

Extended Producer Responsibility for Packaging

Elements and Outcomes



Report For

National Waste and Recycling Association

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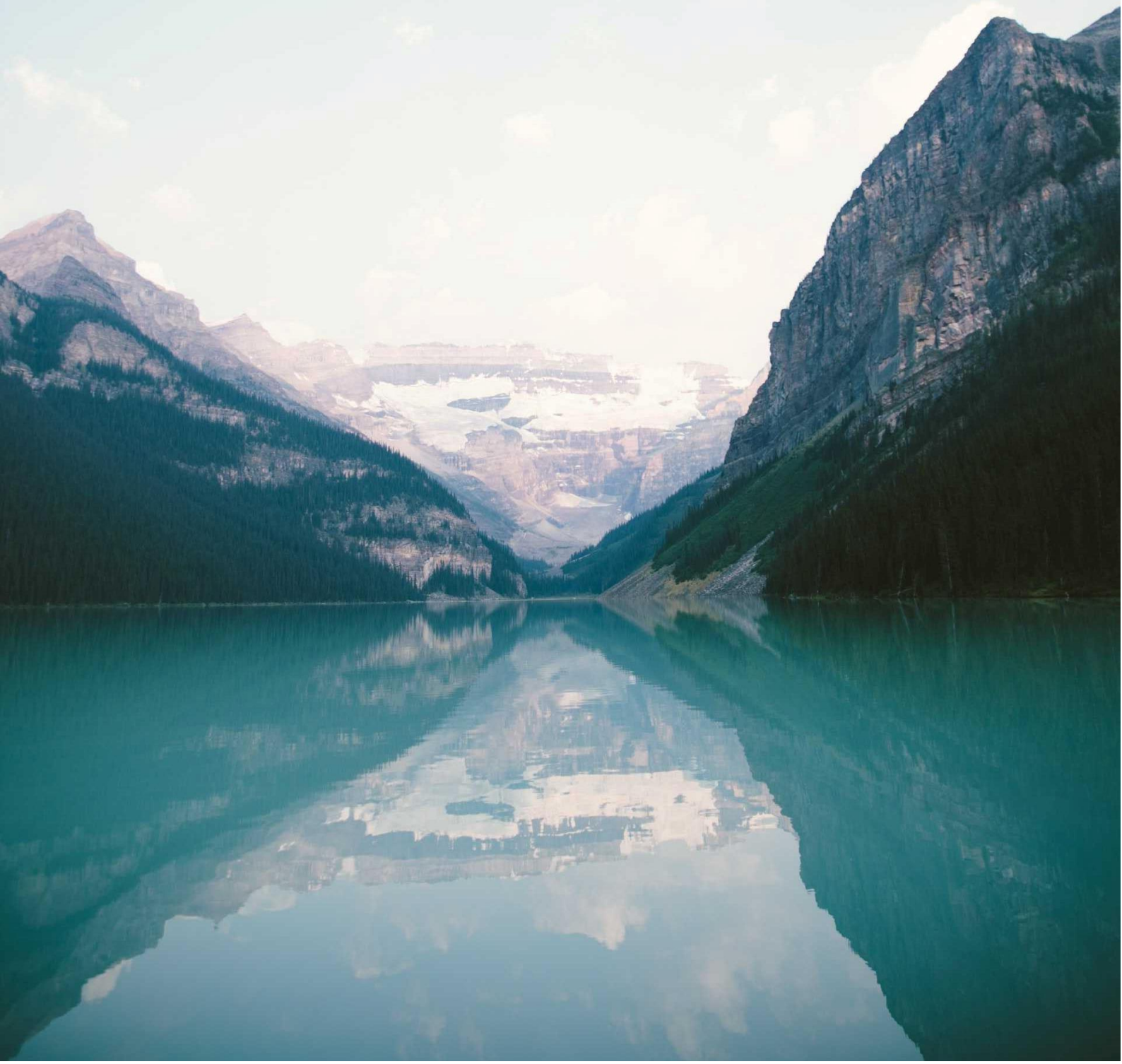
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Executive Summary



Executive Summary

Environmental outcomes often associated with Extended Producer Responsibility (EPR) include:

- Outcome 1: increases in recycling rates.
- Outcome 2: increases in recycled content usage.
- Outcome 3: increases in design-for-recycling practices.
- Outcome 4: increases in the market value of collected packaging waste.

These four outcomes are interrelated. For instance, it is reasonable to assume that increases in design-for-recycling practices (outcome 3) will facilitate increases in recycling rates (outcome 1), which should increase the supply of recycled content, thereby facilitating producers' usage of recycled content (outcome 2), which in turn can be linked to the market value of collected packaging waste (outcome 4). Given these interrelations, EPR programs vary in the directness with which they intend to address each outcome. Some programs may have elements directly aimed at improving several of these outcomes, while other programs may intend for these outcomes to be indirectly addressed via the interrelations.

European policy has referenced EPR as a mechanism for member states to implement the polluter pays principle since the introduction of the Waste Framework Directive (2008/98/EC).¹ While EPR has been required in Europe for waste electrical and electronic equipment (WEEE), end-of-life vehicles (ELV), and batteries and accumulators (B&A) there was never an obligation to set up EPR schemes for packaging until 2018, when Directive 2018/852², which amends Article 7 of the Packaging and Packaging Waste Directive, made it clear that EPR schemes **must** be established for all packaging, stating that:

By end of 2024, EU countries should ensure that producer responsibility schemes are established for all packaging that will cover all necessary costs of collection, sorting, and recycling.

The schemes should help incentivize packaging that is designed, produced, and commercialized in a way that promotes packaging reuse or high-quality recycling and minimizes the impact of packaging and packaging waste on the environment.

Despite there being no requirement currently in place, several countries have implemented EPR for packaging. The most established programs are found in Germany, France and Italy and it is

¹ (Directive 2018/851 of the European Parliament and the Council on amending Directive 2008/98/EC on waste

² European Parliament and the Council (2018) Directive (EU) 2018/852 of the European Parliament and of the Council of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste

these programs for which secondary research has been carried out to provide a view on the extent to which EPR has contributed to the four outcomes above.

When assessing the impacts of EPR on outcome 1, increases in recycling rate it is important to understand that recycling under European law does not include energy recovery, recycling is defined in European law as:

'recycling' means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations".³



Outcome 1: Increases in Recycling Rate

The recycling rates in all programs have increased since the introduction of EPR, with Germany achieving a packaging rate increase from 37.7% in 1991, the year before EPR was introduced to 76.2% in 2016.⁴ One of the drivers for increasing recycling rates across the European Union (EU) is the material specific targets implemented through the Packaging and Packaging Waste Directive. Germany's packaging legislation⁵ sets targets that are higher than those set by the European Commission. These targets within the framework of EPR where producers have 100% responsibility for financing and organizing collection, sorting and recycling of packaging to meet national targets are likely to leading to increases in recycling rate.

Conclusion: EPR setting material specific targets will likely increase recycling rates.



Outcome 2: Increases in Recycled Content

There was no requirement under German packaging and EPR legislation for packaging of any type to incorporate recycling content and impact until the 2019 amendment of Packaging Act ('VerpackG'). This amendment requires producers to modulate fees to drive the use of recycled content will not be implemented for some time, and in practice eco-modulation tends to focus on recyclability rather than the use of recycled materials. France's program, Citeo, while having the most established eco-fee modulation to encourage the use of recycled content, was not able to provide any data to demonstrate how the recently introduced eco-modulation was supporting the

³ Waste Framework Directive 2008/98/EC <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098>

⁴ <https://www.grontpunkt.no/media/2866/2017-11-22-denison-dsd-oslo-final.pdf>

⁵ VerpackG Packaging Act

use of recycled content. Italy demonstrates an alternative policy measure, where a virgin polymer plastics tax drives increased use of recycled content in plastics, rather than EPR.

Conclusion: There is no evidence that EPR, as currently designed and implemented, has led to the use of more recycled content. Eco-modulation has been introduced to drive the outcome towards greater recycled content, but it is too early to determine any results.



Outcome 3: Increases in design-for-recycling practices

VerpackG requires Producer Responsibility Organizations (PROs) to eco-modulate producer fees according to recyclability. Several PROs offer their own services to guide producers' packaging design decisions, such as the "Made for Recycling" assessment protocol by Interseroh⁶ and the "Design4Recycling" framework by Der Grüne Punkt.⁷ The German agency responsible for overseeing producer registration, Zentrale Stelle Verpackungregister (ZSVR), has issued a 'minimum standard' for assessing recyclability, which should be the basis for PROs to modulate fees. However, there is no clear model as to the extent to which fees should differ. It is too early to understand how the recent changes in legislation regarding eco-modulation to support recyclability and the subsequent guidance will drive changes in packaging design which will enable Germany to meet a 90% recycling rate for all materials and a 63% recycling for plastics. It is likely to be harder under a multi-PRO model when different PROs implement different mechanisms to encourage both the use of recycled content and design for recyclability changes, to evaluate the extent to which fee modulation may be resulting in more recyclable design as fees will not be as transparent as under a single PRO model. Due to competition between PROs, the extent of modulation is generally small, and so modulation of fees does not act as a significant incentive to change packaging design decisions. France has used eco-modulation to try and encourage design for recyclability. Interestingly, France's recycling rate increased at a steadier rate since it was introduced in 2010 compared to Germany's, for example, which has remained relatively flat. However, Italy's rate increased more than France's without eco-modulation. Italy introduced eco-modulation to drive design of recyclability in only 2018, so it is too early to tell if as design it will improve packaging sortability and recyclability. Comparing the information from each country, it is not clear as to the extent to which eco-modulation to date has driven design for recyclability.

Conclusion: France introduced eco-modulation to support design for recyclability and its recycling rate has steadily increased since it was introduced compared to Germany's. However, Italy's rate has increased by

⁶ <https://www.interseroh.de/leistungen/beratung/verpackungsoptimierung/madeforrecycling/>

⁷ <https://www.gruener-punkt.de/de/nachhaltige-verpackungen/ueber-design4recycling>

more than France's without eco-modulation. There is no definitive data that shows that EPR results in increased design-for-recycling of packaging.



Outcome 4: Increases in the market value of collected packaging waste

Unfortunately, no information could be found to assess how the EPR programs in Germany, France, and Italy have increased in the market value of collected packaging waste. There are many factors that influence material pricing, and we were unable to find any reliable data to suggest that the EPR program had singularly led to increases in the market value of collected packaging waste.

Conclusion: Evidence could not be found linking EPR to increased end market values for packaging waste.

Conclusion

Germany, France and Italy were some of the first countries to put EPR programs in place to enable recycling targets, set either by the country or the European Union, to be met. These countries have met the recycling rates set to date. EPR enables recycling targets to be met which ensures there is sufficient funding to enable the necessary collection, sorting infrastructure and education to be put in place to capture and recycling the required tonnage as well as holding parties are financially liable for not achieving these standards.

The use of eco-modulated fees is a relatively untested concept across Europe, with different programs modulating fees differently. The European Commission is developing guidance with the aim of providing a consistent mechanism that can provide a harmonized approach across Europe, which will enable producers to make design changes for the whole of Europe and not for individual country programs. EPR in Europe to date has not been designed to drive use of recycled content or design for recyclability and it is only now that measures are being built into programs to do so. Furthermore, in ensuring that the producer bears the cost of end-of-life management, prevention at source through design-for-recycling should be prioritized. Although as noted by the OECD in their review of EPR programs across the globe, "the impact of EPR on eco-design has been less than originally hoped for,"⁸ substantial attempts to focus EPR programs on this priority have been limited. Efforts to improve recycled content, design-for-recycling and end market values need to be specifically considered if these outcomes are to be achieved. For these

⁸ Eunomia (2020), Study to support preparation of the Commission's guidance for extended producer responsibility schemes, May 2020, <https://op.europa.eu/en/publication-detail/-/publication/08a892b7-9330-11ea-aac4-01aa75ed71a1/language-en>

measures, especially recycled content, separate legislation may be more effective in ensuring that targets are transparently met and monitored than if included as optional through eco-modulated fees under EPR. EPR on its own may provide the funding necessary to financially support recycling. However, other mechanisms may be required to achieve true circularity.

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1.0

Introduction

1.1 Introduction

As Extended Producer Responsibility (EPR) programs for packaging and paper products (PPP) are considered and introduced across the United States, questions have developed on the effects that EPR might have on a variety of recycling system characteristics. At its core, EPR serves to transfer the costs of operating recycling programs from governments to producers of PPP. Most systems, however, seek some form of outcome related to environmental performance. As Reid Lifset (Yale University) and Thomas Lindhqvist (Lund University) wrote in their seminal article *Producer Responsibility at a Turning Point?*:

“At the heart of the original vision for extended producer responsibility (EPR) was the desire for a policy strategy that could provide ongoing incentives for the incorporation of environmental concerns into the design of products. If producers were made responsible for end-of-life management (i.e., reuse, recycling, energy recovery, treatment, and/or final disposal of products, they would find it in their self-interest to anticipate end-of-life costs and obligations and design their products to minimize those costs...

