

**SUSTAINABLE
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INDUSTRIES**

Benchmarks

Producer responsibility organisation (PRO)
financing Target setting benchmarks

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Summary

- Extended Producer Responsibility (EPR) is an environmental policy approach through which producers of products bear the responsibility for their products in the post-consumption phase. Various stakeholders are involved in the implementation of this policy through a financial mechanism.
- This document first describes multiple EPR financing options implemented in the industry, along with the types of fees, adopted basis of calculations, and unit considered in 16 countries. Highlights of the EPR system adopted in these countries are also covered.
- Secondly, the concept of collection and recycling targets is explained for the EU, India, Singapore, and Russia.
- Further, in conclusion, key findings are identified for both sections: a) the PRO financing structure depends on factors such as the legal requirements of the nation, the size and composition of the EEE market, the definition and responsibilities of producers, and the nature of the PRO system. b) The penalty in cases of non-compliance with targets should be very clearly defined

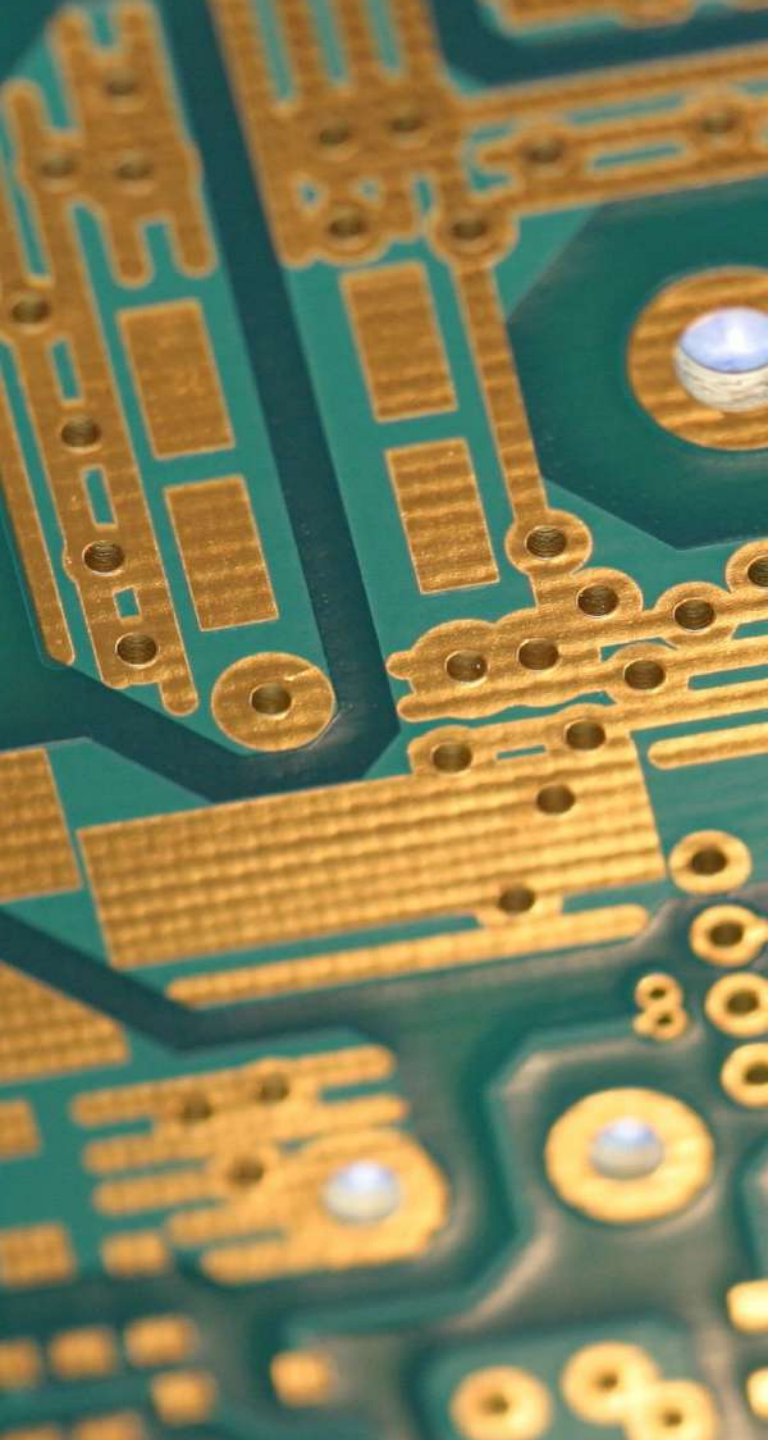
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A. PRO financing structures



