

Study to Support Preparation of the Commission's Guidance for Extended Producer Responsibility Schemes

Recommendations for Guidance

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1.0 Introduction

Extended producer responsibility schemes are a means of ensuring that the “polluter pays” principle is applied to waste management. The Waste Framework Directive (Directive 2018/851¹) states in Article 14 that:

In accordance with the polluter-pays principle, the costs of waste management, including for the necessary infrastructure and its operation, shall be borne by the original waste producer or by the current or previous waste holders.

It further states that:

Member States may decide that the costs of waste management are to be borne partly or wholly by the producer of the product from which the waste came and that the distributors of such product may share these costs.

While Member States have discretion over whether to establish producer responsibility schemes for many materials, they are required to establish producer responsibility arrangements in some areas.

- Directive 2018/852² amends Article 7 of Directive 94/62/EC³ to make clear that extended producer responsibility schemes **must** be established for all packaging in accordance with Articles 8 and 8a of the amended Directive 2008/98/EC.
- Article 7 of Directive 2012/19/EU requires Member States to “ensure the implementation of the ‘producer responsibility’” in respect of meeting recycling targets for waste electrical and electronic equipment.
- Article 16 of Directive 2006/66/EC requires Member States to “ensure that producers, or third parties acting on their behalf, finance any net costs” arising from the collection and treatment of batteries and accumulators.
- Article 5 of Directive 2000/53/EC requires Member States to “ensure that producers meet all, or a significant part of, the costs” of the collection and treatment of end of life vehicles.

Directive 2018/851 recognises, at Recital 21, that:

Extended producer responsibility schemes form an essential part of efficient waste management. However, their effectiveness and performance differ

¹ European Parliament and the Council of the European Union (2018) Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on Waste, 2018/851

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

³ European Parliament and Council (1994) European Parliament and Council Directive 94/62/EC of 20 December 1994 on Packaging and Packaging Waste

significantly between Member States. It is necessary therefore to set minimum operating requirements for such extended producer responsibility schemes....

Recital 22 notes that:

The general minimum requirements should reduce costs and boost performance, as well as ensure a level playing field, including for small and medium-sized enterprises and e-commerce enterprises, and avoid obstacles to the smooth functioning of the internal market. They should also contribute to the incorporation of end-of-life costs into product prices and provide incentives for producers, when designing their products, to take better into account recyclability, reusability, reparability and the presence of hazardous substances. Overall, those requirements should improve the governance and transparency of extended producer responsibility schemes and reduce the possibility of conflicts of interest emerging between organisations implementing extended producer responsibility obligations on behalf of producers of products and waste operators that those organisations contract. The requirements should apply to both new and existing extended producer responsibility schemes. A transitional period is however necessary for existing extended producer responsibility schemes to adapt their structures and procedures to the new requirements.

Article 8a establishes the general minimum requirements for extended producer responsibility schemes. However, in the absence of appropriate guidance, there is a risk that elements of Article 8a are implemented in divergent ways across Member States. The European Commission acknowledges this point more broadly in relation to the wider transposition of legislative requirements in COM(2015) 595 final, stating that:⁴

The complete and correct transposition of the new legislation is essential to guarantee that their objectives (i.e. protecting human health and the environment, increased resource efficiency, and ensuring the functioning of the internal market and avoiding obstacles to trade and restriction of competition within the EU) are achieved.

Article 8(5) of the Waste Framework Directive states that:

The Commission shall publish guidelines, in consultation with Member States, on cross-border cooperation concerning extended producer responsibility schemes and on the modulation of financial contributions referred to in point (b) of Article 8a(4).

While guidelines are to be established in the first instance, to seek to avoid divergence in implementation, Article 8(5) allows for the possibility of implementing acts to ensure distortion of the internal market is avoided:

⁴ See http://eur-lex.europa.eu/resource.html?uri=cellar:c2b5929d-999e-11e5-b3b7-01aa75ed71a1.0018.02/DOC_1&format=PDF

Where necessary to avoid distortion of the internal market, the Commission may adopt implementing acts in order to lay down criteria with a view to the uniform application of point (b) of Article 8a(4), but excluding any precise determination of the level of the contributions. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 39(2).’;

It is important to note that while extended producer responsibility schemes provide opportunities to encourage improved design and management of products and packaging in line with the waste hierarchy, EPR is just one of a number of tools available to policymakers. Accordingly, consideration should also be given to the role of supporting instruments (such as taxes, charges, and product standards) in delivering improved outcomes in line with the waste hierarchy. While it may sometimes appear politically expedient to seek to use EPR (and specifically fee modulation) to deliver outcomes that might better be delivered through taxation, for example, this should be resisted to the extent possible. This guidance considers circumstances where alternative approaches should be used to complement - or indeed be used in place of - EPR.

This guidance document focuses on four elements contained within Article 8a:

- Article 8a(4)(c) on necessary costs – the intention of which is to ensure that the financial contributions paid by producers to comply with their EPR obligations, where discharged collectively, do not exceed the costs that are necessary to provide waste management services in a cost-efficient way;
- Article 8a(4)(b) on fee modulation – which requires, in the case of collective fulfilment of EPR obligations that fees are modulated, where possible, for individual products or groups of similar products, notably by taking into account their durability, reparability, re-usability and recyclability and the presence of hazardous substances, and where available based on harmonised criteria in order to ensure a smooth functioning of the internal market;
- Article 8a(1)(d) on equal treatment – the requirement in the Directive being for equal treatment of producers of products regardless of their origin or size, without placing a disproportionate regulatory burden on producers, including small and medium-sized enterprises, of small quantities of products; and
- Article 8a(5) on monitoring and enforcement of EPR obligations, including in the case of distance sales – to ensure that producers of products and organisations implementing EPR obligations on their behalf implement their obligations, and that action is taken to prevent ‘free-riding’.

The guidance is laid out as follows:

- Section 2.0 describes the *scope* of costs that must be covered by EPR schemes;
- Section 3.0 then provides guidance on how to ensure EPR schemes – and by extension producers – do not pay more than they should in respect of the costs they are required to cover, through applying the principles of ‘*necessary costs*’;
- Section 4.0 provides guidance on the modulation of fees;
- Section 5.0 provides guidance on applying the concept of equal treatment; and
- Section 6.0 provides guidance on tackling free-riding.

2.0 Waste Management Costs to be Covered by EPR Schemes

2.1 Introduction

There are a wide range of activities involved in operating an effective waste management system. This section provides guidance to Member States regarding the scope of the waste management costs that economic operators in the supply chain (further referred to as ‘producers’ in line with the wording of the Directive) will need to cover through their payments into the EPR system in respect of the products and materials for which they are responsible.

Scope issues will be relevant both to the determination of the overall amount producers must contribute, and how the resulting funds are shared between providers of waste management services. This section should therefore be read in conjunction with section 3.0, and in particular section 3.4.

While the approaches to collecting and treating waste may differ from country to country, some general observations can be made regarding the types of costs that are likely to need to be covered by producers.

The definition of ‘municipal waste’, to which many of the waste-related targets apply, includes both waste from households and “mixed waste and separately collected waste from other sources, where such waste is similar in nature and composition to waste from households”. This brings certain wastes from commercial and industrial sources within scope of extended producer responsibility.

Article 8a(4) states that, for all wastes that fall within their sphere of responsibility, extended producer responsibility schemes must fund certain operational costs, namely:

- the separate collection of waste; and
- the subsequent transport and treatment of waste, including treatment necessary to meet the Union’s waste management targets;

It also indicates that certain supporting services should be funded:

- providing adequate information to waste holders regarding waste prevention measures, centres for re-use and preparing for re-use, take-back and collection systems, and the prevention of littering; and
- data gathering and reporting regarding how many products are placed on the market, and how much is collected and recycled.

Further, it makes clear that the contributions made by producers should take into account revenues from:

- re-use;
- sales of secondary raw material; and
- unclaimed deposit fees.

However, Article 8a(4)(a) states that the requirements concerning the types of costs to be covered through producer responsibility “shall not apply to extended producer responsibility schemes established pursuant to Directive 2000/53/EC, 2006/66/EC or 2012/19/EU”. Member States may, therefore, depart from the cost coverage requirements explained in this section provided that:

- In respect of end of life vehicles, under Directive 2000/52/EC, the producer responsibility requirements of Article 5 in respect of the establishment of collection schemes are met:
 - “Member States shall take the necessary measures to ensure that the delivery of the vehicle to an authorised treatment facility... occurs without any cost for the last holder and/or owner as a result of the vehicle's having no or a negative market value”; and
 - Member States shall take the necessary measures to ensure that producers meet all, or a significant part of, the costs of the implementation of [the collection] and/or take back end-of life vehicles.
- In respect of waste batteries and accumulators, under Directive 2006/66/EC, the financing requirements under Article 16 are met, principally that:
 - producers, or third parties acting on their behalf, must finance any net costs arising from the collection, treatment and recycling of all waste portable batteries and accumulators, and all waste industrial and automotive batteries and accumulators, collected under the requirements of the Directive;
 - double charging of producers in the case of batteries or accumulators collected under schemes set up in accordance with Directive 2000/53/EC or Directive 2002/96/EC is avoided; and
 - producers, or third parties acting on their behalf, must finance any net costs arising from public information campaigns on the collection, treatment and recycling of all waste portable batteries and accumulators.
- In respect of waste electronic and electrical equipment, under Directive 2012/19/EU, the financing requirements under Article 12 are met, principally that “producers provide at least for the financing of the collection, treatment, recovery and environmentally sound disposal of WEEE from private households that has been deposited at collection facilities”.

As a result of these exceptions, the principal wastes to which the provisions of Article 8a(4)(a) apply will be packaging waste, although where future directives establish producer responsibility schemes, the article may apply to them.

In order to ensure that producer responsibility obligations are met, some Member States may make use of deposit refund schemes; others may rely on municipal or other third-party collection systems; and for some material streams, Member States may prefer schemes to establish their own separate collection. The cost considerations set out in

this section will be applicable to all of these approaches, but may be most relevant to situations where waste is collected through municipal systems.

2.2 Operational Costs

Producers should bear the operational costs of collecting and managing the material they place on the market so that this material can be recycled. The specific operational costs of waste collection will depend on the collection system that is adopted in each Member State. However, in combination, the elements of the waste collection system must be adequate to meet the targets. The operational costs are likely to include:

- Direct vehicle, staff and container costs (both capital and running costs) associated with the collection of waste for reuse or recycling, including:
 - Door-to-door collections;
 - communal collections; and
 - civic amenity sites or container park facilities;
- The costs of maintaining capital items such as vehicles and containers (e.g. sacks, wheeled bins, underground containers, skips);
- The costs of establishing, maintaining and running vehicle depots, intermediate sites such as transfer stations and other facilities necessary to support the collection service;
- The costs of sorting or processing waste so that it can be reused or recycled, and the costs of any preparing for reuse or recycling operations necessary to turn the waste into a raw material suitable for use by manufacturers;
- The costs of the transportation of waste that has been collected for reuse or recycling, so that it reaches final treatment;
- Corporate overheads (e.g. IT, HR, financial services) associated with operating the service;
- The management costs of marketing and selling reused items or recycled materials (if this is carried out by municipalities or other collectors, rather than by producers); and
- Any return infrastructure and counting centres associated with deposit schemes.