This vision also included other aspirations. One was that the resulting policy schemes would be dynamic – that is, as the product mix, production and processing technologies, or market and societal conditions changed, so too would the responses by the producers facing EPR requirements. Advocates of EPR hoped that when the task of meeting the goals of EPR was assigned to producers, business acumen would be mobilized to find the most clever and cost-effective means of reaching those goals, without detailed prescriptions by governments.”⁹

Environmental outcomes often associated with EPR include:

- Outcome 1: increases in recycling rates
- Outcome 2: increases in recycled content usage
- Outcome 3: increases in design-for-recycling practices
- Outcome 4: increases in the market value of collected packaging waste

⁹ Lifset, R. and Lindhqvist, T. (2008). Producer Responsibility at a Turning Point? *Journal of Industrial Ecology*, 12(2). <http://environmentportal.in/files/Producer.pdf>

To illustrate the ways in which EPR programs intend to address these four outcomes and their measurable success in doing so, the EPR programs in France, Germany, and Italy have been reviewed in this report. These three countries were selected because they have well-established EPR programs that have evolved over time to take into consideration the changes in environmental pressures. A review of available data has been conducted to understand for each country:

- The EPR program's stated intention with regard to the four outcomes.
- Its measures and provisions related to each of the four outcomes.

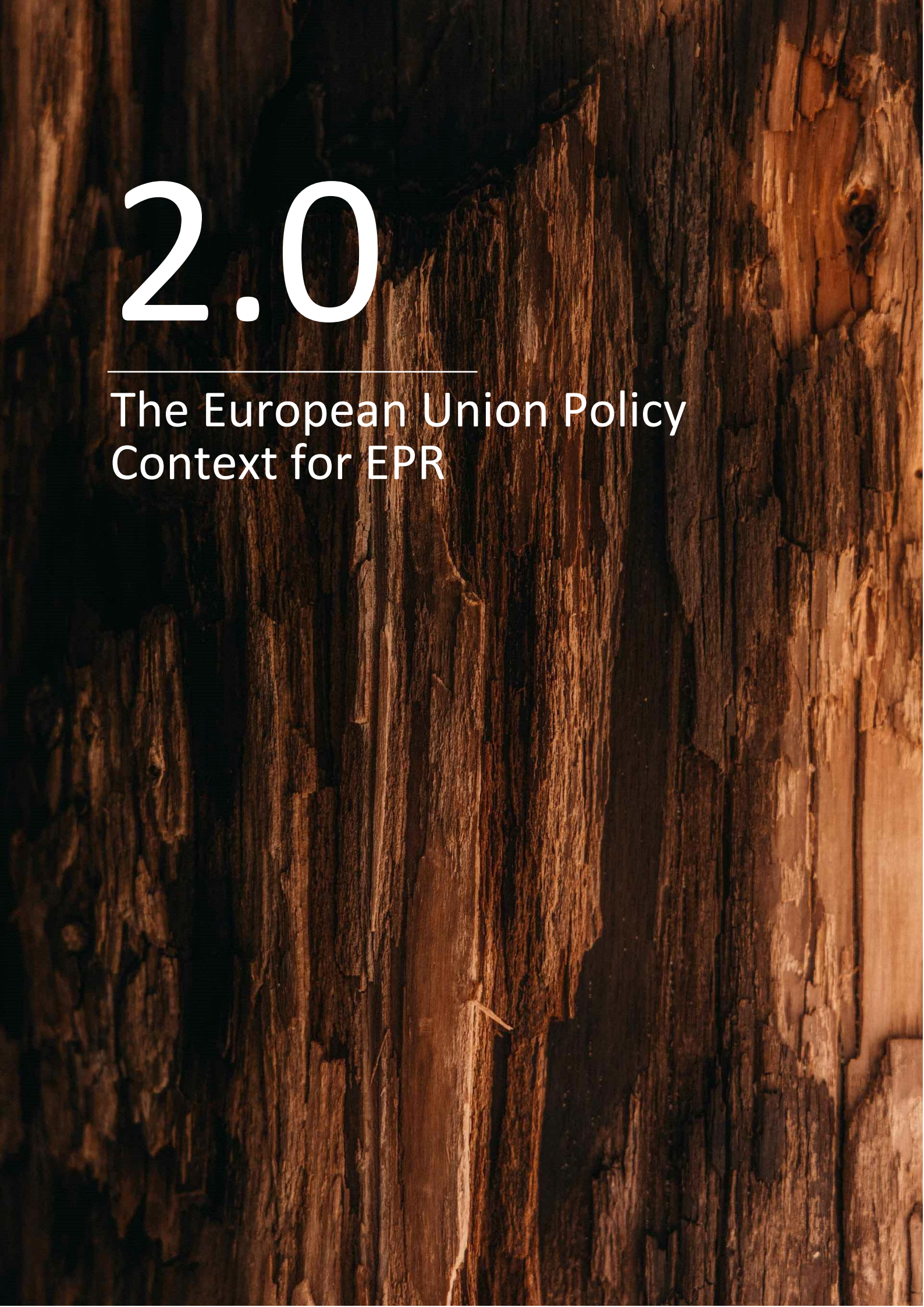
When assessing the impacts of EPR on outcome 1, increases in recycling rate it is important to understand that recycling under European law does not include energy recovery, recycling is defined in European law as:

'recycling' means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations".¹⁰

Section 2.0 of this report provides an introduction of the overarching relevant European Union policy which all member states are required to comply. Section 3.0 introduces some key components of EPR while Section 4.0 provides a review of how the three country programs are contributing to outcomes 1 – 3. **Unfortunately, no information could be found as to how these programs have led to increases in the market value of collected packaging waste. There are many factors that influence material pricing, and we were unable to find any reliable data to suggest that the EPR program in itself had led to increases in the market value of collected packaging waste.**

Key takeaways are provided at the start of each section.

¹⁰ Waste Framework Directive 2008/98/EC <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098>



2.0

The European Union Policy
Context for EPR

Key Takeaway 1: It is not mandatory for Member States to implement EPR. While the concept of EPR was introduced in 2008 legislation, it was not until 2018 when the Packaging and Packaging Waste Directive (94/62/EC) was amended that it became a requirement for all member states to: put in place EPR policies by 2024; and to require the use of modulated fees to incentivize packaging design, production and commercialization such that it promotes packaging reuse or high quality recycling while also minimizing the impact of packaging and packaging waste on the environment.

The primary purpose of the original 1994 Packaging and Packaging Waste Directive was to set packaging total and material specific weight based recycled targets. These targets have increased over time and are now set for 2025 and 2030. These targets are what are passed down to producers to meet through extended producer responsibility programs. EPR is effectively a mechanism for governments to pass down the cost and responsibility for compliance to the producers.

The latest amendment also requires packaging placed in the market to meet essential requirements which relate to: limiting the weight and volume; minimizing the content of hazardous substances; and requiring design to take into consider reusability or recoverability.

2.1 Introduction to PPP EPR in the European Union (EU)

There is a suite of European legislation that works in conjunction with EPR, which has been developed and revised overtime to meet changes in waste streams and management practices.

The EU Directive on waste (or Waste Framework Directive 2008/98/EC)¹¹ is an environmental protection measure which establishes how waste should be managed in the EU with the aim of reducing environmental impact. It sets the basic concepts and definitions related to waste management, such as definitions of waste and recycling. It introduces the waste hierarchy, the Polluter Pays principle and Extended Producer Responsibility, and sets out separate collection targets.

The most important piece of EU legislation on packaging circularity is the EU Packaging and Packaging Waste Directive 94/62/EC (PPWD)¹². This directive sets out measures and requirements

¹¹ (Directive 2018/851 of the European Parliament and the Council on amending Directive 2008/98/EC on waste

¹² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31994L0062>

for the prevention, re-use, and recovery of packaging wastes in Member States. Member States must ensure that packaging placed on the market complies with the essential requirements.

It is important to note that while the general framework for EPR was introduced in 2008¹³, it was not until 2018 when Directive 2018/852¹⁴, which amends Article 7 of the PPWD, made it clear that EPR schemes **must** be established for all packaging. It states that:

- By end of 2024, EU countries should ensure that producer responsibility schemes are established for all packaging. Producer responsibility schemes provide for the financing or organization of the return and/or collection of used packaging and/or packaging waste and its channeling to the most appropriate waste management option, as well as for reuse or recycling of the collected packaging and packaging waste.
- The schemes should help incentivize packaging that is designed, produced, and commercialized in a way that promotes packaging reuse or high-quality recycling and minimize the impact of packaging and packaging waste on the environment.

Its other prominent function is the establishment of unified targets for recycling rates across the EU. Those weight-based rate targets are established for all packaging collectively and for individual categories of packaging. Table 1 sets out the current targets plus those required to be met by 2025 and 2030¹⁵.

Table 1: European Packaging and Packaging Waste Directive Targets, Current, 2025 and 2030

	Current Targets	2025	2030
All packaging waste:	55%	65%	70%
Plastic:	25%	50%	55%
Wood:	15%	25%	30%
Ferrous metals:	50% (inc. Al	70%	80%
Aluminum:	-	50%	60%
Glass:	60%	70%	75%
Paper and cardboard:	60%	75%	85%

¹³ Directive 2008/98/EC

¹⁴ European Parliament and the Council (2018) Directive (EU) 2018/852 of the European Parliament and of the Council of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste

¹⁵ European Commission (n.d.). *Packaging Waste*. https://ec.europa.eu/environment/topics/waste-and-recycling/packaging-waste_en

All EU member states are directed to implement regulatory systems as their means for achieving the targets, and most EU member states have implemented EPR as that system (and all will need to in the future, see below). Thus, in the context of any EU member state, although EPR is not mandatory, it acts as a primary driver to ensure producers pay the principal, which enables the funding of a system that will comply with the targets laid out by the PPWD as the principal desired outcome is *Outcome 1 (recycling rates)*.

The PPWD is not prescriptive about the ways in which an EPR program should be implemented, so there is wide variation across important elements of EPR schemes among EU member states, especially regarding the following, which are discussed in more detail in Section 3.0 and under each country assessment:

- Extent of the recycling system for which producers are responsible for financing.
- Ownership of the collected material;
- Magnitude and delineation of producer fees; and
- How those fees are “eco-modulated” to reflect the impacts of packaging decisions on the desired outcomes.

The changes in the PPWD require all EU member states to implement EPR programs for packaging by the end of 2024. These EPR programs are required to modulate producer fees and to take into account, amongst other criteria (including reusability and the presence of hazardous substances), the recyclability of the packaging design, which will add *Outcome 3 (design-for-recycling)* to the stated intent of all EPR programs across the EU.¹⁶ Fee modulation can effectively be used to meet the “essential requirements within the PPWD which require EU member states to:

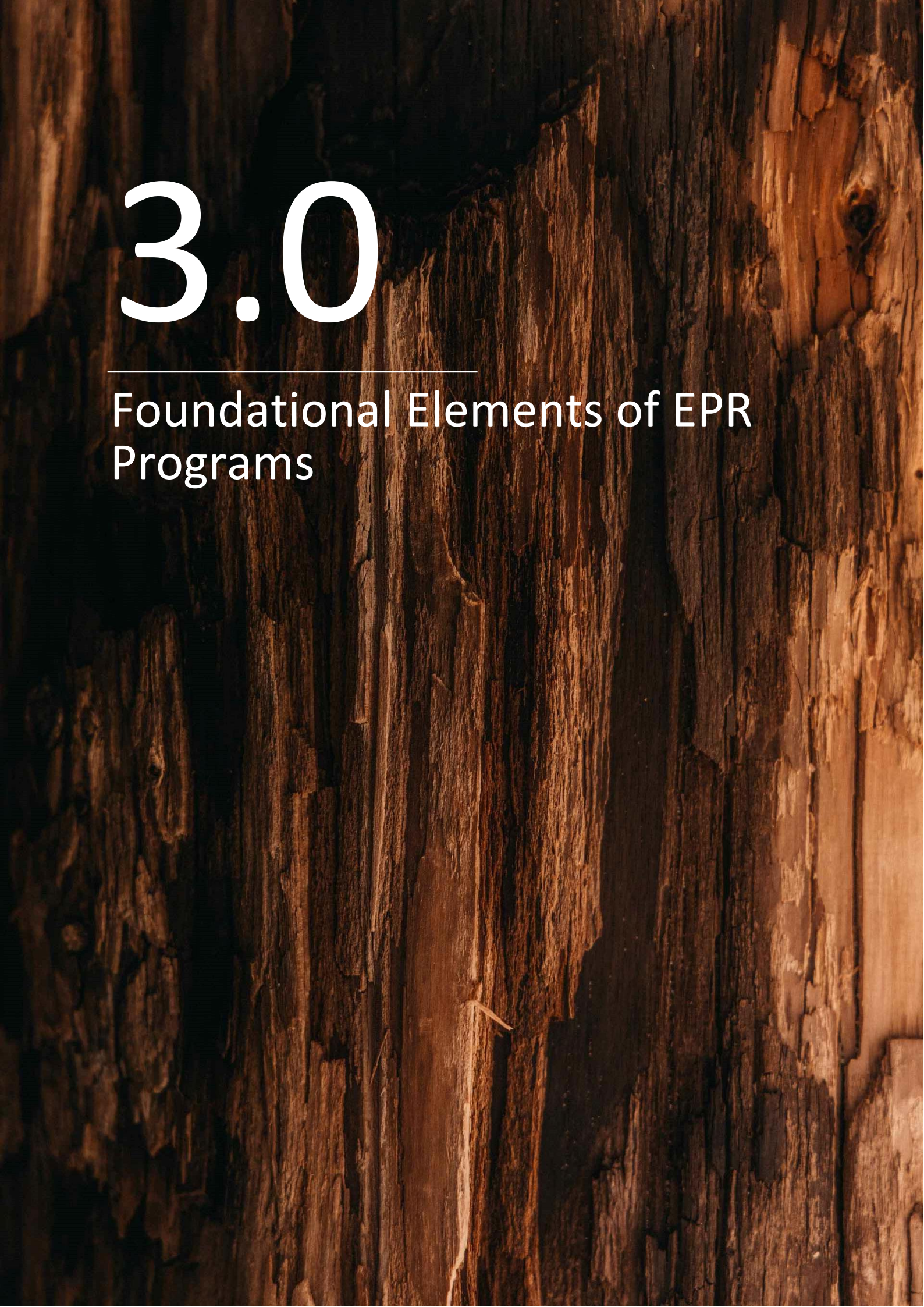
- Limit the weight and volume of packaging to a minimum adequate amount in order to still meet the required level of safety, hygiene and acceptability for the packed product and for consumers;
- Minimize the content of hazardous substances and materials in the packaging material and its components; and
- Design reusable or recoverable packaging, which may include design for material or organic recycling as well as design for energy recovery.