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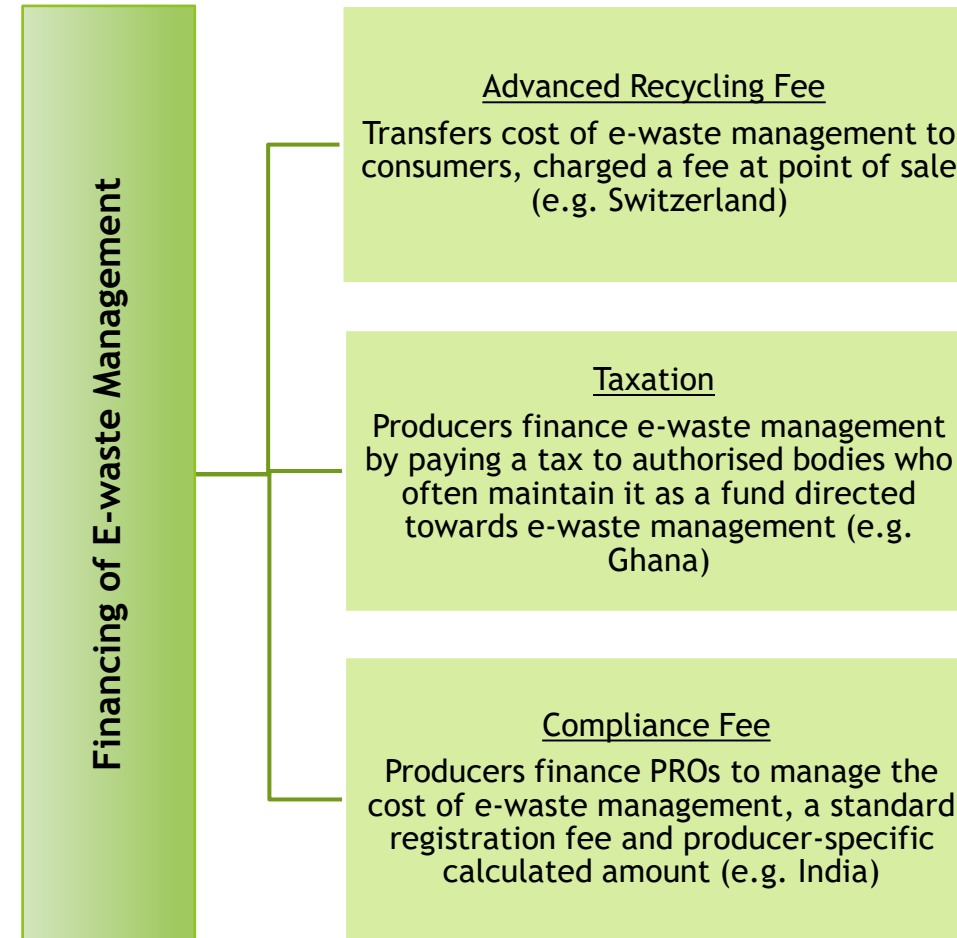
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Financing mechanism in EPR

- ▶ The responsibility for managing the E-waste may be financial or organizational for producers.
- ▶ EPR schemes have two key financial considerations:
 - Cost calculation for EoL management of EEE
 - Whether producer bears the cost individually or shared among a specific set of stakeholders
- ▶ PRO operations are financed through the fees charged to the producers as per the collective producer responsibility (CPR) agreement for the products produced by them.



Variations in EPR fees

| | Type of fee | Basis of calculation | Unit |
|---------|--|--|---|
| Options | A <i>flat fee</i> based on previous experience in collection and recycling, often updated periodically. Not linked to actual amount of WEEE processed per producer | A <i>fixed fee</i> is charged on a unit basis to the producer, usually based on EEE put on market | The unit price is <i>per tonne</i> WEEE processed or per tonne EEE put on market. May or may not vary by product category |
| | A <i>variable fee</i> based on actual amount of WEEE processed per producer, often adjusted retrospectively | The <i>fee is adjusted</i> to actual collection & recycling rates and may consider other factors like market share | The unit price is <i>per product</i> and varies by product categories |

Variations in EPR fees (1/2)

| Countries | Type of fee | | Basis of calculation | | Unit | |
|--------------------|-------------|--------------|----------------------|---------------------|--------|---------------------|
| | Flat fee | Market-based | Fixed | Actuals | Weight | Product-specific |
| Belgium | ✓ | | ✓ | | ✓ | |
| France | ✓ | | ✓ | | | ✓ |
| Ghana | ✓ | | ✓ | | | ✓ |
| India | ✓ | | ✓ | | | ✓ |
| Italy | ✓ | | ✓ | | ✓ | |
| Nigeria | | ✓ (Likely) | | (Unknown currently) | | (Unknown currently) |
| Singapore | | ✓ | ✓ | | | ✓ |
| Sweden | | ✓ (ICT only) | ✓ | ✓ (ICT only) | | ✓ |
| Switzerland | ✓ | | ✓ | | | ✓ |
| The Netherlands | ✓ | | ✓ | | ✓ | ✓ |

Note: The countries highlighted in orange colour in the table are explained with more details in the subsequent slides

Variations in EPR fees (1/2)

| Countries | Type of fee | | Basis of calculation | | Unit | |
|----------------|-------------|--------------|----------------------|---------|--------|------------------|
| | Flat fee | Market-based | Fixed | Actuals | Weight | Product-specific |
| South Africa | ✓ | | ✓ | | ✓ | |
| Turkey | | ✓ | ✓ | | ✓ | |
| Serbia | | ✓ | ✓ | ✓ | | ✓ |
| Croatia | | ✓ | | ✓ | ✓ | |
| Russia | ✓ | | | | | ✓ |
| China | ✓ | | ✓ | | | ✓ |

