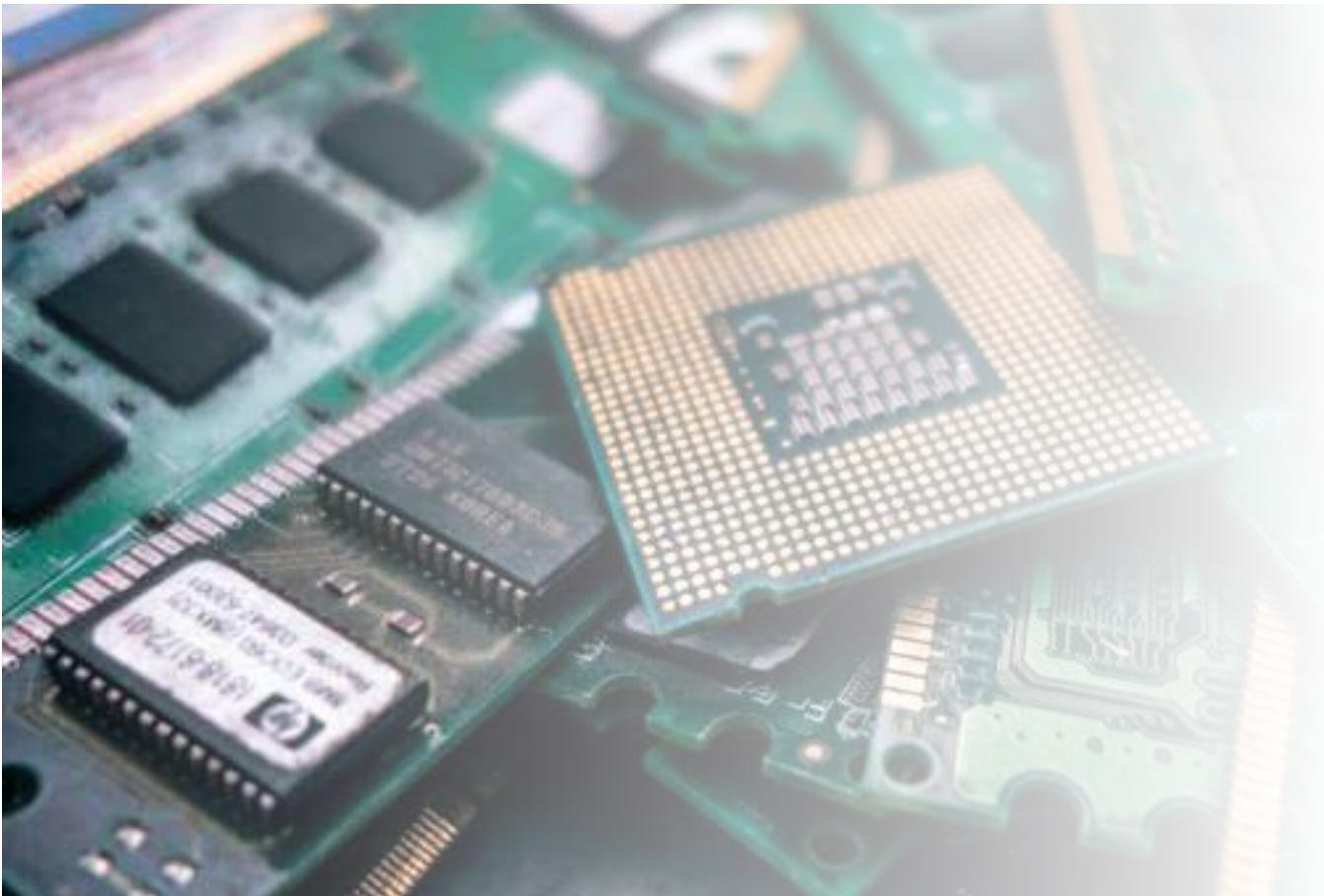
This white paper will:

- Define e-waste
- Familiarize the reader with components and key actors of e-waste regulations
- Warn of penalties for non-compliance
- Explain "Extended Producer Responsibilities"
- Familiarize the reader with options for an e-waste management program
- Suggest resources for information regarding global, regional, and producer-level initiatives

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[1] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

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WHAT IS E-WASTE?

EEE is defined as "equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields". In the European Union, e-waste is pinpointed as the "components, sub-assemblies and consumables" of EEE that "the holder discards or intends or is required to discard". The Directive 2012/19/EU is referred to as the "WEEE Directive", and over the years the term "WEEE" became widely coined in the realm of e-waste management. Examples of e-waste include computers, displays, printers, keyboards, mice, cables, memory sticks, hard drives, and circuit boards.

KNOW THE LEGISLATIVE FACTS

Not all e-waste regulations are alike! In fact, some e-waste requirements are contained within a "general" waste management regulation, such as Taiwan's "Waste Disposal Act of 2012", which includes requirements for waste that:

- Is not easily cleared away or disposed of;
- Contains components that are not readily decomposed;
- Contains hazardous substances; or
- Possesses recycling or reuse value.