The PPWD is not ‘only’ concerned with recycling targets and EPR but also includes measures which affect the packaging market. Despite these essential requirements being codified in law alongside the requirements of meeting recycling rate targets and using regulatory instruments to do so, they

¹⁶ For an expanded discussion, please see Eunomia’s report to the European Commission *Study to Support Preparation of the Commission’s Guidance for Extended Producer Responsibility Schemes* (April 2020), <https://op.europa.eu/en/publication-detail/-/publication/08a892b7-9330-11ea-aac4-01aa75ed71a1/language-en>

are largely qualitative and applied without accountability measures. **To date, there are no targets imposed upon EU member states relating to the essential requirements**, except for standards for compostable packaging, and therefore ***EU member states have not been required to set performance standards around designing for recycling*** or any other form of recovery.

Despite EPR only being required from 2024 and the lack of defined requirements for countries to implement design for recyclability, many countries have introduced their own EPR schemes and incorporated aspects of essential requirements into their programs. These are discussed in each country section below.



3.0

Foundational Elements of EPR Programs

There are many elements to EPR programs including the foundational elements that are considered as part of each country's review as discussed here:

- System finance in the context of cost recovery.
- Producer fee eco-modulation.
- Producer Responsibility Organizations (PROs).

3.1 Cost Recovery

While EPR programs are designed to use producer fees to finance recycling, the extent of the recycling system that is financed by producer fees varies among programs. By 2024, producers in Europe will need to cover the "necessary" net cost of collection, sorting and recycling necessary to meet the targets and objectives of the PPWD. Necessary costs are the net operational and management costs of an **adequate and acceptable system**. Operational costs include costs such as education and communication, enforcement costs, efficiency reviews to help system optimization, and data management and contract management costs. There is also discussion as to the extent to which EPR should cover the cost of material that is not captured for recycling, and which is disposed or littered; the wording of the PPWD is unclear as to the extent to which producers will have to cover these costs in the future.

Currently the extent to which EPR covers the full costs, as set out above, of material recycling varies by member states. However, the changes in the PPWD will drive all systems towards "full responsibility" frameworks where producers are responsible for 100% of the costs of recycling. Currently, the only requirement for producers to cover the cost of littering is set out in the Single Use Plastics Directive.

3.2 Producer Fees and Eco-Modulation

The ways in which producer fees are structured varies across country programs. The vast majority of EPR programs determine producer fees according to the type of material, to reflect each material's unique cost burdens on the recycling system. Structuring producer fees in this way is important to avoid a system in which the producer fees attributed to one material act as a subsidy for the cost of recycling other materials. Appendix 1.0 provides an overview of how fee modulation is applied in different European countries and includes:

- Basic modulation: Fees modulated based on material type.
- More granular modulation: Specific fees for certain types of packaging such as PET trays, vs bottles of different colors.

- Advanced modulation: Where there could be penalties or discounts for certain materials or the granulation of the fee includes for example a PET's bottles fee would be modulated based not only on color but also the presence of specific labelling or wraps. (An example of a very granular fee modulation structure is what is used in the Belgium Fost Plus Program, as shown in Table 4.

Eco-modulation takes this fee structure one step further. Under a modulated fee approach, the fees paid by the producer vary according to specific aspects of a package's environmental performance, potentially reflecting the cost burden on the recycling system more accurately and creating economic incentives and/or disincentives to encourage environmental improvements. Eco-modulation is generally instituted within each individual material category based on design-for-recyclability, with lower producer fees attributed to more recyclable packaging and higher producer fees attributed to harder-to-recycle packaging. Eco-modulation can also be used to drive the use of recycled content, the use of clear consumer-facing disposal instructions, and other intended outcomes. EU member states will be required to implement eco-modulation according to recyclability and recycled content by 2024, though it has not yet been determined how that requirement will be actualized.¹⁷

3.3 Producer Responsibility Organizations

Typically, EPR is implemented by producers delegating their legal responsibility for post-consumer waste management of their products to Producer Responsibility Organizations (PROs) which are established to carry out those responsibilities and can act for multiple companies - thus delivering economies of scale and efficiency. PROs recover the costs of recycling by charging the producers fees that correspond to the financial burden on the recycling system incurred by their packaging placed on the market. Producer fees are generally based on a combination of the type of material and the weight of material and are aimed at reflecting the cost of collecting and recycling that material as set out above.

Substantial differences exist between the ways PROs are set up, established, and governed in different countries, which leads to distinctive operational variation. Key issues for PROs include:

- How to allocate and recover costs through producer fees detailed above;
- How to recognize the differences in recyclability of different packaging formats and materials and decide on modulation fees; and

¹⁷ EUROPEAN (n.d.). *Extended Producer Responsibility*. <http://europen-packaging.eu/policy-area/extended-producer-responsibility/>

- How to interact with state actors such as municipal waste collection organizations which are linked to cost recovery provisions.



4.0

Overview of Select European Programs

As each European country has chosen to implement the requirements of the PPWD differently, Eunomia have reviewed the programs implemented by Germany, France, and Italy to determine if their EPR policies have led to the desirable outcomes listed in section 4.0. Considerations have been given to each of the following:

- Country specific enabling policy.
- Program aims or targets.
- Specific design for recycling practices.
- Fee structure.

4.1 Germany

Takeaway: Germany was the first country to introduce EPR for packaging in 1991. The EPR legislation has been amended eight times since it was first introduced. The 8th amendment in 2019 created a new Packaging Act ('VerpackG') which incorporated the concepts of fee eco-modulation. The criteria for eco-modulation are yet to be determined. Fees are currently modulated but not to drive an environmental outcome; they are varied based on the cost required to manage the recycling of the specific material. Germany's EPR program is delivered through a multi-PRO model.

EPR Impact on:

- **Outcome 1 increases in recycling rates:** Germany was one of the first countries to implement EPR and to set targets within the packaging legislation which producers were obligated to meet. Target based EPR is likely to increase recycling rates.
- **Outcome 2 increases in recycled content usage.** There is no requirement in European law and until 2019, no requirement in German EPR packaging legislation for PROs to modulate fees to encourage the use of recycled content in packaging. The absence of a requirement in law means that EPR has been unable to be a drive the use of recycling content in packaging. PROs operating under the EPR legislation could have modulated fees to encourage the use of recycled content, but without the legislative requirement they are unlikely to do so, especially in a multi-PRO competitive environment.
- **Outcome 3 increases in design-for-recycling practices:** Guidance has only recently been published on how PROs should modulate fees to meet the "minimum standards of recyclability". The legislation requiring fee modulation to drive recyclability was only introduced in an amendment to the packaging EPR legislation in 2019 and as such it is too soon to assess the impact of this on the recyclability and ultimately recycling rate of different packaging.

4.1.1 Policy Scope

Overview – Germany’s EPR system for packaging was first implemented in 1991 (called the Packaging Ordinance) and has undergone several consequential changes since then. The most notable change has been its transformation from a system run by a single, non-profit PRO to a system of competing for-profit PROs, which was triggered by a legal challenge from antitrust regulators in 2001¹⁸. Producers retain ultimate accountability for achieving the target recycling rates and may select a PRO of their choice as their agent for carrying out their obligations. The Packaging Ordinance was updated in 2019 to ‘VerpackG’ also known as ‘the Packaging Act’. Mandatory eco-modulation was introduced in 2019 as part of the new Packaging Act. A full timeline is provided in Appendix 0. The Germany Packaging Ordinance of 1991 inspired the European Commission’s Packaging and Packaging Waste Directive introduced in 1994.

Definition of producer – In Germany, the company that places packaged products on the market is obligated as the producer, but in the case of ‘service packaging’ (e.g., takeaway containers) the manufacturer is obligated as the producer.

Aspects of waste management covered by EPR fees – Originally, EPR only covered the costs of waste collection and sorting. However, it has since become a requirement to ensure that there is a market for the packaging once it has been collected and sorted, 100% of the responsibility for financing and organizing collection, sorting and recycling of packaging to meet national targets is met through the producer fees.

Producer Responsibility Organization model – EPR is delivered under a multi-PRO model in Germany where contracts are let for collection, sorting and recycling and PROs pay a proportion of the costs that correspond to the amount of packaging that their producer customers are placing on the market. See 4.1.3 on how this works under a multi-PRO model.

Collection and sorting responsibilities: PROs must tender for sorting capacity to cover their registered tonnage, which may also include trading of materials – although this is sometimes undertaken by the PROs directly. Collection and sorting contracts are tendered with a 3-year duration. Municipal waste management companies can participate in the tenders but have to win in competition with private waste management.

The costs of the resulting contracts for collection are shared by PROs according to their market share. The PROs define a lead negotiator by “drawing lots” according to their market share (so, a PRO with 10% market share would be in charge of 10% of the randomly drawn collection areas being negotiated in a particular year). This lead negotiator negotiates on behalf of all PROs and is

¹⁸ DerGrünePunkt (2017). EPR for Packaging in Germany – Der Grüne Punkt, presented at Green Dot Norway Conference, November 2017, <https://www.gruenepunkt.no/media/2866/2017-11-22-denison-dsd-oslo-final.pdf>

incentivised to achieve a good financial outcome by being required to cover at least 50% of the collection cost in the tendered area.

Ownership of material: The PRO's own an amount of material that corresponds with the market share of its members.

Ownership of sorting facilities: Material recycling facilities are predominately owned and operated by the private sector. Approximately 85-89% of the 3,500 facilities in this sector are managed by private waste management companies.

4.1.2 Aims and targets

Recycling rates

Germany has set ambitious national recycling rate targets for packaging materials, which exceed the 2018 targets set by the EU Packaging and Packaging Waste Directive.¹⁹ Under VerpackG, recycling targets have been increased since its introduction, with 2022 targets announced in 2019 and the expectation that 2025 targets will be announced at the beginning of 2022.

Table 2: Packaging Recycling Targets under VerpackG

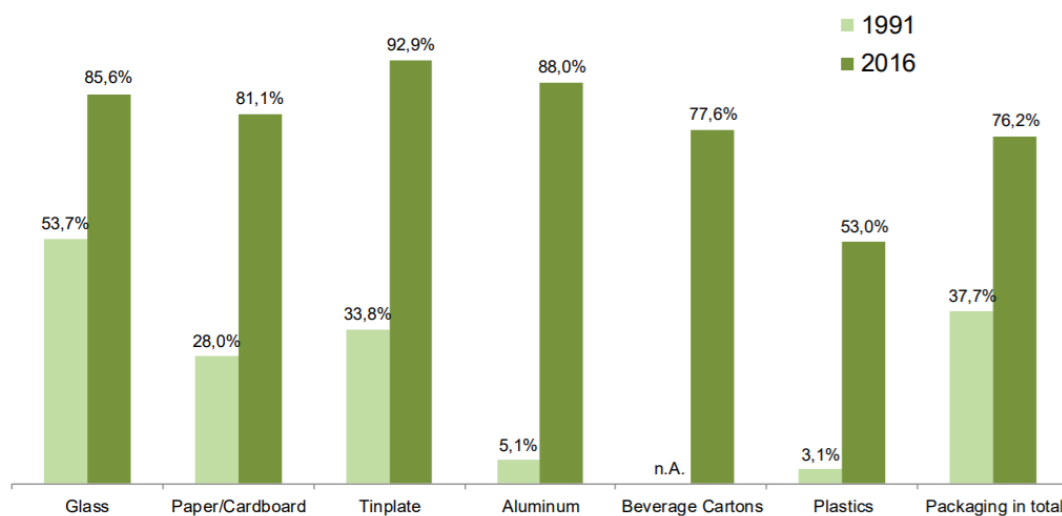
Material	Target Packaging Ordinance (1990)	Target By January 1st 2022	Target By January 1st 2025
Glass	75%	80% ✓	90%
Paper/card	70%	85% ✓	90%
Ferrous metals	70%	80% ✓	90%
Aluminum	60%	80% ✓	90%
Beverage cartons	60%	75% ✓	80%
Other composites	60%	55%	70%
Plastics	60%	90%	90%
Mechanical recycling (plastic)	36% ✓	59%	63%

✓ = target achieved

¹⁹ Prevent Waste (2020) How Germany's EPR system for packaging waste went from a single PRO to multiple PROs with a register, <https://prevent-waste.net/wp-content/uploads/2020/09/Germany.pdf>

Figure 1 shows the recycling rate of sales packaging from 1991 (the introduction of EPR policies) to 2016 in Germany and shows an overall increase in recycling of packaging from 37.7% to 76.2%. A proportion of the increase for plastics, aluminum, and glass would likely have been provided by the container deposit return system (DRS) that was introduced in 2002. The recycling rate for cans and PET in 2014, for example, was 96% and 98%, respectively. However, the DRS would not have impacted the carton recycling rate which is not included.

Figure 1 Recycling rate for packaging waste in Germany and changes over time²⁰



Source: DerGrünePunkt²¹

The introduction of a competitive market for PROs in the mid-2000s made it much more difficult to verify that all packaging producers had been licensed and that all obligations had been fulfilled. In an effort to address the issues of free-riding, an agency was established to oversee producer registration, the Zentrale Stelle Verpackungsregister (ZSVR). VerpackG requires all producers to register with ZSVR.

