# Circular instruments for EPR

## More circular and effective


Witteveen + Bos

CE Delft
Committed to the Environment

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Centre for Water, Oceans and Sustainability Law

# More circular and effective

This report was written by:
CE Delft: Geert Warringa, Joukje de Vries and Rosalie Duffhues Utrecht
University: Chris Backes, Marlon Boeve and Ida Mae de Waal
Witteveen+Bos: Rob Dijcker and Rachel Looijenga

Delft, CE Delft, May 2025 Publication

number: 25.240392.073

Commissioned by: *Ministerie van infrastructuur en Waterstaat* (Ministry of Infrastructure and Water Management)

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For more information about the study please contact the project leader, Geert Warringa (CE Delft)

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# Summary

**Background**
The Netherlands aspires to have a fully circular economy by 2050. One of the policy instruments that can contribute to this aim is the Extended Producer Responsibility (EPR). EPR makes producers and importers responsible for the waste management of the products they place on the Dutch market. The Dutch House of Representatives and EPR stakeholders have asked whether it is possible to develop EPR schemes further so they can be used more effectively in the transition to a circular economy by contributing to prevention, re-use, repair, and high-grade treatment. They also wonder what EPR instruments should be used to achieve this. Examples include eco-modulation, repair funds and deposit returns for more products. The Dutch Ministry of I&E (Infrastructure & Water Management) asked a consortium of CE Delft, Utrecht University and Witteveen+Bos to investigate possible instruments to promote circularity through EPR. The Ministry also asked for an assessment of the legal, technical and economic feasibility of a selection of these instruments.

**Goal**
To create an overview of EPR instruments that can be used to promote circularity and to assess whether these instruments are legally, technically and economically feasible.

**Scope**
This study is an initial broad exploration of the feasibility of EPR instruments for several product groups, for the purpose of providing a preliminary sense of which instruments and product groups might be candidates for further development. There has been no specific research yet on the cost-effectiveness of the instruments. That will require a follow-up study.

**Approach**
We conducted an (international) literature review, issued a call on LinkedIn for best practices from other countries and organised an internal brainstorming session to gain a deeper understanding of the instruments. Input from parties who will have to implement these measures is important, so we submitted the resulting longlist to a focus group consisting of Verpact, Stichting OPEN, Stichting UPV Textiel, ARN, NVRD, MVO Nederland, Stichting Natuur en Milieu, Fair Resource Foundation, Sufficiency, European Recycling Platform Netherlands, NLdigital and Partners for Innovation. Based on additional suggestions from this meeting we finalised our longlist of 40 instruments. We then selected 10 instruments from this longlist based on their potential effectiveness, and we took a closer look at them in terms of their legal, technical and economic feasibility. Our aim in selecting these instruments was to offer a balanced set of options to promote as many different R strategies as possible: deciding not to produce/consume, life span extension, repair/refurbishment and high-grade processing.

The instruments we selected for the shortlist are refuse targets, eco-modulation, EPR goals for recycling methods, targets for preparation for re-use, inclusion of material-specific goals, repair network targets, a repair fund in combination with bonus and/or vouchers, establishing funds for research on new technologies and methods, introducing financial incentives for consumer returns (return bonus, deposit return) and including financial incentives to go above and beyond the target.

## Results

The instruments, including the feasibility assessments, are presented in Table 1.

**Table 1 - Selected instruments and assessment of legal, technical and economic feasibility**

| No. | Instrument | Description | Legal feasibility | Technical feasibility (initial assessment) | Economic feasibility (considerations) |
|---|---|---|---|---|---|
| 1 | Inclusion of refuse targets in EPR | This instrument concerns targets that (1) are aimed directly at reducing production or (2) contribute indirectly to reducing the number of products on the market, such as targets for preparation for re-use. | Goals that are aimed directly at refusing production are not legally feasible.<br><br>Goals that contribute indirectly to reducing the number of products on the market, such as preparation for re-use, are legally feasibly, subject under certain conditions (see also instrument 5). | Goals that contribute indirectly to reducing the number of products on the market appear to be technically feasible for products such as furniture, textiles and shoes, electrical and electronic equipment, toys and lightweight means of transport (see also instrument 5). | The costs, and therefore the economic feasibility, of goals that contribute indirectly largely depend on the type of product and the extent to which an effective collection system is already in place (see also instrument 5). |
| 2 | Eco-modulation based on recyclate percentage | Eco-modulation means that producers pay a lower waste management contribution for products with a higher recyclate percentage, better recyclability, life span extension or overall lower environmental impact in order to promote circular design. | Yes, subject to conditions. | Yes, it seems feasible for products like packaging, textiles and shoes, furniture, toys, mattresses, fishnets, car tyres and electrical and electronic equipment. | If the eco-modulation is structured in such a way that the total revenue does not differ significantly from revenue generated by a flat fee, there is no difference, in principle, between the economic feasibility of a waste management contribution with or without eco-modulation, except for a possible increase in administrative costs. |
| | Eco-modulation based on recyclability | | Yes, subject to conditions. | Yes, it seems feasible for products like mattresses, fishnets, car tyres, furniture and electrical and electronic equipment (already applies to packaging). | |
| | Eco-modulation based on life span | | Yes, subject to conditions. | Yes, it seems feasible for products like car tyres, electrical and electronic equipment and packaging (refillable). | |
| | Eco-modulation based on environmental impact | | Yes, subject to conditions. | Yes, for products that will be subject to a mandatory environmental impact assessment, preferably on the basis of the European | |

| No. | Instrument | Description | Legal feasibility | Technical feasibility (initial assessment) | Economic feasibility (considerations) |
|---|---|---|---|---|---|
| | | | | impact categories (Product Environmental Footprint, PEF). | |
| | Eco-modulation based on potential for littering | | Yes, subject to conditions. | No, not a logical solution for any product group. There is little difference in potential for littering between product groups. | |
| 3 | Inclusion of material-specific goals | Existing EPR schemes are often based on a recycling percentage based on the weight of products that were produced or discarded in the previous year. This may lead to a situation where materials with low density or materials that are present in very small quantities in a product are recycled using low-grade processes or even incinerated or dumped. Material-specific recycling goals may ensure that these types of materials undergo higher-grade treatment so we can close the loop for these materials. | Yes, subject to conditions. | Yes, it seems feasible for products like textiles and shoes, furniture, toys, mattresses, fishnets, car tyres, batteries and electrical and electronic equipment. | As with technical feasibility, the cost of setting specific recycling goals depends largely on product design and the relative ease of separating the materials. |
| 4 | Goals related to recycling methods | In this measure, the recycling method and the percentage that must be recycled are specified in the EPR. This measure is a more detailed specification of the general recycling targets in EPR schemes. | Yes, subject to conditions. | Yes, further research is needed to determine which products this would apply to. | The inclusion of goals for recycling methods is not likely to result in a substantial change in collection costs if the goals are revised on a step-by-step basis. |
| 5 | Targets for preparation for re-use | This measure specifies what percentage of | Yes, subject to conditions. | Yes, it seems feasible for products like electrical and electronic | The costs of this measure, and therefore the economic |

| No. | Instrument | Description | Legal feasibility | Technical feasibility (initial assessment) | Economic feasibility (considerations) |
|---|---|---|---|---|---|
| | | discarded products must be prepared for re-use.<br>Preparation for re-use involves the inspection, cleaning or repair of (components of) used products so they can be re-used without requiring further<br>treatment. | | equipment, textiles and shoes, furniture, toys and lightweight means of transport (kick scooters, etc.). | feasibility, is largely dependent on the type of product and the extent to which an effective collection system is already in place. |
| 6 | Repair network target | Inclusion of a requirement that producers/sales organisations must provide a sufficient number of locations/facilities where products can be repaired after the warranty period. This could be expanded by offering a quality mark for performing repairs. | Yes, subject to conditions. | Yes, it seems feasible for products like electrical and electronic equipment, textiles and shoes, furniture, toys and lightweight means of transport (kick scooters, etc.). | The cost of setting up a nationwide repair network depends on the product and the extent to which this network can build on existing networks for collection and repair initiatives. |
| 7 | Repair fund in combination with bonus and/or vouchers | A repair fund to provide financial assistance for the repair of worn or broken products. This could be done in combination with: a voucher consumers can request (online) from the fund and redeem at a repair shop, or a bonus which gives consumers a fixed discount for repairs. | Yes, subject to conditions. | Yes, it seems feasible for products like electrical and electronic equipment, textiles and shoes, furniture, toys and lightweight means of transport (kick scooters, etc.). | This instrument will lead to higher prices for linear products. It will result in savings for consumers. |
| 8 | Funds for research on new technologies | A fund for research on new technologies and methods that | Yes, subject to conditions. | Yes, further research is needed to determine which products this would apply to. | This instrument is likely to be economically feasible in particular for |

| No. | Instrument | Description | Legal feasibility | Technical feasibility (initial assessment) | Economic feasibility (considerations) |
|---|---|---|---|---|---|
| | | promote circularity, such as innovative recycling methods, new applications for materials and design techniques that facilitate re-use. | | | technologies that are of collective interest to producers. The advantage is that these producers can share the cost and the risks of the investment. |
| 9 | Financial incentive for returns | This instrument encourages consumers to return products by offering a financial incentive to do so. These products can then be re-used or subjected to high-grade processing. | Yes, subject to conditions. | The deposit return system makes most sense for form-retaining uniform products like cans and bottles (and possibly batteries). For many products, such as textiles, electronics and mattresses, it would probably be technically complicated to develop a deposit return system; a return bonus or camping gas system would make more sense. | Regardless, any system will result in costs for producers, because they all require the development of an infrastructure for collecting products and transporting them to a treatment location. |
| 10 | Financial incentive to go above and beyond the target | Incorporation of incentives in EPR schemes to go above and beyond the targets. The idea is to have businesses pay for waste that is not processed correctly or to require them to invest revenue from unclaimed deposit fees/return bonuses in circular activities. | Yes, subject to conditions. | Yes, depending on the available information on what percentage of residual waste is represented by different product groups and the cost of treating this residual waste. | This measure will lead to additional costs for producers and possibly to higher prices for products. The extent to which this measure is economically feasible largely depends on the amount of the financial incentive and the extent to which producers will be able to go above and beyond the targets. |

**Conclusions**
The main conclusion is that there do not seem to be any insurmountable objections so far to the continued development of most of the EPR instruments for the different product groups, but that further analysis is needed for each specific product group. Specific conclusions from legal, technical and economic perspectives:

- **From a legal perspective, there are no insurmountable objections to implementing the instruments from the shortlist.**
  Almost all the instruments from the shortlist can legally be implemented. There are a few things to keep in mind with regard to implementation, however, such as the fact that national goals cannot conflict with existing European targets. The only instrument that cannot legally be implemented as part of an EPR scheme is requiring producers to place fewer products on the market. However, it is permissible to use instruments that indirectly promote the placement of fewer products on the market, such as targets for preparing products for re-use, eco-modulation based on life span and targets for a repair network.

- **Many of the instruments appear to be technically feasible for several product groups at first glance, but a more detailed analysis is needed for each product group.**
  The technical feasibility of an instrument depends on technical preconditions for increasing product durability and practical preconditions for the actual implementation of an instrument. An initial exploration by the Joint Research Centre for the Ecodesign Regulation for Sustainable Products (ESPR: hereinafter Ecodesign Regulation) (EC: JRC et al., 2024) shows that the technical preconditions for different product groups are present within the EPR. Examples from other countries (in particular France) also demonstrate that the deployment of several of the selected instruments, such as a repair fund for products, is practically feasible.

- **The instruments may lead to higher financial costs for producers, but the quantitative data are not sufficient yet to assess the economic effects. This also applies to potential savings for other parties (such as municipalities that will have less residual waste to deal with) and lower external environmental costs for products.**
  The quantitative data are not sufficient yet to be able to interpret the economic effects. What we do know is that the use of instruments such as recycled plastics, deposit return systems and product repairs may be more expensive for producers than linear production. On the other hand, other parties may save money, for example on municipal waste management or on external expenses dealing with environmental pollutions caused by products and materials. In general, it is safe to say that cost increases arising from an EPR instrument will lead to fewer competitive disadvantages than cost increases initiated by the Dutch industrial sector, because the costs will apply equally to Dutch producers and products imported from abroad.

**Recommendations**
The main recommendations are:

- **Optimal alignment with European policy developments**
  The first recommendation is to align with European policy developments. Various requirements in areas such as recycling design, repairability, recyclate percentage and environmental impact assessment will be developed within the next few years as part the Ecodesign Regulation.

We recommend optimal alignment with the requirements and terminology from the Ecodesign Regulation, e.g. basing eco-modulation on mandatory product information or parameters, basing recycling goals on mandatory recyclate percentages and basing goals for preparation for re-use on repairability requirements. This makes practical as well as economic sense, since producers have to provide this information already. This approach will ensure optimal alignment of our national policy with European policy.

- **Learn from the experiences of other countries**
  The second recommendation is to learn from the experiences of other countries. France, especially, has extensive experience with the use of circular EPR instruments. We recommend incorporating these experiences in any implementation of the instruments so we don't have to reinvent the wheel.

- **Conduct more specific, in-depth research for each product group on the legal, technical and economic feasibility of the instruments.**
  Although we can cautiously state that there appear to be many options, we recommend further research specifically for each product group on the legal, technical and economic possibilities. Further research will enable us to delve deeper into the requirements and to investigate more specifically what the practical options are for the implementation of the EPR instruments.

- **Conduct further research on the effectiveness of the instruments**
  The fourth recommendation is to conduct further research for each product group on the costs and effects of the instruments, so we can assess the environmental gains and reduced raw material usage in relation to the instrument-related costs.

# 1 Introduction

## 1.1 Background

The Netherlands aspires to have a fully circular economy by 2050. One of the policy instruments that can contribute to this aim is the Extended Producer Responsibility (EPR). Extended producer responsibility (EPR) makes producers and importers responsible for the waste management of the products they place on the Dutch market. The Netherlands has implemented EPR schemes for textiles, packaging, mattresses, electronic equipment, batteries, fishing gear, car tyres, flat glass, paper, cardboard, balloons, cigarette filters and wet wipes. The current EPR schemes are primarily focused on the waste stage of products.

The House of Representatives and EPR stakeholders have asked whether it is possible to apply EPR schemes more effectively for the transition to a circular economy by contributing to prevention, re-use, repair, and high-grade treatment. They also wonder what instruments should be used to achieve this. Examples include eco-modulation, repair funds and deposit returns for more products.

The Ministry of I&E asked a consortium of CE Delft, Utrecht University and Witteveen+Bos to investigate possible instruments to promote circularity through EPR schemes. The Ministry also asked for an assessment of the legal, technical and economic feasibility of a selection of these instruments. The results are presented in this report.

## 1.2 Goal

To create an overview of EPR instruments that can be used to promote circularity and to assess whether these instruments are legally, technically and economically feasible.

## 1.3 Action plan

We have taken the following steps to answer the central question:

- The first step of the study was to compile a longlist of instruments to promote EPR circularity. We did this on the basis of an (international) literature review, a call on LinkedIn for best practices from other countries, and an internal brainstorming session. We submitted this longlist to a focus group consisting of Verpact, Stichting OPEN, Stichting UPV Textiel, ARN, NVRD, MVO Nederland, Stichting Natuur en Milieu, Fair Resource Foundation, Sufficiency, European Recycling Platform Netherlands, NLdigital and Partners for Innovation. We then finalised the longlist on the basis of additional suggestions from this meeting.
- The second step was to select the most promising and effective instruments from this longlist. This selection was based on an overall assessment of legal, economic and technical feasibility.
- The third step of the study consisted of a more in-depth assessment of the legal, technical and economic feasibility of the selected instruments.

It is important to realise that feasibility may vary greatly depending on the product group and the scope of the instrument. A very strict standard for the re-use of products may be less technically and economically feasible than a less ambitious version, for example. The re-use of food packaging also poses technical challenges that are very different than the challenges involved in the re-use of clothing or electronics. In addition, different product groups are subject in part to different requirements under EU law. In light of the above, we decided to present a general feasibility outline with specific information for individual product groups.

The legal possibilities of the instrument are determined by European and national frameworks, so we discuss the possibilities within the current frameworks while also offering recommendations for framework modifications to create more possibilities.

We took the practical and technical preconditions into account in our assessment of the technical feasibility. The technical feasibility of an instrument depends on:

- Technical preconditions for increasing the durability of a product. It is not possible to extend the life span of single-use products, for example. In other words, the feasibility of an instrument depends in part on the technical requirements for a product.
- Practical preconditions for the actual implementation of an instrument. For example, if eco-modulation is based on life span, it must be possible to distinguish between products with a short life span and products with a long life span, for example by means of labels or a warranty period. After all, many products can technically be designed to last longer, but the life span also has to be quantifiable to be a suitable candidate for eco-modulation.

The technical feasibility of an instrument can therefore vary widely depending on the product group. Although it was not possible within the scope of this study to assess all the different product groups that might qualify for EPR, we do provide examples to illustrate technical feasibility and where possible we discuss general conditions that apply to several product groups.

Economic feasibility means that the economic benefits of a measure outweigh the additional costs. We should note that the literature provides very little quantitative information (JRC, 2024).

- In the fourth step of the study we prepared this report with out findings, including conclusions and recommendations.

## 1.4 How to read this document

The report is structured as follows:

- Chapter 2 presents an overview of the longlist of instruments and the selection from this list (shortlist).
- Chapter 3 presents the legal framework. This analysis formed the basis of the assessment of the legal feasibility of each instrument.
- Chapters 4 - 13 discuss the selected instruments in terms of their technical, economic and legal feasibility.
- Chapter 14 presents our conclusions and recommendations.
- The Annex takes a look at the legal framework for “global EPR” and describes a number of alternative EPR policy instruments.

# 2 EPR instruments

## 2.1 What is the scope of Extended Producer Responsibility (EPR)?

In order to be able to identify and assess instruments that could increase EPR circularity, we must first have a clear understanding of what EPR is. The starting point for this understanding is the description in the European Waste Framework Directive (WFD) which informs the national legal frameworks.[1] In principle, it is possible to use a broader concept at the national level than provided for in European law. A disadvantage is that this might lead to confusion, as the Dutch definition of EPR would be different than the European definition of this term. The possibility that some European EPR schemes might not apply to EPR in the Netherlands insofar as the national EPR is broader than provided for in EU law may lead to confusion as well. We will explain this in further detail, starting with a description of EPR as defined under European law.

According to the definition of EPR in article 3, sub 21 of the WFD, EPR concerns the financial or financial and organisational responsibility for the management of the waste stage of a product's life cycle. It follows that based on the starting point of European law, EPR is solely concerned with waste management measures. In other words, the (minimum) requirements for EPR under EU law in the WFD pertain solely to EPR waste management measures. It follows from the definition of waste management in the WFD that this concerns measures for the "collection, transport, recovery (including sorting), and disposal of waste, including the supervision of such operations and the after-care of disposal sites, and including actions taken as a dealer or broker".[2] Conversely, it follows that measures not relating to waste management, such as product design measures or consumption reduction targets do *not* fall within the scope of EPR under European law. However, EPR can have a positive effect on measures not related to waste management, such as waste prevention or circular product design (see paragraph 3.1 for more information).

Contrary to the above, we could use the term EPR in common parlance to refer to all measures for which producers are assigned (extended) responsibility, such as product design measures or offering better repair options to consumers. These measures could all be classified as EPR at the national level. Since the WFD is a directive which is based on the Environment Title of the Treaty on the Functioning of the EU, it is possible, in principle, to take more far-reaching measures under national law, and to impose measure not related to waste management on producers under the heading "EPR measures". Article 6 of the Dutch EPR for Textiles Decree and the French repair scheme cited below in this report provide possible examples or this approach (see also Chapter 10). Although this is not in line with the WFD definition of EPR under European law, it is possible to classify such measures as EPR measures under national law. In that case, EPR schemes under European law (in particular articles 8 and 8a of the WFD) do not apply to these national EPR measures. These measures cannot be in contravention of other EU laws, however. For example, the implementation of product design measures or

1 See article 1.1(1) of the Environmental Management Act.
2 Article 3(9) of the WFD.

product requirements are subject to different European legal frameworks, such as the Ecodesign for Sustainable Products Regulation (Regulation 2024/1781/EU), which determine what Members States may enact on their own. This is not changed by a Member State classifying a product design measure as “EPR”. Furthermore, if measures not related to waste management are classified as “EPR” or fall within the scope of a national “EPR” measure, this could easily lead to confusion and uncertainty in practice.
It might eventually even result in (legal) conflicts and delays. This is why we base our analysis and description of the legal framework for EPR on the definition of this term under European law.
In short, when reading this study it is important to **distinguish between measures that are classified as EPR under European law** and are subject to the (minimum) WFD requirements, **and other requirements that could be imposed on producers outside of this EPR framework.**

There are two important supplemental points that need to be made.

First, **the European legal frameworks of the EPR instrument offer plenty of ways to accelerate the transition to a circular economy**, as evidenced for example by the recently introduced EPR for textiles in the amendment to the WFD. This EPR scheme includes far-reaching waste management measures in EPR schemes, such as requirements for collected used textiles or contributions to research on product design and fibre-to-fibre recycling.[3]

Second, **although the European definition of EPR pertains solely to waste management measures, measures not related to waste management may be imposed on producers as well**. European and national legal frameworks offer many possibilities (as well as requirements in some cases) with regard to requiring producers to take measures that are classified as measure not related to waste management. Examples of this are product design measures under the Ecodesign for Sustainable Products Regulation, consumption reduction targets, and targets or measures for the repair of goods that are not waste (for more information see Chapter 10) or an environmental tax for non-circular products. Legally speaking, these measures do not fall under EPR, but they can be used in addition or as a supplement to an EPR scheme. In our opinion, this would not detract at all from the potential impact of these measures on the transition to a circular economy.

## 2.2 Longlist of instruments

So far, the primary aim of EPR schemes in the Netherlands has been the (separate) collection of specific percentages of specific waste flows for the purpose of recycling or other form of treatment. These measures do promote a more circular economy, but only to a limited extent. We identified a total of 40 different instruments that can be used to as incentives to promote the various R strategies.

- Narrow the loop: reduce the use of raw materials.
- Slow the loop: extend product life span through re-use, repair and refurbishment.
- Close the loop: use fewer primary materials through high-grade recycling.
- Substitution: Substitution of finite raw materials

3 See in particular article 22a of the Proposal for Amendment of the WFD.

The longlist includes instruments such as lower producers' financial contributions for product with a longer life span or lower overall impact, inclusion of targets in the EPR for preparing products for re-use, and the creation of funds to promote repairs.

This longlist of 40 instruments was narrowed down to 10 instruments for further investigation. The longlist of instruments and the selected instruments are presented in Table 2. We were also asked to discuss our thoughts on global EPR systems in this study. This discussion can be found in Annex A.

