



Designing EPR

to foster the EU's competitiveness and
strategic autonomy

Executive summary

April 2025

zerowasteurope.eu



Contents

2 **1. Executive summary**

8 **2. Introduction**

8 2.1. Purpose of the study

8 2.2. Methodology and approach

Part 1 – Historical context, analysis, and challenges of 30 years of EPR

10 **3. Historical context and evolution of EPR**

10 3.1. Origins of EPR

13 3.2. Implementation of Extended Producer Responsibility

17 **4. Analysis performance of current EPR systems**

17 4.1. EPR and durability/waste generation

21 4.2. EPR's influence on repair and reuse

24 4.3. EPR and collection

27 4.4. EPR and cost coverage

29 4.5. The EPR paradox: can a technical tool fix a sociopolitical problem?

31 **5. Conclusion Part 1: challenges with the current interpretation and implementation of EPR**

Part 2 – Vision for the future of EPR

35 **6. From a waste management tool to an enabler of increased competitiveness and strategic autonomy**

39 **7. Specific recommendations**

39 7.1. System optimisation – oversight, monitoring, and harmonisation

45 7.2. From cost coverage to circular economy enabler

59 **8. Conclusion**

60 **9. Glossary of terms and acronyms**

1. Executive summary

Extended Producer Responsibility (EPR) has evolved from a tool to finance waste management to a potential cornerstone of the EU's competitiveness.

The circular economy is increasingly regarded by the EU as a means to decrease dependencies on imported materials and thereby help build strategic autonomy. This study analyses EPR's historical development, current implementation challenges, and proposes a comprehensive framework to transform EPR into an enabler to achieve the EU's industrial, economic, and environmental goals.

Historical context and evolution of EPR

The concept of EPR originated in the early 1990s as a policy principle designed to extend producer responsibility throughout a product's entire lifecycle. However, when codified into EU law, EPR became primarily focused on financing end-of-life waste management. Since its introduction, EPR has been successfully implemented across various waste streams in the EU, including packaging, batteries, end-of-life vehicles (ELVs), and waste electrical and electronic equipment (WEEE).

While EPR has effectively mobilised resources for waste collection and helped develop recycling infrastructure, the learnings from 30 years of implementation reveal significant limitations:

- 1. Limited impact on waste prevention:** despite the implementation of EPR systems, waste generation in covered sectors has increased rather than decreased. For example, packaging waste has grown by 20% per capita over the last 20 years.
- 2. Minimal influence on design:** EPR fees represent such a small fraction of product costs (typically less than 2%, sometimes as little as 0.1%) that they rarely provide sufficient economic incentives for producers to change product design.
- 3. Decline in reuse and repair:** the implementation of EPR has coincided with a significant decline in reuse systems and repair infrastructure. For instance, the share of refillable beverage packaging has plummeted across the EU. However, this correlation doesn't necessarily imply causality.
- 4. Variable collection performance:** collection rates vary significantly across different waste streams and materials. While some sectors, like tyres, achieve collection rates of 95%, others - like batteries or plastic packaging - don't reach 50%.
- 5. Insufficient cost coverage:** there are ongoing disputes between producers and local authorities regarding whether EPR fees adequately cover the full costs of waste collection and management.

6. **Lack of transparency of Producer Responsibility Organisations (PRO):** some PROs lack proper monitoring and oversight, which is a problem for reporting data to authorities and for the companies to understand the value for money of their contributions.
7. **Free-riding:** some producers/importers place products in the EU market without paying the EPR fees, causing a comparative disadvantage to those who do.
8. **Fragmentation across the EU single market:** EPR is often mandated at the EU level but developed at the national level. As a result, companies have to deal with 27 different sets of rules and fail to exploit the potential of a single market.