Recycled content

Section 21 of VerpackG, implemented in 2019, introduces an obligation for PROs to create incentives for packaging manufacturers to increase recycled content and improve design for recycling practices when calculating participation fees. However, no specific quantitative targets have been set and discussions are still being undertaken regarding the exact criteria and

²⁰ <https://ec.europa.eu/eurostat/databrowser/view/ten00063/default/table?lang=en>

²¹ <https://www.grontpunkt.no/media/2866/2017-11-22-denison-dsd-oslo-final.pdf>

implementation.^{22,23} The legislative language used to outline the aims of this fee modulation is as follow:

- “Promote the use of materials and combinations thereof which can be recycled at the highest possible percentage rate, considering the practice of sorting and recovery; and
- promote the use of recyclates and of renewable raw materials.”

Design for recycling practices

VerpackG requires PROs to eco-modulate producer fees according to recyclability. Several PROs offer their own services to guide producers’ packaging design decisions, such as the “Made for Recycling” assessment protocol by Interseroh²⁴ and the “Design4Recycling” framework by Der Grüne Punkt.²⁵

The agency responsible for overseeing producer registration, ZSVR, has issued a ‘minimum standard’ for assessing recyclability, which should be the basis for PROs to modulate fees. However, there is no clear guide as to the extent to which fees should differ.

4.1.3 Fee Modulation and Design

VerpackG, the 2019 Packaging Act, encourages the use of more recyclable packaging and promotes the use of recycled material and renewable raw materials. This is done by encouraging PROs to modulate their fees based on these characteristics. In practice, eco-modulation tends to focus on recyclability rather than the use of recycled materials.

German PROs can set their own eco-modulation fee. Due to competition between PROs, the extent of modulation is generally small and so modulation of fees does not act as a significant incentive to change packaging design decisions. The only limitation on the PRO fees is that discounts cannot be provided for any products that do not meet the “minimum standard for recyclability” that is set by Central Agency Packaging Register and Ministry of Environment. The standard is published every year by 1st September. It is binding for PROs when calculating participation fees but is a non-binding guideline for manufacturers when designing packaging. The minimum criteria as addressed in the VerpackG legislation states:²⁶

²² http://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger_BGBl&jumpTo=bgbl117s2234.pdf

²³ <https://verpackungsgesetz-info.de/en/>

²⁴ <https://www.interseroh.de/leistungen/beratung/verpackungsoptimierung/madeforre recycling/>

²⁵ <https://www.gruener-punkt.de/de/nachhaltige-verpackungen/ueber-design4recycling>

²⁶ Zentrale Stelle Verpackungs Register (2020) Minimum standard for determining the recyclability of packaging subject to system participation pursuant to section 21 (3) VerpackG (Verpackungsgesetz –Packaging Act)

When determining recyclability, the available recyclable content of packaging should be taken as the minimum starting point for further considerations. In determining the available recyclable content, at least the following three requirements must be considered:

1. The existence of a sorting and recycling infrastructure that allows for high-quality mechanical recycling for this packaging,
2. The sortability of the packaging as well as, where applicable, the separability of its components,
3. Incompatibilities of packaging components or substances contained therein that might render successful recycling impossible with currently used technology.

The guidance states that the outcome would be the identification of the proportion of the packaging available for recycling. This might be defined on a metric or ordinal scale, and, as suggested by the guidance, could vary in detail from 0% to 100%, or in line with the following broad categories:

- No recyclable part.
- Slightly recyclable.
- Moderately recyclable.
- Highly recyclable.

Accordingly, the focus of the guidance is on the likely ultimate level of recycling rate that will be achieved by the packaging format.

This standard invokes *Outcome 3 (design-for-recycling)*; however it is unclear how these subjective principles are applied.

As discussed above, there are several competing PROs, each with their own schedule of producer fees. Due to the competitive landscape, PROs do not publish their fee schedules and no information is publicly available.

4.2 France

Takeaway: France introduced EPR in 1992 and mandatory eco-modulation was introduced in 2010 which is unlike the German program. While multiple PROs are possible, Citeo is the only PRO and sets all producers fees and reports on performance. 80% of the costs of collection, sorting and recycling are covered under the program. The French EPR system has one of the most advanced systems of eco-modulations to drive design for recycling practices and use of recycled content.

EPR Impact on:

- **Outcome 1 increases in recycling rates:** Recycling rates in France have increased since EPR was introduced in 1992 but are not as high as Germany's. However, France's rates have continued to increase since 2008, when Germany's stagnated. This could in part be because France has been more active in applying eco-modulation to drive design for recyclability and as such, recycling. Also, Germany's recycling rate is higher than France's, so the reason for France's continuing to increase while Germany's rate has plateaued could also be because it is harder to increase rates when they are already high.
- **Outcome 2 increases in recycled content usage:** No specific data could be found to ascertain the extent to which eco-modulation of EPR fees was driving the use of recycled content. However, it has also not been very long since eco-modulation was put in place to encourage recycled content use. The system provides a bonus to producers using recycled content, but we were unable to obtain data on the amount of bonus paid for use of recycled content and how this had changed over time. ADEM, the French Agency of Ecological Transition, agrees that eco-modulation is supporting increased use of recycled content.
- **Outcome 3 increases in design-for-recycling practices:** Citeo has documented that eco-modulation has led to changes in design and provided example for plastics bottles, where unrecyclable materials have reduced as a result of eco-modulation. ADEM agrees that eco-modulation has led to better eco-design products. Citeo is also proposing to establish a principle of continuous and increasing penalties, whereby there is a clear mechanism for increasing penalties for packaging that is not recyclable.

4.2.1 Policy scope

Overview: EPR for household packaging waste was introduced in 1992 as part of the French Environmental Code (Article L. 541-10).²⁷ Mandatory eco-modulation was introduced as part of the 'Grenelle Law' in 2010. A full timeline of relevant policy changes in respect to EPR is provided in Appendix 0.

Definition of producer (for packaging EPR): The **notion of producer** covers "any natural or legal person who develops, manufactures, handles, processes, sells or imports waste-generating products or the elements and materials used to manufacture them." Producers must register with a unique identifier from **1 January 2022**. Producers are responsible for EPR fees according to the volume and type of packaging. This is depicted in Figure 8.

Aspects of waste management covered by EPR fees (i.e., cost-recovery): Producer fees are used to finance up to 80% of the collection and sorting costs for municipal recycling.

Producer Responsibility Organization model: While multi-PROs are possible in France, there is only one not-for-profit PRO in operation, Citeo. The government appoints a PRO every six years. See Appendix 0 for more detail.

²⁷ [https://www.oecd.org/environment/waste/France%20\(final\).pdf](https://www.oecd.org/environment/waste/France%20(final).pdf)

Collection and sorting responsibilities: Municipalities contract with the private sector waste management companies for the collection and sorting of material. Services are delivered in line with collection rules set out by the PRO.

Ownership of material: Municipalities have the option to sell material through material specific associations or industry bodies or sell on the open market, almost all sell through associations or industry bodies.

Ownership of sorting facilities: Sorting facilities are owned predominately by the private sector, not the PRO.

4.2.2 Aims and targets

Increases in recycling rate

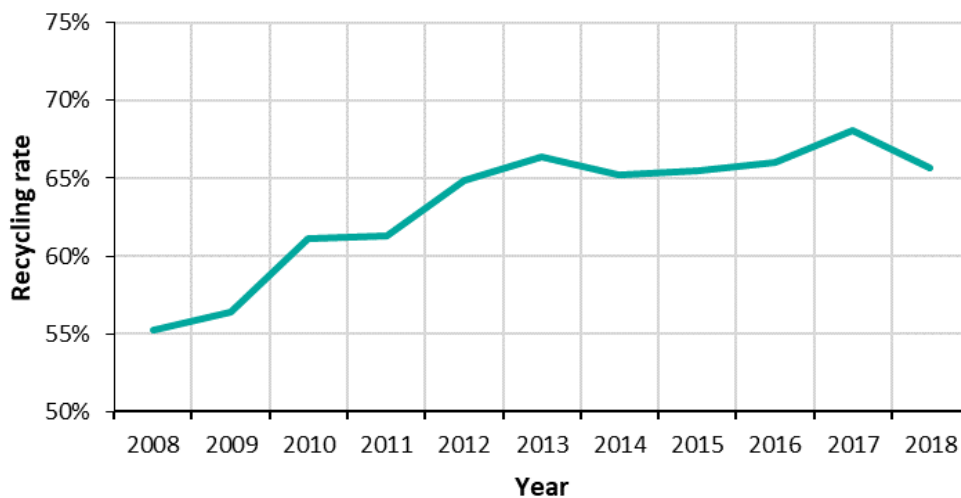
The French targets are the same targets set by the EU Packaging and Packaging Waste Directive, except for plastic, where the level of ambition was increased to 100% by 2025 by the Circular Economy Law (2020-105).²⁸ This law also sets the objective of banning single-use plastic packaging from the French market by 2040.

Figure 2 shows that the French recycling rate increased by around 10% from 2008 to 2018. The rate of increase is fastest from 2009 to 2013 and levelled off in more recent years. This may relate to the 2010 introduction of mandatory eco-modulation of EPR fees. In 2015, only around 65% of plastic packaging in France was recycled, suggesting that there is still substantial progress to be made to achieve the 100% by 2025 recycling target.²⁹

²⁸ <https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/france>

²⁹ <https://www.statista.com/statistics/1105117/rate-recycling-waste-plastics-packaging-france/>

Figure 2 Reported packaging recycling rate in France and changes over time³⁰



Increases in recycled content

The French EPR program modulates its fees according to recycled content as its mechanism for achieving an increase in recycled content. Separately from the EPR program, France has introduced a law that requires at least 25% recycled content in PET bottles by 2025 and at least 30% recycled content in all plastic bottles by 2030.³¹

Increases in design-for-recycling practices

The French EPR program modulates its fees according to recyclability as its mechanism for achieving an increase in design-for-recycling practices. Citeo ultimately want to ensure that all packaging is 100% recyclable and has several online tools for its customers to determine the recyclability of their packaging. TREE (Test de la Recyclabilité des Emballages) is their Packaging Recyclability Test and BEE (Bilan Environnemental des Emballages), Environment Assessment of Packaging, can be used to analyze the life cycle of packaging and determine its environmental impact.³²

By 1 January 2030 at the latest, those who place on the market greater than 10,000 product units per year and declaring a turnover greater than EUR 10M will have to prove that their waste is likely to enter a recycling scheme.³³ How this will be assessed has not yet been determined.

³⁰ <https://ec.europa.eu/eurostat/databrowser/view/ten00063/default/table?lang=en>

³¹ Packaging 360 (July 2021), France Confirms Law on Recycled Content in Plastic Bottles, <https://packaging360.in/news/france-confirms-law-on-recycled-content-in-plastic-bottles/>

³² <https://www.citeo.com/eco-concevoir/>

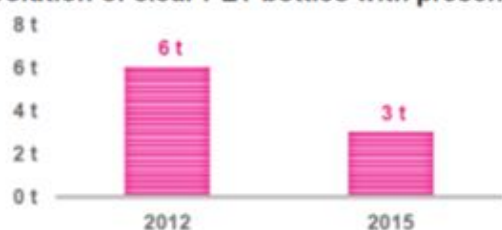
³³ <https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/france>

In addition to the EPR program, a Charter of commitment on the 'Reduction of the environmental impact of packaging and development of reuse in the food delivery sector' was signed in February 2021. It sets a target of 100% recyclable containers and packaging by 1 January 2022, which means that 100% of packaging and containers used in foodservice applications should have an effective collection and recycling channel in France.³⁴

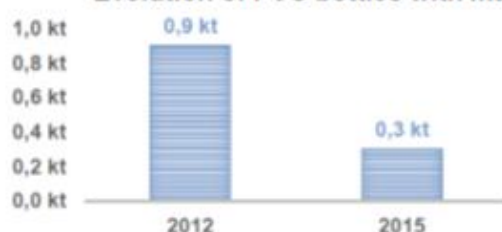
In France, modulated fees have been associated with a decline in the use of PVC bottles.³⁵ Figure 3 shows how bottle formats have evolved as a result of modulation. The first diagram shows that the amount of PET bottles with the presence of aluminum has decreased while the second chart indicates a reduction in the volume of PVC bottles that attract a penalty (malus).

Figure 3: Evolution in Bottle Formats in Response to Modulation

Evolution of clear PET bottles with presence of aluminum



Evolution of PVC bottles with malus



Source: Citeo

The PET bottle fee modulation could be a potential cause for the changes in recycling, but there could be other reasons as noted by ADEME, the French Agency of Ecological Transition, who found that modulation has resulted in: ³⁶

- Better eco-design of products, extension of the lifetime of products, better recyclability, use of recycled materials in the manufacturing of equipment, and a decrease in pollutants.

³⁴ <https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/france>

³⁵ CITEO (2019) Incentives for Eco-Design in the French EPR Scheme for Household Packaging, paper given at Ecomodulation workshop - Brussels, February 2019

³⁶ Fangeat, E. (2017) French experience Modulation of fees, Brussels, 24 October 2017

- Limited impact on the consumer, much greater impact on the producer.
- A measure which penalizes the low-cost products.
- Support to the repair sector.

However, an earlier review by Didier and Sittler (2014) reports that the eco-contribution system experienced difficulties in implementation and unequal results depending on the sector.³⁷

4.2.3 Fee Modulation and Design

EPR fees are calculated by material type, weight and customer sales unit, and range from 1.43 €/kg to 55.31 €/kg (\$0.73/lb - \$28.42/lb).