**Table 2 - Selection of instruments**

| Category | No. | Instrument name | Explanation | Selection ? | Reason for selection |
|---|---|---|---|---|---|
| Prevention | 1 | Inclusion of refuse targets in EPR | This instrument concerns targets that (1) are aimed directly at reducing production or (2) targets that contribute indirectly to reducing the number of products on the market, such as targets for preparation for re-use. | Yes | The inclusion of refuse target is one of the few compulsory instruments that are aimed at prevention. |
| | 2 | Producers must submit a circularity plan to the public authorities. | Mandatory submission of plans to the public authorities to increase circularity and lower environmental impact. An example of this is France, where producers have to submit a plan every 5 years. | No | It is difficult to assess whether this instrument is effective or whether it merely imposes a heavier administrative burden. |
| Eco-modulation | 3 | Eco-modulation: based on recyclate percentage | Rate benefits for products that contain recyclate. This means that producers pay a lower waste management contribution for products that contain recyclate. | Yes | Eco-modulation is a potentially effective instrument which we are considering as one option in relation to other instruments. The basis for modulation depends on practical feasibility and on whether the indicator is representative for circularity gains (reduced use of primary raw materials and environmental gains). |
| | 4 | Eco-modulation: based on recyclability | Rate benefits (lower waste management contribution) for products that are easy to recycle (e.g. via a recycle checks from the Packaging Waste Fund). | Yes | |
| | 5 | Eco-modulation based on life span (for example by means of a warranty period) | Higher rates (higher waste management contribution) for products with a short life span (e.g. fast fashion in France). | Yes | |
| | 6 | Eco-modulation based on environmental impact | Higher rates for products with a higher overall environmental burden. | Yes | |
| Target adjustment | 7 | Higher collection targets | Inclusion of collection targets that are higher than the targets in the current EPRs. | No | This is not a new instrument but rather a result of research and political decision-making. |
| | 8 | Long-term collection targets | Inclusion of long-term collection targets (by 2050) The current targets are aimed primarily at the short or medium term (e.g. 2030 for the EPR for textiles) | No | The same goes for 7, not a new instrument either. |
| | 9 | EPR goals related to recycling methods | In this measure, the recycling method and the percentage that must be recycled are specified in the EPR. This measure is a more detailed specification of the general recycling targets in the EPR schemes. | Yes | We have high hopes for this instrument; the EPR for textile is a good example and it could very well be effective for other product groups as well. |

| Category | No. | Instrument name | Explanation | Selection ? | Reason for selection |
|---|---|---|---|---|---|
| | 10 | Inclusion of re-use targets in EPR | This measure specifies what percentage of discarded products must be prepared for re-use. Preparation for re-use involves the inspection, cleaning or repair of (components of) used products so they can be re-used without further treatment being required. | Yes | This instrument has significant potential for promoting re-use. One point for attention is that ideally, products should be used as long as possible and should not require preparation for re-use. Watch out for potential counterproductive incentives. |
| | 11 | Inclusion of material-specific goals | Existing EPR schemes are often based on a recycling percentage based on the weight of products that were produced or discarded in the previous year. This may lead to a situation where materials with low density or materials that are present in very small quantities in a product are recycled using low-grade processes or even incinerated or dumped. Material-specific recycling goals may ensure that these types of materials undergo higher-grade treatment so we can close the loop. | Yes | This is a promising measure, also in the context of recycling critical materials (copper, lithium, etc.) |
| | 12 | Set goals that are easier to enforce | Formulate goals in such a way that they are easier to enforce (only ILT is currently authorised to require an improvement plan). Along the same lines: include fines for failure to meet goals. Impose fines for inadequate monitoring. Also impose individual requirements/fines if collective goals are not met. | No | This is more of a governance issue. Governance issues do not fall within the scope of this study. |
| | 13 | Inclusion of targets for a repair network. | Include a requirement that producers/sales organisations must provide a sufficient number of locations/facilities where products can be repaired after the warranty period. This could be expanded by offering a quality mark for performing repairs. | Yes | Criterion for effective repair incentives. Can easily be combined with other measures, such as measure 16. |
| | 14 | Formulation of realistic starting points for targets | Base the EPR goals on realistic starting points, such as the number of products that are placed on the market. | No | More of a governance issue. Governance issues do not fall within the scope of this study. |
| | 15 | Inclusion of social goals in the EPR | Include social goals in the EPR, such as the number of jobs created for people with poor employment prospects. | No | This is a promising instrument, but it is not aimed primarily at improving circularity (reduced use of primary raw materials and environmental gains) |

| Category | No. | Instrument name | Explanation | Selection ? | Reason for selection |
|---|---|---|---|---|---|
| Funds and subsidies | 16 | Repair fund in combination with bonus and/or vouchers | A repair fund to provide financial assistance for the repair of worn or broken products. This could be done in combination with: a voucher consumers can request (online) from the fund and redeem at a repair shop, or a bonus which gives consumers a fixed discount for repairs. | Yes | A repair fund seems to be an effective instrument in France, for example, and many people seem to take advantage of the fund. |
| | 17 | Introduction of loyalty points | When people donate discarded products they receive points that can be exchanged for discounts on environmentally-friendly products. | No | No, it might encourage more consumption. |
| | 18 | Creation of a fund for research on new technologies and methods | A fund for research on new technologies and methods that promote circularity, such as innovative recycling methods, new applications for materials and design techniques that facilitate re-use. | Yes | An instrument to subsidise the unprofitable early phase of new technologies, not funded by the government but by producers. |
| Incentives for collectors and recyclers | 19 | Mandatory standardisation of collection systems | Require uniform waste collection methods to facilitate recycling and increase consumer awareness. | No | This instrument might create a contradictory situation where producers are asked to use effective collection methods while at the same time being subject to collection requirements. |
| | 20 | Producers, not municipalities, are responsible for collection (intake requirement) | Producers, not municipalities, are responsible for collection. This can be done for example by setting up collection points in stores or picking up discarded products directly from consumers. | No | This system is already in place for several product groups, such as electronics, car tyres and cars. |
| | 21 | Eco-modulation for municipalities | Compensation of municipalities on the basis of their recycling and waste sorting performance. | No | This instrument is a good idea in theory but difficult to implement in practice. For example, how do we define acceptable performance in recycling and waste sorting? |
| | 22 | Mandatory improvement of sorting and recycling technology | EPR schemes will require investment in technology and capacity, either directly or through long-term performance contracts with processors. | No | In our selection of instruments we opted for a financial incentive (measure 18) to promote successful collection methods. |
| | 23 | Collection centres set up by municipalities and managed by producers. | Municipalities provide the collection centres, while producers remain responsible for treatment. | No | This instrument can be implemented in many different ways and is therefore difficult to assess. |
| | 24 | Reward high-grade collection systems | EPR systems can promote high-grade collection and processing through increased compensation. | No | This instrument is a good idea in theory but difficult to implement in practice. How |

| Category | No. | Instrument name | Explanation | Selection ? | Reason for selection |
|---|---|---|---|---|---|
| | | | | | do we define high-grade, for example? |
| Communication | 25 | Mandatory communication about changing consumer behaviour | Require producers to run (media) campaigns focused on encouraging consumers to change their behaviour, for example by donating/sorting discarded products. This falls under producer responsibility within the EPR. | No | This is already common practice. |
| | 26 | Labels and certification | Require producers to provide information about their products with regard to recyclability, repair options and environmental impact. The French repair index is one example. | No | It would probably be more effective to introduce this instrument at the European level (Ecodesign) than in individual EPRs, since products are often sold in multiple countries. |
| | 27 | Disclose the performance of individual companies. | Disclose how much individual companies collect and contribute to the goals. | No | Our guess would be that this is not one of the most effective instruments on the longlist. |
| Impose standards for product design | 28 | Standards for sustainable design | EPR schemes can impose requirements for products to make them durable are easier to repair, re-use or recycle. For example, make it easier to disassemble the product. | No | EPR is not the appropriate instrument for this. This measure falls within the scope of the policy instrument Ecodesign Regulation. |
| | 29 | Inclusion of a standard for a mandatory recyclate percentage | Include a standard for a mandatory recyclate percentage in the EPR. | No | EPR is not the appropriate instrument for this. This measure falls within the scope of the policy instrument Ecodesign Regulation. |
| Financial incentive for returns | 30 | Introduction of financial incentive for returns by consumers (return bonus, deposit return) | This instrument encourages consumers to return products by offering a financial incentive to do so. These products can then be re-used or subjected to high-grade processing. | Yes | Deposits have proven to be an effective method for cans and bottles. This may lead to high collection percentages for other product groups as well. |
| Miscellaneous | 31 | Expanding the EPR to include other product groups | Expand the scope of EPR with regard to the products it applies to, and promote the implementation of EPR in countries outside the EU. For example, expand the EPR to include the following product groups: construction products or materials from the construction sector, toys, sports and recreational gear, DIY and gardening products, used oil, and sanitary textile products (wipes, paper towels, cotton, diapers, etc.). | No | This is not a new instrument. |
| | 32 | Prohibition on the destruction of unsold products | Include a stipulation in the EPR that businesses are not allowed to destroy unsold non-perishable products (such as electronics or textiles), and that these should be donated or recycled instead. | No | EPR is not the appropriate instrument for this. This measure falls within the scope of the policy instrument Ecodesign Regulation. |

| Category | No. | Instrument name | Explanation | Selection ? | Reason for selection |
|---|---|---|---|---|---|
| | 33 | Regulation of disruptive flows | Prohibit disruptive waste flows that interfere with recycling efforts. | No | EPR is not the appropriate instrument for this. This measure falls within the scope of the policy instrument Ecodesign Regulation. |
| | 34 | Include financial incentives to go above and beyond the target | Incorporation of incentives in EPR schemes to go above and beyond the targets. The idea is to have businesses pay for waste that is not processed correctly or to require them to invest revenue from unclaimed deposit fees/return bonuses in circular activities. | Yes | This might be an effective instrument. Look at Norway, for example. |
| | 35 | Differentiation between responsibilities | Do more to involve stakeholders in setting goals and differentiate more clearly between responsibilities. | No | More of a governance issue. Governance issues do not fall within the scope of this study. |
| | 36 | Require producers to join a PRO | Require producers to join a PRO for collective targets (e.g. include the requirement in the EPR Decree). | No | More of a governance issue. Governance issues do not fall within the scope of this study. |
| | 37 | Introduction of assessment frameworks for PROs. | An assessment framework for the recognition of PROs and a mechanism for granting and revoking recognition of PROs. | No | More of a governance issue. Governance issues do not fall within the scope of this study. |
| | 38 | Mandatory verification by online platforms | Require online platforms to verify whether providers on the platform are members of a PRO. | No | More of a governance issue. Governance issues do not fall within the scope of this study. |
| | 39 | Creation of a public register | Mandatory inclusion of participants (producers) on a public register. | No | Our guess would be that this is not one of the most effective instruments on the longlist. |
| | 40 | Mandatory monitoring | Mandatory monitoring of waste flows (collection, sorting, recycling). | No | More of a governance issue. Governance issues do not fall within the scope of this study. |

## 2.3 Selected instruments

We selected the following instruments from the longlist for further investigation:

- Inclusion of refuse targets in EPR;
- Eco-modulation;
- EPR goals related to recycling methods;
- Inclusion of EPR targets for preparation for re-use;
- Inclusion of material-specific goals;
- Targets for a repair network;
- A repair fund in combination with bonus and/or vouchers;
- Creation of a fund for research on new technologies and methods;
- Introduction of financial incentive for returns by consumers (return bonus, deposit return);
- Inclusion of financial incentives to go above and beyond the target.

Our aim in selecting these instruments was to offer a balanced set of options to promote as many different R-strategies as possible (deciding not to produce/consume, life span extension, repair/refurbishment and high-grade processing). We also selected instruments that are potentially effective (based on an initial assessment and in-house expert opinions). We rejected instruments that are might be effective but probably do not fall within the legal scope of the EPR, such as instruments aimed at imposing standards on product design (see Text box 1).

**Text box 1 - Instruments aimed at imposing standards on product design are not legally feasible within the EPR**

We did not select instruments aimed at imposing standards on product design because these are not legally feasible within the EPR. Article 8 paragraph 2 of the Waste Framework Directive (WFD) states that Member States may take measures

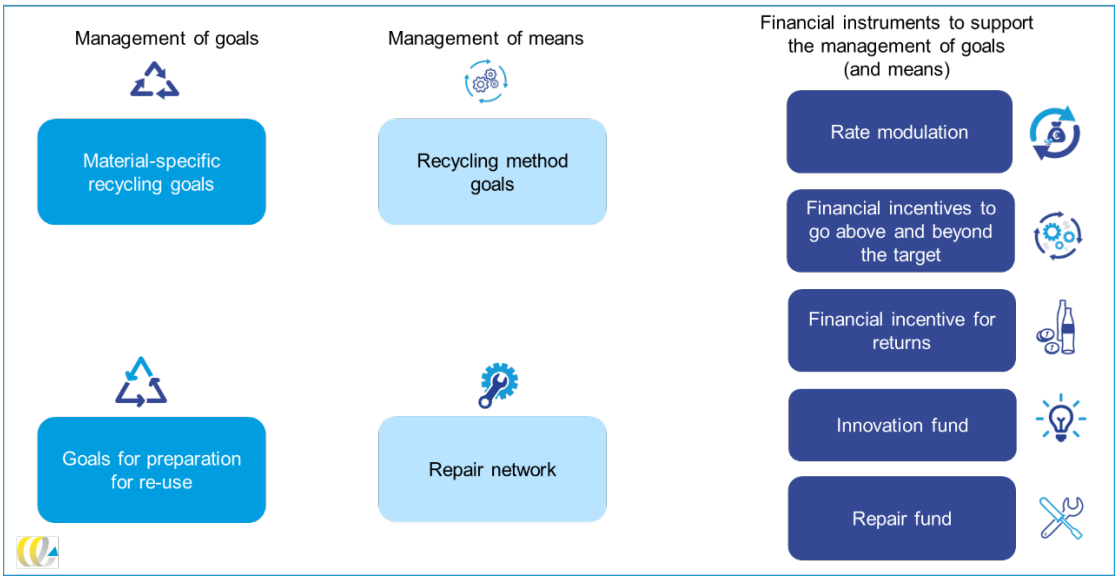
"to **encourage** the design of products and components of products in order to reduce their environmental impact and the generation of waste in the course of the production and subsequent use of products, (...). Such measures may **encourage**, inter alia, the development, production and marketing of products and components of products that are suitable for multiple use, that contain recycled materials, that are technically durable and easily repairable..." (emphasis by the authors).

One might argue that this does not just refer to waste management targets by means of product design measures, but also to (the encouragement of) measures for product design as an end in itself. This would mean that EPR could also include measures requiring producers to modify their product design. However, this interpretation does not make sense in our opinion, because it is not in line with the definition of "EPR scheme" in art. 3 paragraph 21 of the WFD and it is not consistent with the division of competences between the EU and its Member States to take product design measures (ecodesign measures).

Measures prescribing a particular product design, such as a minimum recyclate percentage or modular construction (to facilitate repair) or measures prohibiting the use of certain materials in a product (to enable or simplify recycling) do not fall under the definition of EPR under EU law.

The selected shortlist of measures consists of a mix of goal- and means-related requirements and financial instruments to support the management of goals and means.
The measures “material-specific recycling goals” and “goals for preparation-for-re-use” are concerned with the management of goals. “Recycling method goals” and “repair networks” are means-related requirements, which actually service to specify or supplement the management of goals. The shortlist also includes five instruments that can be used to provide financial incentives to support the management of goals and means. The image below provides an overview.

**Figure 1 - Overview of management measures**




We presented the selected instruments to the guidance committee before finalising the list. The instruments are described in more detail below.

## 1. Inclusion of refuse targets in EPR

The first instrument in the shortlist concerns the inclusion of targets for non-production. This instrument encourages producers to place fewer products on the market, for example by requiring producers to offer products as a service. Targets that are aimed directly at non-production are not legally possible (see legal analysis in paragraph 4.4). However, this does not preclude the use of instruments that can contribute indirectly to reducing the number of products on the market. For example, we can include targets for preparation for re-use and other instruments that promote life span extension, such as eco-modulation based on life span, targets for a repair network and repair funds in combination with vouchers. The feasibility of these instruments are discussed in Chapters 5, 8, 9 and 10.

## 2. Eco-modulation

The second instrument in the shortlist concerns options for eco-modulation. Eco-modulation can be an effective instrument by providing financial incentives for more circular product design. There are five types of modulation, based on:

1. **Recyclate percentage**. Producers pay a lower waste management contribution if their products contain (a particular percentage of) recyclate.
2. **Recyclability**. Products that are easy to recycle are subject to a lower rate than products that are more difficult to recycle.
3. **Life span**. Producers of products with a short life pay a higher contribution than producers of products with a longer life span. Possible ways to implement this are by means of a warranty period or the (future) repair index of the products.
4. **Environmental impact**. Products with a higher environmental burden are subject to a higher rate. Environmental pressure is a broad concept, because it comprises multiple aspects of impact on the environment.
5. **Potential for littering**. Products with a higher potential for littering are subject to a higher waste management contribution.

The basis for modulation should depend on practical feasibility and on whether the indicator is representative for total circularity gains (reduced use of primary raw materials and environmental gains). It makes the most sense to grant products a more attractive rate if the overall environmental score is better than other products as well (this does not necessarily have to be the case, for example if a product with recyclate has a much shorter life span, is much heavier or contains harmful substances), but reduction of raw material usage could be a goal as well. From this point of view, it is preferable to use overall environmental impact as a basis, but this only works if the information is available (e.g. on the basis of the Product Environmental Footprint).

## 3. Material-specific recycling target

The third instrument concerns the inclusion of material-specific recycling targets Almost all existing EPR schemes only include goals for product recycling. These goals are often based on a recycling percentage based on the weight (mass) of products that were produced or discarded in the previous year. This may lead to a situation where materials with low density (e.g. plastics) or materials that are present in very small quantities in a product (rare earth metals) are recycled using low-grade processes or even incinerated or dumped. The purpose of setting material-specific recycling goals is to ensure that these materials undergo higher-grade processing so we can close the loop. One example is the proposal for the European Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles, which includes recycling targets for plastic automotive materials. Another example is fibre-to-fibre recycling in the Dutch EPR for textiles. We investigated whether this would also be possible for other product groups.

## 4. Goals related to recycling methods

The fourth instrument on the list concerns the inclusion of goals related to recycling methods. The purpose of this measure is to ensure that (some of the) collected products undergo higher-grade processing (higher on the R-ladder) than is currently the case on the market, so raw materials can be re-used for similar product applications. This means that the EPR specifies the recycling method and the percentage that must be recycled. This measure is a more detailed specification of the general recycling targets in the EPR schemes.

## 5. Targets for preparation for re-use

The fifth instrument concerns the inclusion of targets for preparation for re-use. This measure specifies what percentage of discarded products must be prepared for re-use. The term "preparation for re-use" is a provision of Dutch waste legislation and the second step in the waste hierarchy set out in art. 10.4 of the Dutch Environmental Management Act This concept is explained further in the third National Waste Management Plan (NWMP3)[4], the future Circular Materials Plan. The Plan defines the term as follows:

*"Preparation for re-use is an action involving waste materials. This action involves the inspection, cleaning or repair of (components of) used products so they can be re-used without requiring further treatment."*

In other words, this measure pertains to products that have been discarded and are therefore considered "waste". This measure does not apply to the repair of products that are kept by consumers after repair within or after the warranty period and are therefore not waste, because those repairs are not within the scope of EPR.

## 6. Targets for a repair network

The sixth instrument concerns the inclusion of goals for a repair network for products that have been discarded by the consumer. These products should generally be covered by a warranty. The warranty is a statutory warranty, sometimes supplemented by a manufacturer's or seller's warranty. In that case, the seller and/or manufacturer are responsible for compliance with the warranty terms and conditions. Many seller organisations and manufacturers use a repair service to perform repairs under warranty. There is usually no repair network for repairs that are not covered by a warranty. This means that it is up to consumers to look for someone to perform the repair and determine whether this person has the appropriate knowledge and expertise to perform the repair. This could be seen as a deterrent, making it easier for consumers to discard the product instead of having it repaired. The European Directive on common rules promoting the repair of goods will result in important new requirements for manufacturers at this stage; manufacturers will generally be required to repair certain goods (that are subject to European repairability requirements) at the consumer's request if the item can still be repaired. The next stage starts when a product has been discarded by the consumer. It may still be possible for a collector or third party to repair the item during this stage. Repair of a discarded product

[4] See Part B, Paragraph B8 of the NWMP3. This Plan is known by the Dutch acronym LAP3.

can be seen as a waste management measure within the scope of the EPR (see the paragraph on legal feasibility for a more detailed explanation).
We need to find out if it is possible to include a provision in the EPR requiring producers to make sure that there are a sufficient number of locations/facilities where products can be repaired after they have been discarded by the consumer. This provision could be expanded by offering a quality mark for repairs.

## 7. Repair fund in combination with vouchers or bonuses

The seventh instrument is a repair fund to provide financial assistance for the repair of worn-out or damaged products. This will pay for (part of the) repairs requested by consumers. This could be done, for example, in combination with:

1. A voucher, which consumers can request (online) from the fund and redeem at a repair shop.
2. A bonus, in the form of a fixed consumer discount for a repair job.

The French repair fund is an example of a repair bonus financed by an EPR measure. Austria and different regions in Germany also use voucher systems for repairs, but as the funds in those schemes are publicly funded they are not examples of EPR measures.

## 8. Funds to encourage innovations

The eighth instrument is a fund to encourage innovations This measure provides a budget, through EPR schemes, for research on new technologies and methods that promote circularity, such as innovative recycling methods, new applications for materials and design technologies that facilitate re-use. An innovation fund would ensure that the uncertain early development stage of new technologies is paid for by producers.

## 9. Financial incentive for returns

The ninth instrument is a financial incentive for returns. This measure encourages consumers to return products by offering a financial incentive to do so. These products can then be re-used or subjected to high-grade processing.

A financial incentive can take various forms:

1. Deposit return: The first type of financial incentive is the classic deposit return system. This system is based on the principle that consumers pay a certain amount at the time of purchase, and this amount is refunded when the product is returned. An example is the deposit return system for plastic bottles, cans and beer bottles.
2. Return bonus: Another variant is the return bonus. Consumers do not pay extra at the time of purchase, but they do receive a partial refund or a discount when they return the product. An example of this is the voluntary initiative of several clothing stores in the Netherlands that offer a partial refund or a discount on a purchase when clothing is returned.

3. “Camping gas system”: A third variant is the type of system that is used for camping gas. Consumers only pay a premium on top of the initial purchase, and the empty container is later exchanged for a new one. Consumers are not allowed to exchange the empty container for cash in this system.

This instrument is especially interesting for products with a high potential for littering. It may also be effective for products that cause significant environmental damage as residual waste during processing and/or collection percentages are still (too) low, which means too much ends up in landfills. Current deposit return systems at the national level are focused primarily on cans and bottles, although there are smaller-scale initiatives that offer return bonuses for textiles, for example, and there are some discussions about deposit returns for products like batteries and electronic cigarettes.

