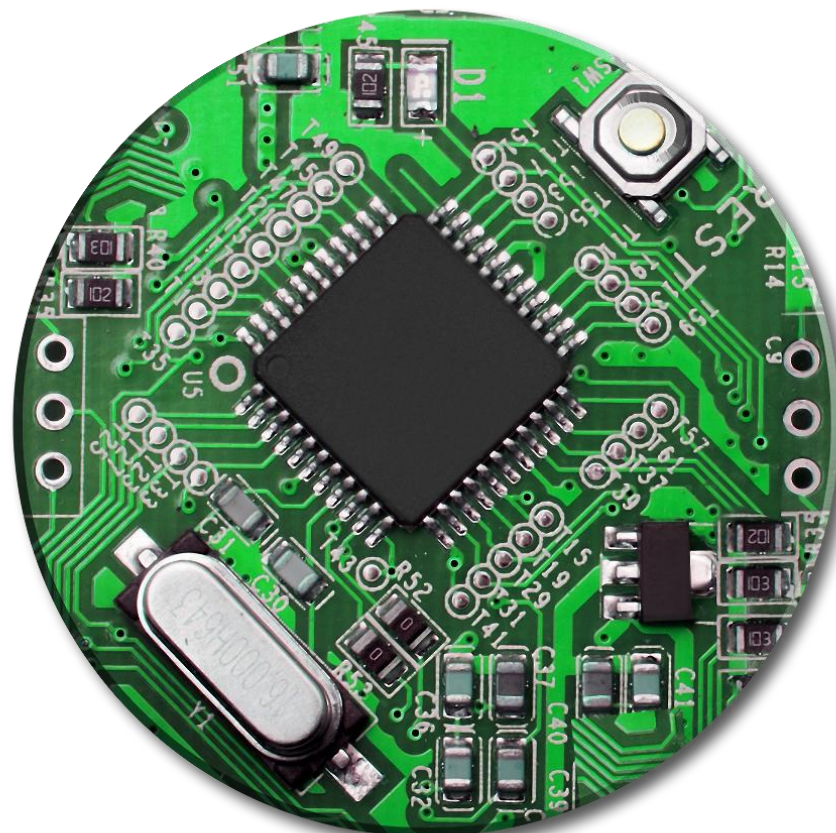




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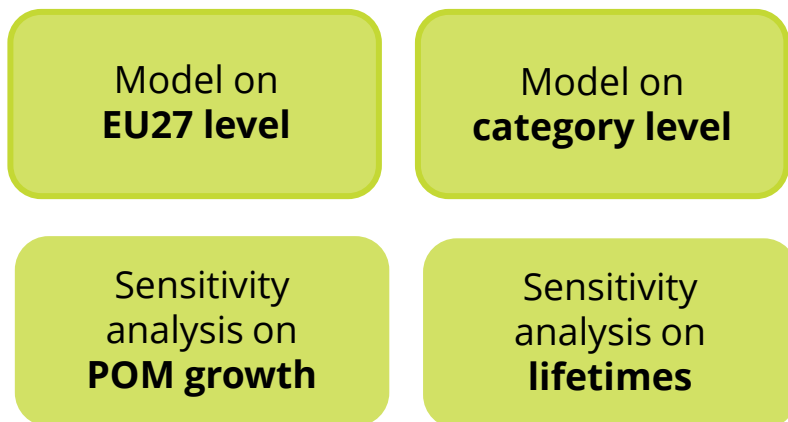
Study: towards more meaningful and robust WEEE management targets that foster circularity in the EU economy

Congreso Nacional RAEE

Ambitions and approach of the study

The goal of the study is to propose a new realistic approach to set WEEE management targets within the EU that also fosters circularity

Evaluation of existing collection rate calculation methods



Exploring alternative WEEE management target methods

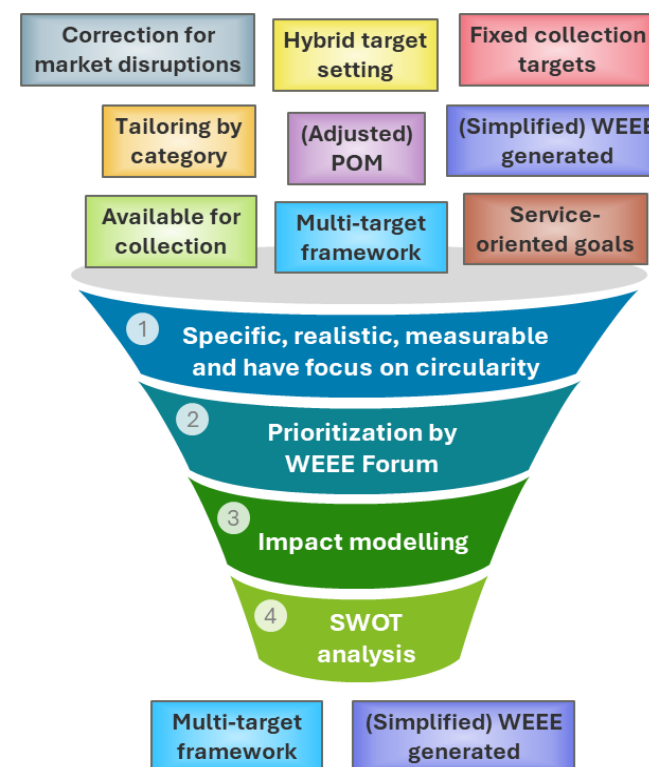


Table of Content

1

INTRODUCTION

2

**EVALUATION OF EXISTING COLLECTION RATE
CALCULATION METHODS**

3

**EXPLORING ALTERNATIVE WEEE MANAGEMENT
TARGETS**

4

RECOMMENDATIONS FOR A NEW WEEE ACT

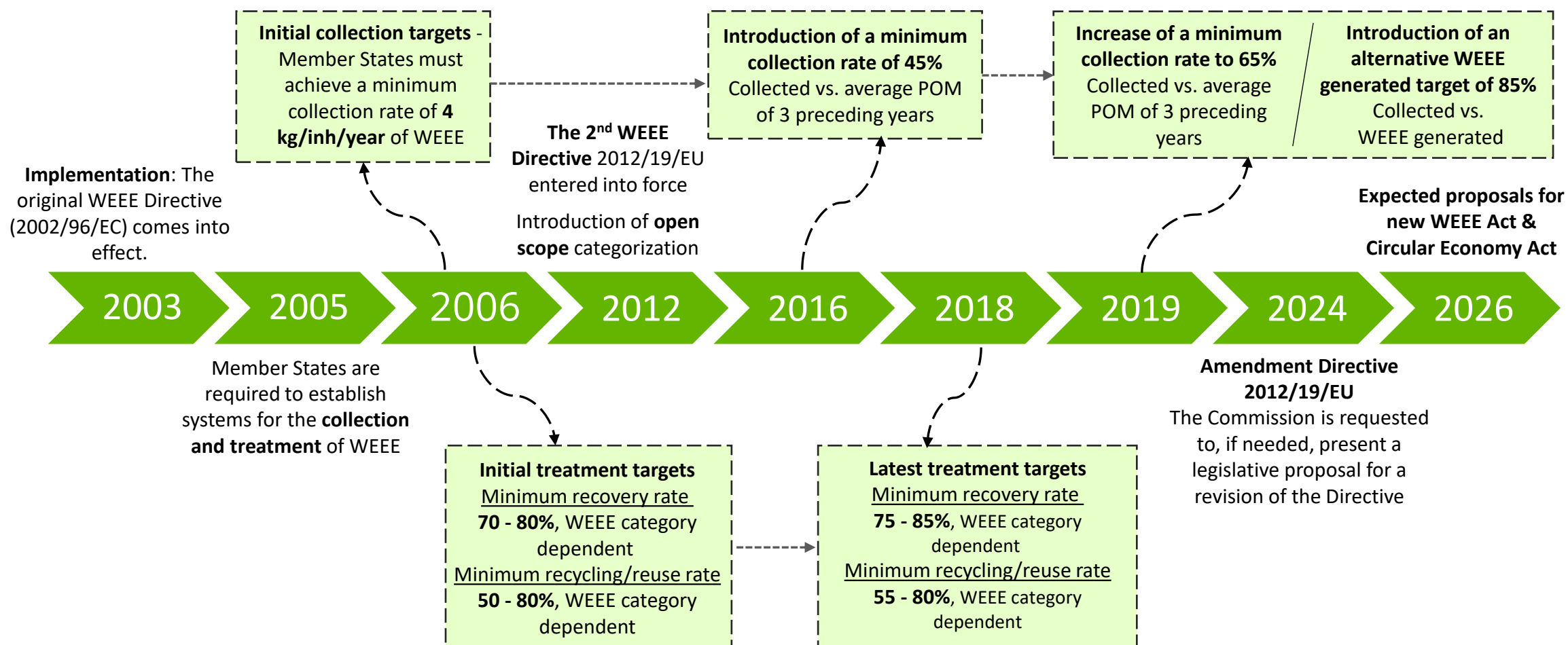




INTRODUCTION

The history of the WEEE Directive

The EU introduced the extended producer responsibility principle and placed targets on collection, recovery and recycling of WEEE