The base fees for 2021 are included in Appendix 0. These base fees are adjusted according to France's comprehensive bonus and penalty system for products. Bonuses are applied for raising consumer awareness (e.g., printing detailed on-pack sorting information), increased recyclability and whether plastic packaging contains a certain percentage of recycled content. Penalties are issued for packaging disruptors which may make recycling more difficult, and packaging with no recycling route.

These are outlined in the text below:

Bonuses:

- Improved recyclability – 8% bonus
- Eliminate a minority component of a packaging unit with different materials
- Replace composite plastic trays with single-resin trays
- Eliminate carbon black colorant from plastic packaging
- Add a perforated line on the plastic sleeve
- Integration of recycled content
- Bonus for all plastic packaging that incorporates at least 10% of plastic materials from the recycling of household, commercial or industrial packaging.

Penalty

- Disruptive packaging
- Fee is increased by 50% for packaging that significantly affects sorting and recycling processes

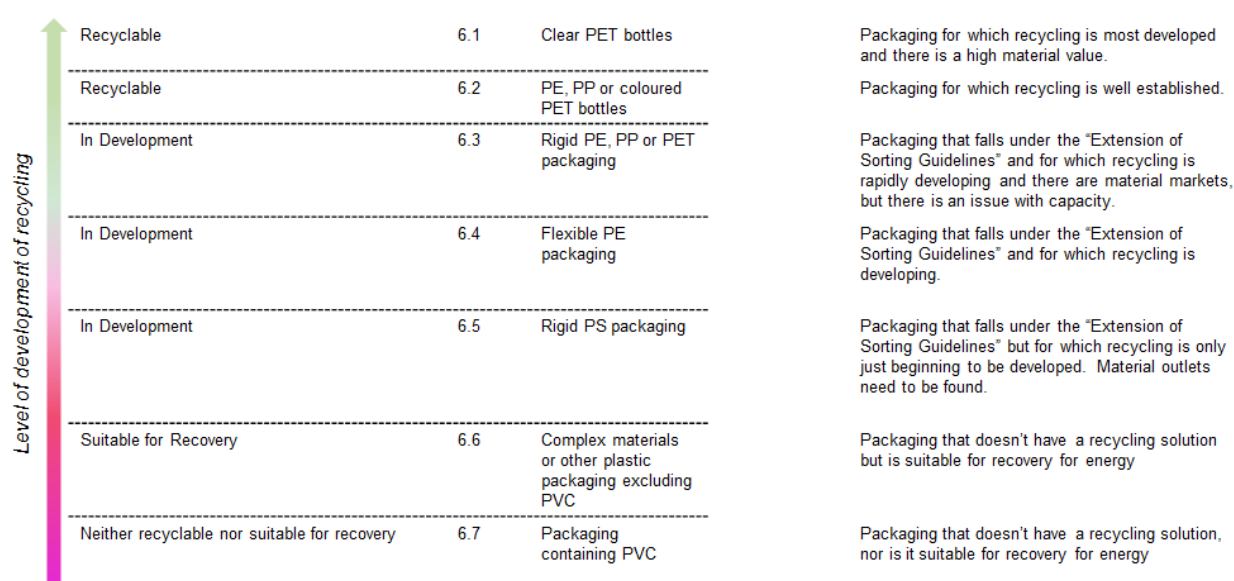
³⁷ Evelyn Didier, and Sittler, E. (2014) *Mieux concevoir les produits pour mieux valoriser les déchets, Rapport d'information fait au nom de la commission du développement durable, des infrastructures, de l'équipement et de l'aménagement du territoire*, 2014, <https://www.senat.fr/rap/r13-143/r13-1436.html#toc71>

- This includes PET-based packaging combined with aluminum, PVC or silicone of density > 1
- Packaging with no stream
- Fee is increased by 100% for packaging that is covered by the sorting instructions but has no recycling stream.
- This includes bottles with a body made of a material other than PET, HDPE or PP (PVC, PLA, PC, etc.), and all flexibles and wrappers.
- Penalties for signage and marking that is potentially misleading regarding the sorting rule.

At the end of May 2019, Citeo published its proposals for the *eco-modulation tariff* to apply in 2020.³⁸ Within this document, Citeo acknowledges that having a single level of basic fee for all plastic packaging is not necessarily appropriate. It notes that the broad category of plastics covers a range of different resins and packaging types, which exhibit differing levels of maturity in terms of recycling, but that a single level fee for plastics does not give a price signal to encourage the use of plastics with more developed recycling channels. Accordingly, Citeo proposes to apply a 'variable pricing' on the plastic fee to reflect this diversity.

Figure 4 shows Citeo's view of the development of recycling for different types of plastic resins and formats.

Figure 4: Relative Development of Recycling by Plastic Resin and Format



Source: Citeo

³⁸ Citeo & Adelphe (2019) Proposition de Citeo et Adelphe pour l'ecomodulation du tarif 2020, 29 May 2019

Citeo proposes to apply an uplift to the basic weight-based fee in line with the development of recycling, as shown in Figure 5. The levels of the uplift will be reviewed in the future in line with any improvements in the extent to which such packaging types can be recycled.

Figure 5: Proposed Uplift to Basic Tariff



Recyclable	6.1	Clear PET bottles	Basic Tariff
Recyclable	6.2	PE, PP or coloured PET bottles	+10%
In Development	6.3	Rigid PE, PP or PET packaging	+20%
In Development	6.4	Flexible PE packaging	+30%
In Development	6.5	Rigid PS packaging	+40%
Suitable for Recovery	6.6	Complex materials or other plastic packaging excluding PVC	+50%
Neither recyclable nor suitable for recovery	6.7	Packaging containing PVC	+75%

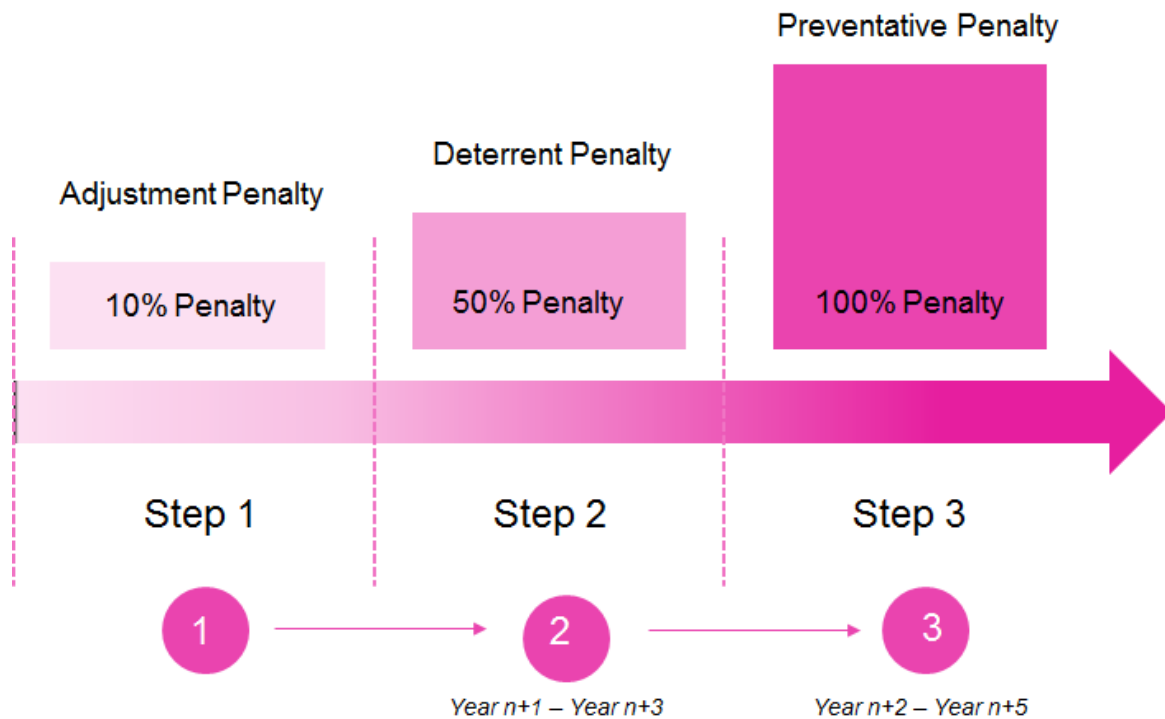
Source: Citeo

Another significant change proposed is to establish the principle of a continuous, and increasing, penalty.³⁹ The rationale for doing so would be to give a greater incentive for change, not only through increasing the magnitude of the penalty, but by giving those placing packaging on the market a clear signal as to the future direction of travel in respect of the penalty.

Any new criteria that result in a penalty being incurred would see the penalty set at 10% of the base fee in the first instance. The intention is that the penalty would be increased to 50% between 1 and 3 years after implementation, and to 100% between 2 and 5 years after implementation, as illustrated in Figure 6.

Figure 6: A Continuous and Increasing Penalty

³⁹ Citeo & Adelphe (2019) Proposition de Citeo et Adelphe pour l'ecomodulation du tarif 2020, 29 May 2019



Source: Citeo

The transition from one stage to the next would be proposed following consultation with the consultative committee for eco-design and eco-modulation and would be subject to the agreement of the Ministry. In certain circumstances, where it is deemed to be merited, the penalty can be directly raised to 50% or even 100%.

In the case of plastic packaging, any such penalty would be applied to the relevant uplifted fee (not the base fee) for the relevant type of packaging. For example, if a penalty of 100% were applied to packaging with a fee that is already uplifted by 50% over the base fee, the resulting fee to be paid would be three times the base fee.

4.3 Italy

Takeaway: EPR was implemented in 1997 with eco-modulation being introduced in 2018.

Producers currently cover 80% of the costs of collection, sorting, and recycling. Similarly to France, this share will increase to 100% in 2024, as required by the Packaging and Packaging Waste Directive. Producers can meet their obligations individually or through a Producer Responsibility Organization (PRO). In Italy there is one PRO, CONAI, that has been in place since the start of the program. The PRO is required to adopt the legal form of a consortium and have a not-for-profit objective. Retailers, transporters, collection companies and treatment companies may, in accordance with producers, be shareholders. This is an industry-run body that has government representation on the Board. CONAI has seven different branches or 'consortia,' which are responsible for the seven different types of packaging materials covered by the scheme.

EPR Impact on:

- **Outcome 1 increases in recycling rates:** The Italian packaging targets mirror those in the European Commission Packaging and Packaging Waste Directive (PPWD). There are some very high performing systems, and steel, aluminum, paper and glass already all meet or exceed the EU's 2025 target. Plastic, however, remained below the target at 45.5% in 2019.⁴⁰ Yet, its recycling rate has increased steadily over time since ERP was introduced. The presence of a single PRO providing the financial and operational oversight necessary to achieve the targets may have contributed to the steady incline and allowing some materials to exceed the PPWD targets.
- **Outcome 2 increases in recycled content usage.** There are no mechanisms within Italian EPR policy to require the use of recycled content. Recycling content in plastics is being driven by a plastics tax on the use of virgin polymers.
- **Outcome 3 increases in design-for-recycling practices:** CONAI has the freedom to determine its fee structure (it is not specified by law). The basic fee is determined by material type and weight. In 2018, CONAI Diversified Environmental Contribution (CAC) for plastic packaging was introduced; this forms the basis for modulating plastic packaging fees – this is effectively an eco-modulated fee that aims to encourage design for recyclability practices. The fee is guided by the ability of packaging to be sorted and then recycled. There are four levels of sortability and recyclability, each with different fee levels. It is too early to really understand the impact of this new eco-modulation fee structure on packaging design.

4.3.1 Policy scope

Overview: Italy implemented EPR in 1997 via the Ronchi Decree (legislative Decree 22/97). This was then replaced by the legislative Decree "Environment Regulations" in 2006 (legislative Decree

⁴⁰ https://www.conai.org/wp-content/uploads/2021/03/Green_Report_CONAI_2020_En.pdf

152/06).⁴¹ In 2018, eco-modulation was introduced, which links the level of contribution to the environmental impact of end-of-life/new-life phases, to encourage the use of more recyclable packaging.⁴²

Definition of a producer: According to existing legislation (Article 221 of Legislative Decree No 152/2006), manufacturing and user companies are responsible for the proper and effective environmental management of any packaging and packaging waste produced by the consumption of their products and consequently they should join the National Packaging Consortium.⁴³ Producers shall mean: producers and importers of raw materials used in packaging, producers/processors and importers of semi-finished products used in packaging, producers of empty packaging and importers/sellers of empty packaging.

Aspects of waste management covered by EPR fees: Producers are required to cover the costs of collection, recovery, and recycling of packaging. However, current EPR fees only meet around 80% of these costs. It is expected that in the next few years, EPR costs will rise to meet 100% of the necessary cost, as required by the PPWD.

Producer responsibility organization model: Producers have the option to either meet their obligations via a PRO or organize themselves independently (on the condition of reaching recycling targets). In Italy, PROs are required to adopt the legal form of a consortium and have a not-for-profit objective. Retailers, transporters, collection companies and treatment companies may, in accordance with producers, be shareholders. For packaging, Italy has a single national PRO for packaging called CONAI (Italian National Packaging Consortium (Consorzio Nazionale Imballaggi)), established in 1997. This is an industry-run body that has government representation on the Board. CONAI has seven different branches or 'consortia' which are responsible for the seven different types of packaging materials covered by the scheme.

Collection and sorting responsibilities: Municipalities, regional authorities and their contractors collect the material and can either sort it themselves or deliver it to a PRO commissioned sorting facility.