The EPR Paradox

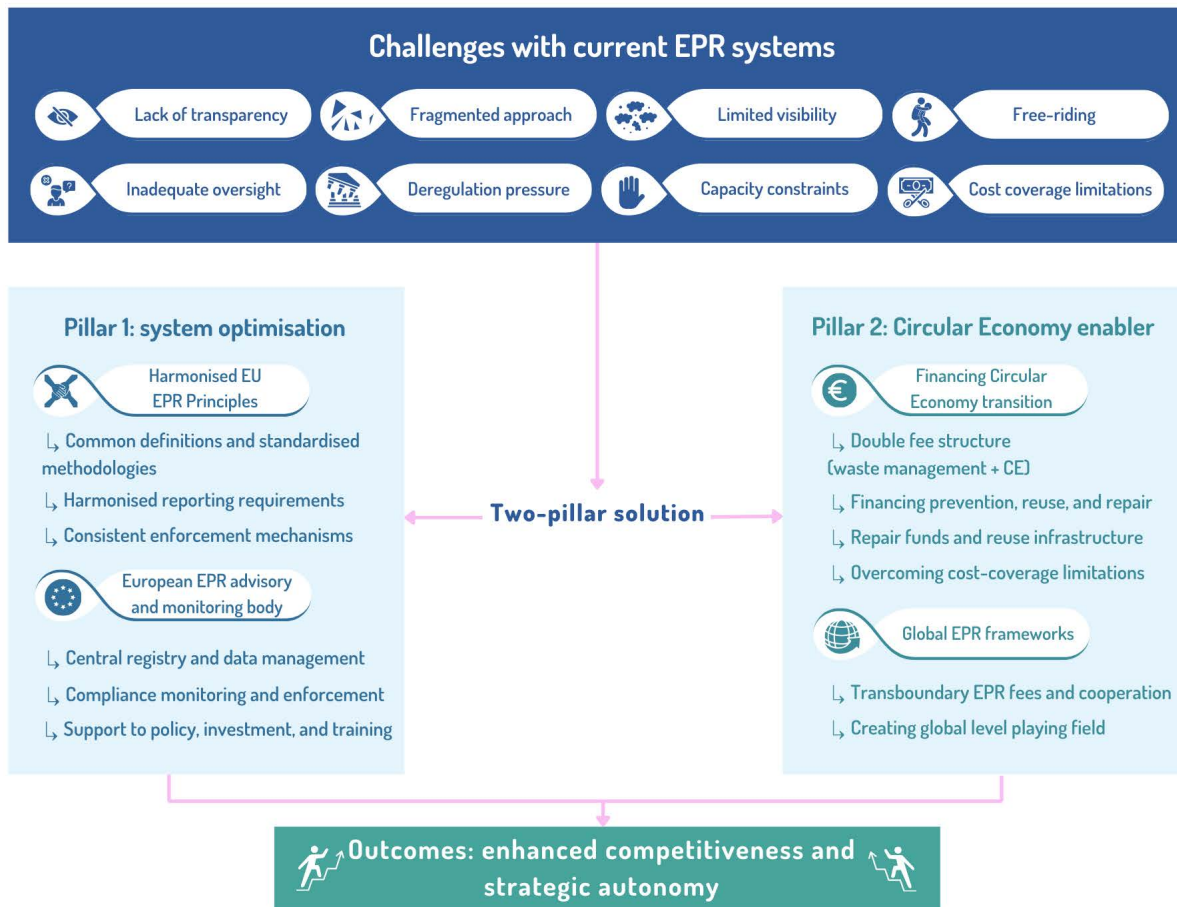
This study identifies what we term the "EPR paradox", which occurs when systems designed to manage waste become institutional barriers to waste prevention. When EPR systems optimise, or even just take care of waste management without addressing waste generation, they create powerful economic and political interests invested in maintaining the linear status quo rather than transitioning to more circular models.

EPR in a changing context

The global context has shifted dramatically since EPR was first implemented. Recent supply chain disruptions, energy security concerns, and increasing demand for critical raw materials for electrification and digital technologies have highlighted the EU's resource vulnerability. The targets in European legislation show how the EU can potentially extract more critical raw materials from waste than from European mines — positioning EPR as a strategic tool for resource security.

In this new context, EPR must evolve from a waste management financing mechanism to a catalyst for a systemic shift toward resource efficiency and circularity that underpins the EU's competitiveness and strategic autonomy.

A two-pillar approach to transform EPR



The study proposes a comprehensive framework to address current limitations and realise EPR's potential contribution to EU competitiveness and strategic autonomy by working in 2 pillars:

Pillar 1. System optimisation – oversight, monitoring and harmonisation

There are a number of challenges limiting current EPR effectiveness: lack of transparency, fragmented approach, limited visibility, free-riding, insufficient oversight, deregulation pressure, and capacity constraints. To address these challenges, two complementary actions are proposed:

- 1. Harmonised EU EPR principles:** standardising definitions, calculation methodologies, reporting requirements, and enforcement mechanisms across the EU would simplify implementation and reduce administrative burden while avoiding a 'race to the bottom'. Key areas for harmonisation include:
 - Core operational frameworks - common definitions, centralised registry of producers, harmonised calculation methodologies and reporting requirements.

- Financial mechanisms – separate cost coverage from design incentives, harmonise economic incentives, comprehensive cost-coverage, transparent fee structures.
- Governance structures – unique PRO per country and waste stream, harmonised market entry procedures, standardised authorisation requirements, oversight mechanisms.
- Performance standards – free-riding monitoring, common quality standards, common metrics for prevention, reuse and repair.
- Market access rules – standardised cross-border rules, level playing field.

2. European EPR advisory and monitoring body. Creating a dedicated body to:

- Reduce administrative burden through centralised registration and harmonised reporting.
- Foster compliance through oversight and coordination with customs authorities.
- Provide policy and advisory support.
- Train civil servants and support the creation of new PROs.
- Foster circularity through performance indicators and monitoring.
- Design efficient systems and channel investment into circular infrastructure.

Such a body could be financed with less than 0.5% of current EPR fees and these costs would be more than compensated for by the substantial benefits from economies of scale across the European single market.