Collection targets

With the introduction of the 2nd WEEE Directive (2012/19/EU), the EU introduced two different collection targets

Put on market (POM)

Formula



Weight WEEE collected



Average weight EEE POM
in 3 previous years

Calculation method



WEEE collected (Y) X 3



EEE POM (Y-3) +



EEE POM (Y-2) +



EEE POM (Y-1)

Strengths and weaknesses

- + Simple calculation method
- + No need of EEE lifetime data

- The calculation does not match reality, resulting in unfair targets to achieve
- The average lifetime of EEE products is >10 years

WEEE generated

Formula



Weight WEEE collected



Weight WEEE generated

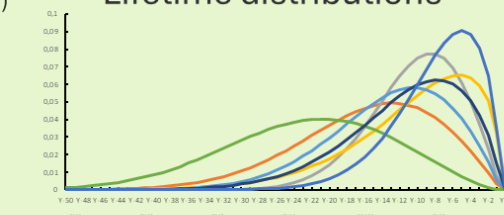
Calculation method (WEEE generated)



Historic weights
EEE POM

X

Lifetime distributions



Strengths and weaknesses

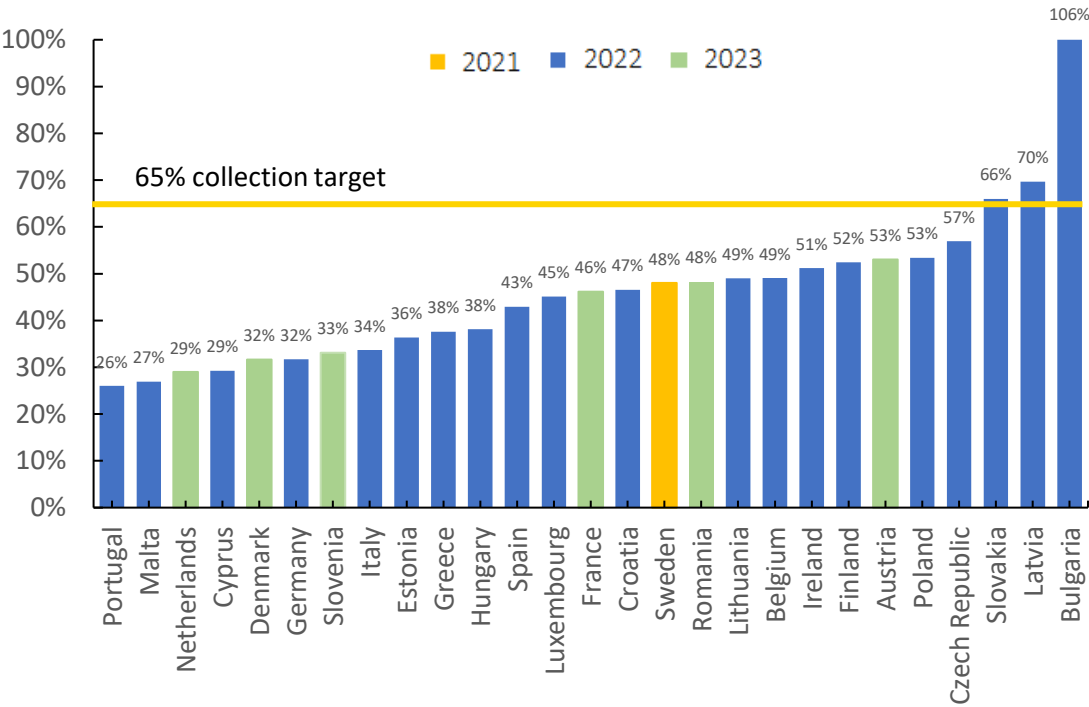
- + More robust and realistic calculation method
- + Considers EEE lifetimes and market shares

- A data model is required to perform the calculations
- Regular lifetime and market share screening of EEE products is required

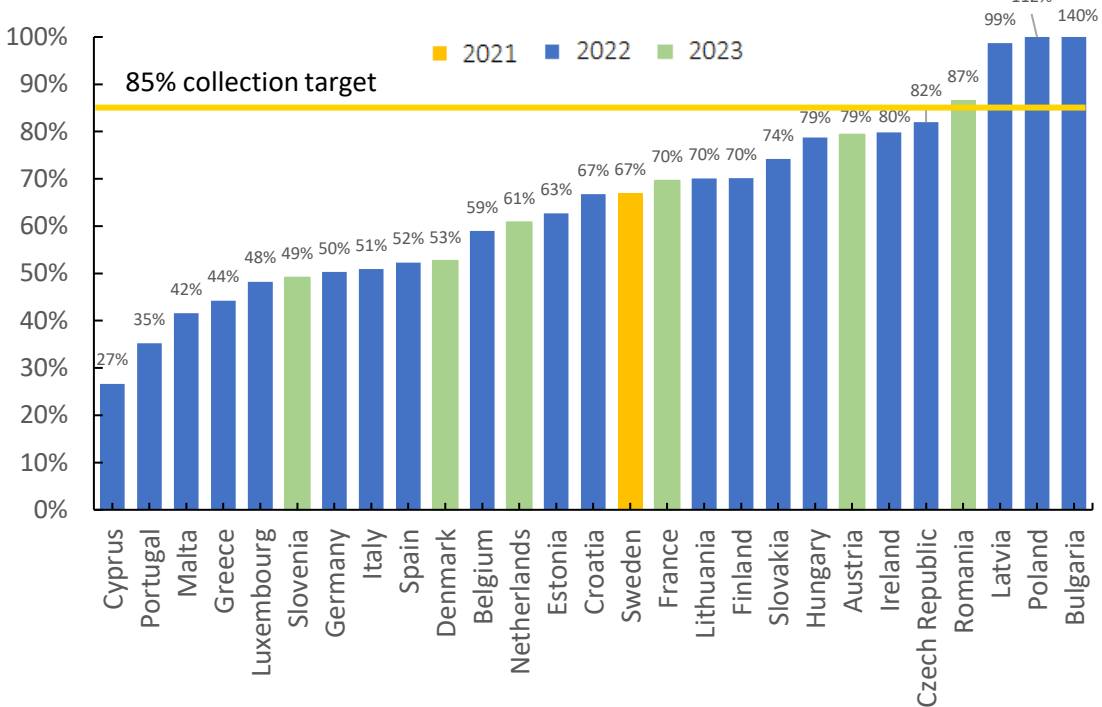
Collection results (2021-2023)

Only a few Member States are able to achieve the current collection targets. Most Member States are being confronted with infringement procedures of the EU.

POM collection rates



WEEE generated collection rates



Only three countries surpassed the collection targets for both POM and WEEE generated methods in 2022, highlighting the challenges most EU nations face in meeting WEEE collection goals.

In July 2024 the EU addressed most Member States for not achieving their collection rates in their **infringement package**

Ambitions and approach of the study

The goal of the study is to propose a new realistic approach to set WEEE management targets within the EU that also fosters circularity