Ownership of material: All material collected by municipalities is owned by the municipality. They have the option to deliver material to sorting facilities that are operated through the PRO by the private sector. Municipalities are paid for their material, net of any sorting costs.

⁴¹ https://www.pro-e.org/Italy_other.html

⁴² <https://www.conai.org/en/businesses/environmental-contribution/contribution-diversification-for-plastic/>

⁴³ <https://www.conai.org/en/businesses/who-can-join/>

Ownership of sorting facilities: Sorting facilities are predominately operated and owned by the private sector.

4.3.2 Aims and targets

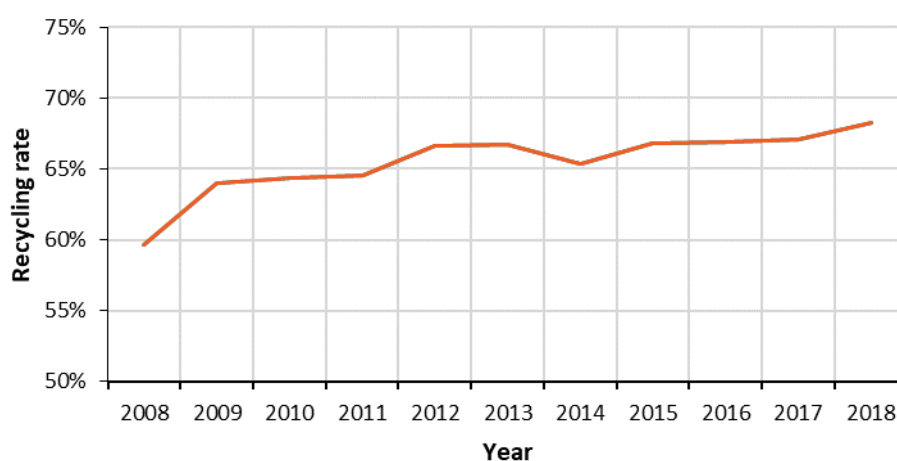
Increases in recycling rate

The Italian recycling targets are in line with the PPWD, which requires 70% of packaging waste to be recycled by 2030.

In 2019, Italy's overall recycling rate for separately collected packaging was 70%. There are some very high performing systems, and steel, aluminum, paper and glass already all meet or exceed the EU's 2025 target. Plastic, however, remains below the target at 45.5% in 2019.⁴⁴

Table 7 shows that the recycling rate in Italy has increased by 8% from 2008 to 2018. This increase has been relatively steady with no notably rapid increases during this period.

Figure 7 Reported packaging recycling rate in Italy and changes over time⁴⁵



Recycled Content

EPR policy in Italy does not aim to increase the amount of recycling content in packaging materials. To further encourage the use of recycled plastic in products and packaging, a €450 tax on the use of virgin polymers is planned to take effect as of January 2022.⁴⁶ It applies to all virgin

⁴⁴ https://www.conai.org/wp-content/uploads/2021/03/Green_Report_CONAI_2020_En.pdf

⁴⁵ <https://ec.europa.eu/eurostat/databrowser/view/ten00063/default/table?lang=en>

⁴⁶ <https://www.unlaw.it/en/highlights/the-italian-plastic-tax-an-overview/>

plastic except for recycled plastics and compostable bioplastics, and so also provides an incentive to firms that produce biodegradable materials.

Design for recycling practices

Under current legislation, CONAI is required to promote actions that increase the recyclability and reusability of packaging. Various initiatives to achieve this have been introduced, including:⁴⁷

- Design for Recycling – an online platform that provides packaging design guidelines to increase recyclability.
- Prevention Dossier – a publication produced by CONAI every three years that presents best practices of eco-design interventions made by companies on their products.
- The CONAI Prevention Call – an annual award made by 2014 to the most innovative sustainable packaging designs with environmental impacts of designs being assessed through the CONAI Eco Tool. The prize is currently set at €500,000.

4.3.3 Fee Modulation and Design

EPR fees are “collected based on the specific invoiced amount due according to the weight and type of packaging material covered by the first supply,” where first supply refers to the transfer of finished packaging from the final producer to the consumer.⁴⁸

CONAI has the freedom to determine its fee structure (it is not specified by law). The basic fee is determined by material type and weight as detailed in Appendix 0.

For plastic and paper packaging, the fees vary by type of packaging and/or subtype of material. In 2018 the CONAI Diversified Environmental Contribution (CAC) for plastic packaging was introduced; this forms the basis for modulating plastic packaging fees. Paper modulation is planned to take effect in January 2022. For example, if laminate makes up more than 20% of paper packing then EPR fees will increase. Details of CONAI modulation product groups/levels for plastics packaging are provided in Appendix 0. This presents a non-exhaustive list of the products included within each level. The products included within each contribution level are determined by the technology available for recycling. CONAI recognizes that sorting and recycling technology is continuously evolving and thus, the packaging lists will be updated annually by the Permanent Technical Assessment Committee (PTAC).

The variation in fee is guided by three key principles:⁴⁹

⁴⁷ https://www.conai.org/wp-content/uploads/2021/03/Green_Report_CONAI_2020_En.pdf

⁴⁸ <https://www.conai.org/en/businesses/environmental-contribution/>

⁴⁹ CONAI (2018) *Explanatory Manual - Contribution Diversification for Plastic Packaging*, October 2018

- Sortability.
- Recyclability; and
- For packaging meeting the first two criteria, the main target circuit of the packaging and its waste (Household or Commercial & Industrial)

The relevant conditions are as follows:

- Sortability - Where transit through sorting systems is necessary, packaging that meets all the following conditions is considered sortable:
 - *Exceeds the minimum size to be sortable* - Packaging which - on the sorting belt - provides a reading area, on one of the sides, of adequate size for the automated equipment currently installed in the Sorting Centers – CSS – (min 5 x 5 cm).
 - *Is identifiable on the sorting line* - Reading of the packaging surface is unequivocal and therefore the optical readers recognize the packaging surface. Not included in this definition is packaging, which, depending on the side exposed, generates different reading responses.
 - *Ensures minimum sorting quantities* - The effectiveness of the sorting process decreases dramatically with low percentages of incoming material. Therefore, on entering the sorting process, a minimum and homogeneous sorting quantity exceeding 2% of the total must be guaranteed.
- Recyclability – Packaging that meets all the following conditions is considered recyclable:
 - *There are one or more recyclers* (or lines are being designed on an industrial scale) that - through a mechanical and/or chemical-organic process - process the sorted material to produce a secondary raw material.
 - *There are one or more companies* (or lines are being designed on an industrial scale) *that use the secondary raw materials* resulting from the recycling activities.
 - *There is a minimum quantity (in case a dedicated line is required)*. The quantity of sorted material must be sufficient to feed at least one (mechanical and/or chemical-organic) industrial recycling line.
 - *Is compatible*. Packaging that is not compatible with relevant and industrially available known sorting and recycling technologies is not included.
- Main target circuit of packaging and related waste
 - *The packaging is primarily used to serve the Commerce & Industry (Business to Business – B2B) channel*. The qualitative and quantitative concentration of this packaging simplifies its collection and processing, directing its management mainly towards independent recycling circuits. This is a flow fed by companies that consign end-of-life packaging directly to professional operators.
 - *The packaging is used primarily to serve the Household channel*. This packaging is usually collected in the urban circuit. This category also includes packaging systematically assimilated with urban waste.

CONAI provides the following further information on recyclability and sortability:⁵⁰

- **Recyclability:** At the national level, the definition is that provided in Annex F of Legislative Decree 152/2006, as amended and supplemented, which provides that: *"the packaging must be produced in such a way as to enable the recycling of a certain percentage by weight of the materials used in the manufacture of marketable products, in compliance with the regulations in force in the European Community. The determination of this percentage may vary depending on the type of material constituting the packaging."*

The reference technical standard is UNI EN 13430:2005 which states: "Ensure that the design of the packaging makes use of materials or combinations of materials that are compatible with known, significant and industrially available recycling technologies."

The standard also envisages that there may be misalignment between recycling technologies and the development of new packaging materials that present functional and environmental benefits. In such cases, packaging can nevertheless be defined as recyclable even if the recycling technologies are not yet available, if one can demonstrate the presence of developments towards the availability of industrial recycling ability within a reasonable period. CONAI have not indicated a specific time period that would be considered reasonable.

- **Sortability:** The packaging must be large enough to offer a reading area suitable for automated equipment currently installed in sorting centers. It must also have an unequivocal surface and therefore packaging which, depending on the side exposed, generates heterogeneous reading responses (e.g.: multilayer, poly-laminates, composite packaging) does not fall within this definition.

The effectiveness of the sorting process decreases dramatically with low percentages of incoming material; therefore, on entering the sorting process, a minimum and homogeneous sorting quantity exceeding 2% of the incoming total must be guaranteed.

It's worth noting that CONAI applies two overarching principles in developing the fee structure:

1. Revenue stability through seeking to ensure that the total fees for plastic under the new fee structure remain the same as they would have been under a single per tonne fee for plastic (which was €188 (\$218)/tonne in 2017) in order to adequately cover costs; and
2. Taking a gradual approach and applying 'a phased approach to diversification' in order to make the process more gradual for companies.

Accordingly, with the focus on making steady changes, it might be expected that the incentive to change the design of specific packaging formats might be more muted than if there were to be a more radical divergence in fee structure. Indeed, this is feedback that we have received from stakeholders, who have noted that under the current fee structure there is limited incentive to switch from plastic packaging formats in Level C to those in Level B1, for example.⁵¹

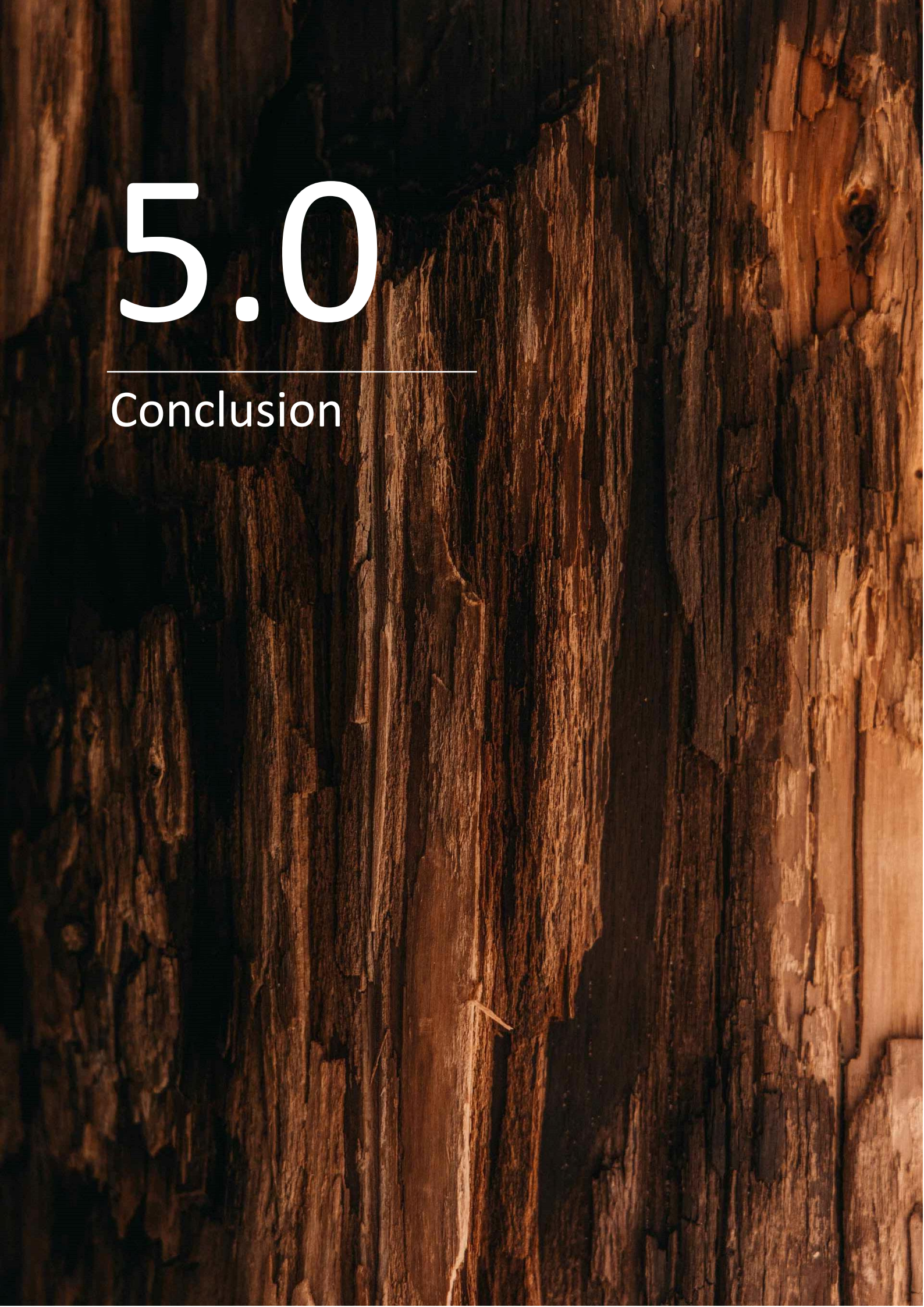
⁵⁰ CONAI (2018) *Explanatory Manual - Contribution Diversification for Plastic Packaging*, October 2018

⁵¹ Personal communication with plastics industry stakeholder

In order to understand the tonnage of plastic packaging formats that would fall into each category, and to thus inform the setting of fees to ensure revenue stability, a survey was undertaken of over 4,000 companies. However, there was no attempt to understand the extent to which the companies might shift to different packaging formats, or change their packaging design, as a result of the new fee structure.