However, in the event of successfully implementing the system optimisation measures, there is the risk of triggering the EPR paradox (see above) and locking the system into an efficient waste management process, while discouraging moving to more resource-efficient options that prevent the generation of waste and preserve the value of materials and products. Hence the importance of applying simultaneously the measures included in pillar 2.

Pillar 2. From cost coverage to circular economy enabler

To enhance competitiveness, strategic autonomy, and reduce environmental impacts the EU has to generate more value per unit of resources. EPR must shift from managing waste to maximising material productivity and reducing reliance on virgin material imports. This requires:

1. Expanding EPR to finance prevention, reuse, and repair:

- Creating EPR-financed repair and reuse funds to make repair economically viable compared to replacement (durable goods).

- Designing EPR schemes that finance both single-use and reuse infrastructure (packaging).
- Overcoming the current cost-coverage limitations in EU legislation (Waste Framework Directive [WFD] and sectoral legislation) to generate additional funds and create a real incentive for design change.
- Developing a double fee structure: one component for waste management costs (set nationally) and another for circular economy transition (harmonised at the EU level).

2. Complementary policy measures:

- Introduce a material/resource use reduction target aligned with climate goals. Underpin this goal with appropriate financial incentives to limit the use of primary materials.
- Waste prevention targets for individual product and waste streams (as in the new Packaging and Packaging Waste Regulation [PPWR] and WFD on food waste).
- Strategic bans for unrecyclable or highly problematic materials or products.
- Taxes and levies to influence consumer and producer behaviour.
- Subsidies and tax breaks for circular alternatives.

3. Connecting EPR systems globally:

- Developing transboundary EPR fee mechanisms to support waste management outside the EU without exporting EU waste challenges to other countries (enforcing the WFD and Waste Shipment Regulation [WSR]).
- Creating global EPR frameworks to ensure proper treatment of waste globally.
- Leveraging EPR to create a global level playing field that could enable the EU to become an importer rather than an exporter of waste (especially of critical raw materials).

Implementation recommendations

For effective implementation, the study recommends:

1. For packaging and other fast-moving consumer goods:

- Design transition pathways from single-use to reuse.
- Implement Deposit Return Systems (DRS) for consumption on the go.

- Create clear financial incentives for environmentally beneficial options.

2. For durable and semi-durable goods:

- Establish repair bonuses to ensure repair costs remain substantially below new product prices.
- Financial support frameworks for social economy actors in the repair and reuse sectors.
- Support qualification programs for repair and upcycling skills.
- Fund pilot projects and awareness-raising measures.

3. For the European institutions:

- Amend Article 8 of the WFD to enable EPR fees to go beyond cost coverage of waste management.
- Develop an EU-wide framework for harmonising EPR principles.
- Create the institutional structure for an EPR advisory and monitoring body.
- Proactively work towards global EPR frameworks to prevent waste dumping and resource leakage.
- Consider environmental levies or taxation at the EU level, especially if EPR fees remain too low to act as a financial incentive for design change.

Conclusion

EPR has proven to be a useful tool for mobilising resources to manage waste, but it has yet to exploit its potential to drive circularity. To contribute to the EU's strategic goals of competitiveness and strategic autonomy, EPR must evolve beyond waste management to become a catalyst for resource efficiency and circularity.

The future of EPR lies not in perpetuating waste management but in enabling a systemic shift toward a circular economy. By implementing the proposed two-pillar approach, the EU can transform EPR into a cornerstone of sustainable development that drives innovation, creates green jobs, reduces environmental impacts, and strengthens the EU's competitiveness and strategic autonomy.



Zero Waste Europe (ZWE) is the European network of communities, local leaders, experts, and change agents working towards a better use of resources and the elimination of waste in our society. We advocate for sustainable systems; for the redesign of our relationship with resources; and for a global shift towards environmental justice, accelerating a just transition towards zero waste for the benefit of people and the planet.

www.zerowasteurope.eu



Zero Waste Europe gratefully acknowledges financial assistance from the European Union. The sole responsibility for the content of this material lies with Zero Waste Europe. It does not necessarily reflect the opinion of the funder mentioned above. The funder cannot be held responsible for any use that may be made of the information contained therein.



Zero Waste Europe gratefully acknowledges financial assistance from the 11th Hour Project. The sole responsibility for the content of this material lies with Zero Waste Europe. It does not necessarily reflect the opinion of the funder mentioned above. The funder cannot be held responsible for any use that may be made of the information contained therein.



Author: Joan Marc Simon

Reviewers: Aline Maigret, Larissa Copello, Theresa Morsen, Enzo Favoino (Zero Waste Europe); Victor Mitjans (Metropolitan Area of Barcelona)

Editor: Ana Oliveira

Date: April 2025

General information: hello@zerowasteeurope.eu

Media: news@zerowasteeurope.eu

Cities-related topics: cities@zerowasteeurope.eu

www.zerowasteeurope.eu

www.zerowastecities.eu

www.missionzeroacademy.eu