This is not intended as an exhaustive list. Member States should examine the operational elements of any current or planned service in order to identify all operational costs relevant to the materials for which producers are responsible. Where resources are used both to collect material that falls under the producer responsibility scheme and other material, costs should be apportioned on a reasonable and transparent basis.

Where Member States, or other directives, introduce additional targets or requirements, producers may be obligated to cover the costs of meeting them – for example, they may be required to meet operational costs associated with the collection of products that are littered or that are collected as part of the mixed waste stream.

2.3 Supporting Services

Producers should bear the costs of the services necessary to support the operational activities involved in collecting and managing the relevant material. The specific supporting services that are necessary to put in place will be determined in the context of each Member State, with reference to the actions that the Member State deems to be necessary to comply with the specific requirements of each EPR scheme and to meet any relevant targets. Examples of supporting services will include:

- Communications – at the level and of the type necessary to achieve the required behaviour from citizens, regarding:
 - Steps that can be taken to prevent and reduce waste;
 - Steps that can be taken to enable waste items to be reused or prepared for reuse, including the availability of centres for reuse and of takeback schemes;
 - How, what and where to recycle; and
 - The prevention of litter.
- Enforcement costs – i.e. the costs of putting in place systems to ensure that producers, waste management organisations, businesses and citizens follow the rules Member States put in place to transpose the new directives into their law. For example, if a Member State puts in place a system to detect and penalise businesses that fail to adequately source separate material for recycling, as part of an overall package of measures to ensure that the targets are met, the net costs to of such a system should be met by producers. Where fines are applied as part of the enforcement process, Member States should consider whether producers should bear the costs net of any income from fines that is retained by the enforcement body. Care should be taken to ensure that fines are imposed for deterrent effect and do not become, in effect, a form of charge placed on waste producers, which would undermine the principle of producer responsibility. In respect of the enforcement system applicable to producers themselves, it will be important to ensure that the requirement on producers to fund enforcement does not lead to conflicts of interest;
- Efficiency reviews to ensure that services are run at the lowest cost necessary to achieve the objectives and targets set out in the Directives;
- Data gathering, recording, analysis and reporting costs; and
- Performance incentives to encourage:
 - Waste prevention and reuse (e.g. a financial reward where tonnage of waste per capita is kept below an agreed target level);
 - A high recycling rate (e.g. a financial reward where an agreed target level – which may differ from place to place within a Member State – is achieved); and
 - High recycling quality (e.g. a financial reward where the proportion of non-target material in a recycling stream is kept below an agreed target level).

2.4 Material Value

Producers are responsible only for the net costs of waste management. Where the material that they place on the market has a value when recycled, the costs borne by producers should be offset by the value obtained from the sale of material.

One way to achieve this is to give ownership of the relevant material to producers (typically through a producer responsibility organisation), so that they can take responsibility for the sale of material and directly receive the income. However, this may prove problematic for some material streams, for example where packaging waste and non-packaging waste of the same material are collected together. Under such a system, arrangements would need to be made to ensure that producers do not incur costs, or receive income, for material that does not fall within the responsibility.

If the material sale function is fulfilled by an entity other than the producer responsibility organisation, and if that other entity retains the income from materials, the income received should be netted off the waste management costs incurred by the entity when considering the amount that producers should pay. This income figure should be net of the costs of treatment of waste (e.g. sorting or recycling), along with any intermediate transport of material.

Example: A waste collector separately collects packaging glass. The costs it incurs to undertake this work are €75,000 per year. In a particular year it collects 2,000 tonnes of glass, which it sells for €10 per tonne. Its net costs, for which glass packaging producers would be responsible, would be €55,000.

Where ownership of material passes from one entity to another (e.g. where a collector transfers material to a sorting provider), any payment from one entity to the other is unlikely to affect the total cost of the system, and will only be of relevance when determining the quantum of the extended producer responsibility payments each entity receives.

Example: A waste collector collects a mixed packaging stream at a typical gross cost of €40 per tonne. It sends material to a sorting facility, which charges the collector €20 per tonne. The sorting facility incurs costs of €50 per tonne then sells the sorted material at a basket price of €60 per tonne. The net costs of collection and sorting are $€40 + €50 - €60 = €30$ per tonne, which would be the costs to be borne by producers.

Where the collector or sorter has responsibility for selling the material, producers are entitled to expect them to pursue a *value maximising* approach to the sale of material – i.e. it is reasonable for producers to expect that collectors take steps to secure the maximum value they can from the sale of the material, even though the collector does not stand to benefit financially from the sale (since their net costs are covered). Reasonable value may be established by reference to data regarding the value of material (like the EUWID Packaging Markets report,⁵ or similar data collected at the

⁵ <https://www.euwid-packaging.com/>

Member State level), or could be established procedurally (i.e. by reference to the process that collectors must follow to obtain value for money, such as following an open tender process for sale of the material).

2.5 PRO Costs

In addition, producers should bear the reasonable and proportionate administrative costs of running any PROs that are established to perform functions on the producers' behalf. PROs should be transparent regarding the costs they incur in fulfilling their functions. The extent to which it is deemed appropriate for PROs to make and distribute profit is a matter for Member States, although given the primary objectives of EPR schemes, many PROs have historically been established on a not-for-profit basis, even in schemes with multiple competing PROs.

2.6 Observations on Costs

2.6.1 Capital Costs

There will in some cases be substantial capital costs associated with putting in place new services necessary to meet the targets. Typically, under contractual arrangements for waste collection, capital expenditures (and other costs of capital, such as interest) might be recovered over the lifetime of the asset. However, where the necessary service changes to meet the targets require substantial capital costs, and these cannot feasibly be met by other means, it may be reasonable for Member States to require producers to fund initial capital investments. In some cases, producers may choose to fund capital investments in order to ensure that adequate systems are put in place. However, where producers bear capital costs up front, Member States should ensure that they are not also charged capital contributions or depreciation during the lifetime of the resulting assets.

2.6.2 Overheads and Shared Costs

Where costs (e.g. overheads) are shared between elements of the collection system that are subject to producer responsibility and elements that are not, Member States should ensure that there is a reasonable process of apportionment in place to make sure that the costs passed on to producers are fair in respect of the material or waste stream being managed. The share of costs that is borne by producers should be reasonable and proportionate. A proportionate share of costs might be determined by reference to the weight or volume of the material that is collected (depending on which is the principal driver of costs) that falls within the remit of producer responsibility.

Collection systems will sometimes involve collecting materials, some of which are covered by EPR schemes and some of which are not. An example of this would be paper and card – some of which might be packaging, and some of which might be non-packaging in origin. Member States will need to put in place arrangements to determine the correct allocation of costs to producers in such circumstances.

2.6.3 Wider Costs

Member States may choose to expand the scope to include some costs not explicitly required to be covered under the Waste Framework Directive, such as the costs of managing material in residual waste or litter. Under Article 8 of Directive 2019/904, Member States are already required to apply extended producer responsibility for single use plastics explicitly to cover the costs of managing litter, and the costs of treating those single use plastic products that are discarded by users and collected through public mixed waste collection systems.

Where Member States choose to implement such measures, the costs of managing waste that is collected through the residual waste management or litter collection systems should be assessed using a similar approach to that described above in respect of collection for recycling.

2.6.4 Charges to Waste Holders

Many Member States have competitive markets for collections, especially of commercial municipal waste. In such systems, the person responsible for the material at the point when it becomes waste (the “holder” of the waste), rather than the business that placed it on the market (the producers), pays for the costs of its collection, treatment and disposal.

This approach offers a range of service provision for waste holders, who will individually contract with a waste collector. Competition between waste collectors also helps to control costs, although there are issues regarding the overall efficiency of such systems. However, such a system is unlikely to be compatible with the extended producer responsibility requirement that the full net costs of waste management should be met by the original producers of packaging and products that fall within scope, rather than paid by the waste holder.

If producers are to bear the costs, it will be difficult to maintain a competitive market for waste management services in respect of material covered by extended producer responsibility. Member States will therefore need to revisit waste management systems in which waste holders bear significant costs for this material. Possible alternative systems include:

- Giving municipalities responsibility for the collection of all relevant waste in their area, funded by producers;
- Arranging for periodic procurement of a collection contractor to undertake all of the collections of relevant waste in a defined geographical area (the “franchise” or “zoning” model used in some cities in the United States, such as Los Angeles), funded by producers; and
- Giving responsibility to PROs to make collection arrangements, whether directly, through municipalities, or via a contractor.

It may be appropriate to make different arrangements for household waste from those put in place for commercial and industrial waste. Member States can consider maintaining the current choice of collection providers, but requiring that the costs are

met by producers; however, this system is likely to lead to higher costs for producers than are necessary (see section 3.5.1).

Direct charging of waste holders can be a tool to encourage waste prevention and provide a financial incentive to recycle. It remains open to Member States to allow for charging for wastes not covered by extended producer responsibility (e.g. mixed residual waste, biowaste), which also tend to be streams where the waste holder has greater control over the volume of waste they produce. It would also be possible to apply financial incentives (e.g. taxes) in respect of the generation of wastes covered by producer responsibility, so long as the resulting income is not used to fund waste management activities that should be paid for by producers.

2.6.5 The Specific Example of Certain Current Schemes for Packaging Waste from Commercial and Industrial Sources

There are currently examples of producer responsibility schemes for commercial packaging where the waste holder pays the end of life costs, and the role of the scheme (and of the associated fees paid to the scheme) is very limited. In some cases, schemes provide some support to material prices to encourage recycling; in other schemes, funding is limited to the provision of evidence to demonstrate that material has been recycled. Such an approach would not appear – on its own – to fulfil the requirements placed on producers under Article 8a(4).

Article 8a(4) requires that producers meet the prescribed share of the net costs of the management of wastes that are subject to producer responsibility. Article 8a envisages that, in most cases, this will mean meeting the full net costs. However, where justified by the need to ensure proper waste management and the economic viability of the extended producer responsibility scheme, Member States can reduce the share borne by producers, so long as it does not fall below prescribed levels (see Section 3.2.1).

Any Member State establishing producer responsibility schemes pursuant to Article 8a must ensure that schemes (whether individually or – in cases where there are multiple schemes for a particular waste type – collectively) cover all aspects of the necessary costs of managing relevant waste from all sources that fall within the scope of the objectives and targets in the Directives, in line with this guidance.

Where schemes exist that fulfil only partially fulfil the requirements of the Article 8a (4), Member States can address this by:

- expanding the existing scheme, so that it ensures that producers cover (the requisite share of) the necessary costs; or
- supplementing the existing scheme with others so that, within the Member State's overall producer responsibility system, producers cover (the requisite share of) the necessary costs.

The resulting scheme or schemes should be designed in accordance with this guidance.