Note: Note: The countries highlighted in orange colour in the table are explained with more details in the subsequent slides

Belgium

- ▶ WEEE management financed through **Advanced Recycling Fees** paid by consumers at the point of sale >> *unique consumption-based system where consumers finance the part of management, helps in defining roles and responsibilities for e-waste management*
- ▶ **Recupel** is a PRO responsible for WEEE management - *subdivided into 06 main categories based on types of products and as per the categories in the European Directive 2012/19/EU*. Producers of **household appliances** are charged with an “**all-in**” contribution that covers the **costs of collection, sorting, treatment and recycling** of WEEE.
- ▶ Producers of professional EEE* only pay an **administrative cost**, covering the costs incurred by Recupel for administration and reporting but not for collection and treatment. The costs for transporting and processing these discarded professional EEE will be calculated (**on per ton basis**) when they reach the processing /recycling facility.
- ▶ Fees are calculated based on average weight, device components, collection percentage, processing technique and product service life. For professional EEE, the weight should be declared in addition to the number of items.

Note: *Professional EEE mean electronic items such as movie cameras, sound and lighting systems used for the professional work

China



- ▶ Fees paid by producers are directed towards the **WEEE Recycling Fund (taxation model)** and these funds are provided as treatment subsidies to the recyclers >> *establishes a centralized system for WEEE management*
- ▶ Recycling fees are paid to the **Customs Authority** (for importers) and to the Tax authority (Chinese EEE producers and OEM) on a quarterly basis, although not mentioned in legislation >> *finances management of imported products placed on the Chinese market by producers, establishes a fair system for all producers*
- ▶ Only authorized entities are allowed to handle WEEE with violations fined with up to Yuan 30,000 >> *ensures a fair system for all involved parties, reduces the level of non-compliance in the system*
- ▶ Exported products are exempt from fee payment >> *ensures there is no double collection of fees for producers exporting their goods, incentivizes the system for Chinese producers*
- ▶ Cashback of **up to 10%** provided to consumers in exchange for old appliances under the **WEEE buy-back program** >> *incentivizes the program for consumers, supports better collection of old EEE products*
- ▶ Treatment subsidies are provided to recyclers is estimated as per **product category on a per unit basis**, range from EUR 8.9 (TV units) to EUR 18.3 (ACs) >> *incentivizes WEEE management process for recyclers, enhances secondary product market*

Croatia



- ▶ The Environmental Protection and Energy Efficiency Fund (EPEEF)*, is at the center of the WEEE management financial mechanism, >> *establishes a centralized system for WEEE management, better monitoring and management of funds for EEE products, redirects funds for other treatment processes as required*
- ▶ Producers make **monthly payments to EPEEF (taxation model)** based on net mass of EEE manufactured or imported (expressed in kilograms) >> *covers financing of all EEE products placed on the market in Croatia*
- ▶ Individual compliance for certain WEEE categories (limited to Categories 2,3,4) for producers having a market share above 5% market in their category group and demonstrating individual fulfillment of 50% collection rate >> *ensures coverage of identified WEEE categories under the EPR mechanism*
- ▶ The unit fee for all EEE is 2.25 kn /kg (0.30 EUR/kg) >> *single unit fee for all EEE products helps streamline the waste management system*

Serbia



- ▶ Producers pay an **environmental fee “Eco-tax” (taxation model)** for **10 categories** of EEE products and **3 categories** of batteries (including imported products) >> *category-based eco-tax easier to enforce, supports capacity building of system before expanding product scope*
- ▶ WEEE fees is based on the **quantity of produced and/or imported EEE** expressed in kilograms (kg), that is, in pieces (units) and as percentage of VAT >> *supports changing product treatment costs with variable tax regimes over the years*
- ▶ Except Category 3 (ICT equipment) charged as percentage of VAT, fees is calculated on a per ton basis >> *supports financing on a per category basis (based on market share), ensures producers undertake EPR obligations depending on their product category*
- ▶ Producers calculate and pay quarterly fees to the **Ministry of Environmental Protection** which is added to the budget and used through the **Green Fund** to finance recovery and recycling of EEE products >> *decentralized system supports better fund redirection for WEEE management*
- ▶ Annual report prepared and submitted by the Environmental Protection Agency to the Ministry of Environmental Protection >> *supports better monitoring and use of fees collected from producers:*
- ▶ If quarterly amount by producers is higher than the final calculation of the fee, then overpaid fee will settle liabilities of the next period, while for lower quarterly amount, the difference is to be paid within 15 days from the day of delivery of the decision >> *creates reserves for e-waste management and establishes a fair system - producers with more products charged in the same quarter for increased amount*
- ▶ The fees range from Euro 0.52/ton of fans up to 125W to about Euro 314/ton for electric heating devices, refrigerators (selected) and washing machines (selected) >> *as per recycling and treatment costs for different product categories*