### 10. Inclusion of financial incentives to go above and beyond the targets

The tenth instrument concerns the inclusion of an incentive in the EPR to go above and beyond the targets. The idea is to have companies pay for waste that is not processed correctly or to require them to invest revenue from unclaimed deposit fees/return bonuses in circular activities. This creates stronger incentives to go above and beyond the targets.

## 2.4 Conclusion

This chapter presents a longlist of 40 instruments that can be used to promote circularity through EPR schemes. We narrowed this list down to 10 instruments that were investigated further to asses their legal, technical and economic feasibility. The results of this analysis are presented in Chapters 4 - 13, after a discussion of the legal framework in Chapter 3.

# 3 Legal frameworks

This chapter discusses the current European and national legal frameworks for EPR.

## 3.1 European legal framework

The main directive at the European level is the WFD, which imposes requirements on extended producer responsibility (hereinafter: EPR). When EPR was introduced, it was seen as "one of the means to support the design and production of goods which take into full account and facilitate the efficient use of resources during their whole life-cycle including their repair, re-use, disassembly and recycling without compromising the free circulation of goods on the internal market".[5] In 2018, the WFD introduced general minimum requirements for EPR schemes in addition to the existing general provision regarding extended producer responsibility.[6] All EPR schemes must meet these requirements, unless provided otherwise in product- or sector-specific EU legislation.[7]

The European legal framework can be found in articles 8 and 8a of the Waste Framework Directive[8] (hereinafter: WFD) which include general requirements for EPR schemes, and in several product- or sector-specific directives and regulations that mandate EPR under European law, for example for batteries[9] or packaging.[10] These product- or sector-specific implementations, which deviate in part from the general WFD framework, are not included in this overview. Art 22a of the future amendment to the WFD includes an EPR scheme for textiles. In EU law, such a product-specific EPR scheme is usually provided for in product-specific directives and regulations only, but in this case the legislators chose to include the scheme for this product group in the framework directive itself. This future scheme deviates on a few points from the general scheme for minimum requirements in articles 8 and 8a of the WFD with regard to textiles.

5 See Recital 27 of Directive 2008/98/EC.

6 Art. 8a of the WFD.

7 For more information see Paragraph 1.3. In other words, this applies to EPR schemes pursuant to requirements under European law and to EPR schemes pursuant to national law. In addition, Member States are free to determine if they want to apply some or all of these minimum requirements to voluntarily adopted EPR schemes as well.
See art. 8(1) of the WFD.

8 Full reference: Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

9 Regulation (EU)2023/1542 concerning batteries and waste batteries.

10 Directive 94/62/EC on packaging and packaging waste. This Directive has been replaced by Regulation 2025/40 of 19 December 2024, which includes additional and partially derogating EPR provisions for these product groups (abbreviated as PPWR, see also https://www.consilium.europa.eu/en/press/press-releases/2024/03/04/packaging-council-and-parliament-strike-a-deal-to-make-packaging-more-sustainable-and-reduce-packaging-waste-in-the-eu/. The PPWR took effect on 11 February 2025 and will apply to Member States as of 12 August 2026.

## Definition

As of 2018, the WFD includes a definition of the term "extended producer responsibility scheme". This definition is as follows:

> "*a set of measures taken by Member States to ensure that producers of products bear financial responsibility or financial and organisational responsibility* ***for the management of the waste stage*** *of a product's life cycle.*"[11]

According to the WFD, a producer is "any natural or legal person who professionally develops, manufactures, processes, treats, sells or imports products.[12]
An EPR scheme may pertain to a producer's financial responsibility only, or to a financial and organisational responsibility. As discussed earlier in paragraph 2.1, this responsibility concerns the waste stage of the product life cycle, including activities related to separate collection, sorting and processing. Producers may meet the requirements under the EPR scheme either individually or collectively.[13] In the event of collective compliance, producer responsibility organisations (hereinafter: PRO) play a key role.[14]

According to the above definition, EPR schemes are primarily concerned with waste management measures. In other words, it concerns (separate) collection, possibly supported by deposit and return systems, etc., preparation for re-use, including repair (of waste materials), recycling and other forms of recovery of waste, including any related activities, such as educating the public, for example through campaigns (see also art. 8(1), section 2, of the WFD). These measures may serve/are taken to prevent waste; in other words, the **goal** is waste prevention. Waste prevention comprises "measures taken before a substance, material or product has become waste, that reduce: (a) the quantity of waste, including through the re-use of products or the extension of the life span of products; (b) the adverse impacts of the generated waste on the environment and human health; or (c) the content of harmful substances in materials and products".

The relationship between waste management measures in EPR schemes and waste prevention is made clear in art. 8(2) of the WFD, in the Preamble to the Directive amending the WFD of 2018 (Directive (EU) 2018/851), and in the Preamble to the WFD itself. For example, Recital 27 of the WFD states that the introduction of the concept of extended producer responsibility is one of the means to support "the design and production of goods which take into full account and facilitate the efficient use of resources during their whole life-cycle including their repair, re-use, disassembly and recycling".[15] The EU Court of Justice also explicitly pointed out in the Vysočina Wind case that the aim of the EPR provisions in the WFD is to encourage producers to take circularity aspects into account in their product designs and facilitate circular applications of their products.[16] However, the aim of the EPR and the content of EPR measures are two separate things. What we understand the description of the objective

11 Art. 3(21) of the WFD, emphasis by the authors.
12 Art. 8(1) of the WFD.
13 See Recital 14 of Directive (EU) 2018/851. Similarly, Recital 27 of the Preamble to the WFD (Directive 2008/98/EC).
14 Vermeulen, Backes, de Munck, Campbell-Johnston, de Waal, Rosales Carreon, Boeve 2021, p. 11.
15 Recital 27 of Directive 2008/98/EC.
16 EU Court of Justice 25 January 2022, C-181/20, Vysočina Wind, ECLI:EU:C:2022:51, paragraph 59.

on the one hand, and the definition and description of EPR scheme in art. 3(21) of the WFD and articles 8 and 8a of the WFD on the other hand, to mean is that the aim of the waste management measures that may be imposed on producers is (inter alia) to prevent waste, for example by modifying the product design. However, product design itself is not a waste management measure and is therefore not covered by EPR. There is one provision in the WFD that could be interpreted differently, however. Article 8(2) of the WFD states that Member States may take measures "that ***encourage*** *the design of products and components of products in order to reduce their environmental impact and the generation of waste in the course of the production and subsequent use of products (...).*
*Such measures may* ***encourage****, inter alia, the development, production and marketing of products and components of products that are suitable for multiple use, that contain recycled materials, that are technically durable and easily repairable..."* (emphasis by the authors). One might argue that this does not just pertain to waste management objectives by means of product design measures, but also to (the encouragement of) product design measures as an end in itself. This would mean that EPR could also include measures requiring producers to modify their product design. However, we do not think this interpretation makes sense, among other reasons because this would not be in line with the definition of EPR in article 3(21) of the WFD and is not consistent with the division of competences between the EU and its Member States with regard to product design measures (ecodesign measures). Since product requirements concern the regulation of the internal market, these types of measures are usually taken by the EU, not by Member States. In a similar vein, the text of article 8(2) does not compel an interpretation that creates tension with the definition of EPR and with other parts of article 8 and article 8a of the WFD. We therefore assume that the intent of article 8(2) of the WFD is that Member States may take **waste management** measures as part of an EPR scheme for the **purpose** of **encouraging** producers to use circular product design and to **encourage** circular product design.

In light of the above, we conclude that the definition of the term EPR under EU law and the EPR provisions under EU law pertain to waste management measures whose aim is (inter alia) to encourage producers to use circular product design. Measures prescribing a particular product design, such as a minimum recyclate percentage in a product, modular construction (to increase repairability) or prohibiting the use of certain materials in a product (to enable or simplify recycling) therefore do not fall under the definition of EPR under EU law. Paragraph 3.2 considers the same question from the perspective of national law.

## Extended producer responsibility under the WFD: minimum requirements

The WFD states that Member States may take legislative or non-legislative measures to ensure that producers have extended producer responsibility. They shall take into account the technical feasibility and economic viability and the overall environmental, human health and social impacts, respecting the need to ensure the proper functioning of the internal market.[17]

Article 8a of the WFD lists the minimum requirements for EPR schemes. These minimum requirements were introduced in light of significant differences between Member States in

17 Art. 8 of the WFD.

terms of the efficiency and effectiveness of EPR schemes.[18] The other purpose of the minimum requirements is to reduce costs and boost performance and to ensure a level playing field and the smooth functioning of the internal market In short, the purpose of the minimum requirements is to improve the governance and transparency of EPR schemes.[19]

As stated before, all EPR schemes adopted by the government must meet the minimum requirements.[20] In other words, this applies to EPR schemes pursuant to obligations under European law and to EPR schemes pursuant to national law. In addition, Member States may decide if some or all of these minimum requirements apply if producers "undertake financial or financial and organisational responsibilities for the management of the waste stage of a product's life cycle of their own accord".[21] Moreover, it concerns minimum requirements, as stated in 1.2. Member States may impose other requirements, such as targets for the repair of waste materials.

## General minimum requirements for Member States

Member States are responsible for the following:

- **Setting targets for waste management**. This should be done in accordance with the waste hierarchy for the purpose of achieving, at a minimum, the quantitative targets under the WFD or other European regulations and the targets under the relevant EPR scheme.[22] One example in this context is the target from the Directive on waste electrical and electronic equipment (Directive 2012/19/EC) to collect at least 65% per year of the weight of goods that were marketed during the past three years or 85% of the weight of generated waste electrical and electronic equipment.[23]

- Setting up **a reporting system** to gather data about products that are subject to the EPR and about the collection and treatment of waste from those products.[24]

- **Providing a clear description of the duties and responsibilities of all actors involved**. This includes, at a minimum, producers, PROs, private or public waste operators and the local authorities. Where appropriate, this may also include re-use and preparing for re-use operators and social economy enterprises.[25]

18 Backes & Boeve 2022, p. 6.
19 See Recitals 21 and 22 of Directive (EU) 2018/85.
20 Unless EU law itself specifies an exception, see for example art. 8a(4(a)) at the end or art. 8a(7) of the WFD.
21 See art. 8(1) of the WFD.
22 Art. 8a(1(b)) of the WFD.
23 Art. 7(1) of Directive 2012/19/EC. This directive is also known as the WEEE Directive
24 Art. 8a(1(c)) of the WFD
25 Art. 8a(1(a)) of the WFD.

- Ensuring **equal treatment and non-discrimination of producers**, without imposing a disproportionate regulatory burden.26

- Taking measures to ensure that waste holders are **informed about waste prevention measures** and **the creation of incentives**, such as financial incentives and regulations to ensure that waste holders deliver their waste to existing systems for separate collection.27

- Taking measures to ensure that any producer of a product subject to an EPR scheme meets **the various formal, financial and**, if applicable, **organisational requirements**. This includes making suitable waste collection systems available within a clearly described geographical area, ensuring the producer has access to sufficient financial and (if applicable) organisational means to fulfil its obligations under the EPR scheme, and publishing information about the attainment of collection or treatment targets.[28]

- Taking measures to ensure that **the financial contributions** paid by producers in fulfilment of their EPR obligations meet a number of requirements.

- Adopting **a suitable framework for monitoring and enforcing** compliance with the obligations under the EPR schemes. Compliance with these obligations includes distance sales, correct use of financial resources and the provision of reliable data by the actors involved.

- Ensuring **a regular dialogue between all relevant stakeholders** involved in the implementation of EPR schemes. This includes at a minimum: producers and distributors, waste operators, local authorities, civil society organisations, social economy actors, re-use and repair networks and preparing for re-use operators [29]

## Responsibilities of producers and PROs

The general minimum requirements also contain important obligations for producers and PROs. Member States must take measures to ensure compliance with these obligations by the relevant producers or PROs. This includes the following:

- Producers and PROs cannot limit their **services to areas, products or materials that are profitable in terms of collection and waste management**. In other words, "cherry picking" is not allowed. They are also responsible for ensuring the continuity of waste management services, even if the statutory targets have been met.[30]

26 Art. 8a(1(d)) of the WFD
27 Art. 8a(2) of the WFD.
28 Art. 8a(3) of the WFD.
29 Art. 8a(6) of the WFD.
30 Art. 8a(3(a)) of the WFD. See also: Recital 25 of Directive (EU) 2018/851 and Backes & Boeve 2022, p. 8.

- **The producer or PRO must make suitable waste collection systems available.**[31]

- The producer or PRO must have the **necessary financial means or financial and organisational means** to meet its obligations under the EPR scheme.[32]

- The producer or PRO must **publish information** about the attainment of collection or treatment targets In case of collective fulfilment, PROs must also publish information about aspect such as the selection procedure for waste operators.[33]

### *Financial responsibilities*

There are also obligations that pertain specifically to the financial contributions producers are required to pay to meet their EPR obligations. These financial contributions are to cover the costs of:

- costs of **separate collection** of waste and its subsequent **transport** and **treatment**, including treatment necessary to meet the EU waste management targets, and costs necessary to meet other EPR targets, taking into account the revenues from re-use, from sales of secondary raw material from its products and from unclaimed deposit fees;
- **Providing adequate information to waste holders;**
- **Gathering and reporting data.**[34]

In case of collective implementation by a PRO, there is an additional requirement that these costs are to be **modulated** if possible, taking into account aspects such as durability, repairability, re-usability and recyclability and the presence of hazardous substances. This should be done on the basis of a life-cycle approach in alignment with the requirements under EU law and based, if applicable, on harmonised criteria.[35] And last, an important precondition is that the financial contributions paid be producers to fulfil their EPR obligations do not exceed “the costs that are necessary to provide waste management services in a cost-efficient way”.[36] The calculation of the costs that can and must be charged to producers should take into account “the revenues from re-use, from sales of secondary raw material from its products and from unclaimed deposit fees” (art. 8a(4(a)) of the WFD).

## 3.2 National legal framework

In terms of national law, relevant EPR provisions are set out in the Dutch Environmental Management Act (hereinafter: EMA), the Dutch EPR Scheme Decreeand the specific EPR schemes.

31 Art. 8a(3(b)) of the WFD.
32 Art. 8a(3(c)) of the WFD
33 Art. 8a(3(e)) of the WFD
34 Art. 8a(4(a)) of the WFD. These requirements do not apply to EPR schemes arising from Directive 200/53/EC (end-of-life vehicles), Directive 2006/66/EC (batteries) or Directive 2012/19/EC (WEEE).
35 Art. 8a(4(b)) of the WFD.
36 Art. 8a(4(c)) of the WFD

## Mandatory EPR schemes under EU law and supplemental national schemes

In the Netherlands we have **mandatory EPR schemes pursuant to European law** (for waste electrical and electronic equipment, batteries, end-of-life vehicles, packaging and packaging waste) and **national EPR schemes** (for passenger car tyres and for textiles).[37]

**EPR schemes on the basis of a governmental decree and pursuant to an agreement that has been declared generally binding**

Within the Dutch legal framework, producer responsibility for specific products can be laid down in a Governmental decree or by declaring an agreement between producers universally binding.[38] A request to declare an agreement universally binding can only be granted if the producers represent a significant majority of the total number of businesses that produce or import the product.[39] If the request is granted, all the producers of the products in question are required to pay a waste management contribution to the PRO. An AVV may be issued whether an EPR is imposed by law (currently for portable batteries, bicycle batteries, packaging, cars and electrical and electronic equipment) or not (currently for glass panes, mattresses and paper and cardboard).

All these EPR schemes are subject to the minimum requirements in article 8a of the WFD, regardless of whether these have been specified in further detail in a governmental decree or an AVV.[40] For mandatory EPR schemes, these minimum requirements are included in the EPR Scheme Decree. If an agreement on a waste management contribution has been declared universally binding on the basis of art. 15.36(1) of the Environmental Management Act, this is an EPR scheme as well in accordance with the definition in article 1.1 of the Environmental Management Act. However, according to the Explanatory Memorandum, it follows from art. 1(2) of the EPR Decree that this decree does not apply to EPR schemes that are based on an order declaring an agreement universally binding.[41] This is part of the reason why article 15.36(1) of the Environmental Management Act states that an agreement on a waste management contribution concluded voluntarily by the industry can only be declared universally binding if it is consistent with article 8a of the WFD.

It is easier to transpose the measures discussed in this report (to promote circularity through EPR measures) into EPR schemes if they are based on a governmental decree, because the frameworks are laid down by law in that case. However, it certainly not impossible to encourage the inclusion of elements aimed at increasing circularity as discussed in this report in EPR schemes that are legally based on an agreement between producers that has been declared universally binding. The Minister is therefore not required, pursuant to article 15.36(1) of the Environmental Management Act, to declare an agreement presented by producers universally binding, as this is a discretionary power.

37 The organisation of an EPR scheme for litter from certain single-use plastics (set out in the Dutch Regulation on single-use plastics in implementation of the Single-use plastics (SUP) Directive has been postponed for the time being, *Parliamentary Papers II* 2024/25, 30872, no. 302.

38 Art. 15.35 of the Environmental Management Act. Such a generally binding declaration of an agreement on a waste management fee is known by the Dutch abbreviation "AVV".

39 Art. 15.37(1) of the Environmental Management Act.

40 Art. 15.36(1) of the Environmental Management Act; for AVVs see also: Dutch Regulation on declaring an agreement on a waste management contribution universally binding (hereinafter: Regulation on AVV requests). The Regulation on AVV requests includes topics that must be addressed in the agreement and in the supplemental data. These data can then be used to determine whether the agreement complies with art. 8a of the WFD and the efficiency obligation (art. 15.36(1) of the Environmental Management Act). For more information see: Backes and Boeve 2022, p. 14-17.

41 EPR Scheme Decree, Explanatory Memorandum, Bulletin of Acts and Decrees 2020, 375, p. 7.

An important criterion in the decision to declare an agreement universally binding is the question, pursuant to article 15.36(1) of the Environmental Management Act, whether this "proves necessary in the interests of efficient waste disposal". This certainly includes the transition to a circular economy insofar as the EPR instrument can be deployed to that end.[42] Although no legal precedent has been set yet, we are of the opinion that a request to declare a waste management contribution agreement universally binding may be denied if the agreement does not contribute sufficiently to the transition to a more circular economy. The exact limit of this power (to deny the request) cannot be predicted with certainty.

### Definition of EPR

Under national law, the definition of EPR is included in article 9.5(2) of the Environmental Management Act, partly in implementation of the WFD. Article 9.5.2(3), Preamble and (b) of the Environmental Management Act states: "The rules referred to in paragraph 1 may also include rules requiring anyone who places substances, preparations or products on the market[1] to bear some or all of the financial or financial and organisational responsibility for the collection and management of the waste that remains after those substances, preparations or products have been used.. In the case of an extended producer responsibility scheme, the obligations arising from this scheme may also be fulfilled by an organisation which complies with the extended producer responsibility scheme on behalf of the first party."
The EPR Scheme Decree in partial implementation of article 9.5.2 of the Environmental Management Act does not provide a definition of EPR or an exhaustive, unambiguous specification of the obligations that may be imposed on producers and producer responsibility organisations in the context of the EPR. However, the substance of the EPR Scheme Decree pertains to waste management measures, including information from waste holders in this regard. In other words, the national legal EPR frameworks also appear to assume that EPR schemes can impose obligations regarding waste management measures on producers only.

## 3.3 Limitations regarding producer responsibilities

There are several limitations with regard to the (financial) responsibilities of producers and PROs.

The first important limitation regarding coverage of the costs of separate waste collection, transport and treatment applies to products with a long life span. It appears to follow from previous decisions of the EU Court of Justice that the obligation to pay for the collection and treatment of products does not apply to products that were sold before the EPR scheme took effect.[43] The Court concluded that this follows from the principle of legal certainty. The Court also found that an exception to the principle that legal provisions cannot be enforced retroactively is not justified in this case. The remarkable reason that was given for this, is that the purpose of EPR provisions is to encourage producers to take circularity aspects into account in their product designs and to facilitate circular applications of their products This goal can no longer be attained through retroactive application. In short, it follows from this judgement that producers can only be held responsible for the costs

42 See the explanatory notes on the definition of EPR above and below.
43 EU Court of Justice 25 January 2022, C-181/20, ECLI:EU:C:2022:51, VYSOČINA WIND, legal grounds 47-61. This

case concerned an order declaring art. 13(1) of Directive 2012/19/EC on solar panels invalid

of the collection and treatment of products that were sold after the EPR scheme took effect. This means that the financial obligations for products with a long life span will by and large not take effect for a long time, or only gradually, or that funds will need to be set up to mitigate these costs.[44]

The second limitation has to do with the fact that the costs of waste management cannot exceed the costs that are necessary to provide waste management services in a cost-efficient way.[45] These costs need to be specified in a transparent manner. The question is whether the costs that can be imposed on producers are also limited by the targets that are set for each EPR scheme. Producers must cover the costs that are required to meet the waste management targets and other targets set out in the relevant EPR scheme.[46] Furthermore, they are also responsible for providing an "appropriate collection system". This obligation is not limited to a particular collection target.[47] In other respects, it is not clear from art. 8a(4(a)) of the WFD that the financial responsibility of producers is limited to costs that are necessary to meet the abovementioned targets. It is not clear in this provision whether art. 8a(4(a)) indicates the minimum financial responsibility of the producers, or whether this provision presents a limitative and therefore exhaustive list of financial responsibilities.

In our opinion, the latter interpretation, which assumes an exhaustive, limitative list of costs that may be imposed on producers, would be incompatible with art. 14(2) of the WFD. This article states the following: "Without prejudice to Articles 8 and 8a, Member States may decide that the costs of waste management are to be borne partly or wholly by the producer of the product from which the waste came (.)." This seems to means that Member States may decide to have producers pay for all the costs of waste management, i.e. not just the costs of measures that are needed to meet certain EPR targets. The bottom line is that producers bear the full (financial) responsibility. In other words, article 14(2) of the WFD seems to imply that art. 8a(4) of the WFD merely lists the costs that should be borne at a minimum by producers. There are also cases in EU law where the producers must be required to bear additional or even all waste management costs, not just insofar as these costs are necessary to meet certain targets. For example, art. 8(2) of the Single-use plastics Directive states that Member States must also hold producers responsible, within the context of EPR, for the waste management costs for certain single-use plastics insofar as these are not (required to be) collected separately and end up in landfills, and for the costs of litter removal. In other words, this is an obligation to bear all waste management costs for all marketed products, i.e. not just insofar as this is needed to meet existing collection and recycling targets. For the time being, we are of the opinion that Member States may choose, even in cases where EU law does not impose any obligations, to make producers fully financially responsible for all waste management costs resulting from products they place on the market, as stated in art. 14(2) of the WFD, which is not barred by art. 8a(4) of the WFD. We cannot be entirely sure that this is the case, however.

44 For more information see also: Backes and Boeve 2022, p. 9.
45 Art. 8a(4(c)) of the WFD
46 Recital 26 of Directive (EU) 2018/851.
47 Art. 8a(3) of the WFD.