Finally, it is expected that litter clean-up costs will soon be covered by EPR fees. There is currently no specific date for this or indicative costs available. However, it is assumed that these costs will first be applied to plastic litter, as per the SUP Directive. Therefore, non-plastic packaging cost changes do not include litter clean-up costs. Early indicative figures from the German Ministry of Environment suggest that their litter clean-up costs for plastic packaging of relevance to the SUP Directive are likely to be around €400 million per year.

In addition to these EPR measures, a \$540 plastic tax on the use of virgin polymer is planned to take effect as of January 2022. It will apply to all virgin plastics except for compostable bioplastics.



5.0

Conclusion

The purpose of research was to understand the extent to which EPR in Europe has resulted in the following outcomes:

- Outcome 1: increases in recycling rates
- Outcome 2: increases in recycled content usage
- Outcome 3: increases in design-for-recycling practices
- Outcome 4: increases in the market value of collected packaging waste

The research suggests that because these programs have been designed to reach specific recycling targets, they have been most successful in delivering outcome 1. Outcomes 2 and 3 are harder to assess because programs were not designed to achieve these goals and measures are only now being put in place to drive these outcomes.

Unfortunately, we could not find any evidence of EPR leading to increased market value for collected packaging material. The ways in which EPR could lead to this outcome include if the PRO requires municipalities and their operators to meet set contamination levels, which would result in a higher quality marketable material at less cost. Higher market values could also be achieved as a result of material being marketed through one organization if that is how the program is set up. In research carried out for the State of Oregon,⁵² consulting firm RRS did suggest that EPR had led to higher market values, but we could not find any evidence of this.

Germany, France and Italy were some of the first countries to put EPR programs in place to enable recycling targets, set either by the country or the European Union, to be met. These countries have met the recycling rates set to date. EPR enables recycling targets to be met which ensures there is sufficient funding to enable the necessary collection, sorting infrastructure and education to be put in place to capture and recycling the required tonnage as well as holding parties are financially liable for not achieving these standards.

The use of eco-modulated fees is a relatively untested concept across Europe, with different programs modulating fees differently. The European Commission is developing guidance with the aim of providing a consistent mechanism that can provide a harmonized approach across Europe, which will enable producers to make design changes for the whole of Europe and not for individual country programs. EPR in Europe to date has not been designed to drive use of recycled content or design for recyclability and it is only now that measures are being built into programs to do so. Furthermore, in ensuring that the producer bears the cost of end-of-life management, prevention at source through design-for-recycling should be prioritized. Although as noted by the OECD in their review of EPR programs across the globe, “the impact of EPR on eco-design has

⁵² Impact of EPR for PPP on recycling market Stability, RRS 05.27.2020 for Oregon DEQ

been less than originally hoped for,"⁵³ substantial attempts to focus EPR programs on this priority have been limited. Efforts to improve recycled content, design-for-recycling and end market values need to be specifically considered if these outcomes are to be achieved. For these measures, especially recycled content, separate legislation may be more effective in ensuring that targets are transparently met and monitored than if included as optional through eco-modulated fees under EPR. EPR on its own may provide the funding necessary to financially support recycling. However, other mechanisms may be required to achieve true circularity.

⁵³ Eunomia (2020), Study to support preparation of the Commission's guidance for extended producer responsibility schemes, May 2020, <https://op.europa.eu/en/publication-detail/-/publication/08a892b7-9330-11ea-aac4-01aa75ed71a1/language-en>

A 1.0

Overview of Packaging Fee
Modulation in the EU

A 1.1 Countries with Modulated Fees

Table 3 provides an overview of packaging fee modulation in EU member states and Table 4: explains the granular fee modulation in Belgium for plastics under the Fost Plus program.

Table 3: Overview of Packaging Fee Modulation in the EU

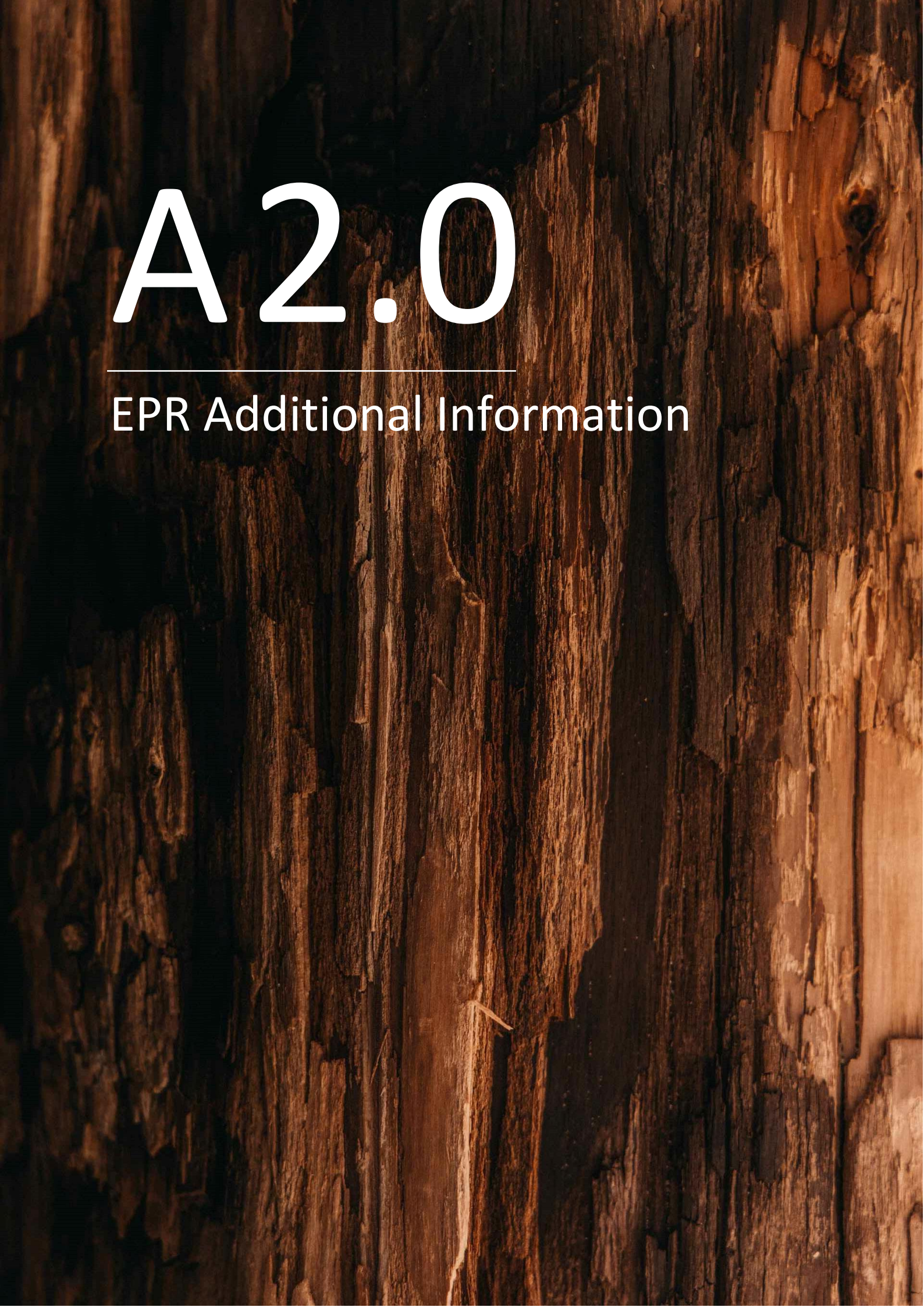
	'Basic' modulation - i.e., different fees per material type	Greater granularity in fee structure - e.g., specific fees for certain types of packaging e.g., PET/HDPE, beverage cartons etc.	'Advanced' modulation (e.g., penalty fees, or numerous different fee levels within material type
Austria	Y	Y	
Belgium	Y	Y	
Bulgaria	Y	Y	
Croatia	Y	Y	
Cyprus	Y	Y	
Czech Republic	Y	Y	
Estonia	Y		
Denmark	-	-	-
Finland	Y	Y	
France	Y	Y	Y
Germany	Y	Y	
Greece	Y	Y	
Hungary	-	-	-
Ireland	Y	Y	
Italy	Y	Y	Y
Latvia	Y		
Lithuania	Y	Y	
Luxembourg	Y	Y	
Malta	Y		
Netherlands	Y	Y	Y
Poland	Y		
Portugal	Y		Y
Romania	Y	Y	
Slovakia	Y	Y	
Slovenia	Y	Y	
Spain	Y	Y	

	‘Basic’ modulation - i.e., different fees per material type	Greater granularity in fee structure - e.g., specific fees for certain types of packaging e.g., PET/HDPE, beverage cartons etc.	‘Advanced’ modulation (e.g., penalty fees, or numerous different fee levels within material type
Sweden	Y	Y	Y
UK	Y		

Table 4: Fost Plus Tariff Structure for Recyclable Plastic Packaging 2019

Code	Materials	Tariff (EUR/kg)
005-01	Transparent no color	0.3463
005-02	Transparent blue	0.3463
005-03	Transparent green	0.3463
007	HDPE Bottles and Flasks	0.3418
011-01	PP - Bottles and flasks and other rigid	0.5103
011-02	PS – Rigid packaging except EPS and XPS	0.5103
011-03	HDPE – Rigid packaging other than bottles and flasks	0.5103
011-04	PET – Transparent, other than no color, blue or green	0.5103

Code	Materials	Tariff (EUR/kg)
011-05	PET – Rigid packaging other than bottles and flasks, transparent	0.5103
011-06	PET – Bottles and flasks, opaque	0.5103
011-07	PE – films	0.5103
011-08	Other rigid plastics (except EPS, XPS, compostable)	0.5103
011-09	Other films (except compostable)	0.5103



A 2.0

EPR Additional Information

A 2.1 Germany

Policy Timeline

EPR was introduced in 1991 under the “Packaging Ordinance System” and was the first legislation anywhere in the world to incorporate the concept of EPR, which had to be assumed in respect of all packaging waste produced by households, commerce and industry. A full timeline is provided in Table 5.

Table 5: Timeline for German Packaging Policy

Most significant amendments to the Packaging Ordinance in the 2000s ⁵⁴	
1st amendment, 1998	• Waste management services had to go out to tender. • Recovery quotas had to be verifiably met by the relevant companies using their own take-back schemes (individual producer responsibility). • Changes to the way collection and sorting rates were calculated: quota to be measured based on the total amount of licensed packaging produced.
2nd amendment, 2002	• Mandatory deposit-refund scheme (DRS) introduced for single-use beverage containers from 2003 onwards.
3rd amendment, 2005	• Clearing organization set up to simplify the DRS.
4th amendment, 2006	• New terms and targets set.
5th amendment, 2008	• Producers and fillers in a PRO obliged to participate in the system. Provision was made to exempt companies with their own take-back schemes or participating in an industry-wide system solution. Verified declarations of completeness required for sales packaging produced by the obliged companies.
6th amendment, 2013	• Certain terms clarified.

⁵⁴ <https://prevent-waste.net/wp-content/uploads/2020/09/Germany.pdf>

Most significant amendments to the Packaging Ordinance in the 2000s⁵⁴

7th amendment, 2015	• The option for companies to operate their own take-back systems was abolished. • Criteria for exemption from the EPR scheme are tightened.
New VerpackG (Packaging Act) (2019 onwards)	• Certain terms clarified, requirement to increase recycling rates, central packaging register introduced to improve monitoring, incentives introduced to improve recyclability of packaging and municipalities given more powers.
Revision of VerpackG, 2022	• Specifics are to be defined. • Increases in recycling targets.

Producer Responsibility Fees 2021

Not available because of multi-PRO model.

Third Party Responsibility – PRO Structure

EPR systems in Germany carry 100% of the responsibility of financing and organizing collection, sorting, and recycling of packaging to meet national targets. PROs must tender for sorting capacity to cover their registered tonnage, which may also include trading of materials – although this is sometimes undertaken by the PROs directly. However, there are regular tenders for collection and sorting contracts.

The German system operates collection contracts with a three-year duration. Municipalities can participate in tenders, but (except for a small number of low-value aspects of service provision, such as making available sites for containers) must compete with private waste management companies. The costs of the resulting contracts for collection are shared by PROs according to their market share. The PROs define a lead negotiator by “drawing lots” according to their market share (so, a PRO with 10% market share would oversee 10% of the randomly drawn collection areas being negotiated in a particular year). This lead negotiator negotiates on behalf of all PROs and is incentivized to achieve a good financial outcome by being required to cover at least 50% of the collection cost in the tendered area.

Now, the largest PRO is *Der Grüne Punkt – Duales System Deutschland GmbH (DSD)*, which had 31.47% of the market share of lightweight packaging for the 4th quarter of 2019.