Look for the following sets of details in the applicable legislation for the region(s) you intend to market your product in, to determine whether or not your product is in scope of the regulation, and what responsibilities you are subject to:

Scope

- What type of waste is addressed?
- What environment is addressed? (i.e., household, small business, consumer, industrial)
- What are the exemptions, if any?
- Is the program mandatory or voluntary?
- Is the program dependent on the volume of products imported to the region?

Definitions

Some terms used in waste management initiatives can be misleading. Here are some examples.

Example 1: WEEE from private households

Directive 2012/19/EU defines "WEEE from private households" as "WEEE which comes from private households and WEEE which comes from commercial, industrial, institutional and other sources which, because of its nature and quantity, is similar to that from private households".

Example 2: Producer

The term "producer" is not always synonymous with manufacturer. The definition of "producer" in India's e-waste regulation includes entities that manufacture and offer to sell EEE under their own brand, entities that offer to sell re-branded EEE, and entities that offer to sell imported EEE.

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[2] https://www.epa.ie/enforcement/weee/electricalandelectronicequipment/
[3] https://eur-lex.europa.eu/eli/dir/2012/19/oj
[4] Taiwan Waste Disposal Act of 2012
[5] See also https://www.epa.gov/sites/production/files/2014-05/documents/handout-1a-regulations.pdf

Key Responsible Actors

- MANUFACTURER

  The entity that makes a good through a process involving raw materials, components, or assemblies

- PRODUCER

  The entity that either manufactures or supplies goods for sale

- IMPORTER

  The entity that brings goods into a country from abroad

- CONSUMER

  The person that uses something

Other actors that may bear responsibilities within waste management regulations are regional authorities, waste collectors and sorters, dismantlers, treatment centers, and recycling centers.

Requirements That Span the Product Lifecycle

E-waste regulations may identify requirements at multiple stages of the product lifecycle stages, including those shown below:

Product design and production

Many e-waste initiatives require environmental consideration at the product design level. Considerations can include material substances, energy efficiency, and labeling. Eco-design includes planning a product to allow for the maximum re-use, dismantling, and recovery of the product as a whole, or as sub-assemblies, components and materials. The United Nations Industrial Development Organization (UNIDO) explains "Cleaner Production" as "the continuous application of an integrated preventative environmental strategy applied to processes, products and services to increase eco-efficiency and reduce the risks to humans and the environment."

For processes, CP includes conserving raw materials and energy, eliminating toxic raw materials and reducing the quantity and toxicity of all emissions and wastes.

For products, CP involves reducing the negative impacts along the life cycle of a product, from raw materials extraction to its ultimate disposal.

Many consumers look for IT products that are "TCO Certified". This certification denotes that the product has been designed and produced to have "a lower impact on the environment and human health."

Disposal

Disposal takes place at various stages and by multiple actors for EEE products. For example, the manufacturer may have damaged components or excess materials; the manufacturer and/or supplier may also have excess inventory to dispose of when the product becomes obsolete. The consumer will need to dispose of the product when it reaches end of life or is no longer useful to meet the consumer's needs. The "Producer E-Waste Management Programs" section below outlines several options for managing end-of-life products. Other lifecycle stages may be addressed in legislation, including product transportation and delivery, repair, consumer use and re-use.

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[6] India E-Waste Management and Handling Rules - 2016
[7] UNIDO. (1998). What is Cleaner Production:. http://www.unido.org/ssites/env/ncpc/envncpc33.html [18 March 2000].
[8] Ibid.

Registration, Record Retention, Reporting, and Collection Targets

Many waste management programs include a registration requirement for producers. Check with your test lab to see if it offers registration services for e-waste initiatives. The regional environmental protection authorities may offer assistance as well.

Understand the data that needs to be recorded, maintained, and reported. Reporting to regional authorities is usually done on an annual or semi-annual basis, and in a specific format. Be aware of the reporting deadlines for each of the regional regulations you are subject to. Many regulations include collection targets, which usually increase over a period of time and culminate with a maximum collection target.

Consequences of Non-Compliance

As with most other regulations, there is a price to be paid for non-compliance if your product is chosen for random sampling by the region's market surveillance authorities. Multiple penalties and required actions can be imposed, such as the following:

- Bearing the cost of the sample testing
- Required corrective measures to bring the product to compliance
- Possible withdrawal or recall of the product from the market
- Financial penalties as levied by the proper authorities

The EU's WEEE Directive states that penalties established for non-compliance be "effective, proportionate and dissuasive". A 2016 article by HKTDC points out that "all WEEE registered companies are listed on the Environment Agency website, and so non-compliance with this requirement and other producer responsibility legislation is believed to be very likely to result in prosecution".   The article also cites penalties incurred on a UK company for its failure to register with the member state Environment Agency and "circumventing the cost of financing the collection and recycling" of its e-waste. Taiwan's Waste Disposal Act of 2012 requires one-to-five years' imprisonment (possibly combined with a fine) for specific infractions.