We do know that art. 8a of the WFD will not be affected, which means that producers can only be required to bear costs that are necessary to provide waste management services in a cost-efficient manner.

The third limitation is connected with the statutory targets for EPR schemes. EPR schemes, i.e. the performance of producers or the PRO, are evaluated on the basis of whether or not they met the specified targets. The current targets tend to be quantitative and aimed mostly at the collection and treatment (primarily recycling) of discarded products. In practice, this means that producers and PROs focus on quantitative recycling instead of qualitative recycling or higher-level R strategies such as re-use or repair.[48] This may hinder the transition to a circular economy..

The fourth limitation is related to the enforcement of specified targets. In the Netherlands, at least, we only have a limited number of enforcement options (under public law) if PROs fail to meet their EPR targets.[49] The reason for this is that penalties for non-compliance can be imposed only if the subject of the fine has the ability to comply with the law and is therefore able to prevent the fine. Full compliance with EPR targets often requires cooperation from third parties, like consumers (in their capacity as waste discarders) and, to a certain extent, municipalities. PROs can take the necessary action and take measures to meet collection and recycling targets, but the attainment of those goals is not fully within their control. The Court therefore ruled that fines cannot be imposed for failure to meet the statutory targets, but they can be imposed for failure to take adequate measures aimed at meeting the targets.[50] Annex C includes a table which shows how the key EPR provisions from the Waste Framework Directive have been transposed into Dutch law.

48 De Waal 2024.
49 See for example Administrative Jurisdiction Division of the Dutch Council of State 16 September 2020, ECLI:NL:RVS:2020:2234.
50 See Backes and Boeve 2022, p. 23.

# 4 Inclusion of refuse targets in EPR

## 4.1 Description

Inclusion of binding targets for abandoning production. This instrument encourages producers to place fewer products on the market, for example by requiring producers to offer products as a service.

Targets that are aimed directly at non-production are not legally possible (see legal analysis in paragraph 4.4). However, this does not preclude the use of instruments that can contribute indirectly to reducing the number of products on the market. For example, we can include targets for preparation for re-use and other instruments that encourage the extension of product life span, such as eco-modulation based on life span, targets for a repair network and repair funds in combination with vouchers. The feasibility of these instruments are discussed in Chapters 5, 8, 9 and 10.

## 4.2 Technical feasibility

The technical feasibility of instruments that indirectly encourage reduced production are presented in Chapters 5, 8, 9 and 10.

## 4.3 Economic feasibility

The economic feasibility of instruments that indirectly encourage reduced production are presented in Chapters 5, 8, 9 and 10.

## 4.4 Legal feasibility

The first question we need to ask with regard to this instrument is whether “refuse targets” fall within the definition and the legal framework of the EPR.

According to the WFD, waste prevention refers to measures that are taken before a substance, material or product becomes waste, in order to reduce: 1) the quantity of waste, including through the re-use of products or the extension of the life span of products, 2) the adverse impacts of the generated waste and 3) the content of hazardous substances in materials and products.[51] While waste prevention also includes activities such as re-use or life-span extension through repair, the proposed “refuse targets” within the framework of this study are aimed at prohibiting consumption or measures to reduce consumption. In other words, waste prevention, the highest step in the waste hierarchy, is a broader concept than the
R strategy “refuse”, the highest step in the R hierarchy. We understand “inclusion of refuse targets in the EPR” to mean that producers should be made responsible

[51] Article 3(12) of the WFD.

for measures aimed at reducing the use of certain products. As explained before, EPR is about waste management measures. These waste management measures may also have a (secondary) goal of waste prevention, but in our opinion the primary focus should be on measures regarding the waste stage of products. A responsibility to reduce the number of products sold does not fall within this scope. Producers can therefore not held responsible under the EPR for meeting refuse targets. It might be possible to use eco-modulation to contribute to certain refuse targets, but that is a different approach than including mandatory refuse targets in an EPR scheme.

European regulations currently include a few provisions and requirements that are classified as "refuse targets" in this study, like the prohibition of certain plastic products for single use from the Single-Use Plastics Directive and the consumption reduction measures for lightweight plastic carrier bags. It should be noted, in line with the above perspective, that these examples were all introduced as separate measures, not as components of EPR schemes. Case in point: EPR was not mentioned with regard to the establishment of the consumption reduction measure for lightweight plastic carrier bags (Directive (EU) 2015/720), and the obligation for Member States was laid down in article 4 of the Packaging and Packaging Waste Directive.[52] Similarly, the provision regarding consumption reduction and the prohibition on placing certain single-use plastics on the market, in accordance with articles 4 and 5 of the SUP Directive, are separate from the EPR provisions set out in the Directive for single-use plastics. Although the adoption of national consumption reduction targets is mentioned as an example of a measure to achieve a quantitative consumption reduction in the territory of a Member State, no explicit connection is made with establishing such a target in an EPR scheme.[53]

Even if we look at EPR schemes set out in the Packaging and Packaging Waste Directive and the future Packaging and Packaging Waste Regulation, the End-of-Life Vehicles Directive, the Batteries Regulation (formerly the Batteries Directive), the WEEE Directive, the SUP Directive and the proposal to introduce an EPR for textiles in the WFD, we find that none of these European EPR schemes include any "refuse targets". As explained before, any measures and provisions in these directives and regulations that are similar to the examples mentioned above, such as measures for the sustained reduction of lightweight plastic carrier bags,[54] are separate from any EPR scheme. An interesting point in this context is that the Preamble to the Packaging and Packaging Waste Regulation states that EPR schemes may be used by Member States as a measure to meet waste prevention targets, but that these measures should be taken "parallel and in addition to" other measures to reduce packaging waste. This is in line with our argument above. One of the examples of such reduction measures that were mentioned are measures for the permanent reduction of the use of lightweight plastic carrier bags.[55] It follows that EPR can be seen as an instrument to contribute to "refuse targets", but that these refuse targets must be established parallel and as a supplement to EPR

[52] Article 1a-1c of the Packaging and Packaging Waste Directive.

[53] Article 4(1) of the SUP Directive.

[54] See for example article 34 of the Packaging and Packaging Waste Regulation (hereinafter: PPWR). Also see the provision regarding the prevention of packaging waste and related targets in article 43 of the Packaging and Packaging Waste Regulation.

[55] See article 43(5) and Recital 121 of the Packaging and Packaging Waste Regulation.

schemes, and producers can therefore not held responsible within the EPR framework for meeting these refuse targets.

In addition to the above, we should also mention that the Packaging and Packaging Waste Regulation includes a provision which requires Member States to make sure that a minimum amount is set aside in the budget for EPR schemes to finance waste reduction and prevention measures.[56] Introducing a similar obligation for other product categories as well may also be a way to ensure that EPR schemes contribute more to "refuse".

[56] Article 51 of the Packaging and Packaging Waste Regulation.

# 5 Eco-modulation

## 5.1 Description

With eco-modulation, the waste management contribution is modulated on the basis of the selected grounds for modulation. There are different ways to do this. The basis for modulation depends on practical feasibility and on whether the indicator is representative for circularity gains (reduced use of primary raw materials and environmental gains). There are different grounds on the basis of which the rates can be modulated. In this study we take a look at five different methods, based on:

- **Recyclate percentage**. Producers pay a lower waste management contribution if their products contain (a particular percentage of) recyclate.
- **Recyclability**. Products that are easy to recycle are subject to a lower rate than products that are more difficult to recycle. Verpact introduced this eco-modulation method in 2024. Producers are eligible for a rate discount if they meet certain requirements, such as using only one type of material, transparent or white packaging, labels that meet specified requirements, etc. (Circular Plastics, 2023). The primary concern here is not circularity as such, but the costs incurred by PROs. Products that are easy to recycle will be cheaper for PROs than products that are difficult to recycle.
- **Life span**. Producers of products with a short life pay a higher contribution than producers of products with a longer life span. One way to achieve this is through a warranty period. A practical approach might be to base the eco-modulation on the score of the repair labels that will become mandatory under the Ecodesign Regulation. France has already introduced this score, from 1 (least repairable) to 10 (most repairable), for electronic equipment
- **Environmental impact**. Products with a higher environmental burden are subject to a higher rate. Environmental burden is a broad concept, because it comprises multiple aspects of impact on the environment. The Ecodesign Regulation might be a useful tool in the assessment of environmental impact.
- **Potential for littering**. Products with a higher potential for littering are subject to a higher waste management contribution.

## 5.2 Technical feasibility

### Based on recyclate percentage

In order implement eco-modulation based on recyclate percentage, products must consist of recyclable materials, and the recyclate percentage must be easy to measure. The fewer materials are used in a product, the easier it is to make this distinction.

Eco-modulation based on recyclate percentage is used in France, for example. The rate is determined on the basis of a bonus-malus system called “eco-modulation”, where an additional fee or a discount is applied to certain product characteristics.

One of these characteristics is the recycled content of the product. The discount for recycled plastic ranges from € 0.05 to € 0.45 per kilogram, depending on the type of recycled material. The discount for textile is € 0.50 to € 1 per kilo, depending on its origin. Appliances and electronic equipment are eligible for a discount on the waste management contribution as well, provided they contain a minimum percentage of recyclate (Netherlands Embassy in France, 2024).

The Joint Research Centre has prepared a report within the context of the Ecodesign Regulation with an analysis of each product group and the ecodesign requirements for that group (EC: JRC et al., 2024). The report covers the following product groups: diapers and incontinence products, mattresses, cosmetics, detergents, fishing nets, furniture, lubricants, paints, textiles and shoes, toys and tyres. Many of the analysed product groups are (also) subject to the EPR laws. The analysis shows that it may be technically feasible for several product groups to implement policies based on recyclability and recyclate percentage. The report concludes that the following products under the Ecodesign Regulation are suitable for example for minimum recyclate percentage requirements: textiles, furniture, mattresses, fishnets, car tyres and electronics. It is therefore likely that eco-modulation on the basis of recyclate percentage will be technically feasible for these products.

**Text box 2 - Recycle options for products**

One study on priorities for products within the Ecodesign Regulation lists several examples of options and limitations for specific product groups with regard to recycling (EuRIC, 2023). The study states, for example, that a recyclate percentage of 10 to 20% for **car tyres** should be feasible on the basis of the latest technologies, even though rubber is not the same thing as plastic. It might be possible to add recycled materials to **diapers and incontinence products** in the future, but this is not the case yet. The EuRIC study concludes the use of recycled materials in **textiles** is still a complex proposition as well, and that the use of such materials might be at the cost of other sustainability aspects, such as durability.

In terms of alignment with the Packaging and Packaging Waste Regulation, it should also be noted that the Critical Raw Materials Act itself mentions the potential positive effect of EPR on the circularity of rare earth metals by means of eco-modulations based on the content of secondary critical raw materials. “Each Member State shall take national measures with a view to setting up a waste management contribution system which promotes the use of products that contain more secondary critical raw materials (see article 26(1(g)) CRM Act) from recycled waste”.

## Based on recyclability

Another form of modulation could be based on recyclability. This approach does not focus on recyclate percentage, but on how well the product can be recycled in the waste stage. What is important is that materials are easy to separate and that the materials are as uniform as possible.

This type of eco-modulation was implemented in the Netherlands by Verpact in 2024. Producers are eligible for a discount on the waste management contribution if the packaging meets certain requirements. The starting rate for packaging is € 1.22 - € 1.32 per kilogram, with a € 0.10 discount if the packaging meets the preconditions and complies with the discount steps. The maximum discount is € 0.50. The discounts are applied if the packaging is transparent or white; the packaging material consists of one type of material; the labels meet the applicable requirements; the packaging has passed the ‘KIDV Recycle Check’ (The Netherlands Institute for Sustainable Packaging is known by its Dutch

abbreviation “KIDV”.); and/or the packaging is recyclable in accordance with the applicable criteria (Circular Plastics, 2023).

The background and goal of this modulation is not increased circularity as such, but the difference in packaging recycling cost incurred by Verpact.

As of 2025, the French eco-modulations within the framework of the EPR for textile are a form of modulation based on recyclability as well. For example, they impose a higher contribution (malus) on textile waste management if the product contains materials that are difficult to recycle or that interfere with the recycling process of the product. This includes metallic fibres and electronic or the presence of electrical components such as LED lights and heating elements (Re_fashion, n.d.).

These examples suggest that eco-modulation based on recyclability should be technically feasible for textiles and packaging. The JRC study on ecodesign measures (2024) concludes that furniture, mattresses, fishnets, car tyres and electronics are candidates for policies based on recyclability as well (see also the recyclate percentage analysis) (EC: JRC et al., 2024).

**Text box 3 - Notes on recyclability**

The EuRIC study (2023) analyses the current recycling possibilities for a number of products (EuRIC, 2023). Sealants used on **car tyres** are a potential issue because these cannot be separated from the tyres at the end of their life span, which means the tyres cannot be recycled and may even cause problems when they end up in the recycling system. **Fishnets** are often difficult to recycle, because their quality deteriorates sharply as a result of wear and tear. Any potential for improvement consists of preventing loss, producing traceable nets, reducing the number of materials and polymers that are used, improving disassembly, and using biodegradable materials. With regard to **diapers**, their design currently precludes circularity. Improvement may be possible by making it easier for consumers to separate the different components. Hazardous substances are in issue with **mattresses**. Improvement is possible by making it easier to separate the different layers; components that are glued together are difficult to recycle.

## Based on life span

Eco-modulation based on life span applies higher waste management contributions for products with a shorter life span. One practical way to implement this principle could be to use the manufacturer’s warranty or the repair index as a basis.

Once again, an example of eco-modulation based on the repair index has been implemented in France, specifically for fast fashion. They are working on a legislative proposal which would link the contribution to a durability label, where a bonus-malus system would determine which characteristics result in an added fee or a discount. One of the criteria is physical durability, i.e. how resistant a product is to wear and tear, such as ageing and abrasion.

The potential for life span extension is also included in JRC (2024). For a number of products, “requirements regarding the availability of warranties” is mentioned as a possible measure under the Ecodesign Regulation in combination with other measures for extending the physical life span of products. Car tyres, textiles and electronics are a few of the products for which this measure has been suggested and which are therefore possible candidates for eco-modulation based on life span. Another idea is to use a more favourable rate for refillable packaging or rechargeable batteries, for example.

**Text box 4 - Potential for life span extension**

The EuRIC study also mentions possibilities for life span extension for a number of products (EuRIC, 2023). There is room for improvement, for example, with regard to the life span of **diapers**, in particular in terms of an optimal performance guarantee and proper disposal instructions to ensure minimal leakage. The life span of **mattresses** can vary widely, from 10 to 35 years. Technical improvements in mattresses to guarantee an adequate life span could be considered. Modular design, to improve the life span of the materials that are used, has potential as well. **Fishnets** are a major expense for fishermen, and the loss of fishnets is usually not intentional. Their life span can be extended through modular design and facilitating disassembly. Making the nets traceable is another option. With regard to **textiles**, the life span of an article is a crucial factor in reducing the environmental impact of the fibres. One of the main reasons why consumers discard an article is changes in the appearance of the article due to fading, holes, sagging, etc. Measures that promote durability to mitigate these changes
could play a big part in life span extension.

## Based on environmental impact

Eco-modulation based on environmental impact links the rate to the environmental score of a product. Environmental impact can be calculated on the basis of various (existing) methods for life cycle analysis. In general, environmental impact consists of the effects of the production and use of a product on climate, nature and humans. It includes the impact of the entire life cycle of the product. This is why this modulation method comprises several criteria: recycled materials generally score higher, and a longer life span results in a lower environmental impact as well. The disadvantage is that this eco-modulation method requires a lot of data input, more so than the other modulation methods.

There are no examples yet of eco-modulation based on environmental impact. However, existing frameworks like the Ecodesign Regulation may help to make quantification of (part of the) environmental impact possible. The Ecodesign Regulation includes a definition of “environmental footprint”, for example, with frameworks for global compliance. JRC (2024) performed a qualitative assessment of the products that fall within the scope of the Ecodesign Regulation. The Ecodesign Regulation may impose increasingly stringent requirements on the disclosure of environmental impact information. In that case, products that fall within the scope of the EPR and the Ecodesign Regulation might be prime candidates for eco-modulation based on environmental impact.

According to a legislative proposal in 2024, the implementation of a durability label for textiles in French will be subject to two new criteria, based on environmental impact and carbon footprint. The environmental costs will be calculated on the basis of (a revised version of) the European impact categories (Product Environmental Footprint, PEF).

This method measures the environmental impact of the product, ensuring that products that contain recycled or organic materials score higher than products that don't. Producers of textiles are required to disclose this information on a product label or online. The EU is working on so-called PEF CR (category rules) for different product groups to create uniformity within products groups, including textile. We don't know if this will be a mandatory instrument and/or will be applied within the context of EPR, but this example does show one way to use environmental scores to differentiate between different types of products.

### Based on potential for littering

With eco-modulation based on potential for littering, the rate depends on the likelihood that a product will become litter. One complicating factor is that EPR only modulates rates *within* product groups, while in practice the main differences are *between* product groups. There is not much discernible difference within product groups in this respect. There is not much difference for example in the potential for littering of different types of batteries, or different types of textile. There might be differences between different types of packaging, but it makes more sense to use the methods we are currently using to deal with litter under the SUP Directive or by means of deposit returns, for example. See also the instrument financial incentive for returns.

## 5.3 Economic feasibility

With every form of eco-modulation there will be differences within each sector (product group) in terms of waste management contributions. With regard to payments, if the eco-modulation is structured in such a way that the total revenue does not differ significantly from a flat fee system, there is generally no difference in economic feasibility between a waste management contribution with or without eco-modulation.

A relatively high waste management contribution for producers of less durable products may cut into their profit margin. This means that these producers will make less profit on non-durable products as a result of the higher waste management contribution, but this is a natural consequence with due regard to the purpose of the waste management contribution. It will also be an incentive to make the product more durable in order to become eligible for a lower waste management contribution. However, the waste management contribution will probably remain fairly low in relation to production costs. So in practice, only a small part of the product price will be modulated on the basis of the selected grounds for differentiation, which means that it does not have a significant controlling effect. Furthermore, it is not possible to simply increase the waste management contribution for any and all reasons, as the purpose of the fee is to cover collection and treatment costs. Other instruments will have to be deployed in order to exert more control, such as an environment tax (as mentioned in previous examples).

In addition to producers' financial contributions, eco-modulation also involves administrative costs, such as reporting and verifying the modulation in the accounts. In the case of a bonus-malus system, for example, the producer has to show that the bonus is justified. This will incur administrative costs. The same applies to other examples, such as providing evidence of the recyclate percentage. The proportionality of the administrative costs in relation to the durability incentive provided by the eco-modulation is very much dependent on the (chain of the) product type, the raw materials flow and the selected grounds for modulation.

The selected grounds may affect the administrative costs of the eco-modulation. For example, modulation on the basis of environmental impact will incur higher costs than modulation on the basis of a warranty period or recyclate percentage, because it takes more research to determine environmental impact, for example, than other aspects. The type of product also plays a large part in administrative costs. Long, complex product chains require data collection at many different points about factors such as recyclate percentage, life span or environmental impact of the raw materials, the intermediate product or the final product.

## 5.4 Legal feasibility

The following section provides a general description of the legal framework for eco-modulation, followed by a brief discussion of the legal feasibility of each eco-modulation criterion.

### Legal framework

Eco-modulation is mentioned, and in some cases even required, in article 8a of the WFD and in certain product-specific regulations for EPR systems. For example, it follows from article 8a(4(b) of the WFD that "*in the case of collective fulfilment of extended producer responsibility obligations, are modulated, where possible, for individual products or groups of similar products, notably by taking into account their durability, repairability, re-usability and recyclability and the presence of hazardous substances, thereby taking a life-cycle approach and aligned with the requirements set by relevant Union law, and where available, based on harmonised criteria in order to ensure a smooth functioning of the internal market.*" In other words, Member States are required, if possible, to take the necessary measures to ensure that financial contributions are modulated in the case of collective fulfilment of obligations.
This means that eco-modulation is already an EPR instrument.

Under European regulations, there is an obligation for a number of product flows to create an EPR scheme. Some of these product-specific regulations or directives specifically mention the (mandatory) application of eco-modulation. For example, based on the Batteries Regulation, PROs are required to apply eco-modulation on the basis of at least a number of criteria.[57] The Packaging and Packaging Waste Regulation requires modulation of the financial contributions paid by producers based on the recyclability of the packaging.[58] It also states that eco-modulation is also allowed on the basis of recyclate percentage.[59] The proposal for the European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles repeats the stipulation in the WFD that eco-modulation is required in the case of collective fulfilment of obligations, adding that this must be done on the basis of harmonised criteria

[57] Article 57(2(a)) of the Batteries Regulation.

[58] Article 6(8) of the Packaging and Packaging Waste Regulation.

[59] Article 7(7) of the Packaging and Packaging Waste Regulation.

which will be adopted by the European Commission by means of delegated acts.[60] And last, the proposal for amendment of the WFD introducing EPR for textiles states that Member States must require PROs to guarantee that eco-modulation will be applied on the basis of (yet to be adopted) ecodesign requirements pursuant to the Ecodesign Regulation.[61]

The fact that Member States are asked to take measures ensuring that eco-modulation will be applied in the case of collective fulfilment of obligations may lead to differences between Member States and, in turn, disruption of the internal market. For example, the Preamble to the Packaging and Packaging Waste Regulation states that national initiatives to encourage recyclable packaging via eco-modulation may lead to regulatory uncertainty for economic actors, particularly if they supply packaging in several Member States.[62]
Another point to consider is the relationship between eco-modulation and the goal of placing more circular products on the market.
European legislators see eco-modulation within the EPR as an "effective economic instrument" to encourage producers to place more durable and circular products on the market.[63] In other words, eco-modulation is a way to affect product design. At the same time, product design is regulated by product regulations.[64]

In light of the above, the regulations and related proposals (e.g. to amend the WFD) state that the European Commission needs to harmonise the criteria for eco-modulation in order to improve the functioning of the internal market by ensuring coherence in the internal market.[65] For packaging, this should be done for example in combination with adopting design for recycling criteria for packaging.[66] In addition, according to the Preamble, Member States are also allowed to use other criteria of their own for eco-modulation.[67] A similar consideration can be found in the proposal for the European Regulation on circularity requirements for vehicle design and the management of end-of-life vehicles, which states that the European Commission has the power to use delegated acts to adopt detailed rules governing the application of certain eco-modulation criteria.[68] Similar provisions can be found in the Batteries Regulation and in the proposal for amendment of the WFD, the difference being that the criteria there must be adopted by the European Commission by means of an implementing act.[69] As a side note, the proposal for amendment of the WFD makes an explicit connection with the future ecodesign requirements, stating that the adoption of criteria for

[60] Article 21 and Recital 41 of the Proposal for the new European Regulation circularity requirements for vehicle design and management of end-of-life vehicles.