Singapore

- ▶ Started with a few selected categories >> *makes it easier to enforce; build system and improve before expanding scope*
- ▶ **Categorized into 5 categories** - Solar PV, ICT equipment, large appliances, batteries and lamps >> *accounts for size, environmental hazard and quantity*
- ▶ All producers of regulated EEE categories (over the threshold) need to **register with the National Environment Agency (NEA)** >> *sets a threshold limit to avoid undue burden on small scale producers/importers with disproportionate admin costs*
- ▶ Registered producers must **finance the Producer Responsibility Scheme (PRS)** through **membership fees and collection and recycling fees** (modulated per product category) based on their market share >> *includes fees to cover full costs for collection, transport, logistics and are market-based - those with more products on the market, pay more*
- ▶ ALBA E-waste Smart Recycling Pte Ltd. appointed by NEA as the PRS operator from 1 July 2021 to 30 June 2026 (5 years) is responsible for collection, sorting and further transporting the categorized EEE items to the licensed E-waste recyclers for regulated consumer EEE products >> *streamlines WEEE management*
- ▶ **Membership fees and collection and recycling fees** are **fixed as per product category**. Example: Collection and recycling fees for cell phones is USD 0.19/kg and USD 2.23/kg for consumer lamps >> *makes it more financially feasible as per unit fees are a negligible fraction compared to the actual product price*



Sweden



- ▶ Producers comply through PROs - **El-Kretsen** (~1400) and **EAF** (68), the rest (~200) comply through individual compliance programmes >> Provides flexibility to producers with scale for individual compliance, combined with pragmatic efficient solution of collective schemes and market competition; needs centralized agency to ensure complete coverage
- ▶ PRO - **El-Kretsen** engages all logistics and e-waste processors, paying for manned collection and has contracts with all municipalities to coordinate WEEE collection with municipal waste stream (about 1000 collection points) >> *streamlined collection and treatment system, supports better monitoring, good collection compensation for municipalities; needs existing municipal waste collection infrastructure.*
- ▶ El Kretsen charges producers an **entry fee** of SEK 3,500 (EUR 375), and **annual fee** of SEK 500 (EUR 55) >> *Low admin costs by PRO are shared by many therefore make it attractive*
- ▶ Differentiated fees: **fixed fees per unit** is collected on a monthly basis following sales reports by producers; for **ICT equipment**, real cost for collection and treatment is calculated each month and this is divided among suppliers according to market share >> *fixed fees are easier to administer and provide predictability to producers; real cost based fees reflect cost of treatment and revenues*

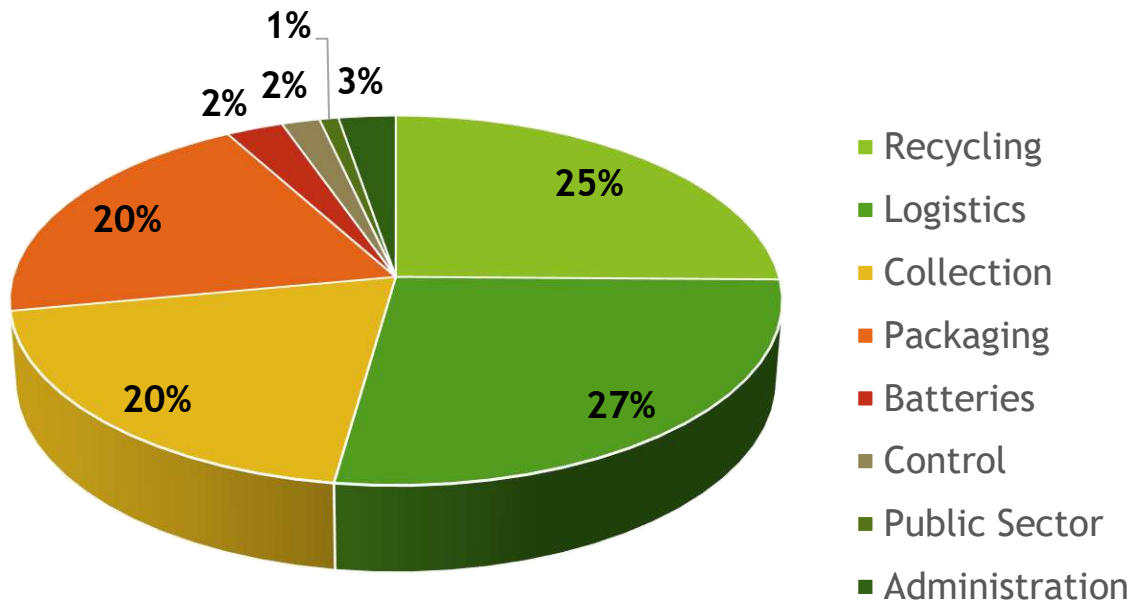
Switzerland



- ▶ WEEE management financed through **Advanced Recycling Fees** paid by consumers at the point of sale >> *simple to administer, directly linked to sales and market share.*
- ▶ ARF is recalculated every year, and set for the year >> *provides predictability for the year, and adaptability to changes in costs.*
- ▶ Two PROs responsible for WEEE management - SWICO and SENS with the collection stream for each PRO being product-dependent; SENS focuses on EEE waste from households and SWICO manages ICT waste >> *provides balance and reduces systemic risk and overdependence on one single entity responsible for WEEE management*
- ▶ Joint technical commission of PROs, government agencies and technical experts sets technical standards for recycling>> *ensures high quality of recycling*
- ▶ PROs invite recyclers meeting technical standards to bid for contracts >> *provides PROs and producers with competitive prices without creating a race to the bottom*
- ▶ Contractual agreements with recyclers are indexed to commodity prices and renewed every two years competitively >> *provides assurance to recyclers to make investments yet not complacent*
- ▶ Strong audit framework >> *provides trust and transparency*