PRODUCER E-WASTE MANAGEMENT PROGRAMS

Extended Producer Responsibilities

The growing trend in e-waste initiatives over recent decades is "Extended Producer Responsibilities (EPR)". EPR initiatives assign financial or physical responsibility to producers for their products after the point of sale. While the recycling and reuse of EEE have been long-time initiatives, past programs placed the burden of these initiatives mainly on the municipalities.

In addition to redirecting the recycling and reuse burden to the producer, EPR addresses both the product and the "product system". In his 2000 doctoral thesis, "Extended Producer Responsibility in Cleaner Production", author Thomas Lindhqvist refers to the "product system" as inclusive of "all of the factors enabling the functionality of the product throughout its life cycle."

In many regions, producers must submit a WEEE management program to the designated authorities before any products can be legally imported. Programs can be individually managed or managed by an approved "Producer Responsibility Organization (PRO)". These programs will state the methods the producer has chosen for meetings its responsibilities under the relevant legislation. Two of the widely-used methods are described below.

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[9] https://tcocertified.com/
[10] http://economists-pick-research.hktdc.com/business-news/article/Regulatory-Alert-EU/Hefty-Fines-Imposed-for-WEEE-Other-Environmental-Laws-Non-Compliance-Signals-Warnings-for-Electrical-Appliance-Sellers-in-the-EU/baeu/en/1/1X000000/1X0A54BD.htm

Producer Take-Back

The OECD stated that as of 2016, "various forms of take-back requirements" accounted for nearly three-quarters of the surveyed producer waste management systems.

Producer Take Back is "a system where the original manufacturer, or producer, of the product takes financial and/or physical responsibility for the collection, recovery or disposal of the product after the end of its useful life."

Take-back programs provide incentives to producers to incorporate eco-design into products, and discourages planned obsolescence (designing consumer goods that rapidly become obsolete). Greenpeace states that "Billions of electronics are being made, sold, and disposed of every year—a cycle that drives short-term profits for electronics manufacturers, but at too high a cost for the planet we all share."

Advance Disposal Fees (ADF)

Advance Disposal Fees are often incorporated into PRO management programs, and fund anticipated recycling fees based on the amount of products that are put on the market. The fees are typically flat rate and based on the type of product. Other less widely used EPR options include materials taxes, subsidies, and deposit/refund for lead acid batteries.

FINDING THE APPLICABLE LEGISLATION

As stated earlier, e-waste regulations are being implemented at a rapid pace. If you are a global marketer of EEE, you will need a reliable way to learn about existing initiatives, new and proposed legislation, and changes to markets you are already established in. Resources such as Compliance & Risks provide coverage of regulations on most continents, for regions such as Australia, Brazil, China, India, Israel and Peru. Regulations for the European Union, Canada, and the United States are available at national, state, and local levels.

Public resources provided by the United Nations, Greenpeace, and other organizations can also provide a significant amount of information on existing waste management programs. Internet browsing parameters such as "e-waste", "solid waste management", and "producer responsibilities", will result in an abundance of articles, statistics, and legislative information.

CONCLUSION

The United Nations reports that currently less than 20% of e-waste is formally recycled.   Improper management of e-waste results in hazards to human health, hazards to the environment, and the loss of scarce and valuable raw materials.

Participating in regional and local e-waste management programs is not only the responsible thing to do as a producer of EEE, but it is often the law. Take advantage of the myriad of resources to learn how to design an environmentally-responsible product, join with other producers to manage e-waste, and comply with the waste management regulations for all markets applicable to your product.

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[11] https://portal.research.lu.se/portal/en/publications/extended-producer-responsibility-in-cleaner-production-policy-principle-to-promote-environmental-improvements-of-product-systems(e43c538b-edb3-4912-9f7a-0b241e84262f).html
[12] OECD (2016), "Extended producer responsibility – an overview", in Extended Producer Responsibility: Updated Guidance for Efficient Waste Management, OECD Publishing, Paris.
[13] Clean Water Fund / Clean Water Action Alliance of Massachusetts (2001), "Producer Take-Back: The solid waste management strategy for the 21st Century", by John McNabb
[14] https://www.greenpeace.org/usa/reports/greener-electronics-2017/
[15] https://www.complianceandrisks.com/
[16] UN report: "Time to seize opportunity, tackle challenge of e-waste", January 2019

FoxGuard Solutions provides environmental compliance evidence on an order-by-order basis for both international- al and domestic shipments. Proactive research on new and existing regulations assures our customers that the products they bring into other regions are compliant with regional environmental initiatives, such as:

- Eco-Design
- Energy Efficiency
- Restricted Substances
- Chemicals Management
- Battery Management
- E-Waste

If you would like any further information about FoxGuard's regulatory compliance services, please send a message to regulatorycompliance@foxguardsolutions.com.

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