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| Circularity Toolkit: E-Waste Blueprints |
| **E-Waste Policy** |
| A blueprint e-waste policy for OGS companies |

**About the Circularity Toolkit: E-Waste Blueprints:**

GOGLA, with the support of Swedfund, has developed these E-waste Blueprints as part of our Circularity Toolkit to help off-grid solar companies implement and improve e-waste management across their operations.

The Blueprints build on the knowledge and best practice identified in phase 1 of our Toolkit. Wherever possible, we have sought to ensure that the Blueprint documents are applicable to a broad cross-section of OGS companies, regardless of company stage, product type or country of operations. However, companies should adapt the Blueprints as necessary to their individual operational context.

**Acknowledgements:**

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The Blueprints were developed by Sofies, in collaboration with Akinyi Chemutai (independent), Charlotte Heffer and Wilson Wambugu (d.light), and Rebecca Rhodes (GOGLA). Thank you also to those companies and members of our Circularity Working Group who were involved in the consultations that helped us to shape the Blueprint elements of our Toolkit.

[Insert Company Name] E-Waste Management Policy

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***Note to authors:*** *This policy template is designed to provide the fundamental building blocks of an effective e-waste policy for off-grid solar companies. Authors should review the document, and adapt as required to their company’s stage, mission and aims for e-waste management. The template provides options for both early- and late-stage companies, though authors should also be cognisant of their own company context, and external factors such as regulatory environment and maturity of recycling services in their operational market.*

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| Text highlighted in yellow | Insert required information |
| Text highlighted in blue | Recommended minimum options, for all OGS companies regardless of stage or geographical cover |
| Text highlighted in green | Recommended options for mature, or multi-national companies |
| Text highlighted in purple | If applicable to the company (e.g. vertically integrated or manufacturers) |
| ***Text in blue bold italics*** | Note to author |

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# Introduction

[Insert company’s name] aims to improve the environmental impact of our products by considering their [impact at end-of-life / entire lifecycle, from cradle to grave]. [Company name] intends to have a positive impact on its consumers by providing access to affordable modern energy services, and access to [insert other company goals e.g. education, economic opportunities and more].

We anticipate that the first [company name] products launched in the market [will reach / reached] end of life in [20XX][[1]](#footnote-2). Therefore, we recognise that there is a need to act now to ensure that e-waste from our products does not harm individuals, communities, or the environment – as well as protecting our brand reputation and protecting sustainable company growth. Furthermore, e-waste regulations are being increasingly implemented by governments, including in off-grid markets. [Company name] intends to follow best practices for e-waste management of off-grid solar (OGS) products - which may include going beyond the legal requirements in our country/ies of operation.

## Scope

This policy covers [company name]’s operations in [list operational countries] and is applicable to all **employees, contractors and consultants worldwide**. This policy is specifically related to electronic waste (e-waste) and does not encompass other forms of waste. All repairs of [company name]’s products are dealt with separately under [insert repairs/refurbishment policy if applicable].

*[If applicable]* This policy can serve as guidance to our global distribution partners thereby supporting and ensuring compliant and best e-waste management practises.

## Principles

This policy is guided by the following key principles:

* Concepts of circular economy
* Waste hierarchy
* Extended Producer Responsibility (EPR) approach

These principles align with GOGLA’s Industry Opinion on Lifecycle and Recycling, which intends to “preserve the environment and avoid or minimise any hazardous waste contamination”[[2]](#footnote-3).

# E-waste ambitions

E-waste management improves the local environment, safeguards consumer wellbeing, and protects company/brand image. Therefore [company name]’s provision of product warranty and servicing, repair and refurbishment, sustains the positive impact of its products. E-waste reduction and responsible management of e-waste is a company-wide priority.

[Company name]’s e-waste management ambitions (in order of priority) are to:

* **Collect and recycle** more end-of-life and out-of-warranty products;
  + In warranty returns – all e-waste resulting from in-warranty returns/repairs will be appropriately recycled or safely disposed of.
  + Out-of-warranty, end of life products – when returned by the consumer, will be collected/accepted at [state locations, e.g., all points of sale]
  + Implement an active take-back scheme for collecting out-of-warranty products
* **Repair and reuse** components from returned/collected products. This will increase the products or its components lifespan;
* **Build consumer awareness** of responsible disposal options for their off-grid solar product at key points within our customer journey;
  + E.g., During installation, at end of warranty period, at expected end-of-life
  + E.g., through customer services, SMS etc.
* **Train staff** to responsibly manage e-waste at different points in the product lifecycle and ensure robust processes for safe handling and storage are in place;
* **Identify and build credible partnerships** with e-waste processors that comply with national legislation and embrace best practises;
* **Support our distribution partners** to adopt best practice for e-waste management and seek assurance that they are compliant with national legislation in their operational markets.
* ***(For manufacturers*) Reduce waste** through better product design principles such as material selection, modularity and repairability;