3.0 Necessary Costs

3.1 Introduction and Definition

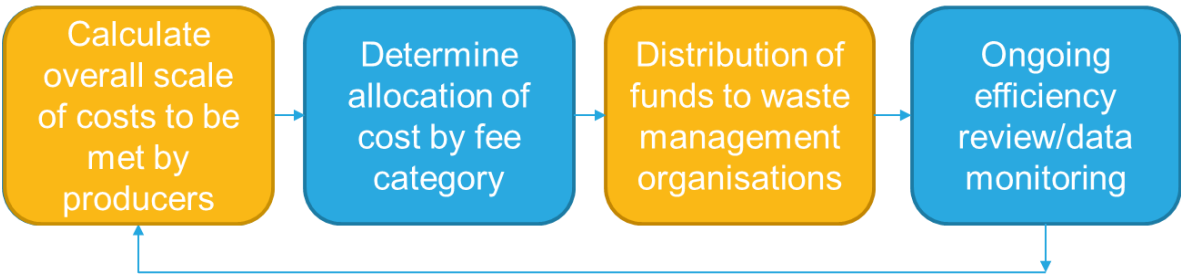
Having explained the scope of the costs that must be covered by producers in section 2.0, it remains to consider how to determine whether the costs borne by producers “do not exceed the costs that are necessary to provide waste management services in a cost-efficient way.” (Article 8a(4)(c)). Where they implement producer responsibility schemes, Member States are required to design them so as to ensure that the financial contributions paid by the producer of the product are sufficient to comply with the obligations of Article 8a(4) while not exceeding “the costs that are necessary” to do so.

“Necessary costs” may be understood as the net operational and management costs of a system for the handling – as a minimum – separately collected recyclable material, from collection through to the completion of the recycling operation, together with the costs of supporting activities such as communications and data acquisition and management. Such a system must be **adequate** to achieve relevant targets and **acceptable** to those who must use it.

Costs are only to be considered “necessary” if they relate to expenditures that:

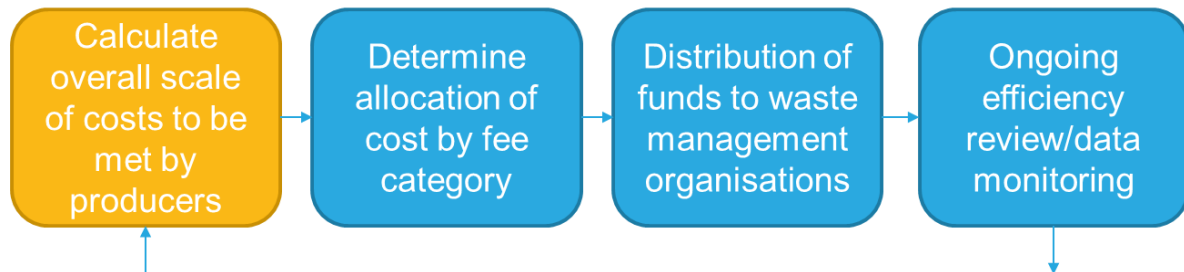
- are **attributable** to the delivery of the relevant services;
- reflect the delivery of a system which is **efficient** within the geography, housing types and demographics in whose context it operates;
- can be appropriately assigned to the products placed on the market by the producer;
- reflect a system that is **value maximising** as regards the costs of material management and the value obtained from the recyclable material; and
- are arrived at in a way that provides a reasonable level of **transparency**.

This guidance clarifies the practical meaning of the requirements of Article 8a(4), including providing analysis of the highlighted terms in the definition above. The guidance is likely to be relevant both in deciding what the overall level of costs borne by producers should be, and the level of payments that should be made to any particular waste operator from the waste EPR scheme.



3.2 Legal Basis and Application

This section examines the targets and obligations, compliance with which Member States must ensure that producers fund through extended producer responsibility schemes. Costs incurred in pursuit of these targets potentially fall within the scope of “necessary costs”. This will be relevant to the calculation of the overall scale of costs to be met by producers.



3.2.1 Source in Directives

At Article 8a(4)(a), the Directive explains the aspects of the waste management system that the financial contributions must cover. It requires that extended producer responsibility schemes cover the costs of actions “necessary to meet the Union waste management targets”.

While the concept of producer responsibility is well-established in EU law, the language of “necessary costs” is new. It refers to two related concepts of necessity.

- Article 8a(4)(a) states that the contributions required of producers must cover the costs of waste management activities “necessary to meet the Union waste management targets”; and “costs necessary to meet other targets and objectives” referred to in Article 8a(1). Referring back to Article 8a(1) these are the waste management targets set in:
 - Directive 2018/851 itself;
 - Directive 2008/98/EC (on waste)
 - Directive 94/62/EC (on packaging and packaging waste); and
 - other quantitative targets and/or qualitative objectives, set by individual Member States, that are considered relevant for the extended producer responsibility scheme.

While Article 8a(1) also mentions targets set by Directive 2000/53/EC, 2006/66/EC and 2012/19/EU, the requirements of Article 8a(4)a regarding cost coverage in EPR schemes do not apply to EPR schemes established under these three directives. This guidance therefore has limited application to these directives.

- Article 8a(4)(c) explains that Member States must ensure that the contributions required of producers:

“do not exceed the costs that are necessary to provide waste management services in a cost-efficient way. Such costs shall be established in a transparent way between the actors concerned.”

“Necessary costs” are therefore the costs of the waste management-related activities needed to meet certain targets and objectives, provided that those activities are shown to be undertaken cost-effectively.

Under normal circumstances, producers must meet the full necessary costs of meeting the relevant targets. However, Article 8a(4)(i) foresees that, where justified by the need to ensure proper waste management and the economic viability of the extended producer responsibility scheme, a Member State may depart from requiring the full costs to be met, provided that at least 80% of the necessary costs are covered by the EPR scheme and that the remaining costs are borne by original waste producers or distributors. In the case of extended producer responsibility schemes established before 4 July 2018 to attain waste management targets and objectives solely established in Member State legislation, Article 8a(4)(iii) requires only that the producers of products bear at least 50% of the necessary costs.

3.2.2 Applicable Targets and Objectives

As highlighted above, the costs that producers must meet are those necessary to meet certain targets and objectives. It is important to clarify which targets are referred to.

The first indent of Article 8a(4)(a) of the WFD requires Member States to ensure that the producer covers the necessary costs for the products that the producer puts on the market that relate to “separate collection of waste and its subsequent transport and treatment, including treatment necessary to meet the Union waste management targets, and costs necessary to meet other targets and objectives as referred to in point (b) of paragraph 1”.

Article 8a(1)(b) requires Member States to “set waste management targets, aiming to attain at least the quantitative targets relevant for the extended producer responsibility scheme as laid down in this Directive, Directive 94/62/EC, Directive 2000/53/EC, Directive 2006/66/EC and Directive 2012/19/EU of the European Parliament and of the Council, and set other quantitative targets and/or qualitative objectives that are considered relevant for the extended producer responsibility scheme”.

Article 8a(1)(b) makes a clear reference to the targets set out in Directive 2008/98/EC, which are for municipal waste and for construction and demolition waste. No EPR scheme has been proposed for construction and demolition waste, so this refers to the targets for municipal waste. Packaging is a major component of municipal waste, so the mandatory targets for municipal waste are of relevance to the EPR schemes on packaging. Therefore, when Member States set targets for the EPR schemes for packaging, they should ensure that those targets ensure that the contribution of the relevant packaging waste stream is sufficient, alongside appropriate contributions from non-packaging materials, to enable the municipal waste recycling targets to be met. In addition to the targets and objectives mentioned above, Directive (EU) 2019/904 on the

reduction of the impact of certain plastic products on the environment adds further relevant targets and objectives. Member States should ensure that the necessary costs of achieving these are met by the relevant EPR schemes. In so doing, the approaches described in the sections 3.3 and 3.4 may be applicable in providing broad guidance as to how cost-efficiency might be determined in respect of activities such as litter clean-up.

Further, in line with Article 8a(1)(b) of the WFD, Member States may set other relevant quantitative targets and/or qualitative objectives. Member States should ensure that the necessary costs of achieving these is met by the relevant EPR schemes. Member States must also ensure that the waste management systems that are put in place are consistent with the wider framework of waste legislation, including Article 4 of Directive 2008/98/EC (the waste hierarchy).

3.2.3 Application to Waste Streams

The recycling targets defined in Directive 2008/98/EC set a minimum level of recycling performance for municipal waste. In addition, Directive 94/62/EC sets minimum levels of recycling for different packaging streams. Member States must ensure that these targets are met at a national level.

In addition, the separate collection obligations laid down in Article 10(2) and (3) and Article 11(1) of the Directive 2008/98/EC must be complied with, notwithstanding the minimum recycling targets. As such and in accordance with Article 8a(4)(a), the cost of separate collection that must be covered by EPR schemes is distinct from the obligation to cover the costs of meeting targets. This is reflected in Article 7(4) of Directive 94/62/EC on packaging and packaging waste (PPWD), which refers only to Directive 2008/98/EC's Article 11(1) (concerning source separation) and not to Article 11(2) (concerning targets). The effect of this may be that, if the cost separate collection exceeds the cost of meeting the relevant targets, it is the cost of separate collection that defines the minimum necessary cost to be covered by producers under the scheme.

Under the directives, separate collection of packaging waste is required as a general rule, subject to limited derogations. The costs of this separate collection have to be covered by the EPR schemes in accordance with the first indent of Article 8a(4)(a).

Member States have some flexibility in designing their separate collection system so as to best fit local circumstances, and may make use of a range or combination of systems to achieve this, including door-to-door collections, bring banks, civic amenities sites. The resulting system must, though, result in waste being *de facto* separately collected. If a substantial amount of waste that is subject to separate collection obligations continues to enter the mixed waste stream, this is likely to call into question whether the separate collection obligations have been complied with.

However, in order to meet the targets (and/or the other objectives, whether set by the directives or by the Member State), it may in some cases be necessary for steps to be taken regarding the management of mixed, residual waste – for example, sorting of this material to extract recyclable packaging. Where this is the case, the costs of those waste

management operations have to be covered by producers, in accordance with Article 8a(4)(a).

Some Member States already include, under packaging schemes, some costs associated with dealing with unrecycled packaging (e.g. the costs of managing packaging when it enters the residual waste stream or are littered). Although Article 8a(4) does not require the inclusion of such costs, neither does it preclude their inclusion; indeed, their inclusion is encouraged by Article 14, which states that:

“Without prejudice to Articles 8 and 8a, Member States may decide that the costs of waste management are to be borne partly or wholly by the producer of the product from which the waste came and that the distributors of such product may share these costs.”

“The costs of waste management” in Article 14 are to be understood as including the costs of managing mixed waste streams.

3.2.4 Geographical Application

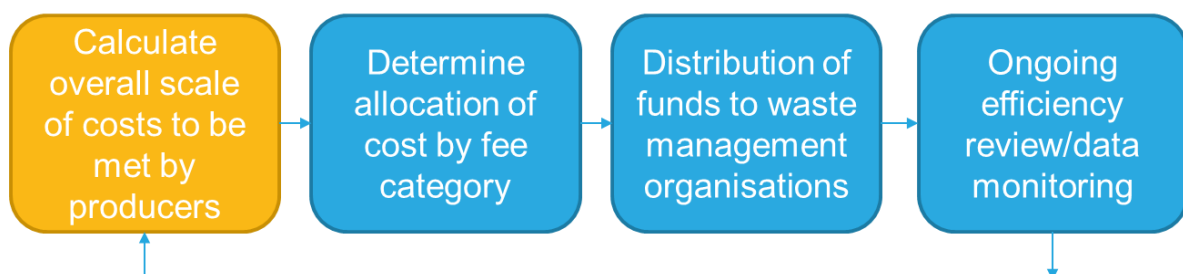
At a regional or local level, the application of the waste hierarchy and the obligations on separate collection may in some cases result in higher or lower recycling levels. However, Article 8a(3)(a) obliges Member States to ensure that any extended producer responsibility arrangement has

a clearly defined geographical, product and material coverage without limiting those areas to those where the collection and management of waste are the most profitable.