Evaluation of existing collection rate calculation methods

Model on
EU27 level

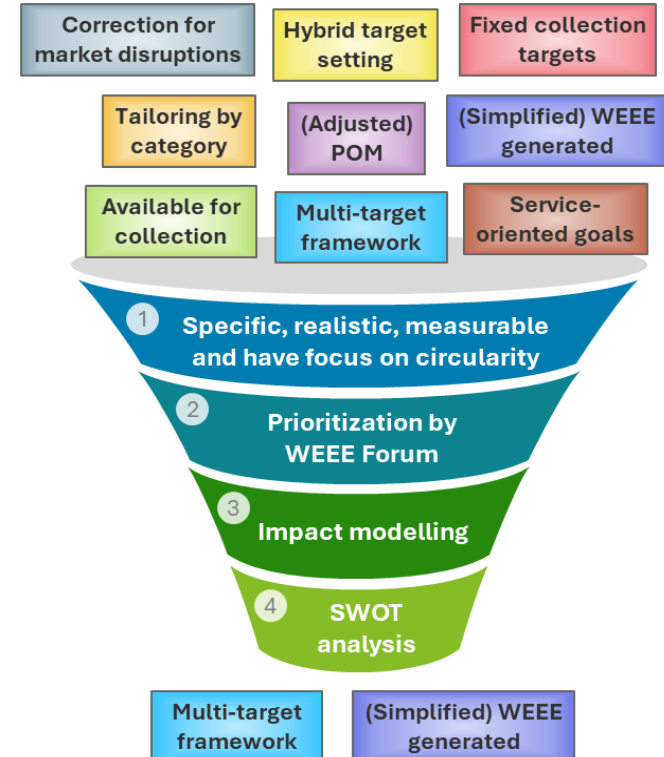
Model on
category level

Sensitivity
analysis on
POM growth

Sensitivity
analysis on
lifetimes



Exploring alternative WEEE management target methods



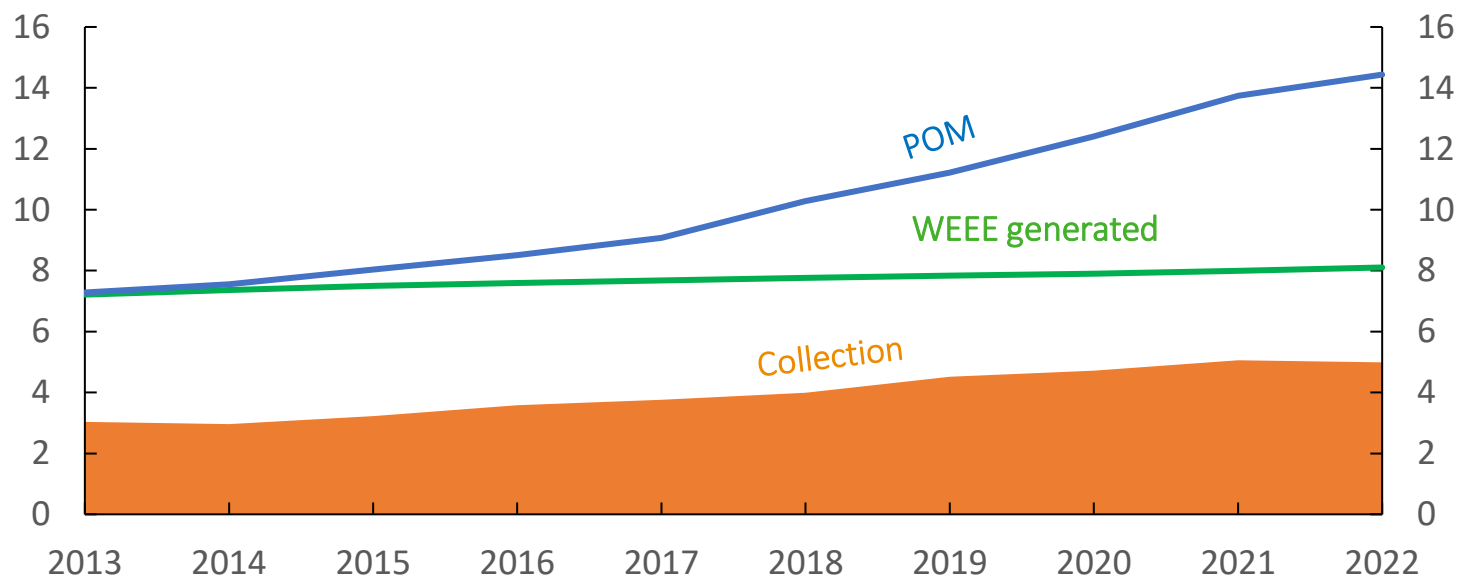


EVALUATION OF EXISTING TARGETS

POM, WEEE generated and collection quantities at European Level

While a lot more EEE is being placed on the market, the long EEE lifetimes result in only a slight increase of WEEE that is currently generated

Quantities (in Mt), EU27



POM data*: EUROSTAT, WEEE forum, WEEE generated tool

Collection data*: EUROSTAT, WEEE forum

**in priority order*

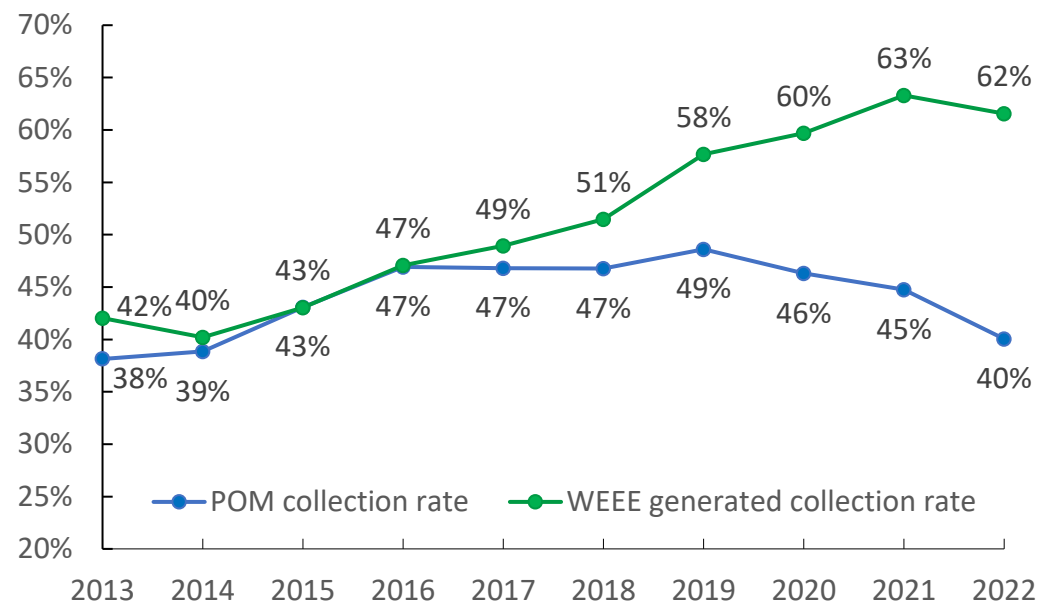
POM volumes experienced a significant increase from 2013 till now (98%). In contrast to POM, the calculated WEEE generated volumes have remained relatively stable from 2013 to 2022, with only a slight increase (12%).

In contrast to the WEEE generated quantities, the **collection quantities did increase** significantly between 2013 and 2022 (65%).

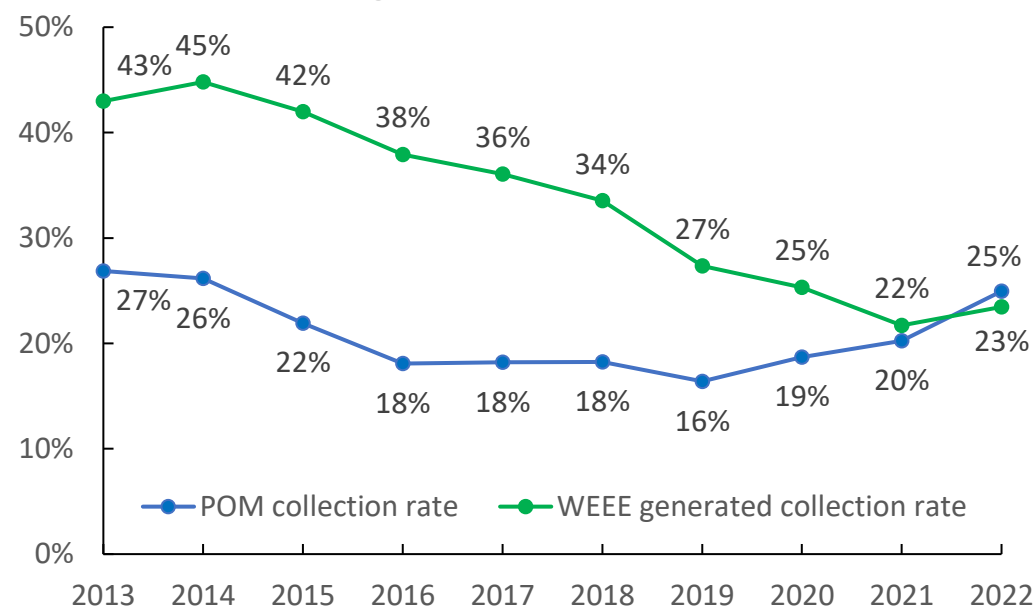
Collection rates based on POM and WEEE generated method

The current POM collection rate calculation does not reflect reality, which is that the collection results have improved significantly over the past ten years

Collection rates, EU27 (%)



Distance to the EU target, EU27 (%)