***Authors should select from the list above, and add more ambitions in connection with the principles above***

To achieve our e-waste ambitions, [company name] will define and implement an e-waste roadmap. The roadmap will identify objectives, actions, and outcomes and allow [company name] to monitor progress towards the above goals.

[Insert link to road map once it has been developed and approved *(See E-Waste Assessment and Roadmap template excel)*]

# Legal compliance

[Company name] / each of [company name]’s operating countries will adhere to national or regional e-waste management legislation (whichever is more stringent) regarding collection, transportation, handling and safe disposal of e-waste. We will focus on two activities to ensure that we remain compliant in each country of operations. These activities are:

* **Maintain awareness of national e-waste legislation**: [company’s legal team and lead e-waste department] will track and maintain an updated repository of national and regional e-waste and waste legislation, including national applications of Basel (*and Bamako if operating in Africa*) conventions which regulate the regional and international shipment of waste.
* **Create, adhere and update national standard operating procedures (SOPs)**: Each [company country management team] will develop national E-Waste Standard Operating Procedures for their operations, defining e-waste flows and proper handling based on national legislation (*see Section 7.1 for more information*). [Company name]’s executive leadership team will review all national standard operating procedures (*see Section 10 for more information)*.

# Roles and Responsibility

Achieving [company name]’s e-waste ambitions depends on a waste-conscious company culture, with cross-departmental responsibilities and incorporation into governance structures.

Ensuring responsible management of e-waste - from the consumer, through transportation, handling and repair, recycling or disposal – is a cross-departmental activity, and we will allocate appropriate resources according to the responsibilities defined below.

The primary departments responsible for implementing robust e-waste management processes are: [Define primary departments e.g., Product, Warehouse, or After sales].

The secondary departments that will provide support to the departments listed above in executing this policy are: [list secondary departments, e.g., HR, Sales team, Legal team]

#### Table 1: Cross-departmental responsibilities for e-waste management

|  |  |
| --- | --- |
| **Department** | **Responsibilities** |
| ***Authors should review the roles and responsibilities within their organisation and align departmental roles with appropriate responsibilities.***  ***We recommend that one dept. (e.g. aftersales, logistics or ESG) should be ultimately accountable for e-waste management, and would also ensure that required e-waste costs are forecast and budgeted for, and that volume of e-waste generated is forecast.*** | |
| [After sales / customer support team] | * Call Centre and Service Centre staff provide technical assistance (e.g., troubleshooting) and disposal advice to all customers. * Manage non-functioning product flow back to the regional or global [team responsible for product quality] through existing reverse logistics channels for diagnosis and troubleshooting. * Sort returned products into applicable streams, for repair, refurbishment or disposal. * Record and report e-waste data (*may be cross-departmental with logistics/warehouse teams*). |
| [Team responsible for logistics and warehousing / supply chain] | * Oversee and/or support e-waste processing partner pre-screening and selection. * Organise collection of e-waste by e-waste processing partners. * Record and report e-waste data (*may be cross-departmental with aftersales/service teams*). |
| [Sales Team] | * Educate customers on proper use and maintenance of their OGS product, ensuring it maintains functionality for longer. * Inform customers about responsible disposal options, including [company]’s take-back scheme, once the product reaches its end-of-life. * Establish and manage collection points at sales outlets. |
| [Team responsible for product quality and design] | * Manage and track product failure diagnoses, repair, pre-processing. * Embracing a circular economy approach, the product design team will design repairable and easy-to-recycle products. |
| [Partnerships team – downstream / upstream] | * Educate and assist distribution partners regarding their e-waste activities. * Direct distribution partners to resources that will help improve their e-waste management processes. |
| [Human Resources / Learning & Development team] | * Coordinate with the country/global e-waste leads to develop and share training material with the relevant staff as a Learning and Development program. |
| [Finance team] | * Ensure that e-waste costs are disaggregated and can be appropriately forecast according to expected e-waste volumes, and that the necessary budget is available. * Provide financial reports and records of the e-waste management activities to person(s) responsible. |
| [Procurement / Legal team] | * Support the [team responsible for e-waste recycling partners] with selecting credible partners (*see Section 8 for more detail*). * Complete site audits and finalise contracts. |
| [Governance team] | * Provide strategic guidance to various teams ensuring e-waste policies are ratified and supported. * Ensure that e-waste data is periodically reported, providing the necessary support for data collection, review and presentation. * Integrate e-waste KPIs into existing management reporting structures. |