[61] Article 22c(3(a) of the Proposal for amendment of the WFD (COM(2023) 420 final version - 13 March 2025 - 2023/0234(COD)).

[62] Recital 35 of the Packaging and Packaging Waste Regulation.

[63] Recital 35 of the Packaging and Packaging Waste Regulation. See also: Recital 22 of Directive (EU) 2018/851.

[64] Recital 35 of the Packaging and Packaging Waste Regulation.

[65] See for example: Recital 27 of Directive (EU) 2018/851.

[66] Recital 35 of the Packaging and Packaging Waste Regulation (COM(2022)0677 – C9-0400/2022 – 2022/0396(COD))

[67] Recitals 35 and 130 of the Packaging and Packaging Waste Regulation (COM(2022)0677 – C9-0400/2022 – 2022/0396(COD)). See also: article 6 paragraphs 4 and 8 of the Packaging and Packaging Waste Regulation.

[68] Article 21(2) of the Proposal for the new European Regulation circularity requirements for vehicle design and management of end-of-life vehicles.

[69] Article 57(7) of the Batteries Regulation and article 22c(4) of the Proposal for amendment of the WFD (COM(2023) 420 final version - 13 March 2025 - 2023/0234(COD)).

eco-modulation may be necessary to ensure consistency with the Ecodesign Regulation.

Despite the possibility (and sometimes requirement) of eco-modulation, the amount of producers' contributions isultimately limited on the basis of European law. A precondition for the financial contributions producers have to pay in order to fulfil their EPR obligations is that the contributions do not exceed "the costs that are necessary to provide waste management services in a cost-efficient way".[70] It follows that the contributions paid by producers cannot exceed the costs of implementing the EPR. This means that eco-modulation must stay within the scope of these costs; the (modulated) rates for non-circular products cannot exceed the costs that are necessary to provide waste management services in a cost-efficient way. This does not apply to imposing non-EPR levies that are not subject to this requirement from article 8a of the WFD.

## Preliminary conclusion

In conclusion we can state that eco-modulation is a possibility, and, in the case of collective fulfilment of obligations, even a requirement under European law. An important point for attention and a future development is the adoption by the European Commission of harmonised criteria aimed at insuring the functioning of the internal market and alignment with ecodesign requirements. Any consideration of eco-modulation criteria should therefore take into account the fact that the European Commission will adopt harmonised criteria. It is also a good idea to take note of the product parameters from the Ecodesign Regulation and the ecodesign requirements based on this regulation in order to ensure consistency and create synergy in the interest of the functioning of the internal market and the circular economy. In closing, it is important to keep in mind that eco-modulation must remain within the bounds of the total waste management costs producers are responsible for; in other words, eco-modulation cannot exceed the costs producers have to pay in order to fulfil their EPR obligations.

### *Recyclate percentage*

Eco-modulation on the basis of the criterion "recyclate percentage" is not explicitly mentioned as an option in article 8a of the WFD, but we do find it in several product-specific regulations and directives. As stated before, the Packaging and Packaging Waste Regulation explicitly states that eco-modulation can be applied on the basis of the recycled content of packaging. It is interesting that a requirement for this eco-modulation is that the durability criteria of the recycling technologies and the environmental costs of the purposes of recyclate must be taken into account.[71] This is a way to promote the environmental objective of encouraging the use of materials recovered from post-consumer plastic waste while ensuring a high level of protection of the environment and human health.[72]
The proposal for the new European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles states that the percentage of recycled content of materials is one of the criteria that are used as a basis for

[70] Art. 8a(4(c)) of the WFD.

[71] Article 7)7 of the Packaging and Packaging Waste Regulation.

[72] Recital 48 of the Packaging and Packaging Waste Regulation.

Eco-modulation in the case of collective fulfilment of obligations.[73] The Batteries Regulation states that eco-modulation must be applied in any case on the basis of factors such as the level of recycled content.[74] And finally, the proposal for amendment of the WFD states that eco-modulation criteria must be based on the ecodesign requirements that will be adopted for textile, which may include a percentage for recycled fibres.[75]

In short, based in part on the many EU directives and regulations that explicitly refer to (mandatory) eco-modulation on the basis of recyclate percentage, we can state that this is generally a legally feasible and sometimes even mandatory criterion.

### *Recyclability*

Eco-modulation on the basis of the criterion "recyclability" is explicitly mentioned as an option in article 8a of the WFD and also referred to in several product-specific regulations and directives. As stated before, the Packaging and Packaging Waste Regulation announces harmonised criteria for eco-modulation on the basis of the recyclability of packaging. To this end, delegated actions specifying recyclability grades will be adopted that will be used as a basis for modulating the rates paid by producers.[76] The proposal for the new European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles also states that the recyclability of a vehicle and the presence of materials and substances that may interfere with high-grade recycling are two of the criteria that are to be used as a basis for eco-modulation in the case of collective fulfilment of obligations.[77] Lastly, the extent of (fibre-to-fibre) recyclability also falls under one of the criteria for eco-modulation referred to in the proposal for amendment of the WFD.[78]

In short, based on article 8a and the European directives and regulations that explicitly refer to (mandatory) eco-modulation on the basis of recyclability, we can state that this is generally a legally feasible and sometimes mandatory criterion.

### *Product life span*

The example mentioned in this study of higher waste management contributions for products with a shorter life span, such as fast fashion, is currently only explicitly mentioned in the proposal for amendment of the WFD as a possible criterion for eco-modulation. Article 22c(3a) of this proposal states that if it is appropriate to address fast fashion practices, Member States may impose eco-modulation on the basis of the life span of the products in question, the length of the useful life of those products beyond the first user and the contribution to closing the loop of the product in question.[79]

Furthermore, it follows implicitly from the proposal for amendment of the WFD that eco-modulation needs to be based on relevant ecodesign parameters from the Ecodesign

[73] Article 21(1(f)) of the Proposal for the new European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles.
[74] Article 57(2(a)) of the Batteries Regulation.
[75] Article 22c(3(a)) and Recital 39 of the Proposal for amendment of the WFD (COM(2023) 420 final version - 13 March 2025 - 2023/0234(COD)).
[76] Article 6(8) of the Packaging and Packaging Waste Regulation.
[77] Article 21(1(c) and 1(e)) of the Proposal for the new European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles.
[78] Article 22c(3(a) and Recital 39 of the Proposal for amendment of the WFD (COM(2023) 420 final version - 13 March 2025 - 2023/0234(COD)).

Regulation. One relevant parameter from the Ecodesign Regulation in this context is "durability", as expressed in aspects like the product's guaranteed lifetime or technical lifetime.[80] It also follows from article 8a of the WFD that repairability or re-usability are criteria that can be taken into account, if possible, in eco-modulation. Repairability and re-usability are both criteria that are an indication of product life span, since repair and re-use are value-retention strategies aimed at product life span extension.

Although the life span of textile is only mentioned explicitly in the proposal for amendment of the WFD, we are of the opinion that this criteria could be applied to other categories as well. Considering the current tendency in European legislation to harmonise eco-modulation criteria, as evidenced for example by the proposal for amendment of the WFD, it is advisable to keep this in mind and to align with existing or announced European criteria or requirements from initiatives such as the Ecodesign Regulation.

### *Environmental impact*

Eco-modulation on the basis of the criterion "environmental impact" is not explicitly mentioned in article 8a of the WFD.[81] The Batteries Regulation does state that eco-modulation should be applied in any case on the basis of the carbon footprint of batteries.[82] The carbon footprint of a product, in combination with other aspects like environmental footprint, is referred to in the Ecodesign Regulation as a product aspect that is relevant for the ecological sustainability of products.[83] We are of the opinion that eco-modulation on the basis of product footprint as an indication of their "environmental impact" is legally feasible.

Our proposal for an "environmental impact" criterion would adopt one of the existing criteria in line with the Batteries Regulation and the Ecodesign Regulation: carbon footprint or environmental footprint.

- Carbon footprint is defined as: "the sum of greenhouse gas emissions and greenhouse gas removals in a product system, expressed as $CO_2$ equivalents and based on a life cycle assessment using the single impact category of climate change".[84]
- Environmental footprint is defined as: "a quantification of the environmental impacts resulting from a product throughout its life cycle, whether in relation to a single environmental impact category or an aggregated set of impact categories based on the Product Environmental Footprint method established by Recommendation (EU) 2021/2279 or other scientific methods

79 Article 22c(3(a)) of the Proposal for amendment of the WFD (COM(2023) 420 final version- 13 March 2025 - 2023/0234(COD)).

80 Recital 39 of the Proposal for amendment of the WFD (final version 13 March 2025) and Annex I of the Ecodesign Regulation.

81 The Dutch article does refer to "duurzaamheid" (sustainability) as a criterion. However, this is a translation of the English term "durability". See art. 8a(4(b)) of the WFD.

82 Article 57(2(a)) of the Batteries Regulation.

83 Article 5 of the ESPR; also see Recital 16.

84 Article 2(25) of the ESPR.

developed by international organisations, widely tested in collaboration with different industry sectors and adopted or implemented by the Commission in other Union law".[85]

In view of the previously mentioned harmonisation of eco-modulation and the (product aspects regulated under the) Ecodesign Regulation, we recommend aligning with one of these product aspects for the eco-modulation criterion aimed at improving the environmental impact of products.

### *Potential for littering*

As far as we know, there is no precedent in current European legislation for eco-modulation on the basis of potential for littering. In principle, we think that the introduction of this criterion for eco-modulation could be legally feasible in general, since the cost of cleaning up litter can be classified as "waste management" costs within the meaning of article 8a paragraph 4(c) of the WFD. It should be noted, however, that this type of introduction is not in line with the current European regulations and related developments. If we opt for eco-modulation based on potential for littering, we need to take into account the fact that the current European legal framework already includes a financial EPR obligation in the SUP Directive concerning litter resulting from certain single-use plastics.

If the goal of the eco-modulation is to reduce litter and to finance the associated litter-related costs, it might be more useful to retain or expand the existing legal construction from the SUP Directive. The SUP Directive includes more extensive EPR obligations, which make producers of certain single-use plastics also responsible for the cost of cleaning up litter resulting from these products and the subsequent transport and treatment of the litter.[86] With regard to making a distinction between different products in terms of the cost of cleaning up litter, as proposed in this report, we might look for inspiration to the provision in the SUP Directive stating that the calculation methodology shall be developed in a way that allows for the costs of cleaning up litter to be established in a "proportionate" way.[87] We are of the opinion that we can infer from this that "modulation" of the costs of cleaning up litter from certain single-use plastics may already be possible. This construction could be adopted for other products as well.

[85] Article 2(24) of the ESPR.

[86] Article 8(2(c) and(3(b)) of the SUP Directive.

[87] Article 8(4) of the SUP Directive.

# 6 Inclusion of material-specific goals

## 6.1 Description

This instrument concerns the inclusion of material-specific recycling targets. Most existing EPR schemes include goals for product recycling. These goals are often based on a recycling percentage based on the weight (mass) of products that were produced or discarded in the previous year. This may lead to a situation where materials with low density (such as plastics) or materials that are present in very small quantities in a product (rare earth metals) are recycled using low-grade processes or are even incinerated or dumped. The purpose of material-specific recycling goals is to encourage higher-grade processing of these materials in order to close the loop.

One example is the proposal for the European Regulation on circularity requirements for vehicle design and on management of end-of-life vehicles, which includes recycling targets for plastic automotive materials (see text box). The second example of a material-specific target is fibre-to-fibre recycling in the EPR for textiles (see text boxes 5 and 6).

**Text box 5 - Example:: Goals for recycling plastics in the proposal for the Regulation on vehicle design and management of end-of-life vehicles.**

In 2023, the European Commission presented the proposal for the European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles (European Commission, 2023). This proposal includes the requirement that starting in 2030, at least 25% of plastics used in new vehicles must be from post-consumer recycled (PCR) materials, and that 25% of those raw materials (i.e. 6.25% of the total) must be circular (or closed loop). This means that 6.25% of the plastics used in new vehicles must be recycled plastics from decommissioned cars.

**Text box 6 - Example: Fibre-to-fibre textile recycling**

The EPR for textiles specifies the percentage of textile products marketed in the Netherlands (i.e. not waste textile) that must be recycled and the method that must be used. By 2025, 50% of textiles sold on the Dutch market must be recycled/re-used, and this percentage will be gradually increased to 75% by 2030.
An example of working towards recycling targets is the target for fibre-to-fibre recycling, i.e. a minimum of 25% of the recyclate by 2025, and a minimum of 33% by 2030.


Source: Information on EPR for textiles - Stichting UPV Textiel

## 6.2 Technical feasibility

The technical feasibility of material-specific targets depends on whether the material can be separated from other materials and submitted for specific recycling in relatively pure form. In other words, feasibility is a function of product design and available recycling technologies. Product design will probably be the limiting factor, since it is technically feasible to recycle many materials. If the current product design makes it difficult to separate material flows, recyclability requirements (design for recycle) will have to be imposed. This cannot be done via an EPR scheme but would have to be done in an ecodesign regulation, in principle at the EU level, for example via the Ecodesign Regulation.

A recent EU study in the context of the Ecodesign Regulation investigated which product groups would be good candidates for requirements. The study found that minimum recycled content requirements could be imposed on the following product groups: textiles and shoes, furniture, car tyres, mattresses, toys, and diapers and incontinence products. The study also concluded that recyclability requirements could be imposed on these product groups.
This also creates preconditions for the introduction of material-specific recycling goals for these product groups. One idea is to include a requirement for furniture or toys that different materials used in the product (plastic, wood, metal) must be recycled in such a way that the recyclate can be re-used to make new products. The fact that the study sees potential for these product groups within the framework of the Ecodesign Regulation is an indication that it may be possible to set material-specific recycling goals for these product groups as well, although it should be noted that the JRC study is an exploration and that further investigation is needed on the feasibility these requirements.

Electrical equipment and batteries may also be suitable for material-specific recycling targets. One area of focus could be the formulation of targets for the recycling of plastic casings of equipment, similar targets for end-of-life vehicles. We could also focus on the inclusion of specific recycling goals for rare earth metals.

The availability of sufficient recycling capacity is something to consider as well. This can be handled by gradually imposing stricter targets so the recycling capacity can be expanded in tandem with the targets. Another potential issue is that material-specific recycling technologies may require further development for application at a larger scale. The Netherlands has an opportunity to take the lead, either alone or with other EU Member States, by adopting goals at the national level in preparation for goals at the European level. Fore example, the Netherlands has included the fibre-to-fibre target in the EPR for textiles even though this is not a mandatory target yet in the European EPR for textiles.

## 6.3 Economic feasibility

As with technical feasibility, the cost of setting specific recycling goals depends largely on product design and the relative ease of separating the materials. Additional disassembly and/or preparation will probably be necessary in most cases. The costs will depend on the product. Besides recycling costs, economic feasibility also depends on the “value” of the recyclate.

For bulk materials like plastics, the relatively low value of the recyclate is the challenge. For (rare) earth metals, the recycling is process is more complex and expensive, but their residual value is higher as well.

This measure may be more economically attractive if it is implemented as part of a measure aimed at closing the loop, for example by imposing requirements on the recyclate percentage of the material in new products, as suggested in the proposal for the European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles.

## 6.4 Legal feasibility

In principle, Member States have the ability to include targets in an EPR scheme for the recycling of specific materials, since these are waste management measures. Based on article 8a, Member States are responsible for setting quantitative and/or qualitative waste management targets in accordance with the waste hierarchy (article 4 of the WFD) that are "relevant for the extended producer responsibility scheme".[88] In other words, Member States have the ability to set their own targets for EPR schemes.

However, it should be noted that the current targets for EPR schemes often arise from European regulations, as is the case for example for batteries or electrical and electronic equipment. The introduction of the EPR for textiles set out in the amended WFD which mentions fibre-to-fibre recycling is an exception,[89] but product-specific regulations and directives usually talk about "separate" collection, recycling or treatment targets that are (or may be) imposed on producers via a mandatory EPR scheme. Sometimes these targets are aimed explicitly at producers or waste management operators, as is the case in the Batteries Regulation for instance,[90] while in other cases these targets are aimed at Member States and the producers are subsequently held responsible via EPR schemes for reaching these targets.[91]

The Netherlands remains bound by the targets from European regulations, which may impact national "more circular" goals like the ones proposed in this study. After all, material-specific recycling goals ("qualitative recycling") may make it more difficult to meet the current weight-based recycling goals ("quantitative recycling"), and goals for (preparation for) re-use may have a negative effect on the attainment of recycling goals and vice versa (De Waal, 2024). In short, with regard to the modification of goals for EPR schemes for products that are subject to European regulations, we should pay attention to the phrasing of the European targets in order to determine where there might be room for Dutch legislators to establish modified targets.

[88] Article 8a(1(b)) of the WFD.

[89] See for example articles 22a(4(e)) and 22d(3), and Recitals 22, 23 and 27 of the Proposal for amendment of the WFD. Fibre-to-fibre recycling is not made mandatory, but the prioritisation of scaling up fibre-to-fibre recycling as a high-grade recycling method is discussed several times.

[90] See for example articles 69 and 71 of the Batteries Regulation.

[91] This is the case in the Packaging and Packaging Waste Regulation, see for example article 52.

Lastly, we should note that it may be preferable, within the context of utilising interactions between different EPR instruments, to align target modification with the criteria for eco-modulation. An example of this is the potential synergy between mandatory eco-modulation based on recyclability and recyclate percentage criteria, and the establishment of material-specific recycling targets.

# 7 Goals related to recycling methods

## 7.1 Description

This measure works by prescribing a particular recycling method for the treatment of products. The purpose of this measure is to encourage higher-grade processing of (part of the) collected products than is currently the case on the market, so raw materials can be re-used for similar product applications. This measure is a specific application of the measure on “material-specific recycling goals”, which focuses on means rather than goals. Prescribing a specific recycling method can be effective if multiple processing techniques are available for a product but low-grade techniques (down-cycling or incineration) are used because they are cheaper.

Existing EPR schemes do not include specific recycling method goals yet, as far as we know. EPR schemes generally prefer to focus on goals. These are often long-term goals, so it makes more sense to focus on material-specific recycling goals. Goals for recycling methods should be utilised as a supplemental measure in rare cases only.

## 7.2 Technical feasibility

In principle, it is possible to impose requirements regarding recycling methods. Mandatory use of best available techniques (BAT) is a common strategy in environmental and waste legislation. The reverse approach, prohibiting undesirable treatment techniques (e.g. incineration) for a particular waste flow, has been used for many years as well in European and national waste legislation.

Technical feasibility depends on the availability of high-grade recycling methods that are currently underutilised for certain products, specific components or materials. This will have to be analysed specifically for each product group in combination with the establishment of material-specific recycling goals.

## 7.3 Economic feasibility

The inclusion of recycling method goals may lead to higher costs if the proposed recycling method is more expensive than the current method. The inclusion of recycling method goals will probably not result in a substantial change in costs of collection, although additional steps will be necessary for products with complex compositions to separate materials to enable high-grade recycling. The costs will vary depending on the specific product group, which can be managed by imposing parallel requirements on product recyclability (via the Ecodesign Regulation).

Investment costs or price increases resulting from insufficient capacity may be mitigated by taking into account the capacity of the various recycling techniques and by gradually tightening the targets.

The inclusion of recycling method goals is, in fact, a more specific application of the current responsibilities and duties of producer responsibility organisations PROs). Existing EPR schemes already include targets for collection and recycling and/or re-use, and PROs are already responsible for purchasing and/or entering into (financial) recycling agreements. So including recycling method goals will probably not lead to additional treatment and organisational costs.

This measure may be implemented in a more (cost-)effective way by simultaneously phasing out the current (undesirable) recycling technique and eventually prohibiting it altogether. This creates a necessity to switch to a different recycling method and offers an investment perspective to the recycling market. Another way to increase the economic feasibility of an alternative recycling method is to impose requirements for the recyclate percentage in new products (see the proposal for the new end-of-life vehicles Regulation), for example in combination with product requirements via the Ecodesign Regulation. This would have to be done at the EU level. This would guarantee a market for these products and create a direct interest on their part in promoting alternative recycling methods.

## 7.4 Legal feasibility

In principle, Member States are able to specify targets for particular recycling methods in an EPR scheme, because, again, this concerns waste management measures. From a legal perspective, this instrument is similar to the ability to include material-specific goals in an EPR scheme, so for a more detailed explanation please see the legal feasibility analysis of “material-specific goals”.

# 8 Inclusion of targets for preparation for re-use

## 8.1 Description

This measure specifies what percentage of discarded products must be prepared for re-use. The term "preparation for re-use" is a stipulation from the waste legislation and the second step in the waste hierarchy set out in art. 10.4 of the Environmental Management Act. This term is explained in further detail in the LAP [National Waste Management Plan][92], the future Circular Materials Plan. The Plan defines the term as follows:

*"Preparation for re-use is an action involving waste materials. This action involves the checking, cleaning or repair of (components of) used products so they can be re-used without requiring further processing."*

In other words, this measure pertains to products that have been discarded and are therefore considered "waste". This measure does not pertain to the repair of products that are kept by consumers within or past the warranty period, because those are not waste. There may also be cases where the initial user sells or gives the item to a second user, and the second user does not have to do anything to the item to be able to continue to use it. In other words, it pertains to a segment of the market for second-hand goods, which contains many products that are not waste. In this document we use the definition of "preparation for re-use" from the LAP and we do not consider these types of flows that do not involve waste materials.

If the measure is to be effective, it is important that the measure leads to increased re-use of discarded products compared to current practice.
Any goals related to preparation for re-use must be considered in relation to the entire life cycle of the product. We must prevent a situation where preparation-for-re-use goals create a (counterproductive) incentive to discard products sooner.

One way to do this is to have preparation for re-use done at recycling locations or repair shops for used products. An example of "preparation for re-use" is replacing rubber refrigerator door seals so the refrigerator can be re-used.

The EPR for Textiles Decree includes a goal for preparation for re-use in combination with recycling (article 3) and a separate goal for preparation for re-use (article 4), see text box. In this case, preparation for re-use concerns processes and activities for the purpose of making discarded textile products suitable for re-use, such as sorting, cleaning and repair.

[92] See LAP3, part B, Paragraph B8.

**Text box 7 - Example: goals for preparation for re-use in the EPR for Textiles Decree**

The EPR for Textiles specifies what percentage of discarded products must be prepared for re-use (article 4), and what percentage must be prepared for re-use in the Netherlands (article 4):

**Article 4 (preparing for re-use)**

- 1.The producer ensures that every calendar year at least the following percentage by weight of the total quantity of textile products placed on the market by him in the previous calendar year is prepared for re-use:
    a. in 2025: 20% by weight
    b. in 2026: 21% by weight
    c. in 2027: 22% by weight
    d. in 2028: 23% by weight
    e. in 2029: 24% by weight
    f. from 2030 onwards: 25% by weight
- 2. The producer ensures that every calendar year at least the following percentage by weight of the total quantity of textile products placed on the market by him in the previous calendar year is prepared for re-use in the Netherlands:
    a. in 2025: 10% by weight
    b. in 2026: 11% by weight
    c. in 2027: 12% by weight
    d. in 2028: 13% by weight
    e. in 2029: 14% by weight
    f. from 2030 onwards: 15% by weight

Source: Bulletin of Acts and Decrees 2023, 132 | Overheid.nl > Official announcements).