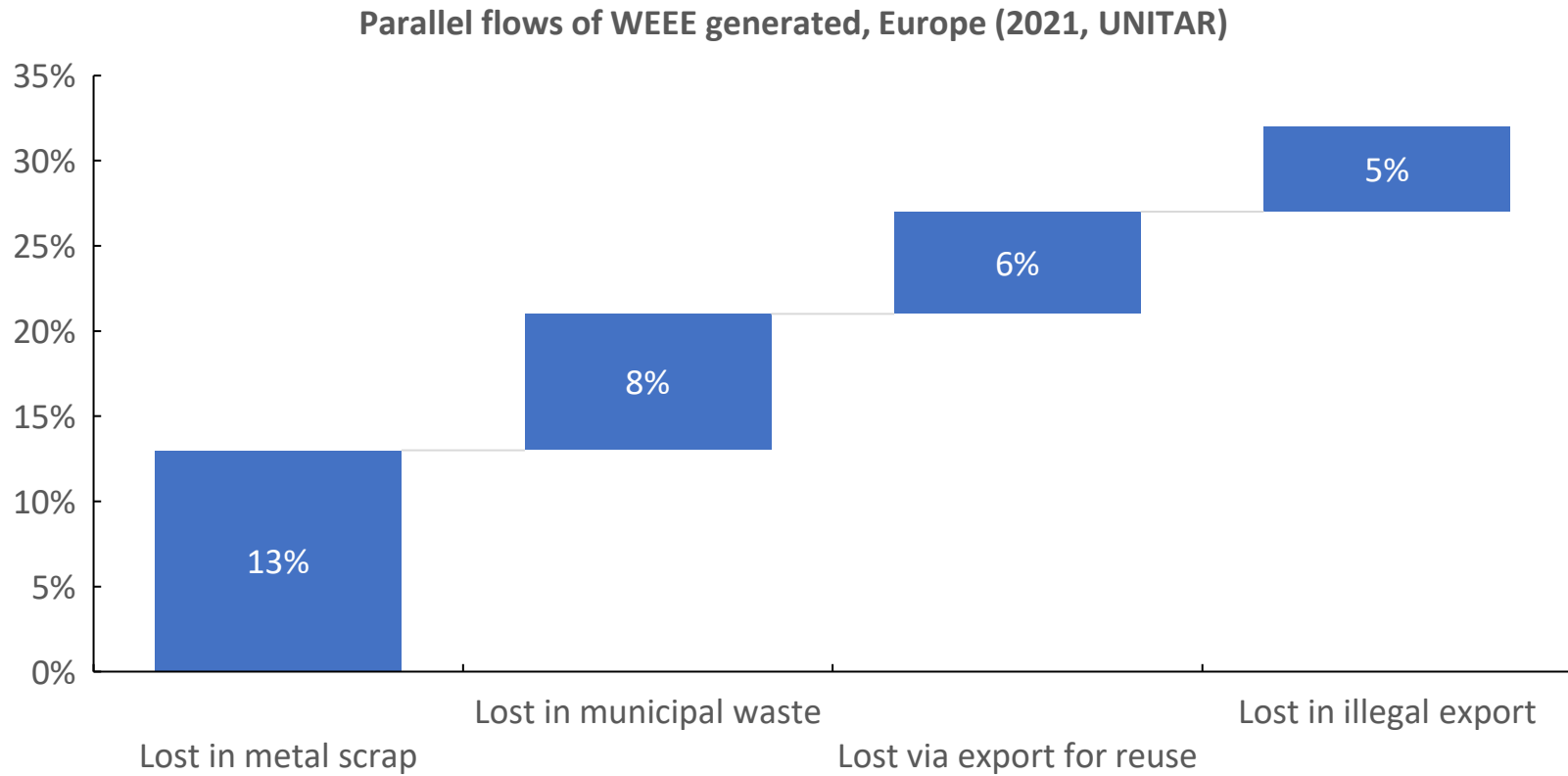
The low POM collection rate is due to the **strong increase in quantity of EEE POM** over the last decade in combination with the **long average lifetime of EEE***, while the current POM calculation method only considers the average POM of the previous three years

The continued use of this method is therefore worrying as it is already causing infringements from the Commission to Member States, who may face **penalties** because of this.

*14,5 years based on the category lifetime values of the WEEE generated calculation in combination with the category weight distributions in the POM volumes

Parallel flows

A substantial amount of WEEE is not captured in the formal collection systems, making the 85% WEEE generated target difficult to achieve



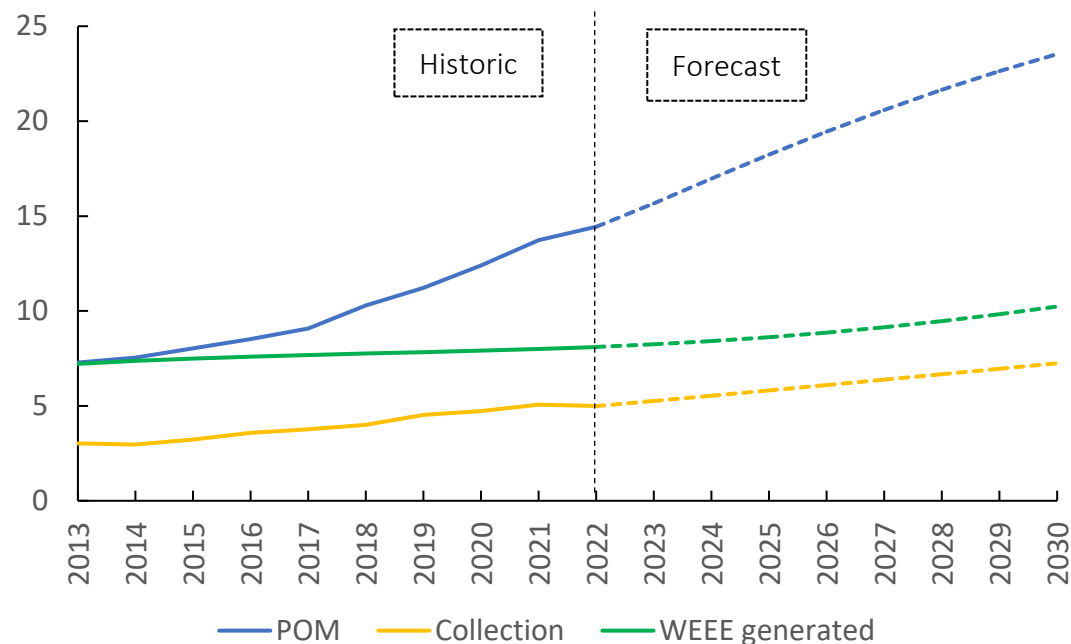
Other potential losses:

- Incidents (e.g. fires)
- Mixed with other waste streams

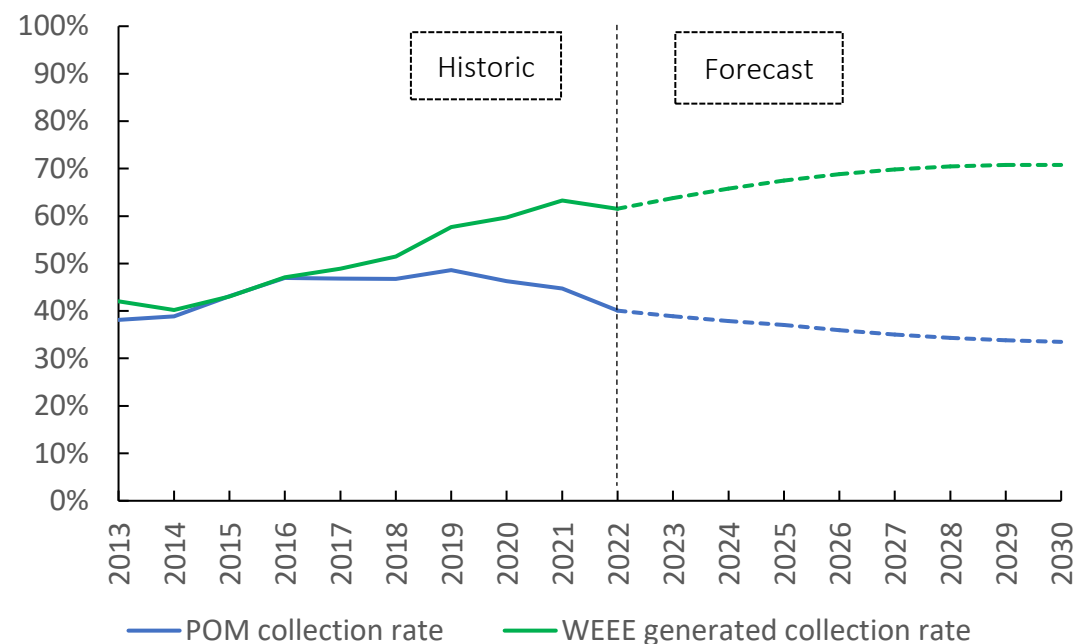
Forecasted collection rates on EU27 level

The WEEE generated method better aligns with the historic reality and the intuition of what will be reality

Quantities (in Mt)



Collection rates (%)