Recital 25 of Directive 2018/851/EU further clarifies that continuity of waste management services throughout the year has to be ensured, even if the targets and objectives are met. Therefore, any Member State’s extended producer responsibility arrangements must ensure that appropriate waste management services are put in place across the entirety of the Member State’s inhabited geographical area, to a sufficient standard to ensure that both the separate collection requirements and the relevant targets are met.

3.3 Approach to Determining Necessary Costs

This section relates principally to the calculation of the overall scale of costs to be met by producers.



Establishing the necessary costs of waste management within any particular Member State must achieve two goals in order to make extended producer responsibility schemes effective:

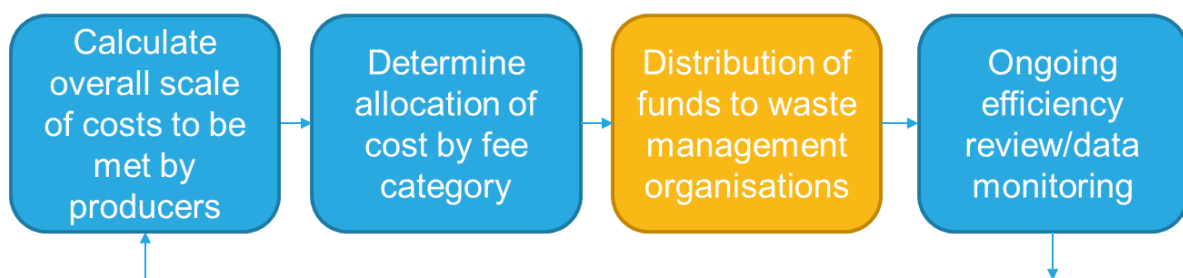
- The system must ensure that the correct total amount of financial contributions is gathered from producers to fully cover the net costs of managing their waste within the territory of the Member State (subject to the scope of the scheme in the relevant Member State), and that these costs are sufficient to support activities that deliver the targets described above; and
- The system must provide a method of allocating funds to waste collection and sorting operations, which will often be delivered by third parties such as municipalities and waste management companies, and others engaged in the transport, processing and treatment of waste.

There is discussion of the types of costs that should be included within the calculation in section 2.0.

It may be possible to estimate costs at a national level. However, any cost estimate should take account of variations in costs within the Member State – for example, population density may reduce costs in some areas relative to more sparsely populated areas, or labour costs may be greater in some parts of the country than others. As these differences can often be significant, there may be benefits in establishing costs at a local level, and building up a national assessment “from the bottom up”.

3.4 Approach to Distribution of Funds

This section relates principally to the distribution of funds to waste management organisations.



3.4.1 Overview

This section examines the approach Member States may wish to take regarding the implementation of systems to determine how funds gathered under producer responsibility schemes should be distributed to waste management organisations. Current producer responsibility schemes do not always distribute funds to collectors in a way that closely reflects the costs that they individually incur – particularly where funding is allocated by effectively adding a supplement to the price of recycled materials

(e.g. by adding €15 to the value of each tonne of relevant material that is sent for reprocessing).

Systems that do not allocate payments directly in line with the costs incurred by individual actors appear to be permissible under Article 8a(4). The language of Article 8a in general is concerned more with establishing the total costs that must be borne by producers, which must reflect the total necessary costs of managing waste so as to meet the targets. Nowhere does it specify that payments must be made in such a way as to match directly match the costs incurred by individual entities engaged in waste management. Indeed, the concept of “necessary costs” implies that some costs that may be incurred by entities undertaking waste management activities may be deemed “unnecessary” and therefore not to be funded by producers.

However, a system in which the payments received by those undertaking waste management activities are not closely aligned to the costs these entities incur is unlikely to be ideal as a means of supporting the delivery of adequate services, or as a way of ensuring that producers’ funds are spent in the most effective way to support Member States’ efforts to meet the targets.

Given the likely need in most Member States to increase expenditure on waste management in order to meet the waste management targets and achieve the separate collection requirements, it will be important that producer responsibility funds are allocated in a targeted way, while avoiding unnecessary complexity (and the attendant inefficiency this might bring). Inaccurate allocation is likely to lead to over- and under-funding of some services and could therefore lead to either amounts in excess of the necessary cost being funded, or to targets being missed due to the under-funding of services necessary to achieve the required performance.

It is unlikely, for example, that a system that allocates resources based on the tonnage of a particular material that is collected for recycling will achieve the required outcomes as the costs involved in achieving a particular level of recycling performance may well vary across the Member State. Such a system would be likely to over-allocate resources to areas of the Member State where the costs of collection (for example) are relatively low, or where members of the public adopt waste prevention and recycling behaviours with relatively low levels of expenditure on communications.

Member States should ensure that the method of allocating resources has regard to the actual service model operated by those engaged in undertaking waste management activities. However, it may be problematic to rely on the actual costs incurred by these entities.

- Collecting actual data on expenditures may be relatively costly and time-consuming, especially if it has to be done on an annual basis.
- Actual costs may need to be adjusted to reflect any issues around inefficiency or allocation of overheads between activities whose costs producers are responsible for bearing and other activities that fall outside the scope of producer responsibility.

One approach that Member States may wish to consider is to model the cost of the waste management activities that need to be carried out to handle the waste for which producers are responsible, using an evidence-based approach to allocate a reasonable proportion of any shared costs. Such modelling may in any case be necessary in order to establish the total costs to be covered by producers (see section 2.0).

Such a model would need to take account of relevant differences between the costs incurred by those engaged in waste management activities in different parts of the Member State:

- For waste collection activities, examples of factors that would need to be taken into account would include:
 - The collection method employed, which should be reasonable given the nature of the properties from which waste is to be collected;
 - The expected number and type of vehicles and staff required to undertake the collections, which would need to reflect the expected efficiency of collections, given the geography and housing type in the area covered;
 - Fuel costs, which may vary across the Member State;
 - The cost of the containers necessary to deliver the collection system;
 - Differences in local costs, especially for land (which affects depot costs) and labour; and
 - Any income from the sale of recyclable material that is retained by the collector.
- For transfer, sorting and treatment facilities:
 - Differences in the costs of land in different areas;
 - Differences in the costs of acquiring or maintaining equipment;
 - Differences in disposal costs; and
 - Differences in labour costs; and
 - Any income from the sale of recyclable material that is retained by the operator.

Member States may wish to develop standard models and assumptions suitable for the waste management systems that are commonly used within their territory. Alternatively, there are examples of models that have already been developed which could be procured and adapted for the purpose, including, (in the UK) WRAP's KAT model and (in Spain) the cost model developed by producer responsibility organisation ECOEMBES.

The factors that may influence the level of payments that are discussed further in the succeeding sections.

3.4.2 Factors

3.4.2.1 System Design

The design of a waste management system is a critical determinant of its cost. The design of the system in any particular case should be suitable to perform at a level that will deliver a level of recovery that:

- meets the specific waste stream recovery targets set out in the Directives; and
- contributes sufficiently to meeting the wider waste management targets, in line with the expectations of the Member State regarding how the overall targets will be met.

It must also comply with the Waste Framework Directive's requirements regarding the separate collection of materials for recycling.

It may also be reasonable for a Member State to require producers to fund services that are thought to be capable of exceeding the targets, rather than just to barely meet them, in order to minimise the risk that the targets are not in the end achieved and to contribute as necessary to meeting wider Union targets, such as those in respect of municipal waste recycling.

3.4.2.2 Geographical Differences

A Member State (preferably, in discussion with producers and waste management organisations) may take the view that it is reasonable to expect some regions to achieve higher recycling rates than others (e.g. due to differences in demographics or housing stock). However, Member States should bear in mind the requirement of Article 8a(3)(a) that producers should not limit the geographical scope of their responsibility to areas "where the collection and management of waste are the most profitable".

Producers should be required to contribute resources on the basis that they will provide for *adequate* collection systems in each area of the Member State. Aside from the derogations allowed under Article 10 of the WFD, the requirements for separate collection apply to the whole of each Member State; and the wider targets will generally require high performance to be achieved across the Member State. Although it is acknowledged that performance will vary between areas, it should be the expectation that an adequate service is provided across each Member State, rather than, for example, only where this is cheapest to provide.

The design of collection system should take account of local circumstances, and be reasonably convenient for citizens to use. Collection systems should be *acceptable* in terms of societal and industry norms in the Member State, not just to producers.

Making collection systems *adequate* and *acceptable* may necessitate greater costs being incurred to provide services in some locations than in others. For example, where it is impractical for households to store multiple, large containers at home, it may be necessary to collect material more frequently. Where citizens are difficult to engage in recycling due to particularly diverse or transient populations, there may be a need for more expenditure on communication, perhaps even including door-to-door visits to advise citizens regarding how to use the collection system correctly. These additional costs should be reflected in the approach to the distribution of funds, so as to ensure that services in all parts of the Member State are adequately funded.

Where additional costs have to be incurred in order to meet the local share of targets, these costs should be recognised to be necessary in order to achieve the targets. Service design should be reviewed periodically, especially where the expected level of

performance is not being achieved. Such a review may result in a decision that the service model needs to be revised, or that or additional training, support or communications are required in order to enable the targets to be met. The costs of such additional effort should be considered ‘necessary costs’.

3.4.2.3 Consistency

Several Member States have introduced a mandatory or voluntary minimum level of collection service that citizens can expect, or have specified a preferred design for collection systems. Member States may wish to consider whether, in their case, standardisation of this type would help to:

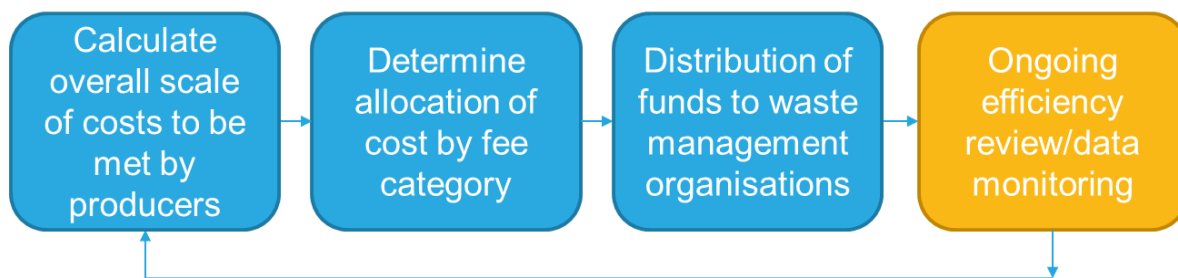
- avoid each individual municipality having to individually research, assess and decide upon the design of its services;
- ensure that residents of all municipalities receive an adequate level of service;
- avoid disagreements with producers over the design of the service appropriate to a particular municipality;
- avoid disagreements over the correct balance between source separation and subsequent sorting, thereby helping to simplify and standardise infrastructure needs; and
- facilitate communication regarding recycling at a national (or even European) level.