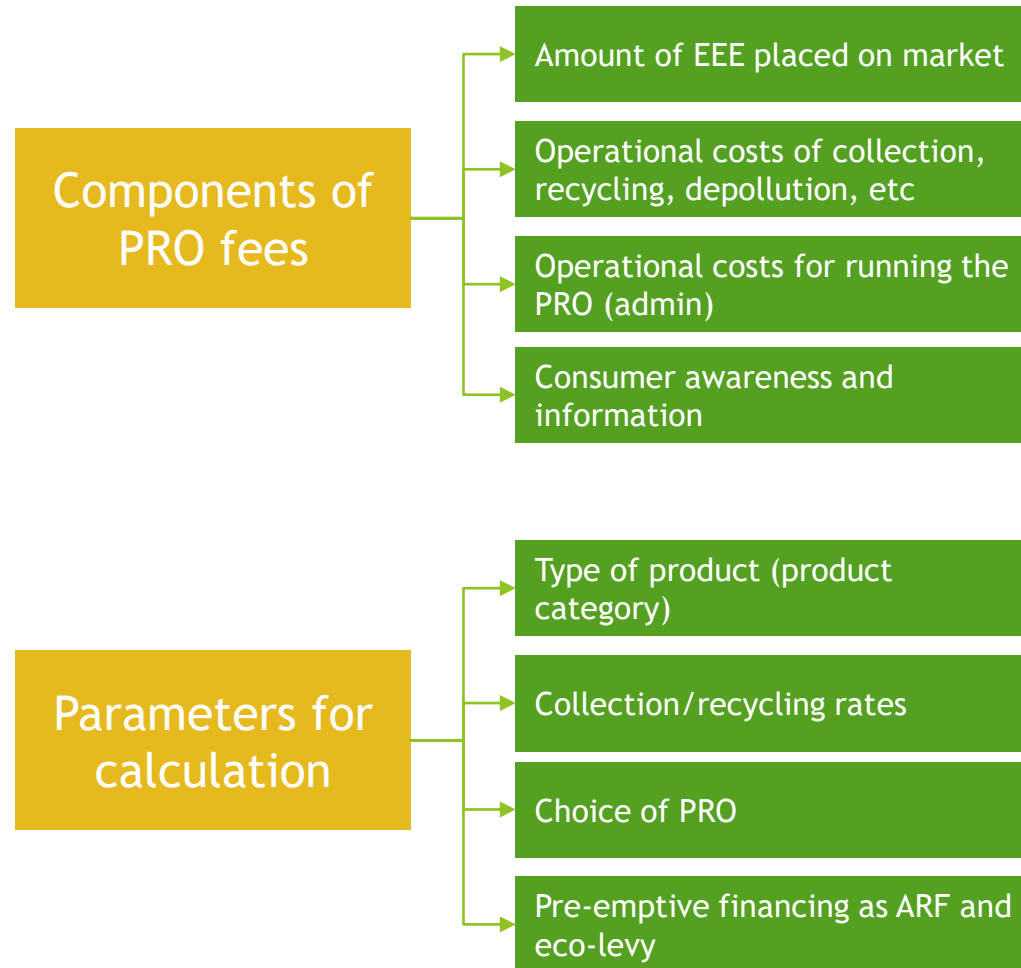
EPR Fees: Zooming in

Percentage of Total Cost



- ▶ The percentage breakdown of the total cost for each stage of WEEE management in Switzerland has been presented here.
- ▶ 80% of the total costs for management is directed towards recycling, logistics and collection
- ▶ Administration and audit costs are minimal
- ▶ The recycling costs are variable based on commodity prices- if prices are high, recycling costs for the PRO are low, if commodity prices fall, recycling costs for the PRO increase
- ▶ Collection and logistics are expensive in Switzerland due to high labor costs involved