## 8.2 Technical feasibility

Preparation for re-use is an essential step in the process from the collection of discarded products to the re-use of products. This measure can be effective for products with a relatively long life span that can also be re-used, such as textiles, electronic equipment and possibly mattresses or glass panes.
This measure is not relevant for single-use products.

One condition for the effective application of this measure is that an effective collection system for discarded products needs to be in place. It is important that products do not get damaged during collection if they are to be re-used. This is an issue especially for more complex products such as electrical equipment or breakable products like glass panes. Another condition for effective application is the presence of clear instructions for activities for preparation for re-use, such as inspecting, cleaning or repairing used products. If the instructions are not clear or compliance is not monitored, these activities may not be performed completely or with sufficient care, and the products may not be fit for re-use as a result. In the case of more complex products, in particular, the activities also require knowledge of the product, so personnel needs to be trained and the organisations themselves need to be certified to guarantee the quality of the work.

The products themselves also need to be easy to inspect and repair. This is especially important for more complex products such as electrical equipment. A solution might be to include product requirements for design for re-use. It makes sense to impose these types of requirements via the Ecodesign Regulation. A recent EU study explored which product groups might be suitable candidates for requirements under the Ecodesign Regulation. The study concluded that the following product groups are suitable candidates for durability requirements (which includes repairability, reusability and upgradeability): textiles and shoes, furniture, toys and lightweight means of transport (kick scooters, etc.). Examples are requirements related to a recyclability label, repair (+ upgrade) information and maintenance instructions, availability and delivery time of spare parts (and software upgrades), disassembly in general or related to tools, fastening devices, work environment and skill level, etc. The fact that the study sees potential for these product groups within the framework of the Ecodesign Regulation is an indication that preparation for re-use goals for these product groups might be a possibility as well. In cases where durability requirements are imposed (in the Ecodesign Regulation),we should consider establishing preparation for re-use requirements in the EPR for those product groups in response, although it should be noted that the JRC study is an exploration and that further investigation is needed on the feasibility these requirements. Another condition is that there needs to be sufficient physical space to perform the activities for preparation for re-use. The exploration of the spatial conditions for a circular economy concludes that space for such activities is becoming increasingly scarce (PBL, 2023). One reason is that these activities take up more $m^2$, while space is scarce in the Netherlands. Another reason is that fewer and fewer specific business premises are allowed to engage in environmentally harmful activities involving sounds, odours or storage. Some activities, like storage, repair and parts hubs, are no problem in urban areas. Accessible logistics hubs outside the city make more sense for the treatment of large quantities. If environmentally harmful activities need to be performed, like cleaning, it may be necessary to relocate to specific industrial sites that have the necessary permits.

Lastly, in terms of practical feasibility it is also important that the product status is changed from “waste” back to “product” in the preparation for re-use targets. This is discussed in more detail in the paragraph about legal feasibility.

## 8.3 Economic feasibility

The costs of this measure, and therefore its economic feasibility, are largely dependent on the type of product and the extent to which an effective collection system is already in place. This measure can be introduced in a relatively cost-efficient manner for less complex products that are relatively easy to collect, inspect and repair. For complex products such as electronic equipment, this will require investments in low-threshold, careful collection and in the development of expertise and quality assurance. Many of these activities are currently done on a voluntary basis, at repair shops and thrift stores, for example. This will have to be changed to a formal arrangement when producers become responsible for preparation for re-use.

At the same time, producers of electrical products are already responsible for the collection of their products for recycling (or re-use), and electronic appliances are already disassembled before recycling as well. Preparation for re-use would mean that the first step after collection would be to identify products that might be suitable for re-use (if necessary after cleaning and repair). This will require thorough analysis of a device, which may be time consuming depending on the complexity of the device. The same applies to the actual repair. Inspection and repair costs may vary widely for a specific product and will have to be investigated further.

Economic feasibility may be increased by combining this measure with other measures, such as inclusion of a repair network target, a repair fund in combination with a bonus and/or voucher, or introduction of financial incentive for returns by consumers (return bonus, deposit return).

## 8.4 Legal feasibility

As stated before, Member States are able to set targets for the percentage of discarded products that must be prepared for re-use, since this is a waste management measure. In addition to the exhortation to this effect in articles 8 and 8a of the WFD, article 11 of the WFD also states that Member States can take measures promoting activities in the area of preparation for re-use, including quantitative objectives[93]

Such targets are already laid down in European regulations for certain products. For example, the WEEE Directive includes the target that a certain percentage of the separately collected WEEE must be recovered and a certain percentage must be prepared for re-use and be recycled.[94] The End of Life Vehicles Directive contains a similar provision, which lays down targets for "re-use and recovery".[95] The Batteries Regulations contains a similar provision, requiring facilities to ensure that all discarded batteries made available to them "undergo preparation for re-use, preparation for repurposing or recycling".[96] The wording of these European targets affects the extent to which Member States may adopt stricter or different targets. A European target requiring a certain percentage to be "prepared for re-use and recycled" enables Member States to meet the European target if they establish a national target permitting preparation for re-use only. In short, when modifying goals for EPR schemes for products that are subject to European regulations, attention must be paid to the wording of the European targets in order to determine where there might be room for Dutch legislature to establish modified targets.

[93] Article 11(1) of the WFD.

[94] Article 11 in conjunction with Annex V of the WEEE Directive.

[95] Article 7 of the Vehicle End of Life Directive. See also: article 34 of the Proposal for the European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles.

[96] Article 71 of the Batteries Regulation.

Based on the above examples, the European targets for WEEE and end-of-life vehicles may be met if Member States establish a national target permitting preparation for re-use only. In order to assess how this applies to batteries, exactly, we will have to await the delegated action of the Commission specifying the calculation method for recycling returns and material recovery percentages.[97] An interesting point in this context is the existence of a provision in the Packaging and Packaging Waste Regulation, which allows calculation methods for recycling targets to take into account the percentage of reusable packaging.[98] The Batteries Regulation also contains specific provisions for the applicability of EPR to producers "that make available on the market for the first time within the territory of a Member State a battery that results from preparation for re-use, preparation for repurposing, repurposing or remanufacturing operations".[99] In short, it is possible, and in line with current European regulations, to establish targets specifying the percentage of discarded products that must be prepared for re-use. These targets do have to take into account existing targets set out for certain products in European regulations, to make sure that national targets for preparation for re-use are not conflicting with these regulations.

A more general point to keep in mind for preparation for re-use targets is the fact that those goods will have to transition from waste to product. In addition to the general provision regarding final waste status, the Batteries Regulation specifically addresses this issue in a provision requiring documentation showing that a battery is no longer waste after preparation for re-use.[100] Another interesting provision can be found in the proposal for the European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles, which states that vehicle parts and components that have been removed from an end-of-life vehicle and are fit for reuse, remanufacturing or refurbishment shall not be considered waste.[101] Further investigation regarding the practical use and necessity of these types of provisions may be advisable, for other products and product groups as well.
Another point for attention is the (follow-up) question of how we should deal in general with products that have been prepared for re-use and the application of EPR on the producers of these products. To answer these questions, we might look for inspiration once again to the Batteries Regulation, which contains specific provisions for the applicability of EPR on producers that make available on the market for the first time a battery that results from preparation for re-use, preparation for repurposing, repurposing or remanufacturing operations. Pursuant to this provision, a market participant who firsts makes such a battery available on the market within the territory of a Member State is considered the producer of that battery for the purposes of the Batteries Regulation, which means this producer is subject to the EPR for batteries.[102]

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97 Article 71(2) in conjunction with paragraph 4 in conjunction with Annex XII. Annex XII states that the recycling must meet certain targets for recycling returns that are based on a specific percentage of the average weight of a battery category. We will have to await the delegated action to be sure that this will not have a negative impact on our efforts towards preparation for re-use.

98 Article 54 of the Packaging and Packaging Waste Regulation

99 Article 56(2) and (5) of the Batteries Regulation.

100 Article 73 of the Batteries Regulation.

101 Article 31(1) of the Proposal for the European Regulation on circularity requirements for vehicle design and management of end-of-life vehicles.

102 Article 56(2) of the Batteries Regulation. See also article 56(5) of the Batteries Regulation.

# 9 Repair network target

## 9.1 Description

This instrument concerns the inclusion of goals for a repair network for discarded products. There are three stages in product repair: 1) repair within the warranty period, 2) after the warranty period and 3) after the product has been discarded. The product warranty is a statutory warranty, which may be supplemented by a manufacturer's or seller's warranty. In that case, the seller and/or manufacturer are responsible for compliance with the warranty terms and conditions. Many seller organisations and manufacturers use a repair service to perform repairs under warranty. The Dutch national repair register[103] was recently created to promote the repair of consumer electronics.

If a repair falls outside the warranty period, consumers have to find someone to do the repair. The consumer is responsible for the repair and has to pay for it in those cases. This will change in the future. The European Directive on common rules promoting the repair of goods establishes important new obligations for manufacturers during this stage with regard to the repair of goods (see also par. 9.4). Some products that are discarded by consumers can still be repaired by a waste collector or third party, such as a thrift store which sees potential in repairing products and giving them a second life. Repair of a discarded product can be seen as a waste management measure, which would fall within the scope of the EPR (see the paragraph on legal feasibility for a more detailed explanation).

EPR schemes could include a requirement that producers are responsible for providing a sufficient number of locations/facilities where products can be repaired after they are discarded and for actively promoting existing repair initiatives such as the national repair register. This could be expanded with a quality mark for repairs. These measures can be seen as specific ways to implement goals for preparation for re-use (see Chapter 8).

There are no examples of EPR schemes that specifically include a repair network as a target, although there are examples of repair outside the warranty period. One example of a national repair network combined with a quality mark is the BOVAG (Dutch Association of Automobile Dealers and Gararage Owners) for car repairs. We do already have repair shops for specific products like mobile telephones or clothes, but these are usually not associated with a national network or quality mark. There are also examples of individual companies that offer repair services outside the warranty period, such as Patagonia and Bever.

103 https://www.nationaalreparateursregister.nl/

## 9.2 Technical feasibility

Inclusion of repair network goals will make a difference primarily for more complex products with a long life span and residual value, but the inclusion of repair network goals has potential for any product group that is a good candidate for the "preparation for re-use" measure (see Chapter 8), such as textiles and shoes, furniture, toys and lightweight means of transport (kick scooters, etc.).
Producers would be responsible for setting up and expanding a national repair network and for guaranteeing the quality of the repairs. From a technical perspective, it makes sense for producers to bear some responsibility, because they have insight into the types and quantities of products that are on the market and into the discrepancy between the life span covered by warranty and the actual useful life span, they have the technical knowledge to understand how the product works and, most of all, they can ensure that the products are repairable.

They will need physical space to perform these repairs. An exploratory study on the spatial conditions for a circular economy concludes that space for such activities is becoming increasingly scarce (PBL, 2023). The storage and treatment of products and materials, including repairs, requires space, since those products will no longer be discarded and destroyed but transported to business parks to be repaired and returned to the chain. This has spatial consequences for infrastructure networks and distribution centres.

## 9.3 Economic feasibility

The economic feasibility of setting up a repair network depends on the product and the extent to which we can build on existing networks for collection and repair locations and on the residual value of the product after repair. In many cases, the issue is that the cost of repair is often relatively high in relation to the value of a product. The residual value can be increased by creating a quality mark and/or offering a warranty (renewal) after the repair. We could also contribute towards consumer costs via a repair fund, for example. If the repair fund is financed through EPR, this will increase the cost for producers.

## 9.4 Legal feasibility

Targets regarding a repair network as part of an EPR scheme must be aimed solely at repairing waste materials, in our opinion, because otherwise it is not a waste management measure. Repair and repair networks can be used for products that are still in the consumer's possession and can (and should be) repaired so they do not become waste. These repair provisions can also be used for products that are no longer usable and have been discarded by the original consumer.
We would argue that only the latter situation falls under the EPR within the meaning of the Waste Framework Directive, because only the latter is a waste management action while the former is not.[104] Of course, the creation of a repair network for discarded products may also have a positive impact on the repair options for products that

104 In one discussion paper, the *Right to Repair Europe Coalition* appears to be more willing to include repair network targets in an EPR scheme precisely to prevent products from becoming waste. see Reforming-Extended-Producer-Responsibility-to-Promote-Repair.pdf

have not been discarded, even though the latter repair category does not fit within the current regulatory options for EPR schemes. EPR measures always have to be considered in relation to measures that apply on the basis of different legal frameworks. The following is an example of how this would work for the creation of a repair network.

**Text box 8 - Repair network as an example of aligning an EPR measure with other legal frameworks**

The plan to create a sound, well-functioning repair network to extend the life span of certain products and to have this network financed in full or in part by producers is a good example of the possibilities and limitations of an EPR scheme. It is also an example of the way EPR measures need to be coordinated and aligned with measures on the basis of other legal frameworks. As stated before, repairs may be needed within the warranty period (1), after the warranty period to prevent the consumer discarding the product and turning it into waste (2), and finally after collection of discarded consumer goods as waste or otherwise (3). A network of repair options must be equal to the task of "servicing" all these situations, because it would not be useful to create different repair networks, especially if there is no connection between them. If we require producers to set up and/or finance such a repair network, we must make a legal distinction between de different situations where repair may be needed. The European and national definition of EPR scheme applies only to waste management measures. The stages preceding the waste stage are subject under European and national law to various obligations within other legal frameworks (such as legal requirements for product design) that aim to ensure that products can be repaired. Depending on the stage, this pertains either to obligations for sellers or obligations for manufacturers/producers. Ideally, these obligations complement each other so every stage of the product life cycle is a step towards the transition to a circular economy. We will discuss these different obligations.[105]

***Stage 1: statutory warranty period***

Under European law, *the seller* is liable if it is discovered within 2 years that goods were faulty (defective) when they were delivered to the consumer, for example because the product does not work or is damaged. This follows from the Directive on the sale of goods, which falls under consumer law.[106] Consumers usually have a choice between repair or replacement in those cases. The seller is required to repair or replace the item within a reasonable period without inconvenience to the consumer. The seller may refuse the selected remedy only if the remedy selected by the consumer - repair or replacement - is impossible or would result in disproportionate costs for the seller.[107] Repair of the product does not "take precedence" over replacement, although the seller is required to inform the consumer about the right to opt for repair instead of replacement, and the repair option comes with a 12-month extension of the claim liability period.[108]

105 For this discussion we use our previous study, M.N. Boeve, A.M.E. Veldkamp, C.W. Backes, A. van den Brink, Legal options for introducing a national prohibition on the destruction of unsold products and a national right to repair, Utrecht, UCWOSL, 2024, which can be consulted at: https://www.rijksoverheid.nl/documenten/rapporten/2024/05/27/onderzoek-nationaal-vernietigingsverbod-onverkochte-producten-en-reparatierecht

106 Directive 2019/771. This Directive applies to all sales contracts regarding the delivery of movable tangible products, including goods with "digital" components, to the consumer in return for payment (art. 3). This also includes second-hand goods.

107 If the seller refuses to repair or replace the product, the consumer is entitled to an equivalent price reduction or cancellation of the purchase agreement. This follows from the Directive on the sale of goods.

108 This last obligation follows from the Directive promoting repair amending the Directive on the sale of goods. These obligations apply to purchase agreements concluded after 31 July 2026.

Member States are free to opt for a longer liability period. The Netherlands has opted to do so. Dutch law provides for a statutory warranty period which depends on the product life span consumers may reasonably expect with normal use.[109] In other words, the period may be different for different products. The reasonable expectation of the life span of the (second-hand) product is used as a basis for second-hand products as well. Sellers and manufacturers may also offer a so-called "commercial guarantee" in addition to the statutory warranty.[110] The terms and conditions of this (optional) seller's or manufacturer's warranty must be set out in the warranty document.

During this stage the producer is not required to repair the product. The seller is the party who is required to offer repair (or replacement) (although in practice this responsibility often falls back on the producer). An exception applies insofar as the manufacturer/producer offers a manufacturer's warranty under its own terms and conditions.

***Stage 2: after the statutory warranty period but before the consumer discards the product***

The stage after the statutory warranty period (which may differ depending on the product in the Netherlands) but before the consumer discards the product is the most important stage for measures aimed at life span and extension and increased circularity. During this stage, manufacturers are subject to important new obligations on the basis of the 2024 Directive promoting the repair of goods.[111] This Directive also falls within the scope of consumer law and must be transposed into our national law by 31 July 2026.[112] The Directive imposes obligations during the stage before products are discarded.[113] A television doesn't work anymore or a washing machine breaks down and the consumer has not discarded the item and wants the producer to repair the item. Manufacturers will be required in the future to repair products at the consumer's request during this stage. This applies only to goods that are subject under EU regulations to repair requirements (within the scope of these requirements) and repair is not "impossible".[114] The manufacturer shall repair the item for free or at a reasonable price and is permitted to subcontract the repair to third parties. "Manufacturer" is defined here as "any natural or legal person that manufactures a product or that has a product designed or manufactured, and markets that product under their name or trademark".[115] If the manufacturer is established outside the Union, the obligation is transferred to the authorised representative in the Union, or if there is no authorised representative, to the importer, or if there is no importer, to the distributor .[116]

In other words, the obligation applies only to products that are subject to repair requirements adopted at the European level. This concerns repairability requirements for products included on the list in Annex II to the Directive promoting the repair of goods, such as household dishwashers, washers and dryers, vacuum cleaners, welding tools, mobile phones and battery-powered equipment for lightweight carriers. The list of product groups is still limited, but the plan is

109 Art. 7.17-7.18 of the Dutch Civil Code. For a brief overview of average expected life span, see for example https://www.technieknederland.nl/media/ej2lrdxh/richtlijnen-afschrijvingsmethoden.pdf (Techniek Nederland is the Dutch trade association for technical service providers, installation companies, and electrical retailers and repairers).

110 See also art. 17 Directive on the sale of goods.

111 Directive (EU) 2024/1799 of 13 June 2024 on common rules promoting the repair of goods and amending Regulation (EU) 2017/2394 and Directives (EU) 2019/771 and (EU) 2020/1828.

112 Directive promoting the repair of goods, art. 22.

113 The Directive pertains to the repair of goods at the consumer's request. This means that the scope of the Directive is limited to the repair of non-waste (art. 5 of the Directive promoting the repair of goods). In other words, it concerns goods that are in the consumer's possession and does not pertain to the waste management stage. This is not changed, in our opinion, by the fact that the term "repair" within the meaning of the Directive is defined as "one or more actions carried out to return a defective product or waste to a condition where it fulfils its intended purpose" (italics by authors) (art. 2(3) of the Directive promoting repair in conjunction with art. 2(20) of the Ecodesign Regulation).

114 Directive promoting the repair of goods, art. 1(3) in conjunction with art. 5. The repairability obligations for certain products follow from the Ecodesign Regulation (and previously the Ecodesign Directive).

115 Directive promoting the repair of goods, art. 2(5( in conjunction with art. 2(42) of the Ecodesign Regulation.

116 Directive promoting the repair of goods, art. 5(3).

to expand this list. The European Commission has the power to adopt delegated actions supplementing the list of product groups.[117] The plan is to adopt repairability requirements for other products groups as well, pursuant to the Ecodesign Regulation in particular (so the list in the Directive can be expanded). According to the Preamble to the Directive, "only those goods which are repairable by design are subject to such obligation."[118]

In addition, a European online platform will be set up for consumers so they can find repairers. This European online platform will consist of national sections that use a common European online interface.[119] The European Commission will develop this common online interface by 31 July 2027 and it will also manage this platform. The national sections will be set up by the Member States and must be operational by 31 July 2027. If a Member State already has a national repair platform which meets the requirements set out in the Directive, they may simply provide a link to this national repair platform.[120] The national sections must include search functions for goods, location of repair services (including a map based function), cross-border provision of services and repair conditions.[121] The use of the national sections and national online platforms shall be free to consumers. Information about different repair services, etc. would help consumers assess the pros and cons of repair, which, according to the explanation, may encourage consumers to opt for repair instead of buying new goods.[122] Member States may choose to expand the national sections listing repairers with a search function to find sellers of goods that have been subject to refurbishment, purchasers of defective goods for refurbishment or community-led repair initiatives (e.g. repair cafés).[123] The Directive also provides for the introduction of a European repair information form.[124] The form provides for a standardised presentation of terms and conditions and repair prices. This would make it easier for consumers to compare repair services.
If we want to further expand repair options and/or requirements during this stage in the Netherlands for products other than those subject to (future) EU law, this would not be an EPR measure, and the measure would have to be in line with the Directive promoting the repair of goods. First, such a measure would not fall within the scope of the term EPR as defined in the WFD and articles 8 and 8a of the WFD would not apply. Second, such a measure would need to reference the (extremely relevant) framework of the Directive promoting the repair of goods and it would need to be in alignment with the developments that are taking place in this context.

***Stage 3: waste management***
In principle, EPR measures aimed at establishing a repair network for waste products may be implemented for products that are no longer in the consumer's possession (the consumer has the television or washer taken to the landfill). Those products are no longer subject to the EU Directive promoting the repair of goods or the EU Directive on the sale of goods. Producers may be required via an obligation under the EPR scheme to establish a repair network for these goods in the waste stage. The repairability of the products will have to be considered in this context as well to ensure that the measure has the intended effect.

117 Directive promoting the repair of goods, art. 5(9).
118 Preamble to the Directive promoting the repair of goods, Recital 21.
119 Directive promoting the repair of goods, art. 7.
120 Directive promoting the repair of goods, art. 7(3). The Netherlands has set up a national repair register; the first version is available online at https://www.nationaalreparateursregister.nl.
121 Directive promoting the repair of goods, art. 7(5).
122 Preamble to the Directive promoting the repair of goods, Recital 28.
123 Directive promoting the repair of goods, art. 7(6).
124 Directive promoting the repair of goods, art. 4, included in Annex I to the Directive.

The above overview shows that there are various legal frameworks for the repair of products in the different stages of the product life cycle. The repairability of these products in the design phase plays a part as well.
For certain products, manufacturers (including producers) have a repair obligation which applies in particular to the stage after the statutory warranty period (Stage 2). Moreover, the introduction of a European online repair platform and a standard repair information form will soon make it easier for consumers during every stage to find a repairer and to compare different repairers.[125] This development was initiated pursuant to European consumer law, in particular the Directive promoting the repair of goods. Of course, facilitating a repair network for products in Stages 1 and 2 may also have a positive impact on repair options for waste products (Stage 3) and vice versa. There is not much point in discussing the creation and/or financing of a repair network in terms of an EPR measure if the discussion is aimed primarily at extending the life span of products and preventing products from becoming waste. Not only will this cause confusion, but it may also lead to legally incorrect conclusions and misguided policy choices. For this reason we emphatically argue against expansion of the EPR at the national level, in derogation of the EU legal framework, to include measures that are outside the scope of waste management measures (that may have been interpreted broadly) as a way to increase circularity. Obligations requiring producers to increase circularity do not need to be limited to waste management measures (i.e. EPR measures), however. If we want a better repair network, financed by producers, we do have to make an effort to consider EPR policies and laws and consumer policies and laws (during and after the warranty period) in relation to one another and coordinate the measures in these distinct areas with one another (and with ecodesign policies and laws). The goal of setting up repair networks is used as an example here, but it is advisable in other scenarios as well to use the terms EPR and EPR measure correctly, without including all kinds of measures that are outside the scope of the definition of EPR under EU law and that are therefore subject to different legal frameworks.