Adoption of a preferred service model may be a reasonable requirement, and the costs of delivering that service model may be considered ‘necessary’, even where it may not be the cheapest possible way to achieve the required targets within a particular municipality.

Member States may also wish to issue research-based guidance on the collection systems that are likely to be most effective, having regard to the different circumstances that may apply in different geographical areas. The analysis behind this guidance may also inform the design of the modelling that helps to determine the appropriate financial contributions and allocations of funds between waste management organisations.

3.5 Efficient Service Delivery

One of the most complex issues to determine in respect of ‘necessary costs’ is likely to be whether or not a particular service is adequately *efficient* – or put another way, whether the actual costs of a waste management service that is being delivered exceed the resource costs that are strictly necessary to deliver the specified service. This section relates principally to the process of ongoing efficiency review and data monitoring, which in turn informs the overall scale of costs that producers may need to meet in subsequent time periods.



The question of efficiency can arise with respect to operational aspects of the system, supporting services and overhead costs – and with respect to the activities of PROs.

Efficiency is an important consideration, both in establishing the overall amount that producers must pay into the system, and in deciding how much each collector should receive. Producers should only be required to meet the costs of a system that is reasonably efficient; waste management organisations should expect only to receive payments that meet their costs in full if they run efficient services.

However, where demonstrating efficiency creates additional costs for PROs or the parties undertaking waste management operations, these costs might reasonably be considered to be part of the costs that are “necessary to provide waste management services in a cost-efficient way”, and therefore within scope of EPR. Activities undertaken to establish and improve efficiency are part of the necessary costs of delivering an effective waste management system. It is therefore reasonable for Member States to expect producers to support collectors and sorters to increase their efficiency. However, different Member States may wish to set their own priorities and processes to reflect their specific circumstances, and variation in roles and responsibilities for their systems.

It is perhaps useful to distinguish between two forms of efficiency:

- **Systematic efficiency:** Is a waste management system one whose design is, in general, capable of delivering the services necessary to achieve the required level of performance at a reasonable cost?
- **Local efficiency:** Has the system operated in a particular location been implemented in a way that avoids costs that exceed what is necessary in order to provide waste management services in a cost-efficient way?

These are discussed further below.

3.5.1 Systematic Efficiency

Member States should seek to ensure that the waste management system (or systems) that are adopted within its territory are suitable to deliver the necessary level of performance to meet the targets at a cost that is reasonable.

3.5.1.1 Service Models

As discussed in section 3.4.2.3, one approach to demonstrating systematic efficiency would be to undertake national or regional level analysis to establish the most efficient collection model. Such work may establish that some areas (e.g. dense urban areas, very rural areas) may have different requirements from others, and it will then be a matter

for Member States to determine whether, on balance, it is better to implement uniform services or to allow variations that help to improve cost effectiveness.

For example, following the Welsh Government's introduction of a national waste plan with a 70% recycling target for household waste, it decided to assist municipalities by assessing which collection system was likely to enable compliance with the target to be achieved in such a way as to optimise cost and environmental impact/benefit, including quality of recycling. As part of that process, a detailed options appraisal, and associated modelling, was undertaken to support the development of a 'collections blueprint' for Wales, which recommended the use of highly source separated, door-to-door collections. The effectiveness of the 'blueprint' has recently been positively reviewed.⁶

3.5.1.2 Local Government Structure

In some cases, especially where a Member State has a large number of municipalities with local responsibility for designing and operating waste collection services, it may be argued that there is an inherent inefficiency built into the system. Where many municipalities have a small population, this limits opportunities for economies of scale and could create challenges for coordination.

Where such issues arise, Member States may wish to consider whether there is scope to encourage greater co-ordination between municipalities in order to make decisions about waste management at a more appropriate level, and to reduce costs for producers. There are numerous examples of partnerships between small municipalities to help improve services for citizens, to facilitate investment and allow for pooling of expertise, without the need for any formal change in administrative structures.

In general, making use of established municipal waste collection systems and infrastructure will typically be a relatively cost-effective option for producers; however, where the structure of municipalities obviates this advantage, it is open to producers to explore whether lower costs would be incurred if producers were to establish their own waste management structures, separately from the municipal system.

3.5.1.3 Competing Collectors

As discussed in section 2.6.4, many Member States have competitive markets for collections of municipal waste, especially from commercial and industrial sources. Because such systems rely on price competition, they may be difficult to maintain in their current form in a model where producers meet (the majority of) the costs of waste management.

To minimise disruption, Member States may consider it desirable to maintain the current system of multiple collectors, but have producers meet the costs. However, it is unlikely

⁶ Eunomia Research & Consulting (2016) *Review of the Welsh Government Collections Blueprint*, Report for Welsh Government, March 2016, <http://gov.wales/docs/desh/publications/160322-review-of-welsh-government-collections-blueprint-technical-report-en.pdf>

that the overall provision of collection services in this arrangement (which involves several waste collectors operating fleets of vehicles in parallel with one another, each collecting only a small proportion of the bins) is as efficient in logistical terms as one where a single entity undertakes the collection of all such waste (potentially alongside the collection of household waste).

It is thus questionable whether such a system can be said to be systematically efficient, and it could therefore lead to producers bearing costs that exceed “the costs that are necessary to provide waste management services in a cost-efficient way”. Member States should therefore consider adopting one of the alternative models for waste collection mentioned in section 2.6.4, such as entrusting collections to municipalities or procuring an exclusive contractor to undertake collections in a particular geographical zone.

3.5.1.4 Treatment and Infrastructure

Many types of waste infrastructure will have an optimum range of scale at which it is most efficient. This scale can be difficult to achieve when the quantity of waste controlled by any one entity (whether a municipality, a private company or a PRO) is too small. This can deter necessary investments that would, if made, improve recycling performance and/or reduce costs.

When designing their approach to EPR, Member States should consider how decisions regarding the procurement of new infrastructure will be made, and where responsibility for such decisions will lie – although ultimately the necessary costs will be borne by producers. Such decisions could be made at a national or regional level, in response to a waste management plan. If left to producers and PROs to decide, the design of the EPR scheme will need to provide for sufficient scale and/or co-ordination to enable long-term investments to be made.

3.5.1.5 Governance and transparency

A possible way to ensure that costs do not exceed necessary levels – whether for a monopoly PRO or within a competitive system – is to put in place governance arrangements that give producers assurance. This may involve:

- Clear reporting requirements on costs incurred and outcomes achieved;
- Board representation for producers;
- Alignment between the PRO’s interests and those of producers;
- Clear constitutional documents and terms of reference; and
- External, independent audits of activity and outcomes.

3.5.2 Local Efficiency

There are a number of ways in which local efficiency could be established within a particular Member State. Member States should consider all reasonable means of establishing local efficiency; and it is not the intention of the Directives to require any particular method of establishing local efficiency to be adopted. Different methods of demonstrating local efficiency may be appropriate to different parts of the waste

management system in a Member State – for example, collection services might be benchmarked, while sorting services are competitively tendered.

3.5.2.1 Competition

Competition is one method of establishing that local services are being run at the lowest achievable cost. However, there is no obligation on Member States to – for example – consider putting publicly run waste collection services out to competitive tender. Where Member States have decided that such decisions should be a matter for municipalities, the Directive does not give rise to any obligation to change. Nor do the Directives require that there should be competition between PROs, if Member States can find alternative means to demonstrate that a monopoly PRO is a more cost-efficient arrangement, both at the point at which the Member State’s producer responsibility is established, and on an ongoing basis.

Subjecting collection and treatment services to regular competitive tenders would be a way for Member States to provide producers with assurance that the costs are reasonable. However, competition needs to be carried out in ways that enable the necessary investments to be made. Where services are tendered that necessitate capital investments, contracts should be of sufficient length to allow those investments to be recovered efficiently, as otherwise the consequence can be either inadequate investment, or excessive cost being incurred due to assets being amortised unnecessarily quickly.

As discussed in section 3.5.1.3, competition between different waste collectors operating within a single geographical area brings inherent inefficiencies. In markets where such competition has hitherto been the norm, the benefits of competition can be achieved by arranging competitive tenders, looking at both price and quality of service, for all collections in a particular geography. In order to allow opportunities for SMEs to compete, and to ensure the continuing potential for competition in second and subsequent tender processes, Member States should consider designing any such tenders with a mixture of small and large geographies, and/or setting a maximum market share that any one contractor may hold. Tenders should also take account of issues such as the number of collection locations necessary to allow for efficient service delivery and the accessibility of infrastructure such as depots, transfer stations and treatment facilities.

Where competition is employed, in order to maximise the confidence that it can engender, Member States may wish to provide public authorities with guidelines on successfully procuring waste management services, including with respect to performance and efficiency mechanisms that can be included within contracts and procurement processes. Alternatively, guidance might be provided on how to allow the relevant PRO(s) to play a role in overseeing the tendering process.

Competition need not be limited to collection, treatment and material sales, but can also take place between PROs. However, the administrative costs of PROs represent a relatively small share of the overall system costs. Consequently, provided that the commissioning of the operational services (collection, sorting etc.) is carried out in a way

that ensures efficiency, competition between PROs should have a relatively limited scope *in itself* to affect producers' fees. Competition is therefore likely to have the most beneficial effect where it is employed in the commissioning of operational services.

However, where competition between PROs is used, care is necessary to ensure that it does not effectively incentivise PROs to under-fund waste management or undermine the implementation of fee modulation. As explained in Section 4.2.11, where there are competing PROs, it is important that at a Member State level the magnitude of fee modulation for a given product or packaging format is set centrally in absolute terms. This will ensure a consistent incentive for change across competing PROs, and will mean that the different schemes can still compete on the base of fee price and levels of service.

Where there is competition between PROs, there will need to be sufficient transparency to enable producers to determine that the scheme they join will enable them to discharge their responsibilities, and to enable Member States to monitor their performance.

This could be achieved through:

- 1) The market for compliance being regulated in such a way that the fee structures of competing schemes are transparent, allowing producers to make informed decisions regarding switching; and
- 2) Clear auditing of reported levels of compliance, with the reporting of recycling required to take place at the point where material enters the recycling operation (with mechanisms in place to ensure that where materials are exported for recycling, the same level of reporting is required, or the reporting does not favour exports);

Another important consideration is the risk that competition results in PROs that are not sufficiently large, or that lack the necessary financial security, to make capital investments to improve performance. A PRO that invests in, for example, a new plastics sorting facility may incur costs that force it to raise its fees, resulting in a loss of market share. Member States should consider how infrastructure investments will be funded, and any need for co-ordination between competing PROs within such a model. This might include some combination of a limitation on the number of competing PROs, centralised coordination of infrastructure investment between PROs or the operation of a strategic fund into which all PROs contribute.