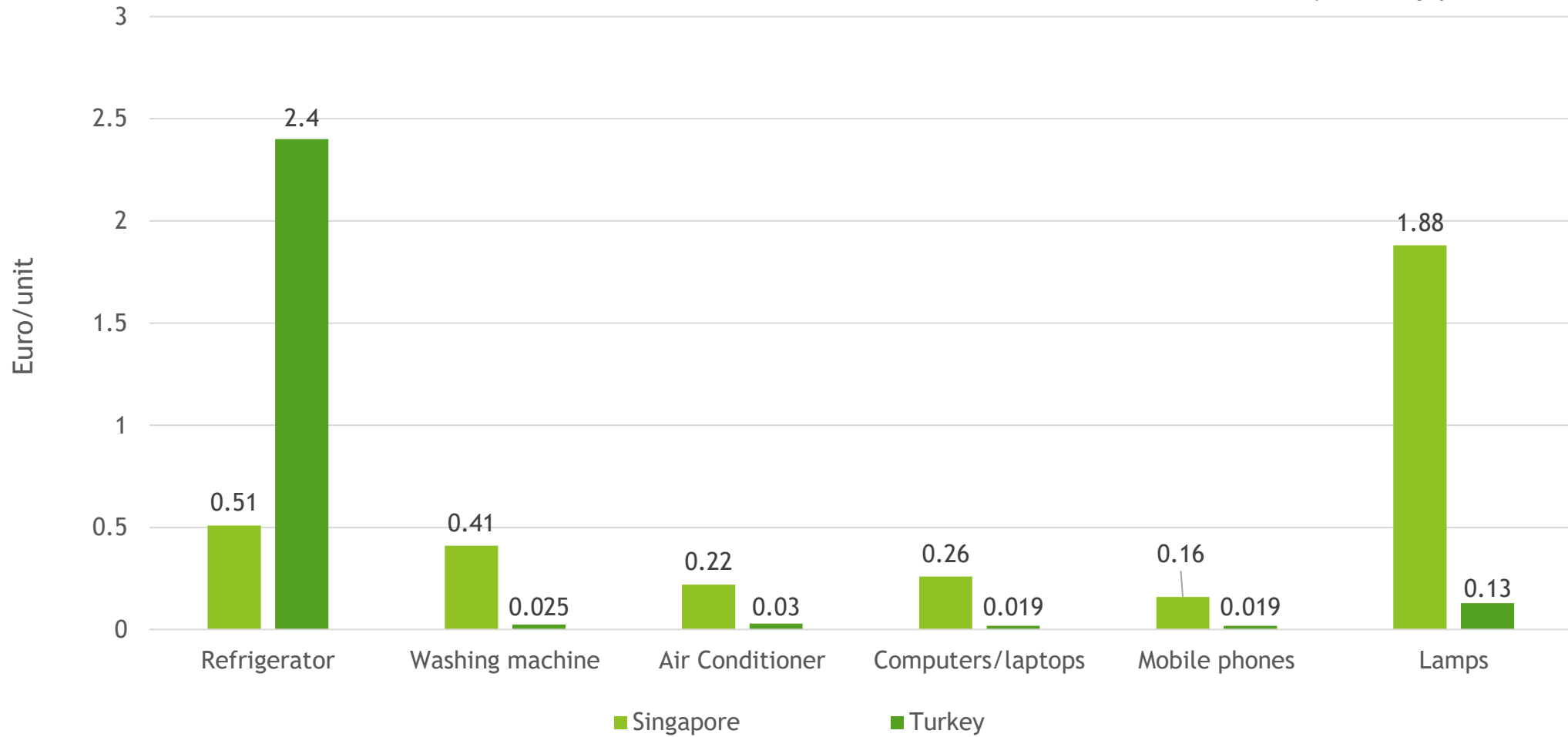
Calculation of EPR Fees



- ▶ Generally, the PRO fees covers operational costs of collection, removal, depollution and recovery of WEEE - especially in the case of the EU
- ▶ Outside of the operational costs of the system, there is little agreement on whether producers should pay for activities such as PRO promotion & customer acquisition - especially among for-profit PROs
- ▶ In Nigeria, upcoming policies identify the operational costs of running the PRO as a distinctive element of the EPR fees
- ▶ In Switzerland, the PRO is currently chosen based on product category along with the option of direct take-back to the OEMs, a draft amendment is replacing the voluntary activity of PROs into a mandatory one
- ▶ In Ghana, an “eco-levy” fee is paid by the producers/importers at the time of importing EEE, the fee collected is sent to a dedicated e-waste management fund