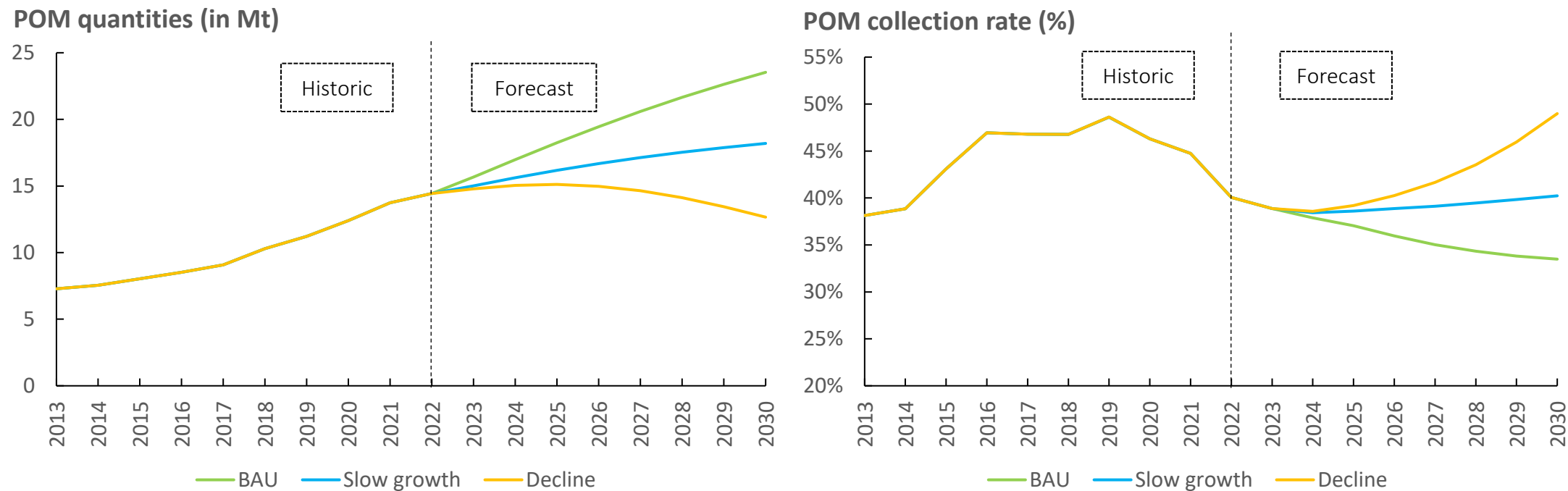


The POM collection rate could further decline in the coming years because it only considers the average POM quantities of the three preceding years.

In contrast, when using the **WEEE generated method** the projections forecast, in line with the historic trend, a **continuous increase** of the collection rate until 2030

Sensitivity analysis on POM quantities evolution

A sensitivity analysis investigates the impact of different future POM quantities evolution scenarios

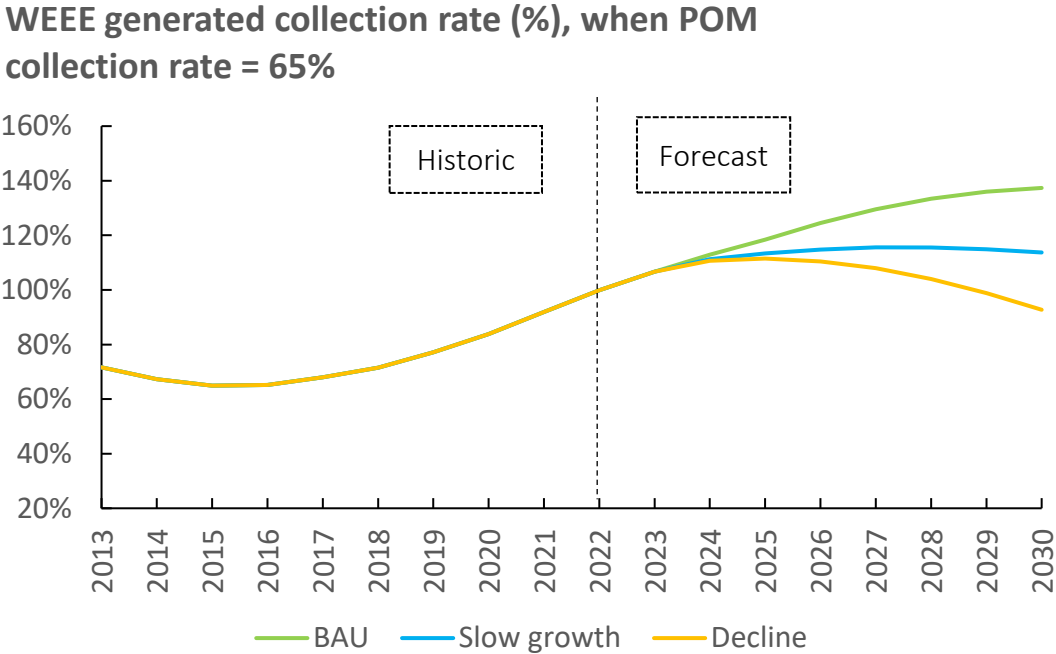
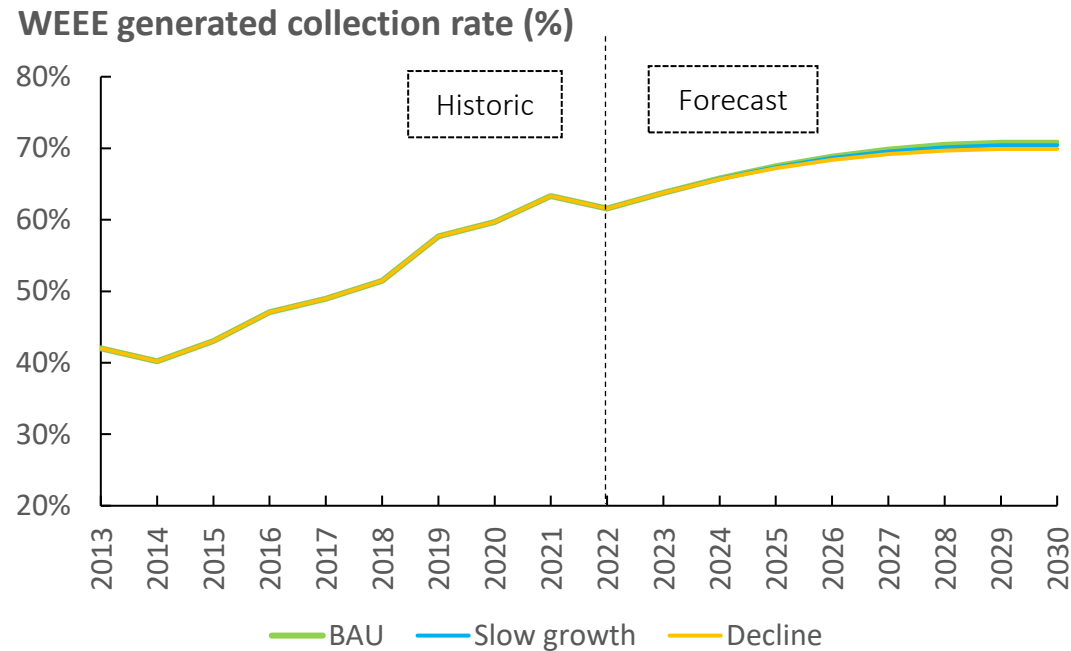


Yellow scenario assumes a peak in POM quantities by 2024 and a soft decline by 2030. The blue scenario considers a slower growth of POM quantities

By 2030, the variation in POM collection rates reaches approximately 15%, which means that **the evolution of POM quantities significantly influences the POM collection rate**

Sensitivity analysis on POM quantities evolution

It is clearly unrealistic to achieve the POM collection target, mainly due to the fact that this method is not considering the long lifetimes of EEE products



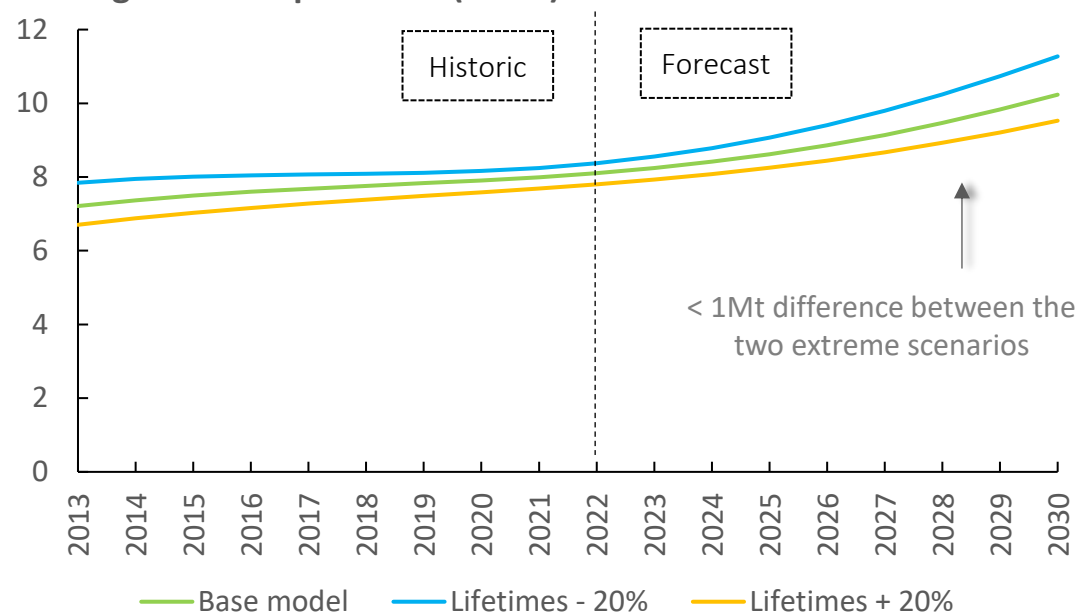
In contrast, the variation in WEEE generated collection rates remains below 1% demonstrating that **the WEEE generated collection method is largely unaffected by the evolution of the POM quantities**