3.5.2.2 Benchmarking

In some circumstances, as a matter of policy or practicality, the test of competition may not be available or desirable. The key alternative (or supplement) to procurement is to benchmark the cost of the service for a given waste management activity, to ensure that the local costs are not significantly in excess of expectations. Member States could consider a number of approaches to benchmarking, and much of the necessary information is likely to have been gathered in the course of the development of the type of service model discussed in section 3.4.1:

- Costs could be compared against those of other similar entities, on a per household, per capita or per tonne collected basis, taking into account factors likely to lead to variation in costs, such as the type of service or the area's rurality. If the costs were, for example, outside an acceptable variance or in the upper quartile of the comparison services, the activity may be subject to a more detailed process to demonstrate why the costs were above the norm – or expect not to receive the full costs.
- It may not be necessary to seek to achieve a precise evaluation of the costs, but to ensure the costs are not outside the normal range, once any specific local considerations (e.g. local wage costs, capital costs, local geography, housing stock and waste composition) are taken into account.
- Member States could implement standards with the goal of normalising levels of productivity, giving producers assurance that, so long as the service was meeting a standard or a due process had been carried out by the municipality, the 'necessary costs' test had been met.

Benchmarking relies on the availability of data. There would need to be some level of transparency of accounting for service costs required at the national level to ensure the information were available to make the comparisons. This could be in the form of a national indicator on waste collection service costs, or a nationally approved system for financial reporting.

3.5.2.3 Efficiency Reviews

A further method by which Member States could contribute to local efficiency would be to require public authorities to undertake regular efficiency reviews. These can range from more strategic reviews, focusing on benchmarking and analysis of productivity against performance indicators, to more in-depth approaches such as the use of process engineering techniques (e.g. work-time studies).

Member States could define a consistent method by which public authorities should collect data on the costs and performance of their waste management services. With such data, it may be possible to develop productivity indicators or metrics to aid producers in identifying services that are inefficient and so deliver above 'necessary costs'. Examples might include:

- the number of collections carried out per hour,
- the tonnage of material collected or processed per hour,
- the cost to collect and/or process an average range of recyclables.

However, such metrics may be challenging to develop, and potentially shade into a benchmarking approach.

The Welsh Government has supported municipalities to apply a business planning toolkit to analyse their likely collection performance and costs under a variety of scenarios. The business planning process included a strategic self-assessment and efficiency review to establish opportunities for improvement; it included an options appraisal and cost-benefit analysis to examine the environmental and economic benefits resulting from

various collection models; and resulted in the development of a business plan. This process was designed to ensure that each authority adopted a waste management system that was likely to be *adequate* – and to deliver *systematic efficiency*. It also assisted in improving *local efficiency*.

3.5.2.4 Output Monitoring

One aspect of efficiency is that the system produces the expected recycling outputs from the expenditures incurred. All waste management activities that are funded through EPR should produce output data on performance that can be monitored by Member States and producers.

EPR schemes may wish to include financial incentives to encourage high performance, but such incentives should be designed so as to recognise relevant differences in circumstances that may affect performance. Performance incentives should be an additional cost to producers, rather than being funded through (in effect) a transfer of resources from less well performing organisations to better performing ones.

3.5.3 Transparency and Engagement

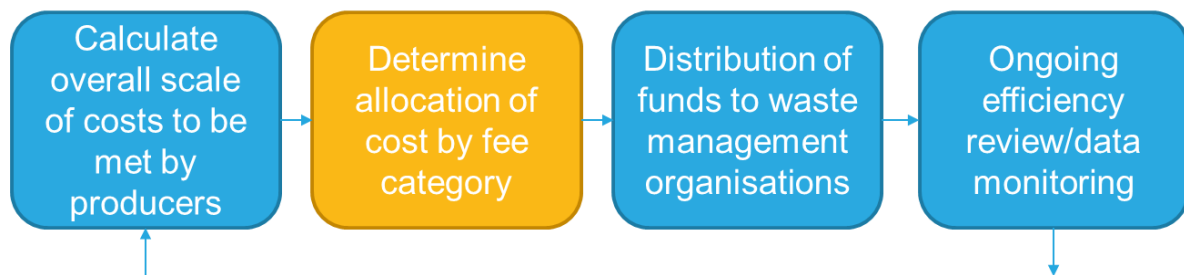
Because producers are responsible for ensuring that the targets are met, and for funding services necessary to achieve this goal, they have a reasonable expectation that public authorities that receive funding will provide transparency regarding their costs and performance. This is an important part of developing a partnership between producers and municipalities. The nature of the transparency required may evolve over time, but Member States should ensure that public authorities are expected to:

- Involve producers (or their representatives) in the design of services (especially where service design has not been specified at a national level);
- Involve producers (or their representatives) in the design of service procurements;
- Support benchmarking and provide assurance regarding value for money by submitting data – perhaps annually – regarding the costs and performance of their service either to PROs or to national government. Member States should develop a consistent format for such reporting so as to facilitate comparisons.
- Co-operate with necessary surveys and other studies that PROs may find it necessary to commission; and

Where Producer Responsibility Organisations are used, they also need to offer a high level of transparency, both to their funders and other stakeholders, regarding the costs they incur and how the funding they received is utilised. PROs should prepare annual, independently audited financial statements and might usefully be made subject to environmental information rules to ensure that they are as open as possible.

4.0 Fee Modulation

This section relates to the determination of the allocation of costs by fee category.



4.1 Introduction

This section provides guidance for Member States on the application of fee modulation as per Article 8a(4) of the amended Directive 2008/98/EC, amendments having been introduced by Directive 2018/851.⁷

Article 8a(4) of Directive 2008/98/EC states that:

Member States shall take the necessary measures to ensure that the financial contributions paid by the producer of the product to comply with its extended producer obligations:

(b) in the case of collective fulfilment of extended producer responsibility obligations, are modulated, where possible, for individual products, or groups of products, notably by taking into account their durability, reparability, re-usability and recyclability and the presence of hazardous substances, thereby taking a life-cycle approach and aligned with the requirements set by relevant Union law, and where available, based on harmonised criteria in order to ensure a smooth functioning of the internal market;

It is important to note that this provision only applies in the case of *collective* fulfilment of EPR obligations, and not where responsibilities are fulfilled individually.

4.2 Overarching Principles for Fee Modulation

In the sections that follow a number of over-arching general principles applicable to fee modulation are presented.

⁷ European Parliament and the Council of the European Union (2018) Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on Waste, 2018/851

4.2.1 Harmonisation

Fee modulation criteria across Member States should be harmonised.⁸ This is important not only to ensure the smooth functioning of the internal market, but also to maximise the potential for positive environmental change. All else being equal, the magnitude of the shift achieved by a certain level of fee modulation will be greater if it is replicated consistently across many - or better still all - Member States. The application of a consistent signal using harmonised criteria will give a much stronger, and indeed clearer, incentive for producers to, for example, change their packaging design, than if different criteria were applied across Member States.

In addition, Member States should work towards harmonisation of reporting formats and frequencies, and of fee categories as this will have the effect of:

- Improving data;
- Reducing administrative burden; and
- Increasing the potential for identifying and thus tackling free-riding.

In the absence of an implementing act, there is a key role to be played through Member State collaboration to seek the greatest possible level of harmonisation.

4.2.2 Appropriate Criteria

It is important to note the following points:

- It is not necessary to apply *all* of the criteria mentioned in Article 8a(4)(b) within an EPR scheme. For example, some criteria such as durability and reparability are less relevant for packaging than reusability and recyclability. For EEE, reparability and durability are more relevant;
- Article 8a(4)(b) does not exclude the possibility of applying other criteria, beyond those mentioned;
- As a general principle, it is better to focus a policy instrument on doing one thing well, than on seeking to achieve multiple objectives.

4.2.3 The Role of Other Policy Measures

Fee modulation within EPR schemes is just one of a number of policy tools that may be used to achieve specific objectives. It's important to consider the extent of change that modulation can bring about given the specific criteria to be applied, and whether other tools would be likely to bring about greater change in a more efficient way. For example, to dissuade the use of specific single-use packaging items and thus promote uptake of reusable alternatives, providing a *consumer-facing* incentive at the point of sale, such as a tax, levy or charge, can provide a stronger and more direct incentive for change than to provide a *producer-facing* incentive through fee modulation.

⁸ To ensure harmonisation, the option of an implementing act could be used if guidance alone does not bring about sufficient consistency of approach across Member States

Whether fee modulation is the most appropriate tool will depend on a number of factors, such as:

- The magnitude of the fee relative to the cost of the product or packaging that is subject to modulation. If the fee is very small relative to the cost of the product or packaging, other tools such as taxation may be better able to provide a stronger financial incentive, or indeed regulations such as product/packaging standards or eco-design requirements may be more suitable. Of relevance here is the way in which the fee modulation might be expected to drive change - be it:
 - Through providing a direct financial incentive that is itself sufficient to drive change by the producer; or
 - Through providing a signal - perhaps to the ultimate consumer, that the item they are purchasing incurs a malus, or a bonus - that seeks to influence their purchasing decisions, and thus drive change in the producer's design choices?
- The extent to which the fee modulation (and this will depend on the criteria selected) will provide a signal for change across the whole market, or whether it will be of relevance only to a few specific applications.
 - In general terms, where fee modulation according to a specific criteria provides a widespread consistent signal across the entire market, it can be considered an appropriate application.
 - Where fee modulation according to a specific criteria has a more limited relevance to only sections of the market, other more targeted instruments may be more suitable; and
- Where modulation according to a number of different criteria is being considered, some criteria will, for reasons stated above, be more appropriate than others. Given the general principle that is better to focus a policy instrument on doing one thing well, than on seeking to achieve multiple objectives, where there are several possible criteria, consideration should be given as to whether the 'less appropriate' criteria (in line with the points made above) can be met through other policy instruments.

Account should also be taken of existing regulatory interventions, and any anticipated future changes to these, such as improved product standards. This is to ensure that fee modulation is consistent with and supportive of other relevant regulations (e.g. through referencing Eco-label criteria as a possible basis for modulation), and that the incentives provided by fee modulation do not get 'overtaken' by, for example, minimum product standards.

4.2.4 Ensuring Cost Recovery

As described in Section 3.0 Article 8a(4) states that such financial contributions:

(c) do not exceed the costs that are necessary to provide waste management services in a cost-efficient way. Such costs shall be established in a transparent way between the actors concerned.

Article 8a(4)(c) is addressed in detail in Section 3.0 of this guidance on the subject of necessary costs. However, in respect of fee modulation, it is important to clarify that Article 8a(4)(c) does **not** mean that producers of a product, or an item of packaging, can only be presented with fees that reflect the net end-of-life management costs of managing that specific product, or item of packaging. To be limited in such a way would effectively mean that modulation of fees would not be possible.

Within the constraint of cost coverage for EPR schemes as a whole (in that the overall quantum of fees raised should cover overall costs), and to the extent that fees accurately reflect the end-of-life costs of specific products or items of packaging, if modulation is to take place, the fees for some products or items of packaging will, of necessity, be less than the actual net costs associated with their management. For others, accordingly, the fees will be greater than the actual net costs associated with their management.

This then raises a challenge of how to ensure costs are indeed covered.

If the levels of **both** the *bonus* and the *malus* are fixed, and fee modulation encourages a greater- or lesser- than anticipated shift towards formats that pay less than their true cost, revenue instability may result.

To remove the risk of revenue instability, it is recommended that the level of the malus only be set, and the proceeds of the malus distributed to those formats eligible for a bonus. Accordingly, all producers will know in advance what is required to achieve a bonus, but they won't know the level of the bonus they will receive.

A variant of this is to fix the size of the bonus, and then adjust the malus accordingly. This approach may well have a stronger incentive effect in that the size of the malus faced by an individual producer will be greater if most, or all, other producers shift their design. There will therefore be a strong desire to not be one of the last producers to move away from a packaging format or product design that incurs a malus, as the size of the penalty could be significant.