A 2.2 France EPR Additional Information

Policy Timeline

EPR was introduced in France shortly after being introduced in Germany in 1992. Important changes to EPR since the legislation was introduced are summarized below:⁵⁵

1992 – EPR introduced

2007 – Setting of a penalty for any packaging that hampers sorting or recycling⁵⁶

2010 – “Grenelle Law”: Mandatory modulation of the fees for packaging and setting of a 100,000 tonnes packaging reduction target

2012 – Implementation by the EPR scheme of a bonus and penalty system

2018 – French roadmap on Circular Economy “Generalize the implementation of eco-modulation criteria for all the EPR sectors and make eco-modulation an incentivizing tool (up to 10% of the price of the product excluding taxes)”

2020 – Changes to plastic eco-contribution. **Eco-contribution** = **rate** (encourages the use of packaging with mature and sustainable recycling facilities) + **eco-adjustment** (encourages to avoid the presence of disturbances and to gain in circularity)

- Rate: now 7 plastic categories (instead of 1 previously) with fees from 28.88 to 48.57 cents €/Kg to reflect the level of development of recycling facilities
- Eco-modulation
 - Bonus: awareness-raising (4 to 8%) / reduction at the source (8%) / 50% recycled content (50%)
 - Malus/penalties: adaptation (10%) / deterrent (50%) / “stop sign” (100%)

Producer Responsibility Fees 2021

In **France**, on a material-specific basis, there is a flat fee which is summarized below there are also a number of eco-adjustments and penalties.⁵⁷

- Steel: 4.99 €/kg
- Aluminum: 12.89 €/kg

⁵⁵ http://www.pcci.gr/evepimages/0703_f5260.pdf

⁵⁶ http://www.pcci.gr/evepimages/0703_f5260.pdf

⁵⁷ <https://www.pro-e.org/files/PRO-Europe-Participation-Costs-Overview-2021.pdf>

- Paper/cardboard: 17.71 €/kg
- Beverage carton: 26.62 €/kg
- Glass: 1.43 €/kg
- Clear PET bottles: 33.02 €/kg
- Colored PET, PE or PP bottles: 35.62 €/kg
- PET, PE, or PP rigid packaging: 37.93 €/kg
- Flexible PE packaging: 41.09 €/kg
- PS rigid packaging: 44.25 €/kg
- Complex packaging or other resins excluding PVC: 55.31 €/kg
- Packaging containing PVC: 55.31 €/kg

Modulation – in the form of a series of bonuses and penalties – is then selectively applied. For example, a bonus of 12% on the total fee contribution is granted for bottles and vials made from PET, HDPE, or PP, as this type of plastic packaging meets French national sorting guidelines and has a recycling channel. It's worth noting, however, that such modulation on top of a basic €0.3463/kg fee for plastics (with no distinction by the type of plastic) does not reflect the differing value of the resulting secondary materials, nor the effect on secondary material value of differing colors of PET, HDPE or PP.

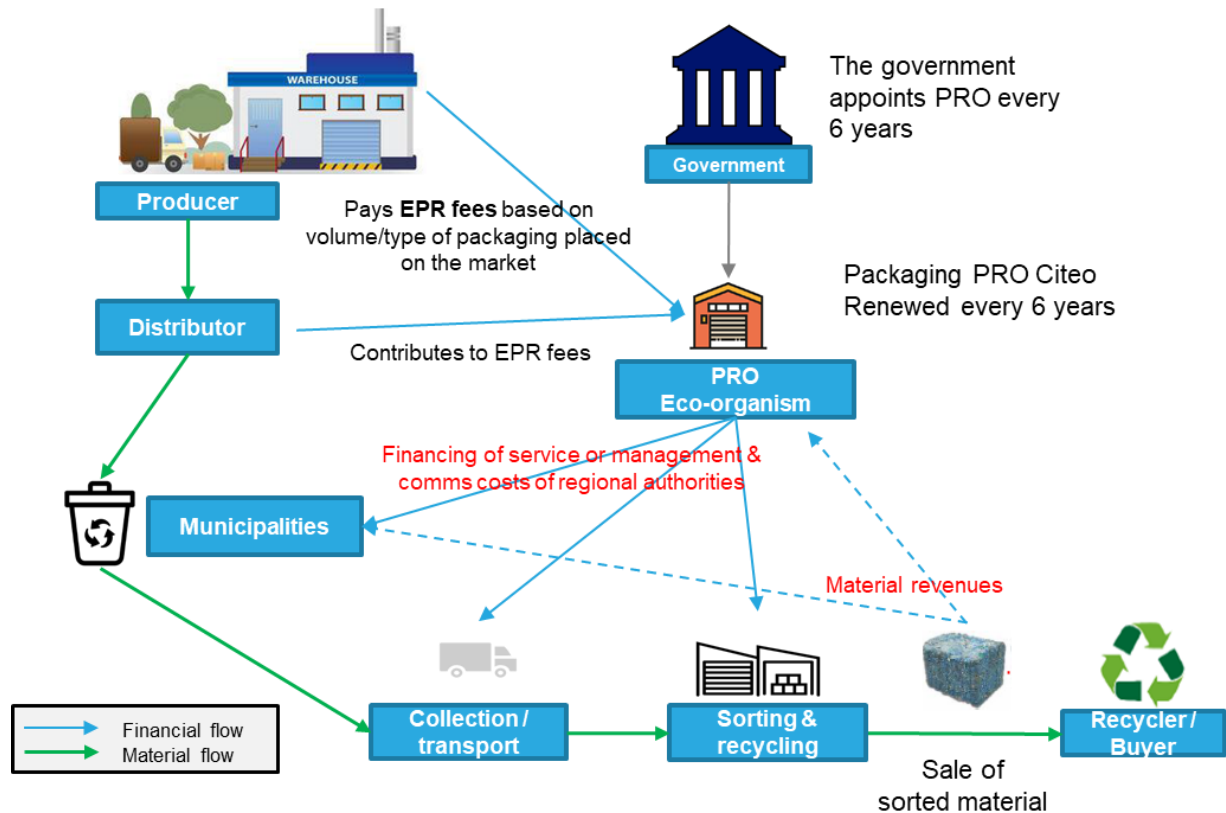
A 50% bonus is also applied to contributions by weight for polyethylene where there is at least 50% recycled material. Penalties are typically applied for disruptive packaging components.

Third party responsibility - PRO structure

Producers can decide to manage waste individually (which can be an appropriate solution for very vertical distribution systems with robust reverse logistics), or collectively via **not-for-profit** PROs, called "éco-organismes". Waste producers have ultimate responsibility for establishing the PRO, and ensuring their management and operation, though they are required to engage with a wider range of stakeholders in designing the operation of the schemes. An overview of the French PRO and fee structure is depicted in

Figure 8.

Figure 8 Overview of French PRO and fee structure⁵⁸



Source: Eunomia graphic using data from Citeo

A 2.3 Italy

Timeline of key changes

An overview of policy changes related to packaging and EPR is provided below.

1988 - Law 475/1988 Italy introduced a procedure on the reduction of waste and separate waste collection through Law 475/1988, introducing an ecotax on plastic bags (100 Italian lire at

⁵⁸ Graphic developed by Eunomia using information available on CITEO website

the time) as well as requiring producers of plastic objects to collect and recycle this material, anticipating the philosophy of the European Directive from 1994.

1997 - The 22/1997 legislative decree implements the 04/62 directive on packaging waste, stating that packaging producers must fulfil their duties autonomously or through a collective system organized according to the model of private law consortiums (CONAI and other consortiums) that will carry out the collection and recycling of packaging waste.

2006 - Decree “Environment Regulations” (Decree 152/06) Former Ronchi Decree (legislative Decree 22/97) introduced general principles of “whoever pollutes pays” and “shared responsibility” and established the constitution of

- National packaging recovery consortium (Consorzio Nazionale Imballaggi - CONAI); and
- Material Consortia – (steel, aluminum, paper, wood, plastic, glass)

All companies – packaging producers + packaging users – are invested with responsibility for environmental packaging management, principally through enrollment in CONAI. Producers must organize packaging recycling and recovery operations through the Material Consortia.

2011- plastic bags ban: Italy banned one-way shopping bags, making it only possible to use reusable bags (including plastic ones above a given thickness) or certified compostable bags. Compostable bags are then used for separate collection of organics (these must be charged, though, to drive larger use of the reusable ones) - entry into force was first vetoed by other Member States, hence postponed until the EU plastic shopping bag directive entered into force. In 2018, Italy extended the scheme and banned also ultra-thin fossil plastic bags for fruit, vegetables and baked goods and mandated the use of partly bio-based and fully compostable bags instead.

2018 - Eco-modulation: Encourage the use of more recyclable packaging, linking the level of producer fees to the environmental impact of the end-of-life/new-life phases. Different levels (Bands) represent ease of recyclability (A, B, B1, B2, C)

2020-2021 – ANCI – CONAI Framework Agreement: Consortium framework agreement guarantees coverage of increased expenses for separate collection of packaging waste for Italian municipalities. Each Municipality that has activated separate packaging waste collection for a material commits to transfer the packaging waste to Consortium Chain members. Municipalities, though, are free to refrain from signing, and to refer to the free market (third party operators). Similarly, the Consortium Chain commits to take the material and guarantee that it is subsequently sent to recycling or recovery. The Consortium Chain also commits to variable payment terms based on the quantity and quality of the transferred materials.

CONAI Fees to Producers

CONAI has the freedom to determine its fee structure, which has both basic and more advanced components. The system is based on a fee charged to all packaging materials. The rate varies by material and weight, and covers the costs associated with collection, sorting and reprocessing. Rates for 2021 are shown in Table 6.

Table 6: CONAI Basic Fees by Material, 2021

Packaging Type	From January 1 st 2021
Steel	• 18 €/t
Aluminum	• 15 €/t
Paper and cardboard packaging (NB paper modulation planned to take effect in January 2022)	• Level 1 55 €/t (95% paper packaging) • 75 €/t for cartons • Up to 200 €/t for 40% to 60% paper mixed material packaging
Plastic	• Level A (sortable and recyclable packaging from trade and industry): 150 €/t • Level B1 (packaging from household (HH) with consolidate sorting and recycling value chain): 208 €/t • Level B2 (other sortable and recyclable packaging from HH): 436 €/t and 560 €/t • Level C (non-sortable/recyclable packaging (compostable plastic): 546 €/t and 660 €/t
Bioplastic	• Level B2: 560 €/t • Level C 660 €/t
Glass	• 31 €/t and 37 €/t

Source : <http://www.conai.org/en/businesses/environmental-contribution/>

Table 7: CONAI modulation product groups for plastic packaging from January 2021

Level	Packaging Items Included	€/ton
Level A: Commerce and Industry Circuit- sortable and recyclable	• Liners, Big Bags, Bags for industrial use. • Water dispenser bottles. • Caps to cover pallets/Big Bags. • Crates and industrial/agricultural Boxes/Large Boxes. • Bottle baskets. • Film for palletizing and shrink film for overwrapping. • Caps, closures and lids for drums and IBC tanks.	150
Level B1: Household - effective and consolidated sorting and recycling chain	• PET, HDPE and PP bottles and detergent bottles, non-multilayer, transparent or colored transparent, without covering label, or with label but with perforations/punching to facilitate removal and accompanied by instructions. • HDPE and PP bottles, detergent bottles and cans, over 5L capacity, in a color other than black and without covering label or with covering label but with perforations/punching to facilitate removal and accompanied by instructions.	208
Level B2: Household - other sortable and recyclable packaging	• Reusable bags, compliant with current legislation. • Mechanical dispensers. • Caps, closures and lids other than those in Level A.	560

Level C: Packaging not sortable/recyclable with current technologies	• Opaque PET bottles, detergent bottles and preforms. • Bottles, detergent bottles and similar made with polymers other than PET, PE and PP. • Bottles and detergent bottles and similar with covering label (other than those of Level B1). • PET bottles and detergent bottles and similar, multilayer with polymers other than PET, and preforms. • Black bottles, detergent bottles and the like, cans - over 5-liter capacity. • Bottles and detergent bottles and the like with glued or welded metal components (e.g., PET cans). • Cans, jars and other containers of any shape/size. • Labels. • Monolayer/multilayer film other than Level A. • Protective film, film for professional use and for garments. • Shopping bags, bags and small bags other than those of LEVEL A and LEVEL B2. • Disposable plates and cups. • Tubes, containers and trays.	660
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Source : http://www.conai.org/wp-content/uploads/2018/12/Lists_of_plastic_packaging_in_the_Contribution_levels_2019.pdf

Third party responsibility - PRO structure

In Italy, producers have the option to either meet their obligations via a PRO or organize themselves independently (on the condition of reaching recycling targets).

PROs are required to adopt the legal form of a consortium and have a not-for-profit objective. Retailers, transporters, collection companies and treatment companies may, in accordance with producers, be shareholders.

For packaging, Italy has a single national PRO for packaging called CONAI (established in 1997). This is an industry-run body that has government representation on the Board. CONAI has seven

different branches or 'consortia' which are responsible for the seven different types of packaging materials covered by the scheme:

- CIAL (aluminum)
- RICREA (steel containers)
- COMIECO (paper)
- RILEGNO (wood)
- COREPLA (plastics)
- COREVE (glass)
- BIOREPAK (bioplastic)

CONAI is a non-profit organization, supported by a statute approved by public authorities with the aim of fulfilling the packaging waste recycling and recovery objectives established by the national law that applies European directives. There are ~900,000 packaging producers registered with CONAI's consortium system. The EPR fees collected from these producers by CONAI are distributed among the material consortia.⁵⁹ The Provinces are responsible for checking any failure to join CONAI or the Industry Consortia and for collecting any administrative fines. Article 261, paragraph 1 of Legislative Decree No 152/06 states that "[...] Producers and Users who do not comply (...) shall be punished with an administrative fine of 5,000 Euros, without prejudice to their obligation to pay any past Contributions due".

Nevertheless, CONAI must be paid the membership fee and any past contributions due.⁶⁰ CONIA makes payments to COREPLA (National Consortium for the collection, recycling and recovery of plastic packaging waste) who then makes payments to municipalities and MRFS and receive income from recyclers that is pass through to CONAI to offset producer fees. The flow of material and money through the system is shown in Figure 9.

⁵⁹ https://bbia.org.uk/wp-content/uploads/2020/06/BBIA_webinar.pdf

⁶⁰ <https://www.conai.org/en/businesses/who-can-join/>

Figure 9 Representation of the PRO structure for packaging in Italy