# Financial implications for e-waste management

E-waste management budget should be disaggregated from other activities. The budget lines for e-waste management shall be forecast by the [relevant team responsible for e-waste management according to the responsibilities defined in section 4.] in each country of operation. The e-waste budget will be reviewed **annually** and consider the company’s ambitions.

The e-waste budget will be based upon:

* Forecast volumes of e-waste: return rate per product plus end-of-life voluntary return per product based on sales vol (estimate 5 - 10% voluntary return or higher depending on collection activities).
* Cost of reverse logistics from customer/collection point to central warehouse.
* Storage costs at company warehouse or via a separate e-waste handler.
* Transportation costs to the e-waste recycling facility (*this may be included in recycler service costs*).
* Processing and disposal costs of critical fractions and components ($ per kg) which is provided by the recycler.
* Additional costs such as PPE, consumer awareness raising campaigns, consumer incentivisation for return.

*Transport costs might be covered by the dismantler/recycler depending on the services provided. Aggregate or add budget lines as needed.*

# Key Performance Indicators

[Company name] will track and monitor progress towards its e-waste ambitions with defined key performance indicators (KPIs). KPIs should be *SMART* (specific, measurable, achievable, realistic/relevant and time-bound) and incorporate targets defined by national legislation and/or by [company name]’s ambitions (e.g. collection rates or % of staff trained).

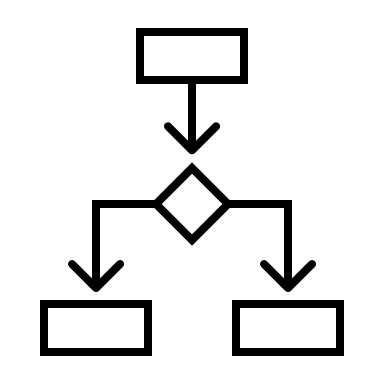
KPIs will be assigned to departments according to the responsibilities outlined in section 2. The metrics will enable continuous evaluation of [company name]’s progress towards better e-waste management, through aspects such as customer awareness of proper disposal, training staff to responsibly handle waste, selecting credible partners and more. Notably, the data must be collected, shared, and evaluated every quarter *(we recommend quarterly, though this should align with your existing reporting and governance process)* by the responsible departmental and e-waste lead (*see Section 4*).

# E-waste process for effective management

The process for e-waste management is defined below, and describes how e-waste moves through the [company name] ecosystem once it has been recovered from consumers. Where necessary, links are made to related processes such as repair and refurbishment, but these are not covered in full.

*Products may have different e-waste/repair flows due to factors such as design, procurement, OEM requirements and more.*

[Insert company’s e-waste management process flow. See the Blueprint example: [e-*waste management decision flow charts template*](https://www.gogla.org/resources/e-waste-blueprints-e-waste-management-process-flow)].



#### **Figure 1: [company name]’s e-waste management process flow**

## Country-specific standard operating procedures (SOPs)

*[For companies with multiple operational markets]* Country-specific SOPs detail the step-by-step procedure for e-waste collection, transportation and handling. The SOPs are specific to each operational country.

The SOPs are developed at market-level due to differing legislation and/or operating maturity, but ensure responsible handling, transport and storage of [company name]’s e-waste across all entities. Due to the variety in legislation and reverse logistic processes, country-specific SOPs must include the following sections: **collection**, **reverse logistics**, **storage**, **sorting**, **dismantling, repair**, **reuse or recycling**.

As [company name] expands, it is crucial that new operating countries create their own SOPs, ensuring that there is an e-waste management procedure to follow.

*Authors can use country-level SOP development as an exercise to build knowledge and awareness with country management teams, e-waste lead and other executive/operational stakeholders.*

(*see* [*Blueprint SOP document*](https://www.gogla.org/resources/e-waste-blueprints-standard-operating-procedure-for-e-waste-management-in-an-ogs-company)).

# Selection and review of e-waste processing partners

[Company name] will seek out recycling partners wherever they are available – recognising that in some off-grid markets, facilities are nascent or yet to be developed. Where no suitable e-waste processing partner can be identified, we will ensure safe storage of e-waste within our facilities and explore other options such as safe disposal or transboundary shipment. We will review the availability of e-waste processors at least annually.