125 See also Recital 23 to the Directive promoting the repair of goods.

# 10 Repair fund in combination with bonus and/or vouchers

## 10.1 Description

A repair fund is a fund which provides financial assistance for the repair of worn or broken products. This will pay for (part of the) repairs requested by consumers. This could be done, for example, in combination:

1. A voucher, which consumers can request (online) from the fund and redeem at a repair shop.
2. A bonus, in the form of a fixed consumer discount for a repair job.

Repairs are encouraged by lowering the financial threshold for consumers. This will extend the life span of products, which in turn will decrease the demand for new materials. Electronics and textiles are examples of products from existing EPR groups that are eligible for this fund.

The fund should be set up by the producer organisation. An alternative would be a fund set up by the government, but it would not be an EPR measure in that case. The fund manager must communicate with repairers about payments for repairs. We also need to decide which repairs will be covered for which equipment (Bundesministerium Klimaschutz Umwelt Energie Mobilität Innovation und Technologie, n.d.).

In the voucher system, the consumer is responsible for requesting the voucher and therefore for obtaining reimbursement. This system is used in Austria: the consumer requests a repair voucher online and redeems the voucher at a participating business. The business submits the payment request, and the subsidy is issued to the consumer (Bundesministerium Klimaschutz Umwelt Energie Mobilität Innovation und Technologie, n.d.). The Austrian system is financed by an EU fund, not by an EPR scheme.
An advantage of the voucher system is the ability to control the budget through the option of setting a limit on the number of vouchers that are issued. Disadvantages are more administrative work for the consumer, who has to request a voucher and may decide it is not worth the effort, and the fact that it may take a while before the reimbursement is issued (Right to Repair, 2024).

With bonuses, the repairer applies the discount at the time of repair. The repairer then requests reimbursement from the repair fund. An example of this is the French repair fund (Bonusreparation, 2023). In France, the repair bonus is financed through the system for extended producer responsibility. The EPR systems establish nonprofit eco-organisations in the name of the producers, who are responsible for issuing the repair bonus to the consumer. Products must be repaired by an approved repairer who has earned the QualiRepar label. Any repairer who meets the requirements can apply for this label (Het Groene Brein [The Green Brain], 2024). This is a consumer repair bonus for electronic products,

shoes and clothing, and certain household appliances (Re_fashion, 2022, 2024). The advantage of a bonus system is that it is user-friendly, which means a low repair threshold. A disadvantage is that it is susceptible to fraud, because the money flows from the organisation to the repairer rather than the consumer (Right to Repair, 2024).

## 10.2 Technical feasibility

The technical feasibility of a repair network has already been discussed in Chapter 9. A repair network makes sense for products with a longer life span that still tend to be discarded rather than repaired, such as clothing, electronics and furniture. There is no need to cover the cost of car repairs in the EPR, because repair is already promoted by current economic incentives (high value of cars) without an EPR policy. Single-use products are by definition not eligible for this measure.

The repair fund mechanism is affected by a number of technical aspects. For example, a repair map (or inclusion of a map in the national repair register), which is used in Saxony and France, would show available repair services in a certain region. It would be important, however, to update the data on a regular basis to ensure the accuracy of the information.
The process would also have to as fraud-resistant as possible. Austria changed the reimbursement process by issuing payments directly to the customer's bank account rather than via the repair businesses.
Lastly, data collection is important for the calculation of emission reductions and for adjustment, if necessary, of the (repair) programme. Continual analysis of the data can help to optimise the efficiency and success of the programme. In addition, data on repaired products may be useful for the implementation and evaluation of further measures promoting repair. An example of this is the evaluation of the third subsidy period of the Thuringian repair bonus by means of an accompanying study (Right to Repair, 2024).

## 10.3 Economic feasibility

The economic effects of a repair bonus were investigated by (inter alia) KPMG at the request of the Dutch Ministry of Infrastructure and Water Management (Dutch House of Representatives, 2024). The results of this study had not been published yet at the time of writing of this report and are therefore not included in our analysis. Our analysis is based primarily on findings from (Right to Repair, 2024).

Repair funds are useful for products that can be used again after repair but that currently lack a viable business model. If we look at cars, for example, there is a large-scale repair industry already because repairing a car is cheaper than buying a new one. This is not the case for many electric and electronic devices and textiles. Financial flows will have to be redirected to make repair more financially attractive. The following aspects are important for creating a viable repair fund.

The subsidy amount for each repair must be high enough to create an incentive and to make it worth the administrative effort. France increased the subsidy amounts after a few months to encourage the intended behaviour. Thuringia settled on
€ 75 per repair (Right to Repair, 2024).
To ensure that there are enough physical locations where consumers can use the repair bonus, the criteria thresholds for participating repair businesses (if any) must be as low as possible. Evaluation of the first phase of the French repair fund revealed discouraging results, because it is too difficult and expensive for most (especially smaller) businesses to qualify for the subsidy programme (Right to Repair, 2024).
Predictability is essential for repair businesses, especially if they have to respond to an increased demand for repairs as a result of the subsidy programme and they need to hire more staff, for example. Temporary suspensions of the programme and unexpected decreases in orders can cause major problems.

Capping the amount or setting a fixed reimbursement rate per person per repair will make the costs more predictable. The instrument will lead to price increases of the products, however.

## 10.4 Legal feasibility

As stated before, France finances the repair bonus through the system for extended producer responsibility. Whether this French measure is a waste management measure under an EPR scheme is debatable. In our opinion this is not the case, because the French measure does not provide a financial contribution to the consumer concerning the repair of waste products but rather to the repair of goods that are in the consumer's possession and will not become waste. The French government may take a different view, but we do not consider this a measure that can be imposed on producers **in the context of EPR**. It follows that EPR provisions under EU law do not apply to such a measure. We do think that producers can be required to take such a measure, just not as part of an EPR scheme.

*Alternative: introduction of a repair bonus or voucher independently from an EPR scheme*
Another option would be to introduce a national fund in combination with a voucher/bonus system for the repair of goods that are will remain in the consumer's possession. This alternative is beyond the scope of an EPR scheme. In terms of legal feasibility, the most relevant pieces of legislation are the European Directive on the sale of goods and the Directive promoting the repair of goods. A measure providing for a repair bonus or voucher similar to the French system is not explicitly subject to the obligations from the Directive on the sale of goods or the Directive promoting repair. However, art. 13 of the Directive promoting the repair of goods does state that Member States shall take "at least one measure promoting repair". The Preamble (Recital 36) to the Directive mentions the following examples: "Measures of financial nature could, for example, take the form of repair vouchers, repair funds, supporting or creating local or regional online platforms for repair (.)". This does not mean, however that this is an EU repair bonus scheme. The relevant point for national options for introducing a bonus or voucher system is this: in principle, national measures like repair funds or voucher systems are not only possible but actually encouraged under EU law.

Assuming there is no EU legislation governing repair bonuses/vouchers, a national measure introducing a repair bonus will have to be assessed primarily within the framework of the Services Directive or art. 56-62 of the Treaty on the Functioning of the European Union (hereinafter: TFEU) and the loyalty principle of art. 4(3) of the TEU. A previous study concluded that "*Depending on the national design, a (potential) obstacle to the cross-border provision of repair services within the meaning of the Services Directive or, if the Directive does not apply, art. 56 TFEU, may occur because repair by foreign providers may become less attractive for consumers (e.g. if, according to the Austrian regulation, repair may only be performed by national repairers)*".[126] The "*justification for the national measure must be sought in the environmental or consumer protection objective of the measure. Next, the concrete design of the measure would have to pass the proportionality test. Again, the appropriateness of the measure is unlikely to be an obstacle in the immediate future, but it will be important to justify why the national measure is necessary in anticipation of European legislation It is plausible that the loyalty principle of art. 4(3) TFEU will not easily be compromised and is preferable to a comparable measure that would not disadvantage foreign repair businesses, to the extent that the EU legislator does not want to regulate a 'repair bonus' (or something similar) at EU level.*"[127]

In short, although a repair bonus or voucher system financed by producers cannot be introduced as an EPR scheme, such a measure could in principle be introduced independently of an EPR scheme, depending on the specific design of the measure.

126 M.N. Boeve, A.M.E. Veldkamp, C.W. Backes, A. van den Brink, Legal options for introducing a national ban on the destruction of unsold products and a national right to repair, Utrecht, UCWOSL, 2024, p. 70.

127 M.N. Boeve, A.M.E. Veldkamp, C.W. Backes, A. van den Brink, Legal options for introducing a national ban on the destruction of unsold products and a national right to repair, Utrecht, UCWOSL, 2024, p. 70.

# 11 Funds for research on new technologies

## 11.1 Description

This measure is used in EPR schemes to set aside funds for research on new technologies and methods promoting re-use or recycling, such as sorting and recycling techniques. With an innovation fund, the uncertain early development phase of new technologies will be paid for by producers.

An example of this measure is the EPR for textiles. In 2023 the proposal for amendment of the WFD included a provision regarding the financing of research to improve the sorting and recycling processes for textiles and shoes, in particular with a view to scaling up fibre-to-fibre recycling (see also the paragraph below on legal feasibility. This amendment process is still ongoing and has therefore not taken effect yet).

As far as we know, there are no other EPR schemes that include a provision like this. This does not mean that EPR schemes never finance the development of innovative treatment technologies. Take for example the recycling of solar panels by Stichting Open. Stichting Open made commitments in a Generally Binding Agreement (AVV) to contribute to the development of new recycling technologies for solar panels for a 5-year period. We foresee that a large number of solar panels will likely be discarded in a couple of years. Existing recycling technologies are inadequate to (continue to) meet the recycling targets. Financial resources are made available via an innovation partnership to scale up innovative recycling technologies that meet the needs of the market. This is not an innovation fund, but the principle is the same.

The examples of textile recycling and solar panel recycling show that it is possible to use financial resources to promote innovation in waste management within the framework of the EPR instrument. This can be done through agreements at the EU level, as in the example of the textile scheme in the WFD, or at the national level via EPR schemes or a collective agreement.

## 11.2 Technical feasibility

Using funds to subsidise innovation is a well-known principle, and there are various Dutch and European subsidy schemes for this. Many of these subsidy schemes focus on specific phases of innovation and product development. These phases are differentiated on the basis of the Technology Readiness Levels (TRL). The RVO [Netherlands Enterprise Agency] uses the TRL for various subsidy schemes as well (https://www.rvo.nl/onderwerpen/trl). So in a general sense, subsidising technological innovation is a practically feasible instrument which has been proven to be effective.

Subsidising circular technological innovation through an EPR scheme can be effective if new treatment methods are needed for a product group, for example if new products are placed on the market that cannot be treated properly (or only with low quality methods) with existing recycling technologies.

Solar panels and batteries are good examples. These are (relatively) new products for which there is no mature recycling market yet. The production of these products has increased exponentially in recent years, and the bulk of these products will not reach the end-of-life stage for several years yet. This requires a preliminary investment that will not reap immediate benefits from recycling income. Financing provided by an EPR scheme could be an effective measure in this situation.

An innovation fund can also be worth looking at for products without a mature recycling industry, like diaper for example. The EPR for diapers (which is being developed) currently provides only for partial recycling of diapers. Scaling up diaper recycling faces challenges in terms of recycling capacity and a lack of high-grade recycling technologies for specific diaper materials. Encouraging innovation can contribute to the scaling of diaper recycling.

## 11.3 Economic feasibility

Europe and the Netherlands have set up innovation schemes to subsidise technology development. These schemes are usually financed by the government. If a scheme is an implementation of an EPR, producers are responsible for subsidising the technological innovation. This might be possible for technologies in which producers have a collective interest. The advantage is that these producers can share the cost and the risks of the investment. Product recycling is a collective interest because products from different sources end up in the same product or material flow during the end-of-life stage. It is important to keep in mind that the financial contribution for different products should not vary too much, or specific agreements need to be made if that is the case.

## 11.4 Legal feasibility

In view of the definition and goal of EPR pursuant to the WFD, a (producer-financed) innovation fund focused on research on improvements in waste treatment processes such as sorting and recycling may, in principle, be considered a potential component of an EPR scheme aimed at re-use or recycling. The goal of an innovation fund within the EPR framework must therefore be to develop improved waste management applications, not technological innovation in general (unless this innovation research pertains to the waste stage).

Inasmuch as there is no specific scheme yet for certain product groups at the European level, there are no legal obstacles, in principle, to including the creation of such a fund in an EPR scheme at the national level, except that the scheme will have to meet the relevant provisions in the WFD and the state aid rules, insofar as state aid is provided within the meaning of art. 107(1) of the TFEU.[128]

128 State aid within the meaning of art. 107(1) of the TFEU is interpreted broadly. See also art. 22a(e) of the proposal for amendment of the WFD (with the introduction of an EPR for textile, COM (2023) 420 final) on financing research to improve waste treatment processes. Recital 23 of the Preamble states: “If support is financed through state resources, including when wholly financed by contributions imposed by the public authority and levied on the undertakings concerned, it may constitute

The question is whether the provisions in art. 8a(4) of the WFD, which specify the minimum costs to be borne by producers to fulfil their obligations regarding extended producer responsibility, are applicable. In short, it concerns the costs of the separate collection of waste and its subsequent transport and treatment (art. 8a(4(a)) of the WFD). The costs of research on innovation can only be included in this category if it concerns innovation in waste treatment. In that case, the requirements of cost-efficiency and transparency apply as well (art. 8a(4(c) of the WFD).
A relevant note in this context is that the proposal for amendment of the WFD introduces an EPR scheme for a specific product group (textile), with a more specific provision in art. 22a about financing research aimed at, inter alia, improving waste treatment processes with a view to scaling up fibre-to-fibre recycling:

> -"4. Member States shall ensure that the producers of textile, textile-related or footwear products listed in Annex IVc cover the costs of the following:
>
> (…)
>
> (e) support to research and development to improve products design for product aspects listed in Article 5 of the ESPR, and waste prevention and management operations in line with the waste hierarchy, with a view to scaling up fibre-to-fibre recycling, without prejudice to Union state aid rules." [129]

Art. 22a(6) explicitly states: "The costs to be covered referred to in paragraph 4 shall not exceed the costs that are necessary to provide the services referred to in that paragraph in a cost-efficient way and shall be established in a transparent way between the actors concerned"[130]

In short, there are no legal obstacles, in principle, to the introduction at the national level of a fund in an EPR scheme for research and development regarding waste management measurements, except that the relevant conditions in art. 8 and 8a of the WFD and, if applicable, state aid regulations must be met. Any product-specific provisions, such as the proposed EPR provisions for textile in the proposal for amendment of the WFD, must be taken into account as well.

State aid within the meaning of Article 107(1) TFEU; in such cases, Member States have to ensure compliance with State aid rules."

129 Art. 22a of the proposal for amendment of the WFD.

130 This is consistent with art. 8a of the WFD.

# 12 Financial incentive for returns

## 12.1 Description

This measure encourages consumers to return products by offering a financial incentive to do so. These products can then be re-used or subjected to high-grade processing.

A financial incentive can take various forms:

1. Deposit return: The first type of financial incentive is the classic deposit return system. This system is based on the principle that consumers pay a certain amount at the time of purchase, and this amount is refunded when the product is returned. An example of this is the deposit return system for plastic bottles, cans and beer bottles.
2. Return bonus. Another variant is the return bonus. Consumers do not pay an additional amount at the time of purchase, but they do receive a partial refund or a discount when they return the product. An example of this is the voluntary initiative of several clothing stores that offer a partial refund or a discount on a purchase when clothing is returned.
3. “Camping gas system”: A third variant is the type of system that is used for camping gas. Consumers only pay a premium on top of the initial purchase, and the empty container is later exchanged for a new one. Consumers are not allowed to exchange the empty container for cash in this system.

A financial incentive for returns is technically possible for many different product groups. This instrument is especially interesting for products with a high potential for littering. It may also be effective for products that cause significant environmental damage as residual waste and/or in cases where collection rates are still (too) low.

## 12.2 Technical feasibility of a Deposit return system

The technical feasibility depends on the type of product and the specific details of the financial incentive. The deposit return system makes most sense for uniform, form-retaining products that can be recognised by a deposit return machine (e.g. cans and bottles). An alternative is manual collection, with a way to label and scan products to confirm that the deposit fee was paid for the product and that the money can be disbursed (CE Delft, 2022). Setting up a deposit return system for textiles would be complicated, because the deposit fee has to be collected for each textile unit. This would mean that consumers would have to pay a deposit fee for each piece of clothing and return the items to a store one by one. Textiles come in a wide range of formats, as well. A coat or pair of pants is much heavier than a sock or a pair of underwear, for example. Automated systems are not set up to take in articles of clothing one by one. As far as we know, the only deposit return machines that are available so far are for packaging. No commercial-scale deposit return machines have been developed for other product groups yet. Norway does have a pilot programme for deposit return machines that collect batteries (Dan, 2017).

## Return bonus

For other EPR schemes, it would probably be technically complicated to develop a deposit return system; a return bonus or camping gas system would make more sense. Smaller-scale initiatives with return bonuses are already in place for textile (see box below), but return bonuses might work for mattresses and batteries as well. Return bonuses do not make (technical) sense for cars, tyres, glass panes, balloons, moist wipes, paper and cardboard, fishing gear and cigarette filters. Cars and tyres are already traded in at the purchase of a new product (or sold on the second-hand market or taken to a junk yard). It does not make sense to return products like glass panes, balloons, moist wipes or fishing gear to a store.

**Text box 9 - Example: Return bonus for textiles**

An Albert Heijn in the municipality of Krimpen aan den IJssel has started a pilot where customers can bring in their old clothes in return for a discount on their groceries. Customers can bring in clothes, belts, stuffed toys and household textiles. They get € 0.50 discount for each bag of clothing. Clothing that can still be used is taken to a second-hand store or donated to charity. The rest of the clothes are recycled (PZC, 2021). There are several other stores where you can bring in old clothes in return for a discount. For example, H&M will give you a 15% discount on an item of your choice if you bring in a plastic bag with old textiles. The condition of the textile doesn't matter, and torn clothing is accepted as well. The donated textile is then sorted: some articles of clothing are refurbished as second-hand articles, while other articles are converted into different products such as cleaning cloths, moving blankets and insulation material. Hunkemöller,
C&A and Scapino offer similar deals. Another well-known example is Drop & Loop, where you get a discount on your purchase or another reward when you bring in textiles.[131]

A return bonus system, like the deposit return system, will probably require financial support at the national level. For example, if return bonuses are paid for all textile and electronic devices sold in the Netherlands, we will need a fund to finance the return bonuses and a system to keep track of the amount a store paid out in return bonuses and how many products were collected. Some stores may collect more than others (and therefore issue more return bonuses), so those stores would receive a higher compensation amount from the fund. As with the deposit return system, this will require a central organisation to manage and monitor the financial flows. A PRO would be able to take on this responsibility.

## Camping gas system

From a technical perspective, the camping gas system is the easiest to implement. This system does not require a central organisation for financial settlement, since consumers pay a certain amount (to the store) when they buy the initial product, and they receive a discount on a new product when they trade in the old one, so the store does not need to be reimbursed. A technical precondition for this system is that stores must have room to store the returned products (in a safe and hygienic manner) and there needs to be a return system for sending the returned goods to a sorting or recycling facility or to location where the products can be prepared for re-use. Products within the current EPR systems for which this would be technically feasible are batteries, electronics, mattresses, packaging and textiles.

131 Home - Drop & Loop

## 12.3 Economic feasibility

Regardless, any system will result in costs for producers, because they all require the development of an infrastructure for collecting products and transporting them to a treatment location.

The most expensive option is a deposit return system. This is primarily due to the purchase and maintenance costs for deposit return machines (or personnel costs in the case of manual collection). Then there are the costs of transport, counting centres to check how many products were collected by a store, advertising campaigns and a central organisation for financial settlement. Costs are not just incurred by producers but by intermediaries such as installers as well, so it is important to involve all parties in the chain. The costs of the system for cans and bottles (central organisation, counting centres, transport, deposit return machines, advertising campaigns) are financed by contributions from producers, revenue from recycled materials and unclaimed deposit returns. Since beverage product fees are necessary to finance the system, a system without contributions from producers is not financially feasible (CE Delft, 2017). This may be different from a social perspective, since deposit returns also result in lower litter clean-up costs and environmental gains. A return bonus system and camping gas system are likely to be cheaper than a deposit return system because they are less complex, but even these systems will incur costs for collection infrastructure, transport and (in the case of return bonuses) counting centres and financial settlement. If the yield of materials is high, a simple return bonus or camping gas system may be economically feasible without producer contributions. This will require further research for each product group.

## 12.4 Legal feasibility

In principle, it is possible to introduce financial incentives for returns at the national level as part of an EPR scheme. The extent to which this is possible must be assessed (first) in light of EU law. The Packaging and Packaging Waste Regulation (PPWR) and the minimum EPR requirements set out in the WFD are particularly relevant in this context.

### European law

Art. 50(2) of the PPWR requires Member States to set up deposit and return systems to meet the targets laid down in the Regulation for the separate collection of the packaging of plastic beverage bottles and metal beverage containers (cans).[132] This specifically pertains to single-use plastic beverage bottles and single-use metal beverage containers with a capacity of up to three litres. Member States are required, subject to certain exemptions,[133] to set up these systems by 1 January 2029, meeting the minimum requirements set out in Annex X to the Regulation. Existing deposit return systems are exempt from this obligation to meet the minimum requirements in Annex X if they meet the

132 The SUP Directive (EU Directive 2019/904) already contains targets for the separate collection of small plastic bottles. The implementation of a deposit return system is not mandatory under this Directive, but it is mentioned as an example of a way for Member States to meet the collection targets (see art. 9(1) of the SUP Directive).

133 See art. 50(3) et seq. of the PPWR and, for more information, CE Delft, Evaluatie statiegeld [Evaluation of deposit return system], 2025.

separate collection target of 90% in art. 50(1) of the PPWR by 1 January 2029.[134] For that matter, Member States may also request an exemption, subject to conditions, from the obligation to set up a deposit return system for the aforementioned bottles and metal containers.[135] This is not relevant for the Netherlands because we already have a deposit return system.
There is also a more general objective to "endeavour" to implement deposit return systems. Pursuant to art. 50(8) of the PPWR, Member States shall "endeavour" to "establish and maintain deposit and return systems in particular for single-use glass beverage bottles and beverage cartons." Member States shall also "endeavour" to ensure that these deposit and return systems "are equally available for reusable packaging where technically and economically feasible". The requirements in art. 50 of the PPWR are explicitly "minimum requirements", according to art. 50(9) of the PPWR. In principle, Member States may adopt provisions that go above and beyond these minimum requirements, taking into account the general provisions of the TFEU and acting in accordance with the Regulation.