Product-based fees - a comparison

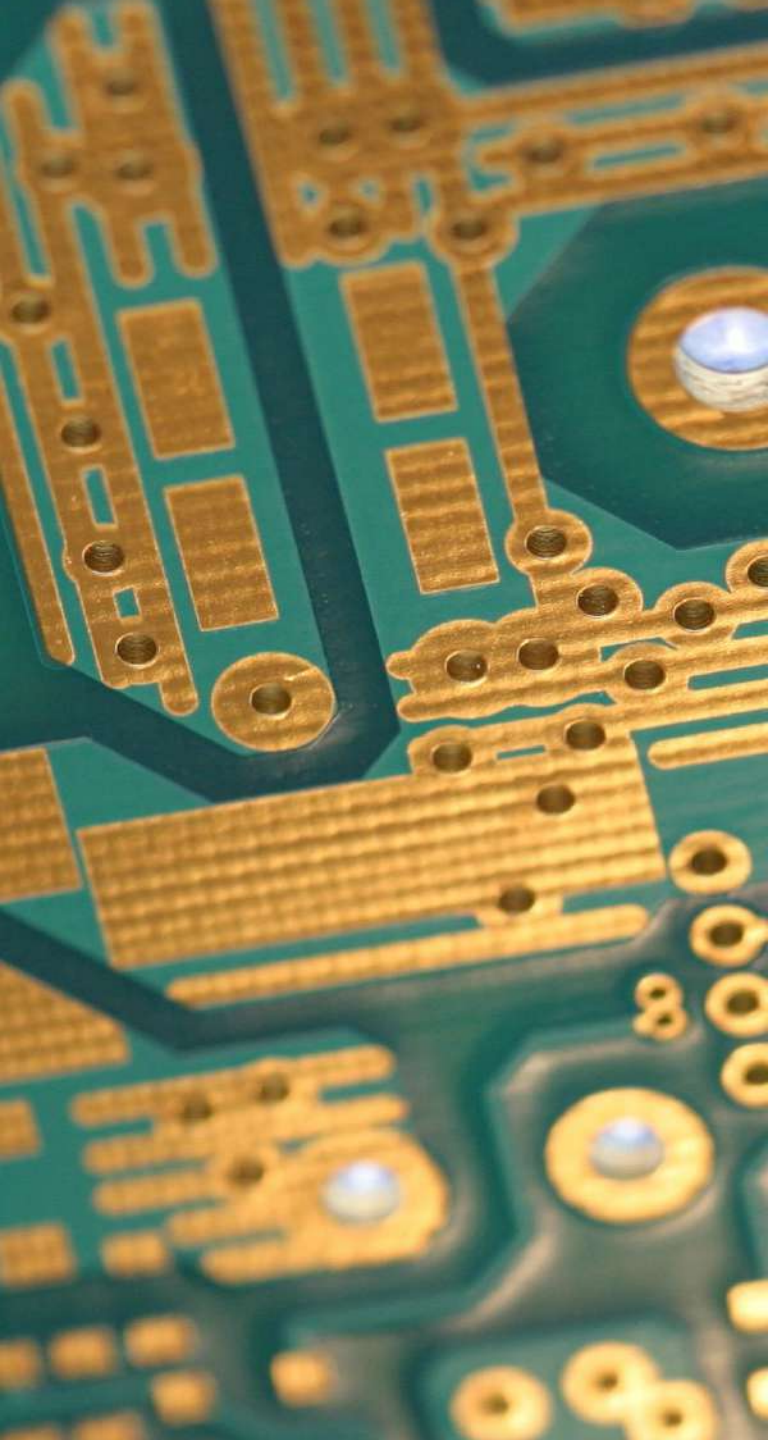
Comparison of product-based in Turkey and Singapore



Lessons/ key messages for EPR financing

- There is no single best EPR fee structure or ‘best practice’
- PRO financing structures vary depending upon specific features of the collective EPR system
- Some of the determining factors:
 - Legal / regulatory requirements
 - Size & composition of the EEE market
 - Scope of products handled by the PRO
 - Definition and responsibilities of producers (brand owners/ importers/manufacturers)
 - Who is considered a producer in the country’s legislation?
 - What activities are producers expected to fund?
 - Nature of the PRO system
 - Nature of PRO’s business
 - Is it profit-making or not-for-profit?
 - Is it a single PRO or composed of Multiple PROs?
 - Roles and responsibilities of the PRO as outlined in policy
 - What are legislation-mandated activities for the PRO to carry out?
- Financing structures
 - PROs evolve and adapt their financing structure - does not have to remain the same; important to build in mechanism for change
 - The same PRO can have different financing structures for different products





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B. Target Setting



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Overview of target-setting

The introduction of formal WEEE management systems across the world have provided some key lessons in terms of how collection and recycling targets are set:

- The basis of target-setting is very important
 - Experience from the EU WEEE Directive >> Shift from a per-capita basis to a share of POM basis
 - Various options are available for the basis: EEE POM, WEEE generation rate, market share of producers, etc
- Targets are phased
 - In most countries targets increase incrementally year-to-year. Upcoming legislations (like Nigeria) also differentiates between short-, medium-, and long-term targets
- Targets need to incorporate periodic checks and course corrections
 - Changing the scope and definition of targets has taken place in many contexts like the EU and India >> the experience of implementation may be significantly different from what was planned in the legislation
 - This possibility of change should ideally be accounted for in legislation



In-focus: EU (Belgium, France, Italy, Switzerland, The Netherlands)

- The recast Directive (2012/19/EU), 2012, introduced higher collection target to be achieved in a phased manner from 2016 and 2019. The **collection target was kept at 45%** of EEE POM calculated on the basis of:
 - Total amount of WEEE collected
 - Average weight of EEE POM in the three preceding years
- The **collection rate** equates to the actual quantities collected by a Member State divided by either the average weight of EEE POM in the three preceding years or the WEEE Generated. The collection rate is an indication of the progress made toward achieving the collection target.
- From 2019, the collection target was increased to
 - 65% of EEE POM
 - 85% of WEEE generated in the territory of the Member State
- The member States have the choice to select the recycling target that they wish to report/comply with.
- The targets, as set by the methodologies given in the WEEE Directive for **WEEE Generated and EEE POM**, are not equivalent and this difference leads to a lower EEE POM target.
- Switzerland at a 68% collection rate has been able to comply with the target of 65%. None of the EU member states have been able to comply with the higher 85% of WEEE generated target.