The WEEE generated collection rate that should be achieved for meeting **the current POM collection target of 65%** becomes **unrealistically high** (For BAU, it already exceeds 100% in 2022 and increases to 137% by 2030)

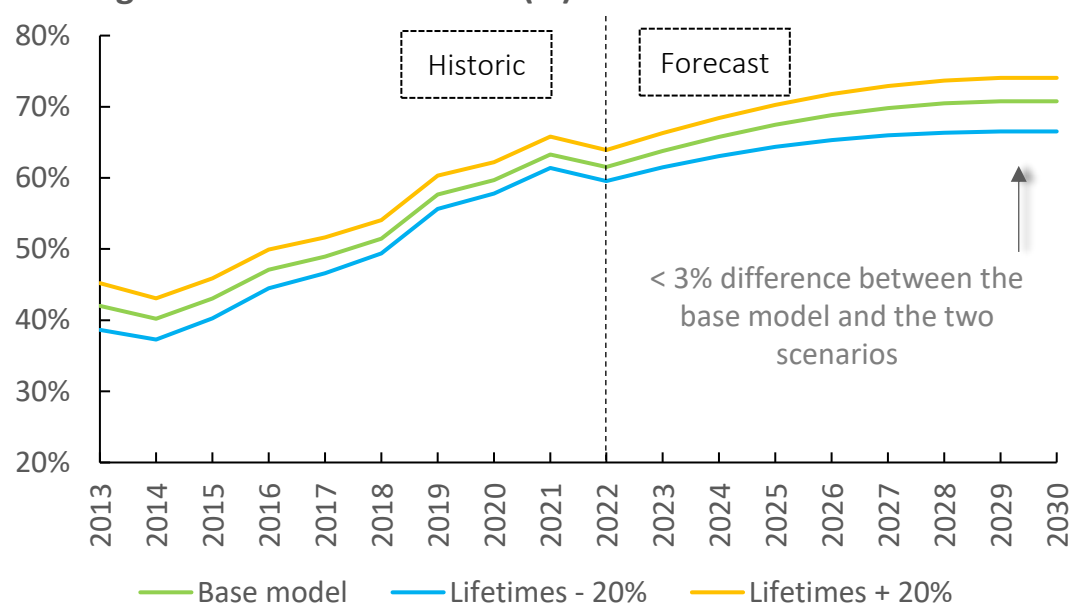
Sensitivity analysis on EEE product lifetime

Even with incomplete knowledge on product lifetimes, the WEEE generated calculation method yields results that are more robust than the POM calculation method

WEEE generated quantities (in Mt)



WEEE generated collection rate (%)



In both figures, the three lines follow the same trend, with the distance between them remaining relatively constant

This indicates that while **product lifetime variations influence WEEE generation** and collection rates, the **overall impact remains limited** within the examined scenarios

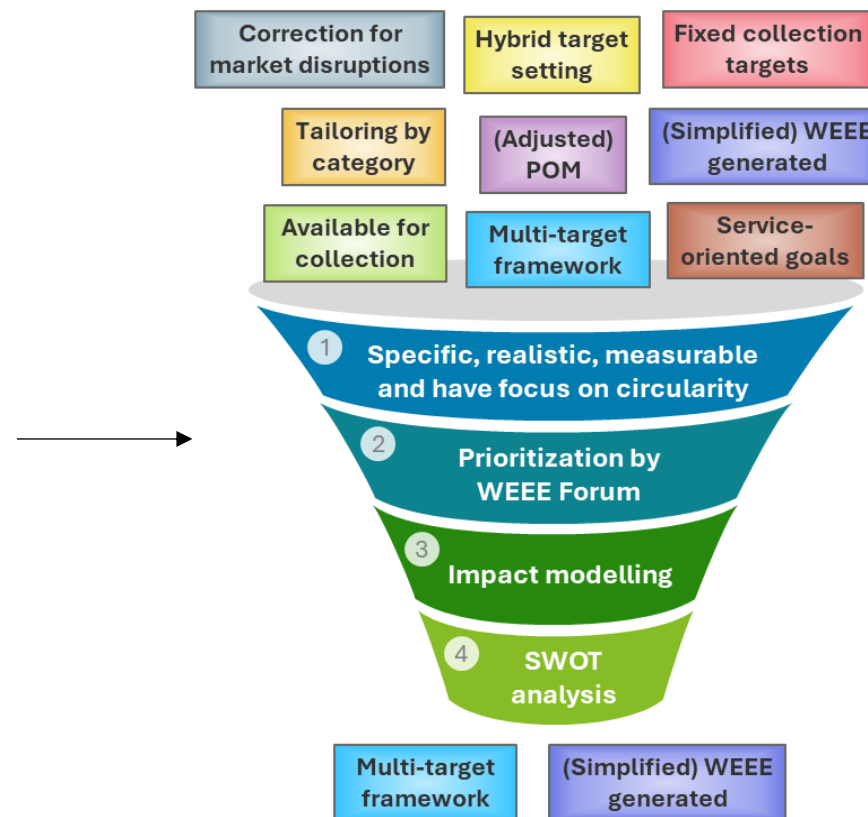
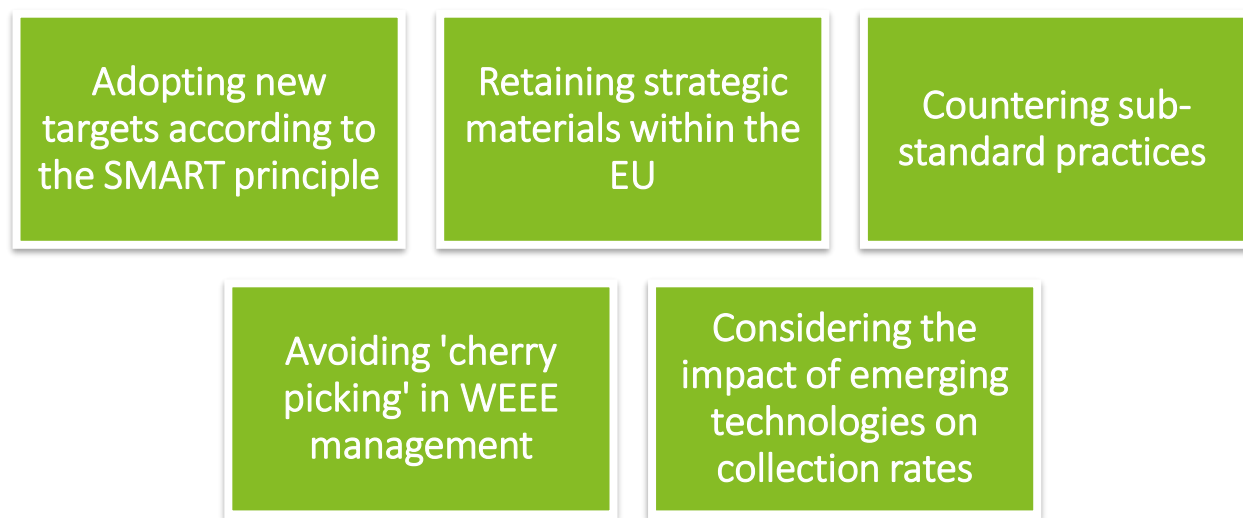


EXPLORING ALTERNATIVE WEEE MANAGEMENT TARGETS

Key takeaways from interviews with the WEEE Forum members

The following key takeaways from the interviews underscore the need for strategic, enforced, and innovative approaches to improve WEEE management across the EU