In addition to the PPWR, the WFD is also relevant for the implementation of deposit return systems in the context of an EPR scheme. As described in the general section, the WFD contains minimum requirements for EPR schemes. A relevant point regarding a financial incentive for returns (in particular deposit return systems) is that Member States must ensure, pursuant to art. 8a(4) of the WFD, that the financial contributions of producers cover the "costs of separate collection of waste and its subsequent transport and treatment, including treatment necessary to meet the Union waste management targets, and costs necessary to meet other targets and objectives as referred to in point (b) of paragraph 1, taking into account the revenues from re-use, from sales of secondary raw material from its products and from *unclaimed deposit fees*". This means that a national deposit return scheme must be set up in such a way that revenue from unclaimed deposit fees is used in principle to increase the effectiveness of the deposit return system.

## Flexibility in national implementation/legal feasibility

It follows from the above that Member States are free, provided the WFD provisions are observed, to introduce a financial return system for products as part of an EPR scheme. With regard to packaging, the PPWR actually contains an important incentive to implement and maintain (national) deposit return systems, and for certain types of packaging it even contains an obligation to implement such a system. For that matter, a deposit return system for small bottles and cans was implemented in the Netherlands before the PPWR took effect,[136] and this system can be continued (with a few modifications) under the PPWR. The PPWR explicitly contains minimum requirements and does not contain any legal obstacles to the implementation of deposit return systems or other return systems at the national level for the packaging of other products. As stated before, this follows explicitly from art. 50(9) of the PPWR:

134 Art. 50(11) of the PPWR.
135 Art. 50(5) of the PPWR. In a nutshell, this exemption can be requested if at least 80 percent of the weight of the packaging placed on the market in a Member State for the first time in 2026 is collected separately.

136 See art. 6 et seq. Packaging Management Decree.

-"*9. A Member State may, while observing the general rules laid down in the TFEU and acting in accordance with this Regulation, adopt provisions which go beyond the minimum requirements set out in this Article, such as the possibility to include packaging listed in paragraph 4, and packaging for other products or made of other materials.*"

This is also emphasised in the Preamble, Recital 144:

"*Given the nature of the products and the differences in their production and distribution* systems, deposit and return systems should however not be obligatory for packaging for (...) milk and milk products listed in Part XVI of Annex I to Regulation (EU) No 1308/2013. *However, Member States may establish deposit and return systems covering such beverage packaging and also other beverage and non-beverage packaging*".

If a "financial reimbursement system" is implemented as part of an EPR scheme or otherwise, the system will have to comply with the internal market regulations, in particular art. 34 of the TFEU (prohibition on quantitative import restrictions and similar measures). This is also the case if a Member State opts for the establishment of a financial return system for products other than packaging. In all these cases, the Member State will have to demonstrate that the system is set up in such a way that the impact on foreign producers is not different or more extensive and will not result in structurally higher costs than is the case for domestic producers. If the system does have this effect, the Member State will have to demonstrate that the establishment of the return system is necessary nonetheless and that the resulting trade barrier is proportional to the envisioned environmental protection.

# 13 Financial incentive to go above and beyond the target

## 13.1 Description

This instrument concerns the incorporation of an incentive in the EPR scheme to go above and beyond the targets. The idea is to have companies pay for waste that is not processed correctly or to require them to invest revenue from unclaimed deposit fees/return premiums in circular activities. This creates stronger incentives to go above and beyond the targets. One way to implement this instrument would be to have producers deposit money in a fund. The contribution would be proportional to the extent to which the products end up in residual waste. The resources could be used to reimburse municipalities for waste management costs or for other purposes, like contributing to the fund for repair bonuses or (subsidies for the development of) innovative technologies (see previous measures).

Another option would be to require producers to bear the societal costs of waste management as well, such as the societal costs of greenhouse emissions and other emissions from waste incineration facilities. Environmental awards could be used to increase awareness of these societal costs. Broadening the scope of the costs would create an incentive to increase separate collection, potentially making the eco-modulation instrument more effective.

## 13.2 Technical feasibility

The technical feasibility of this instrument largely depends on the available data. One way to create a financial incentive for producers to go above and beyond the target is to find a way to quantify how much of their products ends up in residual waste and, if we want to, the (municipal) costs of treating this residual waste. It might be an idea to align this initiative with the mandatory reports waste treatment facilities are required to submit to the Dutch Emissions Authority in the context of the Dutch emissions tax and EU Emissions Trading Scheme. These reports contain quantitative information about incinerated materials and $CO_2$ emissions. The Dutch Directorate-General for Public Works and Water Management (known by the abbreviaton RWS) also has municipalities perform annual sorting analyses to get an idea of the composition of residual household waste. Although these are random samplings, they could still provide some information about the presence of certain product groups in residual waste.[137] The extent to which this information is relevant for products groups in the EPR will have to be investigated further.

An alternative would be to use the percentage of non-recycled waste as a basis, since this is already monitored in the context of EPR schemes. For example, if 60% of the waste is collected separately and recycled, 40% would be used as the basis for the financial contribution under the EPR schemes. The percentage-based contribution could be established on the basis of the municipal treatment costs, but this would not necessarily have to be the case. The contribution could be calculated in other ways as well.

137 https://www.afvalcirculair.nl/monitoring-en-cijfers/afvalcijfers/afvalcijfers-land/samenstelling/

## 13.3 Economic feasibility

This measure will lead to additional costs for producers and possibly to higher prices for products. The extent to which this measure is economically feasible largely depends on the amount of the financial incentive and the extent to which producers will be able to go above and beyond the targets. This also depends on the product groups.

## 13.4 Legal feasibility

It follows from art. 8a(4©) of the WFD that the waste management costs cannot exceed the costs that are necessary to provide waste management services in a cost-efficient way.[138] These costs need to be specified in a transparent manner. The question is whether the costs that can be imposed on producers are also limited by the targets that are set for each EPR scheme. Producers must cover the costs that are required to meet the waste management targets and other targets set out in the relevant EPR scheme.[139] Furthermore, they are also responsible for providing an "appropriate collection system". This obligation is not limited to a particular collection target.[140] In other respects, it is not clear from art. 8a(4(a)) of the WFD that the financial responsibility of producers is limited to costs that are necessary to meet the abovementioned targets. This is because it is not clear from the wording of this provision whether art. 8a(4(a)) indicates the minimum financial responsibility of the producers, or whether this provision presents a limitative and therefore exhaustive list of financial responsibilities. [[141] Furthermore, producers are also responsible for providing an "appropriate collection system".
This obligation is not limited to a particular collection target.[142] In other respects, it is not clear from art. 8a(4(a)) of the WFD that the financial responsibility of producers is limited to costs that are necessary to meet the abovementioned targets. This is because it is not clear from the wording of this provision whether art. 8a(4(a)) indicates the minimum financial responsibility of the producers, or whether this provision presents a limitative and therefore exhaustive list of financial responsibilities.

In our opinion, the latter interpretation, which assumes an exhaustive, limitative list of costs that may be imposed on producers, would be incompatible with art. 14(2) of the WFD. This article states the following: "Without prejudice to Articles 8 and 8a, Member States may decide that the costs of waste management are to be borne partly or wholly by the producer of the product from which the waste came (.)." This seems to means that Member States may decide to have producers pay for all the costs of waste management, i.e. not just the costs of measures that are needed to meet certain EPR targets. The bottom line is that producers would bear the full (financial) responsibility. In other words, art. 14(2) of the WFD seems to imply that art. 8a(4) of the WFD merely lists the costs that should be borne at a minimum by producers.

138 Art. 8a(4(c)) of the WFD.
139 Recital 26 of Directive (EU) 2018/851.
140 Art. 8a(3) of the WFD.
141 Recital 26 of Directive (EU) 2018/851.
142 Art. 8a(3) of the WFD.

EU law also contains cases where the producers must be required to bear additional or even all waste management costs, not just insofar as these costs are necessary to meet certain targets. For example, art. 8(2) of the SUP Directive states that Member States must also hold producers responsible, within the context of EPR, for the waste management costs for certain single-use plastics insofar as these are not (required to be) collected separately and end up in residual waste, and for the costs of cleaning up litter. In other words, this is an obligation to bear all waste management costs for all products placed on the market, i.e. not just insofar as this is needed to meet existing collection and recycling targets. For the time being, we are of the opinion that Member States may choose, even in cases where EU law does not impose any obligations, to make producers fully financially responsible for all waste management costs resulting from products they place on the market, as stated in art. 14(2) of the WFD, which is not barred by art. 8a(4) of the WFD. We cannot be entirely sure that this is the case, however.

We do know that art. 8a of the WFD will not be affected, which means that producers can only be required to bear costs that are necessary to provide waste management services in a cost-efficient manner. The term waste management services is not defined very clearly. Pursuant to art. 8a(4(a)) of the WFD, this primarily comprises the collection, transport and treatment of waste, but also the costs of providing information to waste holders, including consumers (campaigns) and reporting. It seems to us that this definition could also comprise the costs of repair networks (for waste!), contributions to funds for the development of circular recycling technologies, the costs of collection and treatment (preparation) of waste for re-use (see for example the future art. 22a(4) of the WFD concerning the EPR for textiles). This is possible as long as these measures serve the goal of meeting waste management targets or as long as they are necessary for circular waste management. On the other hand, we do not think it is possible to artificially increase waste management costs as a control measure to reach a particular goal such as increased waste prevention. These types of costs are not necessary to provide waste management services in a cost-efficient manner.

# 14 Conclusions and recommendations

## 14.1 Conclusions

The goal of this study was to investigate which instruments can be deployed within the EPR to promote circularity and to find out whether these are technically, legally and economically feasible. To this end we selected ten instruments from a longlist of 40 instruments for further investigation. Our main conclusions are summarised in Table 3:

**Table 3 - Assessment of legal, technical and economical feasibility**

| No. | Instrument | Legal feasibility | Technical feasibility (initial assessment) | Economic feasibility (considerations) |
|---|---|---|---|---|
| 1 | Inclusion of refuse targets in EPR | Goals that are aimed directly at refusing production are not legally feasible with the context of EPR schemes.<br><br>Goals that contribute indirectly to reducing the number of products on the market, such as preparation for re-use, are legally feasibly, subject under certain conditions (see also instrument 5). | Goals that contribute indirectly to reducing the number of products on the market appear to be technically feasible for products such as furniture, textiles and shoes, electrical and electronic equipment, toys and lightweight modes of transport (see also instrument 5). | The costs, and therefore the economic feasibility, of goals that contribute indirectly largely depend on the type of product and the extent to which an effective collection system is already in place (see also instrument 5). |
| 2 | Eco-modulation based on recyclate percentage | Yes, subject to conditions. | Yes, it seems feasible for products like packaging, textiles and shoes, furniture, toys, mattresses, fishnets, car tyres and electronics. | If the eco-modulation is structured in such a way that the total revenue does not differ significantly from the revenue from a flat fee, there is no difference in economic feasibility between waste management contributions with or without eco-modulation, except for a possible increase in administrative costs. |
| | Eco-modulation based on recyclability | Yes, subject to conditions. | Yes, it seems feasible for products like mattresses, fishnets, car tyres, furniture and electronics (already applies to packaging). | |
| | Eco-modulation based on life span | Yes, subject to conditions. | Yes, it seems feasible for products like car tyres, textiles, electronics and packaging (refillable). | |
| | Eco-modulation based on environmental impact | Yes, subject to conditions. | Yes, for products that will be subject to a mandatory environmental impact assessment, preferably on the | |

| No. | Instrument | Legal feasibility | Technical feasibility (initial assessment) | Economic feasibility (considerations) |
|---|---|---|---|---|
| | | | of the European impact categories (Product Environmental Footprint, PEF). | |
| | Eco-modulation based on potential for littering | Yes, subject to conditions. | No, not a logical solution for any product group. There is little difference in potential for littering between product groups. | |
| 3 | Inclusion of material-specific goals | Yes, subject to conditions. | Yes, it seems feasible for products like textiles and shoes, furniture, toys, mattresses, fishnets, car tyres, batteries and electronics. | As with technical feasibility, the cost of setting specific recycling goals depends largely on product design and the relative ease of separating the materials. |
| 4 | Goals related to recycling methods | Yes, subject to conditions. | Yes, further research is needed to determine which products this would apply to. | The inclusion of goals for recycling methods is not likely to result in a substantial change in collection costs if the goals are revised on a step-by-step basis. |
| 5 | Targets for preparation for re-use | Yes, subject to conditions. | Yes, it seems feasible for products like textiles and shoes, furniture, electrical and electronic equipment, toys and lightweight means of transport (kick scooters, etc.). | The costs of this measure, and therefore its economic feasibility, are largely dependent on the type of product and the extent to which an effective collection system is already in place. |
| 6 | Repair network target | Yes, subject to conditions. | Yes, it seems feasible for products like electrical and electronic equipment, textiles and shoes, furniture, toys and lightweight means of transport (kick scooters, etc.). | The cost of setting up a nationwide repair network depends on the product and the extent to which this network can build on existing networks for collection and repair initiatives. |
| 7 | Repair fund in combination with bonus and/or vouchers | Yes, subject to conditions. | Yes, it seems feasible for products like electrical and electronic equipment, textiles and shoes, furniture, toys and lightweight means of transport (kick scooters, etc.). | This instrument will lead to higher prices for linear products. It will result in savings for consumers. |
| 8 | Funds for research on new technologies | Yes, subject to conditions. | Yes, further research needed to determine which products this would apply to. | This instrument will likely be economically feasible in particular for technologies in which producers have a collective interest. The advantage is that these producers can share the cost and the risks of the investment. |

| No. | Instrument | Legal feasibility | Technical feasibility (initial assessment) | Economic feasibility (considerations) |
|---|---|---|---|---|
| 9 | Financial incentive for returns | Yes, subject to conditions. | The deposit return system makes most sense for form-retaining uniform products like cans and bottles (and possibly batteries). For many products, such as textiles, electronics and mattresses, it would probably be technically complicated to develop a deposit return system; a return bonus or camping gas system would make more sense. | Regardless, any system will result in costs for producers, because they all require the development of an infrastructure for collecting products and transporting them to a treatment location. |
| 10 | Financial incentive to go above and beyond the target | Yes, subject to conditions. | Yes, depending on the available information on what percentage of residual waste is represented by the different product groups and the cost of treating this residual waste. | This measure will lead to additional costs for producers and possibly to higher prices for products. The extent to which this measure is economically feasible largely depends on the amount of the financial incentive and the extent to which producers will be able to go above and beyond the targets. |

## 14.2 Conclusions

The main conclusions are:

- From a legal perspective there are no insurmountable obstacles to implementing the instruments from the shortlist, except for the inclusion of refuse targets in EPR schemes.
- Many of the instruments appear to be technically feasible for several product groups at first glance, but a more detailed analysis is needed for each product group.
- The instruments may lead to higher financial costs for producers, but the quantitative data are not sufficient yet to assess the economic effects. The same thing applies to any potential savings for other parties (such as municipalities that will have less residual waste to deal with) and lower external environmental costs related to product life cycles.

## 14.3 Recommendations

The main recommendations are:

- Conduct further research on the possibilities for circular instruments within the different EPR categories.
- Conduct further research on the effectiveness of the instruments.
- Learn from the experiences of other countries
- Align as much as possible with European legislative developments, in particular the Ecodesign Regulation.

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# A "Global EPR" – Global dimension of EPR

Once the researchers had determined in consultation with the contracting authority which instruments would be investigated further in this study, the contracting authority also asked for a brief overview of the current understanding of the term "global EPR". The global impact of goods after the consumption stage are generally not considered carefully in the context of EPR. Taking a (closer) look at this impact might increase circularity as well.

Global EPR (or global dimension of EPR) is defined in part as the attempt to create a certain level of uniformity at the global level in EPR terminology and instruments and to facilitate the discussion about the development of this instrument. To this end, the Organisation for Economic Co-operation and Development (OECD) issued a guidance in 2001. This guidance was revised in 2016. It contains recommendations, in particular regarding governance and concrete details of EPR schemes. This is not immediately relevant for the Netherlands because the frameworks for EPR schemes are primarily laid down in art. 8 and 8a of the WFD. However, this guidance is also an indicator of the increasingly global context of EPR and it calls for the involvement of "informal operators", particularly from the global south, in the development and application of EPR schemes.

This is the focus of what is sometimes referred to as "global EPR" but which is usually referred to in English as ultimate producer responsibility (UPR). The starting point for the discussion is the fact that a considerable share of the various product flows that are subject to an EPR scheme in Europe (or the Netherlands) is exported to countries outside Europe after they are discarded by the initial consumer. This means they "escape the EPR". This happens in different ways: goods that are not waste are exported as second-hand goods, and goods that are no longer usable (and often no longer repairable), i.e. goods that should be classified as waste, are labelled incorrectly and shipped outside Europe. This especially happens with so-called "near-waste leakage flows". This phenomenon occurs in many product flows, such as electronic equipment, textiles, cars and car tyres, and plastic packaging. One African study revealed that a third of all electronic devices that were exported to Nigeria as second-hand goods were in fact unusable. The producers paid a waste management contribution for these goods, but the money was not used for collection and (high-grade) recycling. So in fact, the producers in this scenario are not responsible for the (actual) treatment of these products, which are often dumped in African and Asia or are recycled under inferior or poor conditions. This is why some people advocate for expansion of the EPR to UPR (ultimate responsibility). This would make producers responsible for the collection and high-grade treatment of their products sold in the Netherlands (or elsewhere in Europe) no matter where they end up. This could be achieved for example by spending part of the waste management contribution for a product that is subject to an EPR scheme on "capacity building, funding and technology transfer". PROs would be required to spend part of their revenue on reliable

partners who would be responsible for responsible, high-grade recycling of products that are subject to the EPR and end up outside of Europe.

It is generally beyond debate that the effectiveness of EPR is often undermined by leakage flows to other countries of products that are subject to waste management contributions but are not collected and subjected to high-grade treatment in the Netherlands. However, the question is what we can do about this and who is responsible. This is in part an enforcement issue. On the one hand, it has to do with collection. For example, if electrical devices (e.g. household appliances) and electronic devices are collected outside of the collection system set up or financed by the producers and are then sold in another country, producers have no way to prevent this. Insofar as it concerns discarded, often unusable goods, an important starting point appears to be enforcement of regulations on waste export (EVOA) and of return requirements, a prohibition on collection outside of the EPR frameworks established by PROs, and enforcement of this prohibition. The introduction of financial incentives for returning goods (see Chapter 12) may reduce this problem as well. This is in the interest of producers: not only in light of the negative environmental impact of “leakage flows”, especially in the global south, but also because these flows make it difficult or impossible for producers to meet their statutory collection targets. However, part of the issue seems to be the structural limitations of EPR schemes. When functional, usable second-hand goods that are subject to an EPR scheme are exported outside the Netherlands or Europe, (high-grade) collection and high-grade treatment are not guaranteed. This cannot be solved by stricter enforcement, because the sale of functional second-hand goods is not limited and is therefore not in violation of a statutory requirement. If it is established that these good are exported on a structural basis to certain destinations outside Europe, the receiving countries could be supported financially and through knowledge transfer to set up and implement their own EPR schemes. Part of the waste management contribution could be used for this, for example by establishing a designated fund. This could also lead to improved traceability of products sold in the Netherlands after they are discarded and sent to countries outside Europe. The introduction of a return bonus may reduce this problem for some of the goods that are subject to the EPR, provided the return bonus is high enough. Whether the latter will ultimately have a positive ecological impact is beyond the scope of this assessment.

# B Alternative policy instruments

We also performed a light check as part of this project to find out if some of the goals could be achieved with alternative instruments. An alternative (or supplement) to eco-modulation is an environment tax. This tax would not necessarily apply to collection and treatment costs, but it would be a way to control consumption on the basis of sustainability indicators. An environment tax provides more leeway to specify the amount than a waste management contribution. An environment tax is therefore not an instrument that can be applied within the context of an EPR scheme.

For example, in 2022 the United Kingdom introduced a tax on plastic packaging containing less than 30% recycled plastic. This comes out to about 234 euros per tonne of plastic (Packaging Management, 2022). These numbers are not likely to be reached within the context of EPR scheme, because the EPR is limited to the cost of collection and treatment.

We concluded in this study that refuse targets cannot be included in EPR schemes. There is no reason, however, why such targets cannot be included in the context of another policy. European regulations currently include a few provisions and requirements that are classified as “refuse targets” in this study, like the prohibition on certain plastic products for single use from the Single-Use Plastics Directive and the consumption reduction measures for lightweight plastic carrier bags.

Instruments aimed at the standardisation of product design are not legally possible within the EPR, either. Instruments aimed at standardisation must be developed within the context of the Ecodesign Regulation (see Text box 1).

# C Transposition of the European legal grounds for EPR from the Waste Framework Directive into Dutch law

| Provision in the consolidated version of the Waste Framework Directive | Provision in the Decree on the extended producer responsibility scheme (EPR Decree) |
|---|---|
| Article 8, paragraph 1, | Article 1, paragraph 2 |
| Subsection 8a: | |
| Paragraph 1(a) | Art. 2, paragraph 1 and art. 4, paragraph 2(d) and (e) and paragraph 3(a) |
| Paragraph 1(b) | Art. 2, paragraph 1 and implementation under existing law |
| Paragraph 1(c) | Articles 4 and 5 |
| Paragraph 1(d) | Implementation under existing law |
| Paragraph 2, first sentence | Art. 2, paragraph 3 |
| Paragraph 2, second sentence | Art. 2, paragraph 2(b) and act not intended to have legal effect |
| Paragraph 3(a) | Art. 2, paragraph 2(a) and art. 4, paragraph 2(c) |
| Paragraph 3(b) | Article 2, paragraph 2 |
| Paragraph 3(c) | Art. 3, paragraph 1 |
| Paragraph 3(d) | Art. 3, paragraph 3 |
| Paragraph 3(e) | Art. 5, paragraph 3 and art. 6, paragraph 6 |
| Paragraph 4(a) | Art. 3, paragraph 2 and art. 6, paragraph 3 |
| Paragraph 4(b) | Art. 6, paragraph 4 |
| Paragraph 4(c), first two sentences | Art. 6, paragraph 5 |
| Paragraph 4(c), last section | Will not be implemented |
| Paragraph 5, first section | Articles 4, 5 and 6, paragraph 2 |
| Second section | Does not require implementation, existing law |
| Third section | Does not require implementation |
| Fourth section | Does not require implementation |
| Paragraph 6 | Does not require implementation, act not intended to have legal effect |
| Paragraph 7 | Art. 7 |
| Paragraph 8 | Existing law |