4.2.5 Better Reflecting Net Costs through the Fee Structure

A basic principle in the fee structure is that it should be fair, with higher per tonne fees for formats which cost more to recycle. A move away from a flat fee structure, to one that is more granular in nature, with different categories for different formats, is required. It is worth noting that greater granularity in fee structure is something that is sought by brands that are making efforts to increase the recyclability of their packaging. Quite understandably, they want their efforts to be reflected in the fees that they pay, rather than see their formats cross-subsidize the management of packaging from competitors who have not made the effort to change their packaging design.

While illustrated here with reference to packaging, this principle, of seeking to better represent net costs in the base fee structure (i.e. prior to any explicit fee modulation) holds true more generally.

4.2.6 Evidential Basis for Modulation

An important issue relates to the nature of the evidence provided by producers to demonstrate their liabilities under fee modulation. In order to minimise administrative burden, and to provide clarity, it is preferable to use readily verifiable characteristics. An example, with reference to packaging, would be adherence to the design for recyclability criteria as shown in Table 4-1 and Table 4-2.

It is thus worth seeking to avoid modulating on a criteria for which the provision of evidence is unduly burdensome, or indeed the evidence itself is of a nature that is readily open to challenge.

4.2.7 Determining the Magnitude of the Modulation

An objective basis is required for determining the initial magnitude of the fee modulation to be applied. To a large extent this depends upon the subject of the EPR fee, and the magnitude of the cost of the packaging or product relative to the scale of the base fee. For packaging, the base fee is likely to be closer to the cost of the packaging than is likely to be the case for some high value electronic items, or indeed batteries. This relative scale matters, as it raises the question as to the way in which the fee modulation might drive change – is it:

- a) Through providing a direct financial incentive that is itself sufficient to drive change by the producer; or
- b) Through providing a signal – perhaps to the ultimate consumer, that the item they are purchasing incurs a malus, or a bonus – that seeks to influence their purchasing decisions, and thus drive change in the producer’s design choices?

Determining the starting point for the initial magnitude of the modulation involves consideration of the scale of change desired, and of the likely response from producers to different levels of fee modulation. However, expected responses may differ from actual responses, and determining, and adjusting, the magnitude of the fee modulation, will of necessity be an iterative process, with greater knowledge being gained over time.

Another consideration in respect of the magnitude of the modulation is the effect on investment on collection, sorting and recycling infrastructure for the product or packaging. Account should thus be taken of the effects on producers over a period of time to consider the present value financial impacts of a ‘no change’ scenario, where they simply pay the high modulated fees, against a scenario one where they incur the costs involved in new infrastructure and benefit from the lower fee.

If the modulated element is set too low, then the scope for a producer to save money on modulated fees through increasing investment in recycling may be limited since the effect of modulation is weak. This is an important consideration in assessing the ‘right’ level of fee modulation.

4.2.8 Transparency and Consultation

The question of transparency relates in large part to the issue of the evidential basis for modulation, which as discussed in Section 4.2.6 should be readily verifiable, and serve to minimise administrative burden.

In respect of consultation, producers should be consulted on the extent of the incentive required to drive a shift behaviour (see Section 4.2.7), be it in packaging design, or product design, depending on the subject of the EPR scheme, but they should not be the ones to set the level of the fee modulation. That should be determined by the EPR scheme (or Central Register in the case where competitive schemes are in place) working in conjunction with the Member State authorities as appropriate.

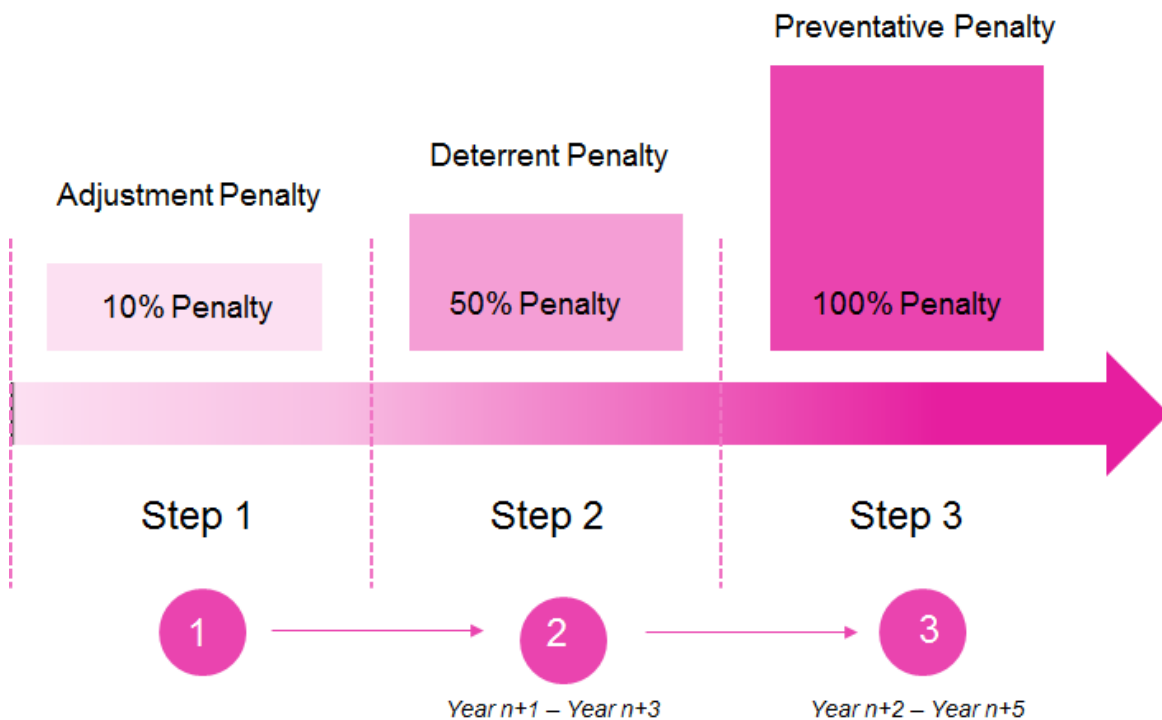
Transparency and consultation also involves giving a clear steer to producers as to the future direction of change in respect of the magnitude of fee modulation (including if focusing on a specific format/item type). Giving notice, or at least an approximate indication, of the financial costs that producers will incur in future years – perhaps 3 to 5 years hence – if they do not alter their design will give a much stronger incentive to change than if doubts exist as to whether the incentive will endure beyond the year.

An example of this is to be found in the French EPR scheme for packaging. Citeo has established the principle of a continuous, and increasing, penalty.⁹ The rationale for doing so is to give a more fulsome 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.

Under Citeo's approach any new criteria which means a penalty is incurred would see the penalty being 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 4-1.

⁹ Citeo & Adelphe (2019) Proposition de Citeo et Adelphe pour l'ecomodulation du tarif 2020, 29 May 2019

Figure 4-1: A Continuous and Increasing Penalty



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%.

4.2.9 Encouraging Innovation

Fee modulation should not be used as a means to discourage innovation – indeed it should act as a spur to innovation in packaging and product design. Transparency over the criteria applied, and clear visibility of the future direction of fee modulation will make it easier for designers to understand how best to configure novel products or packaging.

4.2.10 Ensuring Periodic Review

Relating to both the magnitude of the modulation (Section 4.2.7) and transparency and consultation (Section 4.2.8) modulated fee levels should be reviewed periodically and adjusted as appropriate, while giving producers adequate notice of both shorter term changes, and longer term ‘direction of travel’ as emphasised in Section 4.2.8.

4.2.11 Accounting for Competing Schemes

Where there are competing PROs, it is important that at a Member State level the magnitude of fee modulation for a given product or packaging format is set centrally (e.g. by the central register) in absolute terms, i.e. the extent of the ‘bonus’ or ‘malus’ is

set as an absolute monetary amount, rather than a % above or below the base fee for the packaging or product type. This will ensure that competing schemes do not compete on the modulation element, but just on the 'base fee'. It should not be for the competing schemes to individually determine the magnitude of modulation to apply.

This will ensure a consistent incentive for change across competing PROs, and will mean that the different schemes can still compete on the base of fee price and levels of service.

4.2.12 Co-operation between Member States

As discussed in Section 4.2.1, a key principle is to seek to ensure harmonisation in the criteria applied in respect of fee modulation across Member States. Harmonised criteria should mean that while the *magnitude* of the modulation (relative to a base fee) might vary between different Member States, at least the *direction* of the modulation would be consistent.

However, it's important to recognise that, given the extent to which products and packaging are designed for use in multiple markets (including outside of the EU), the extent of the change in design brought about through fee modulation will likely depend on:

- a) The magnitude of the financial incentive provided by the fee modulation; and
- b) The scale of implementation relative to the size of the overall market for which the specific product or packaging is produced.

If all Member States were to co-ordinate, and modulate strongly (and at the same time) on the same aspect of packaging or a product, this would provide an emphatic and consistent signal which would be more likely to lead to a larger scale shift in design. Further co-ordination on both the announcement in advance of any such move, and providing a clear view to producers as to the way in which fees might increase further in subsequent years, as described in Section 4.2.8, will both assist producers in preparing for the change, and maximise the impacts of modulation.

4.2.13 A Note on Individual Producer Responsibility

In some instances, producers will discharge their end-of-life obligations themselves. While this might mean that the costs they pay reasonably approximate the true cost of end-of-life treatment (see Section 4.2.5), it will not necessarily equate to the costs faced by those under collective schemes where fee modulation is in place. For example, the products or packaging placed on the market by the producer discharging their responsibility individually might, under a collective scheme, incur a 'malus'. If they are not paying this malus, and competitors are, this would arguably give them an unfair advantage.

There are a number of possible ways of dealing with such an issue – and the merits of taking action would have to be weighed up against the associated cost of taking action, the size of the market outside of collective schemes, and the risk of further migrating from collective schemes. Such approaches include:

- 1) Requiring all producers to join a collective scheme;
- 2) In the case where there is a single PRO, requiring the producer(s) outside of the scheme to pay the required bonus or malus to the scheme; or
- 3) In the case where there are competing schemes, requiring the producer(s) outside of the scheme to pay the required bonus or malus to the central authority that sets the modulated fees and acts as a clearing house.

4.3 Packaging

This section is laid out as follows:

- Section 4.3.1 provides a summary of the characteristics of existing practices and current plans in respect of fee modulation among EPR schemes for packaging;
- Section 4.3.2 considers the relative merits of possible criteria for modulation of fees for packaging; and
- Section 4.3.3 presents recommendations for implementation of fee modulation for packaging.

4.3.1 Existing Practices and Future Plans

Existing practices and future plans exhibit a number of characteristics. These include:

- Differentiation of fees within a material category – moving away from a single fee level for all packaging of a certain material type, to a greater disaggregation in the fee structure – which is likely to more closely represent the net costs associated with managing the specific formats at end of life;
- Explicitly seeking (through the requirements to be met to be eligible for inclusion in certain fee categories - as in Italy – or through the application of penalties (e.g. Portugal, France) to remove elements disruptive to the sorting and recycling processes; and
- To encourage the use of formats that are not just theoretically recyclable, but likely to actually be sorted and recycled.