In-focus: India

- The targets set by the E-waste Management Rules, 2016 were relaxed by an amendment in 2018. In the 2016 rules, the expected collection for the first two years rate was 30% of WEEE generated, with a 10% increase thereafter for every two years. The amended collection targets are:

| Year | Revised E - Waste Collection Target (Weight) - 2018 |
|--------------|--|
| 2017-2018 | 10% of the quantity of waste generation as indicated in EPR Plan |
| 2018-2019 | 20% of the quantity of waste generation as indicated in EPR Plan |
| 2019-2020 | 30% of the quantity of waste generation as indicated in EPR Plan |
| 2020-2021 | 40% of the quantity of waste generation as indicated in EPR Plan |
| 2021-2022 | 50% of the quantity of waste generation as indicated in EPR Plan |
| 2022-2023 | 60% of the quantity of waste generation as indicated in EPR Plan |
| 2023 onwards | 70% of the quantity of waste generation as indicated in EPR Plan |

- The 2018 Amendment also provides separate targets for producers/importers, who have recently started their operations—whose number of years of operations is lesser than the average life of the product they are selling. These are based on sales figure, and start with a 5% target in 2018-2020, increasing by 5% every two years
- The annual collection target per EEE code is set every 5 years in the ‘EPR Authorisation’ of each individual producer. The target for the upcoming 5 years is set as a percentage of ‘e-waste generated’. (E-waste generated is calculated based on POM)

In-focus: Singapore (1/2)

- ▶ NEA has set collection targets for producers who go beyond the threshold limit set for the various product categories.

| Product Category | Product type | Collection Target |
|----------------------|------------------------------|----------------------|
| ICT Equipment | Printers | 20% of POM by weight |
| | Personal computers/laptops | |
| | Mobile phones/tablets | |
| | Routers/Modems/Set-top boxes | |
| Large appliances | Refrigerators | 60% of POM by weight |
| | Air conditioners | |
| | Washing machines | |
| | Dryers | |
| | Television | |
| | EMDs | 20% of POM by weight |
| Lamps | All types | 20% of POM by weight |
| Batteries (Portable) | All types | 20% of POM by weight |

In-focus: Singapore (2/2)

- The contribution of the producer share for e-waste management is in proportion to their market share
- All producers of non-consumer EEE, including commercial and industrial equipment in B2B transactions, are mandated to provide free take-back for the clients upon request. The threshold for producers of such equipment is not considered in this system
- To support the transition, no penalties for missing enforcement targets would be applicable in the first 3 years.
- To improve the collection rate, retailers of large EEE with EEE sales area above 300m² are required to set up in-store e-waste collection points for ICT equipment, lamps and batteries, and ensure the e-waste is properly treated by licensed e-waste recyclers or the PRO.
- The scope of the covered product categories was extended to electric mobility devices (EMDs), including Personal Mobility Devices (PMDs), Power Assisted Bicycles (PABs) and Electric Mobility Scooters (EMS)

In-focus: Russia

- ▶ Russian Nature Control (RosPrirodNadzor, RPN) sets the collection and recycling targets for producers and importers.
- ▶ The collection targets are computed with the **EEE products POM** for each producer based on a per unit or per product basis depending on product category; targets are expected to be increased by 10% every year from 2022 until it reaches 100%
- ▶ For all EEE products, collection targets of 5% were applicable from 2017 to 2018, after which 10% was applicable for 2019 and 15% for 2020 (except for wires and cables)

| | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|------|------|------|------|------|
| Computers and peripheral equipment, office equipment | 5 | 5 | 10 | 15 | 15 |
| Monitors, TV receivers | 5 | 5 | 10 | 15 | 15 |
| Communication equipment | 5 | 5 | 10 | 15 | 15 |
| Household electronic appliances | 5 | 5 | 10 | 15 | 15 |
| Optical and photographic equipment | 5 | 5 | 10 | 15 | 15 |
| Wires and cables | 5 | 0 | 5 | 10 | 10 |
| Electrical lighting equipment | 5 | 5 | 10 | 15 | 15 |
| Household electrical appliances | 5 | 5 | 10 | 15 | 15 |
| Industrial refrigeration and ventilation equipment | 5 | 5 | 10 | 15 | 15 |

Target setting - lessons learnt

- ▶ Most of the countries determine the targets based on the total amount of WEEE generated or the amount of EEE placed on the market by producers. Lack of data availability is a major hurdle to set and monitor targets. >> **strong baseline, based on internationally accepted methodologies, needed on what is put on market, product lifetimes and WEEE generated**
- ▶ Several countries have set targets that increase gradually, often based on consultative process >> **provides the time for system to adapt and allow stakeholders (both regulators and producers) to plan in compliance**
- ▶ Differentiated targets for different product categories based on product attributes >> **takes into account the difference in cost of collection and market realities of collecting small vs large appliances for example**
- ▶ Targets should be set in **alignment with potential for compliance** and sufficient to **incentivize system development** >> **Setting too high compliance targets creates incentives for cheating; too low does not provide incentives for recycling**