Where we can identify suitable e-waste processing partners, we will ensure responsible downstream e-waste processes by ensuring that all e-waste processing partners (collectors, transporters, dismantlers, recyclers):

* Operate under all required licenses and adhere to national and regional legislation.
* Operate under a contract that covers the areas of occupational health and safety, waste storage, risk transfer, intellectual property, and evidence of proper disposal.
* Pass a pre-screening, audit, and site visit (if applicable) before signing of the contract (*see Blueprint e-waste processor procedure pack*).
* Undergo **yearly** follow-up audits and unplanned site visits (*see e-waste processor procedure pack*).
* Supply [company name] with yearly mass balance *or* certificates of recycling/safe disposal (*see e-waste processor procedure pack*) from dismantlers and recyclers.

The [insert responsible department] are primarily responsible for ensuring that e-waste processing partners are compliant with national and regional laws.

# Collection and handling of non-functioning products and reverse logistics

The process flow in Figure 1 depicts how non-functioning products return to [company name]’s ecosystem and are checked internally before being disposed/recycled during phase 2.

**In-warranty products** – These are managed via the warranty process, which provides repair or replacement for broken products. Non-repairable products should be appropriately recycled/disposed of.

**Out-of-warranty products** – [Company name] accepts the return of non-functioning out-of-warranty products at [insert collection points (i.e. service centres, repair centres and offices)].

**Take-back scheme** – In addition to accepting returned out-of-warranty products, we will operate a take-back scheme to actively encourage consumers to return broken products. This involves [define activities such as awareness raising campaigns and incentives such as a voucher for new products]

Staff training, customer education, data tracking and logistics planning are critical to effectively execute the defined e-waste management process. All [company warehouse/quality centre/technical] staff are trained to safely handle and store products and e-waste in accordance with relevant international health and safety regulations and [company name’s *Occupational Health and Safety Policy*], where applicable.

## Consumer awareness and engagement

Non-functioning, out-of-warranty products have a lower return rate than in-warranty products, largely due to low consumer awareness and limited collection infrastructure. [Company name] will continue innovating customer-facing and internal solutions that will improve rates of collection.

Activities to raise non-functioning, out-of-warranty product collection rate include:

* Include disposal and recycling options on product packaging and manuals
* Provide information about warranty, recycling and disposal options at key points throughout the consumer journey (e.g. via SMS near end of warranty period)
* Provide discounts against new products when a customer returns an out-of-warranty, end-of-life product
* Include e-waste messaging within marketing campaigns and events, to promote e-waste awareness (e.g., posters, radio adverts and at community meetings)
* Create consumer e-waste champions that can advance the e-waste initiative within local communities.

*Authors should select appropriate customer activities from the list above, and add more activities in connection with raising customer awareness about of end-of-life product management. See* [*http://efficiencyforaccess.org/publications/innovations-in-off-grid-solar-e-waste-management*](http://efficiencyforaccess.org/publications/innovations-in-off-grid-solar-e-waste-management)

# Policy and process review cycle

## Process monitoring and evaluation

The e-waste process and SOPs are to be reviewed every year. The review will focus on the progress made against the e-waste roadmap (see section 2), process efficiency and applicability, roles and responsibilities, effort expended and regulatory environment. Further, the e-waste lead and responsible managers should review compliance to the process amongst operational teams.

## Policy Review

This policy shall be reviewed annually to ensure continued applicability to company ambitions, resources and operating environment. It will be reviewed earlier if there are:

* Major product updates or new product releases that affect current e-waste processes
* New legally-binding or enforced policy in countries of operation

# Distribution partners

[Company name]’s endeavours to ensure that distribution partners also have robust e-waste management in place. Where possible, we will provide advice and support to ensure that our products are responsible managed once they reach end of life. We will do this through [include activities such as providing access to tools and training material / assistance with identification of recycling partners etc.]. If we develop marketing or e-waste standards for handling [company name]’s products, this will be shared with all distribution partners to ensure all consumers will receive similar end-of-life product management.

1. Note on forecasting e-waste: Consider the sales volumes per year, expected product lifespan and repair options. [↑](#footnote-ref-2)
2. <https://www.gogla.org/sites/default/files/recource_docs/gogla-industry-opinion-on-lifecycle-and-recycling1.pdf> [↑](#footnote-ref-3)