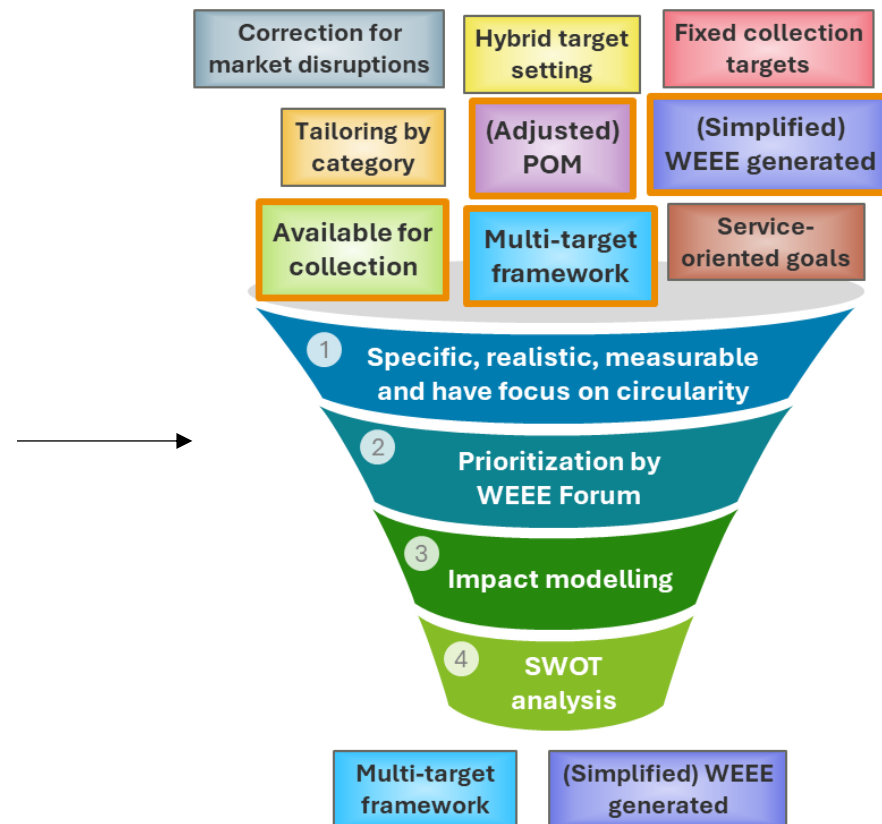
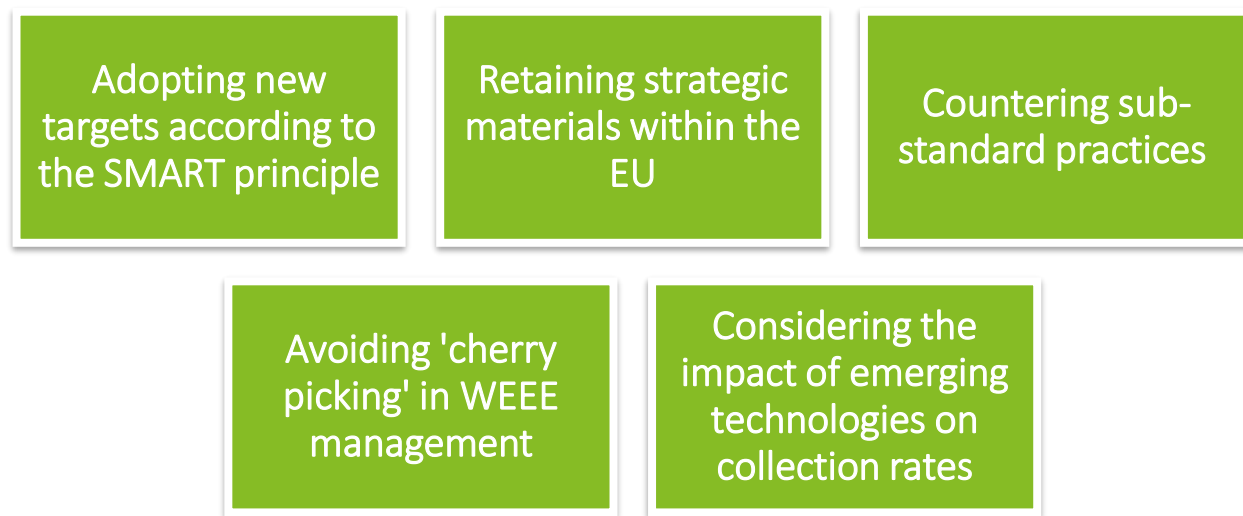
The WEEE Forum perspective and priorities



Key takeaways from interviews with the WEEE Forum members

The following key takeaways from the interviews underscore the need for strategic, enforced, and innovative approaches to improve WEEE management across the EU

The WEEE Forum perspective and priorities



Adjusted POM calculation (1/2)

Alternative and longer average life cycles of 10-15 years are needed to make the POM calculations realistic

Put on market (POM)

Formula



Weight WEEE collected



Average weight EEE POM
in 3 previous years

Calculation method



WEEE collected (Y) X 3



EEE POM (Y-3) +



EEE POM (Y-2) +



EEE POM (Y-1)

Strengths and weaknesses

- + Simple calculation method
- + No need of EEE lifetime data

- The calculation does not match reality, resulting in unfair targets to achieve
- The average lifetime of EEE products is >10 years

Proposed amendments

Increase historic
timeframe of
denominator (E.g. 5, 10
or 15 years)

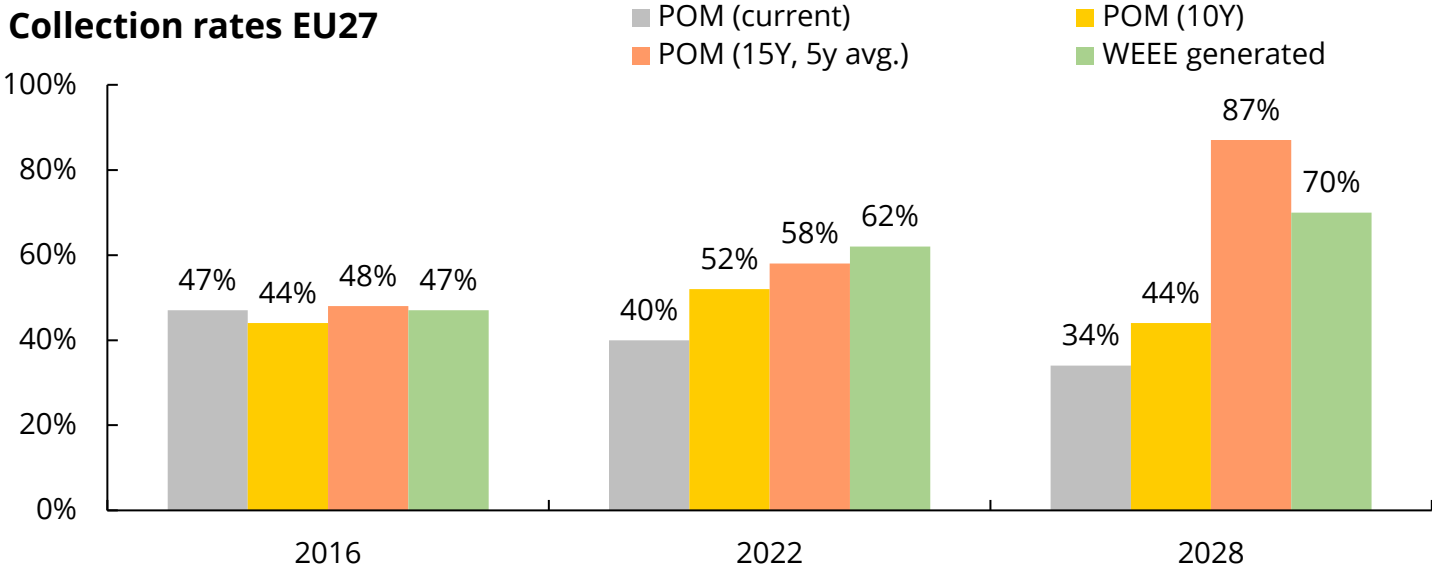
Adjusted POM calculation (2/2)

Alternative and longer average life cycles of 10-15 years are needed to make the POM calculations realistic

	Avg. life	Y-10	Y-9	Y-8	Y-7	Y-6	Y-5	Y-4	Y-3	Y-2	Y-1	Y
POM (current)	2y								1/3	1/3	1/3	
POM (10Y)	5,5y	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	
WEEE generated	14,5y	Based on lifetime calculations										
Collection												100%

	Avg. life	Y-17	Y-16	Y-15	Y-14	Y-13	...	Y
POM (15Y, 5y avg.)	15y	20%	20%	20%	20%	20%		
Collection								100%

Collection rates EU27



Strengths:

- No lifetimes required in the calculation, only POM values

Weaknesses

- Calculation still does not fully reflect reality, resulting in unfair targets to achieve

A simplified WEEE generated calculation

Goal is to have an easy-to-use solution that all EU countries can use

WEEE generated

Formula



Weight WEEE collected



Weight WEEE generated

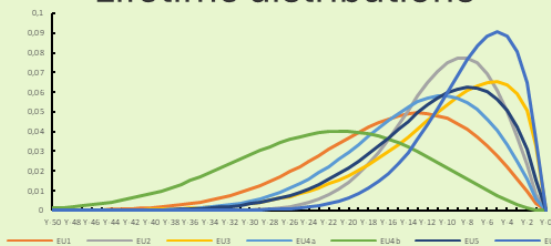
Calculation method (WEEE generated)



Historic weights
EEE POM

X

Lifetime distributions



Strengths and weaknesses

+ More robust and realistic calculation method

+ Considers EEE lifetimes and market shares

- A data model is required to perform the calculations

- Regular lifetime and market share screening of EEE products is required

Proposed amendments

- Use category lifetime distributions instead of product lifetime distributions
- Streamline data input with Eurostat reporting that allows automatic WEEE generated calculations
- Request from EU to perform regular screening on lifetimes and market shares of EEE products to make the method more robust

Available for collection methodology

Follow the same approach that has been proposed for batteries by JRC

Available for collection (AfC)

Formula

Weight WEEE collected

Weight WEEE available for collection

Calculation method

WEEE collected

WEEE generated - WEEE lost in parallel flows (metal scrap, waste bins, EEE export, WEEE illegal export, etc.)

Strengths and weaknesses

+ Calculation method reflects reality best

+ Considers parallel flows of WEEE

- Requires more data collection to measure parallel flows

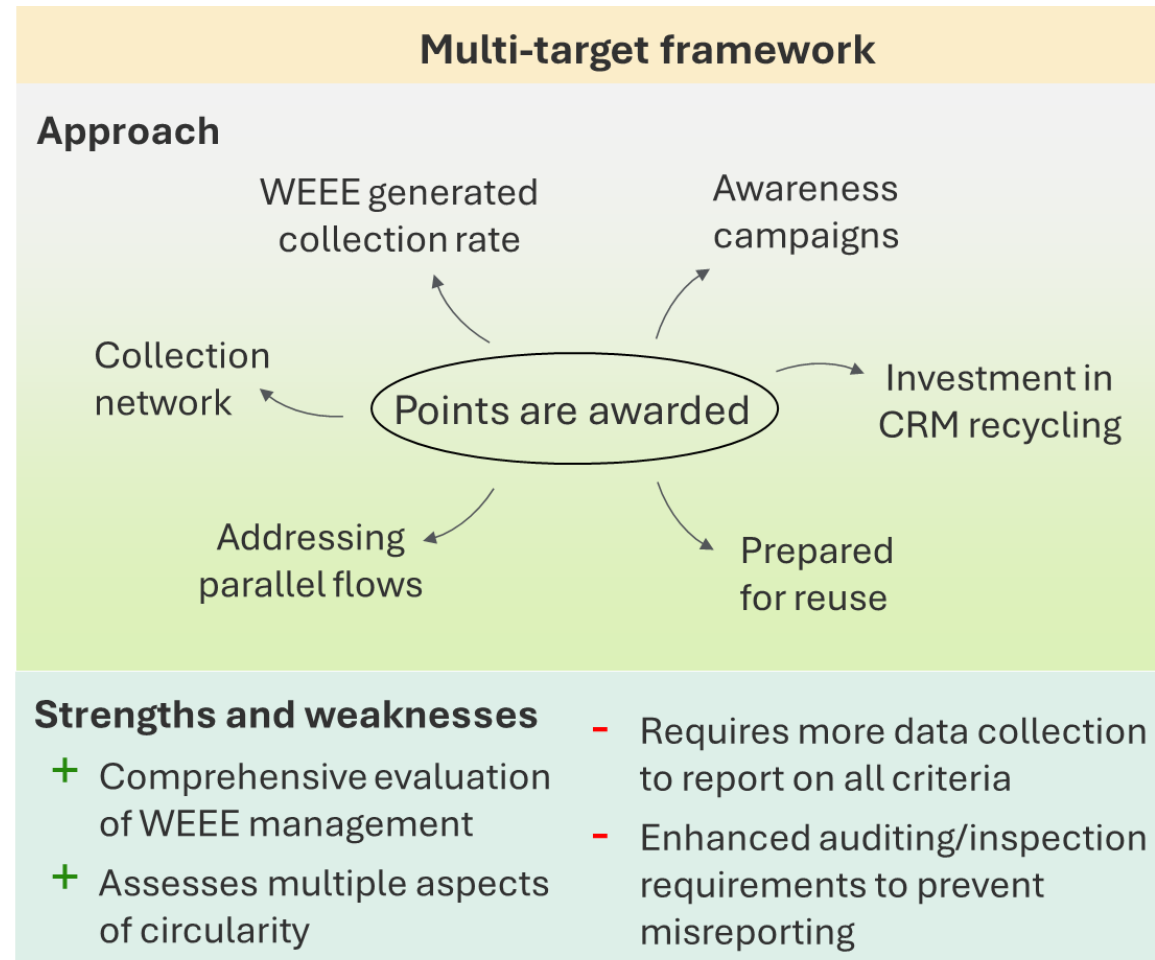
- Member states that do not include parallel flows risk missing collection targets

E.g. including all parallel flows that reach the thresholds would increase a WEEE generated collection rate from 65% to 75%

Parallel flows of WEEE		Threshold (Yes/No)	Estimated loss in EU27 (UNITAR)	Suggested value of threshold
1	Municipal waste	Yes	8%	5%
2	Export for reuse	No	6%	No threshold
3	Metal scrap	Yes	13%	5%
4	Illegal export	Yes	5%	0%
5	Other waste streams (plastic, glass, etc.)	Yes	Not estimated	2%
6	Lost in incidents (e.g. fires)	Yes	Not estimated	1%

Multi-target framework (1/2)

Yield points for each of the services that are performed and results that are obtained on a national level



Multi-target framework (2/2)

Yield points for each of the services that are performed and results that are obtained on a national level

Topic	Subtopic	Member state goal	Max. points	Points distribution
Collection	WEEE generated collection rate (%)	80%	40	Gradual
	Collection network infrastructure (coll. pt. / inh)	1/2000	10	Gradual
Prepared for reuse	Prepared for reuse rate (% vs. collection)	5%	10	Gradual
Parallel flows (min. 1 sampling every 3 years)	WEEE lost in metal scrap	0%	5	Gradual (> 20% = 0 pt, 18-20% = 0.5 pt, etc.)
	WEEE lost in incineration (e.g. municipal waste)	0%	5	Gradual (> 15% = 0 pt, 13.5-15% = 0.5 pt, etc.)
	WEEE lost in landfill (e.g. municipal waste)	0%	5	Gradual (> 5% = 0 pt, 4.5-5% = 0.5 pt, etc.)
	WEEE lost in illegal export	0%	5	Gradual (> 5% = 0 pt, 4.5-5% = 0.5 pt, etc.)
CRM	EPR-related budget spent on mapping CRM flows and increasing CRM recycling (% of total EPR fees)	5%	10	Gradual
Awareness campaigns	EPR-related budget spent on awareness campaigns (% of EPR total fees)	20%	10	Gradual

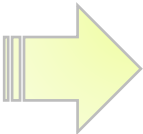
- Compliant if min. 70/100 points
- No points are awarded if no data is provided



**RECOMMENDATIONS
FOR A NEW WEEE ACT**

Proposed set of targets that foster circularity in WEEE management:
Multi-target framework including a simplified WEEE generated calculation collection target

Strengths	Weaknesses
- Comprehensive evaluation of both collection results and offered services - Focus on prepared for reuse, CRM recovery and reducing parallel flows - Flexibility in strategy for each Member State to reaching the overall ambition - More accurate WEEE end-of-life estimation instead of POM methods	- Increased data collection efforts and administrative burden - Requires product lifetime studies on the EU-wide region and frequent studies to track complementary flows
Opportunities	Threats
- Aligns with EU circular economy and CRM aspirations - Promotes enhanced stakeholder engagement (local authorities, PROs, recyclers, retailers, etc.)	Enhanced auditing/inspection requirements to prevent misreporting on the different targets of the framework



- ✓ Allows Member States to meet realistic collection targets
- ✓ Enables flexibility to tailor efforts based on Member States their unique challenges and priorities
- ✓ Encourages circular economy practices
- ✓ Continuous improvement of WEEE management practices

Other recommendations

- Increase enforcement to prevent WEEE entering the parallel market
- Strengthen the 'all-actors' vision in the new WEEE Act
- Create and enforce a national data register to collect data from all actors
- Perform thorough external data quality control (by Eurostat)



Thank you for your attention

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Report containing all insights





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