There are also many notable differences in the approaches taken. For example, recycled content is encouraged – in a targeted way – in France, and required to be promoted under the German Packaging Act, but this is not widespread.

4.3.2 Modulation Criteria

In the sections below the following possible criteria for modulation are discussed:

- Recyclability;
- Recycling Rate;
- Reusability; and
- Recycled Content.

Durability and reparability are not included, as they are of less relevance for packaging than for other products that might be subject to EPR.¹⁰ Hazardous substances are not considered as a specific criteria for fee modulation. However, under the revision of the Essential Requirements, among other recommendations in respect of hazardous

¹⁰ Reparability, for example in the case of industrial packaging, can be incentivised through the approach described in Section 4.3.2.3 on reusability, whereby, rather than explicit modulation in favour of reusability, reusable packaging has its own fee category, reflecting end of life costs, with fees only paid on the first occasion that the reusable packaging is placed on the market.

substances, is that they should always be noted as elements in the **NO** category of Design for Recyclability Guidance to ensure such items will incur a penalty under fee modulation of the type described in Section 4.3.2.1. Accordingly hazardous substances are not considered separately as a criteria for modulation, but incorporated within the criteria of recyclability.

4.3.2.1 Recyclability

Of the criteria noted in Article 8a(4)(b), recyclability is arguably the most directly appropriate, given the revised recycling targets for packaging waste.

In terms of ‘operationalising’ the criteria, design for recyclability (DfR) guidelines produced by, or in close discussion with, recyclers provide an appropriate basis for modulation, e.g. those published by Plastics Recyclers Europe (PRE), and the European PET Bottle Platform (EPBP). These guidelines are not generic, but targeted at:^{11,12}

- Specific formats (e.g. bottles);
- Made of a specific material (e.g. PET); and
- In some cases based on whether they are clear, or of a specific colour.¹³

By way of example, Table 4-1 and Table 4-2 present, respectively, EPBP’s summary DfR guidelines for transparent clear/light blue PET bottles, and PRE’s design guidelines for transparent, flexible PE film packaging. The EPBP provides further more detailed information in addition to this summary on their website.¹⁴

¹¹ Available at <http://plasticsrecyclers.eu/downloads>

¹² European PET Bottle Platform (2019) Design Guidelines, available at <https://www.epbp.org/design-guidelines>

¹³ The PRE design guidelines for PO pots, tubs and blister trays include colour within the guidelines. Colourless is in the green ‘yes’ category, light or translucent colours/prints covering no more than 30% of the packaging surface are in the amber ‘conditional’ category, and opaque colours/prints, and carbon black are in the red ‘no’ category. See <https://www.plasticsrecyclers.eu/sites/default/files/2018-05/PP%20PE%20Pot%2C%20tub%2C%20blister%20%26%20trays%20guidelines%20v3%2030-11-2017.pdf>

¹⁴ European PET Bottle Platform (2019) Design Guidelines, available at <https://www.epbp.org/design-guidelines>

Table 4-1: EPBP Summary Design Guidelines for Transparent Clear / Light Blue PET Bottles

	<u>YES</u> Full compatibility – materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in PET recycling	<u>CONDITIONAL</u> Limited compatibility – materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with PET recycling	<u>NO</u> Low compatibility – materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PET recycling
Material	PET		PLA; PVC; PS; PETG
Size			Smaller than 4cm (when compacted) or larger than 5 litres
Colours	transparent clear; transparent light blue		other transparent colours; opaque; fluorescence; metallic
Barrier	SiOx plasma-coating	carbon plasma-coating; PA multilayer with <5 wt% PA and no tie layers; PGA multilayer ; PTN alloy	PA multilayer with >5 wt% PA or tie layers; monolayer PA blend; EVOH
Additives		UV stabilisers; AA blockers; optical brighteners; oxygen scavengers	bio-/oxo- /photodegradable additives; nanocomposites
Closure Systems	PE; PP; all with density <1 g/cm ³		materials with density >1 g/cm ³ (e.g. highly filled PE; metals); non-detaching or welded closures
Liners, Seals and Valves	PE; PE+EVA; PP; foamed PET; all with density <1 g/cm ³	silicone with density <0.95 g/cm ³	materials with density >1 g/cm ³ (e.g. PVC, silicone, metals)
Labels	PE; PP; OPP; EPS; foamed PET or foamed PETG; all with density <1 g/cm ³	lightly metallised labels (density <1 g/cm ³); paper	materials with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG; PLA); metallised materials; non-detaching or welded labels

Sleeves	sleeves with partial bottle coverage in PE; PP; OPP; EPS; foamed PET or foamed PETG; LDPE; all with density <1 g/cm ³	sleeves translucent for IR detection in PE; PP; OPP; EPS; foamed PET or foamed PETG; LDPE; all with density <1 g/cm ³ (INTERIM: Twin-perforated sleeves for household and personal care)	materials with density >1 g/cm ³ (e.g. PVC; PS; PET; PETG); metallised materials; heavily inked sleeves; full body sleeves
Tamper Evidence Wrap	PE; PP; OPP; EPS; foamed PET or foamed PETG; all with density <1 g/cm ³		materials with density >1 g/cm ³ (e.g. metal; PVC; PS; PET; PETG); metallised materials
Adhesives	water or alkali soluble in 60-80°C	hot-melts ; pressure-sensitive labels	
Inks	non-toxic; follow EUPIA Guidelines		inks that bleed; toxic or hazardous inks
Direct Printing	laser marked	production or expiry date	any other direct printing
Other Components	base cup, handles or other components which are separated by grinding and float/sink - all with density <1 g/cm ³ ; unpigmented PET		materials with density >1 g/cm ³ (e.g. metal, RFID tags); non-detaching or welded components; coloured PET;

Source: European PET Bottle Platform

Table 4-2: Plastics Recyclers Europe Summary Design Guidance for PE Transparent Flexible Film

	<u>YES</u> Full compatibility – materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in PE recycling	<u>CONDITIONAL</u> Limited compatibility – materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with PE recycling	<u>NO</u> Low compatibility – materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with PE recycling
Material	PE-LD; PE-LLD; PE-HD	multilayer PP/PE	any other polymer
Colours	unpigmented; transparent	light or translucent colours	dark colours
Barrier	barrier in the polymer matrix	barrier layer EVOH (in polyolefinic combination film); metalized layers	barrier layer PVC; PA, PVDC; any other barrier layer foaming agents used as expandant chemical agents; aluminium
Additives			additives concentration ≥ 0.97 g/cm ³
Closure Systems	same material as body	PE on PP body; PP on PE body	any other
Lids	same material as body	PE on PP body; PP on PE body; removable aluminium fasteners	any other
Labels	PE label	PP label; paper label	metalized labels; any other
Adhesives	water soluble (less than 60°C)	hot-melts; pressure-sensitive labels	self-adhesive labels; not water soluble
Inks	No inks	Non-toxic (follow EUPIA Guidelines)	inks that bleed; toxic or hazardous inks
Direct Printing	Laser marked; small production or expiry date	printing covering < 50%	printing covering ≥ 50%

Source: Plastics Recyclers Europe

The ‘traffic light’ approach used in such DfR guidelines lends itself well to determining which types of design would incur a penalty (malus), which would be on the standard fee, and which would be eligible for a bonus. To apply clarity and consistency, and provide a strong steer towards better design for recyclability across the board, it would sensibly follow that packaging items that:

- Achieve a **YES** for *all* relevant aspects are eligible for a bonus;
- Achieve a **YES** in some aspects but achieve a **CONDITIONAL** in *any* aspect will face the standard fee; and

- Achieve a **NO** in any individual aspect are subject to a malus.

A further example of DfR guidance, for paper and board packaging, which could be worked into a similar traffic light approach is the European level “Paper-based packaging recyclability guidelines” recently published by Cefi, Citpa, ACE and FEFCE.¹⁵

Where there may be merit in all Member States ultimately using the same DfR guidelines as the basis for modulation for specific packaging materials and formats, at present, while there are some differences between available guidelines, these differences are minor.

Indeed a strength of modulating on the basis of DfR guidelines is the extent to which it would lead to a harmonised basis for modulation across all Member States – providing a consistent approach in respect of design. However, given the differences in the collection and sorting infrastructure in Member States, consistent application of DfR guidelines will not necessarily equate to consistent performance in terms of the actual rate at which such packaging items that, for example obtain a **YES** for *all* relevant aspects, will be recycled.

The most important point is that the guidelines used must have been developed by, or in association with, recyclers. If recyclers have not endorsed the DfR guidelines, they should not be used as the basis for modulation. Such guidelines are updated as technology develops, and Member States should thus be sure to use the most recent relevant guidelines. In due course there may be merit in reviewing the extent to which guidelines remain consistent and potentially agreeing on DfR guidelines to be referred to across all schemes.

4.3.2.2 Recycling Rate

While not explicitly mentioned as a criteria in Article 8a(4)(b), the most logical way in which to measure the recyclability of a packaging format is arguably to refer to its ‘recycling rate’ i.e. the percentage of the total quantity of packaging placed on the market that is actually recycled. Given also the responsibility for meeting the packaging recycling targets, there is merit in understanding, and reflecting through fee modulation, the relative extent to which different packaging formats contribute towards meeting the targets.

Whilst recycling rates are in many respects the ideal way to measure recyclability, the range and granularity of packaging formats for which recycling rate data are available is limited at present. In the future, improved data capture will better enable the recycling rate of individual packaging formats to be monitored. While such high quality data is not yet available Member States should not be dissuaded from starting the journey towards modulating by recycling rate. As an interim measure, periodic surveys of the composition

¹⁵ Cefi, Citpa, ACE and FEFCE (2019) Paper-based packaging recyclability guidelines, available at http://www.cefi.org/recyclability_guidelines

of packaging waste collected and sorted for recycling could be undertaken to obtain an estimate of the recycling rates achieved by different formats.

However, even if, in a specific Member State, data does not currently exist as to the recycling rate by packaging format, there would be a strong incentive for those using formats known to be widely recycled to ensure such data becomes available as soon as possible in order to differentiate themselves from less widely recycled formats. There would in fact be a dynamic incentive – if modulation by recycling rate were to be applied - for those using any format apart from those that aren't recycled at all, to obtain data of the quality required to enable their fee to be adjusted in recognition of their contribution.

In the absence of suitable recycling rate data, an alternative approach to determining the likely recycling rate would be to use a similar methodology to that used by Institute Cyclos-HTP (Institute for Recyclability and Product Responsibility), a German company that specialises in the examination and verification of the extent to which packaging items are likely to be recycled.

For 13 core material types, Cyclos-HTP has developed a standard process chain outlining each stage required to recycle the material (from collection to sorting and reprocessing). The packaging item in question is assigned to a material type, and is then assessed and scored against the technical specifications at each stage (see Figure 4-2 for an overview of the assessment criteria). For example, materials requiring separation by NIR technology are tested for detectability, and scored accordingly:

- items receive a score of 0 if considerable labelling or dark colours prevent unambiguous detection;
- a score of between 0.25 and 0.75 if correct identification depends on the position of the item; and
- a score of 1 if unrestricted identifiability is achieved.

Scores for individual stages are multiplied together to reach an overall recyclability score of between 0 and 100.¹⁶

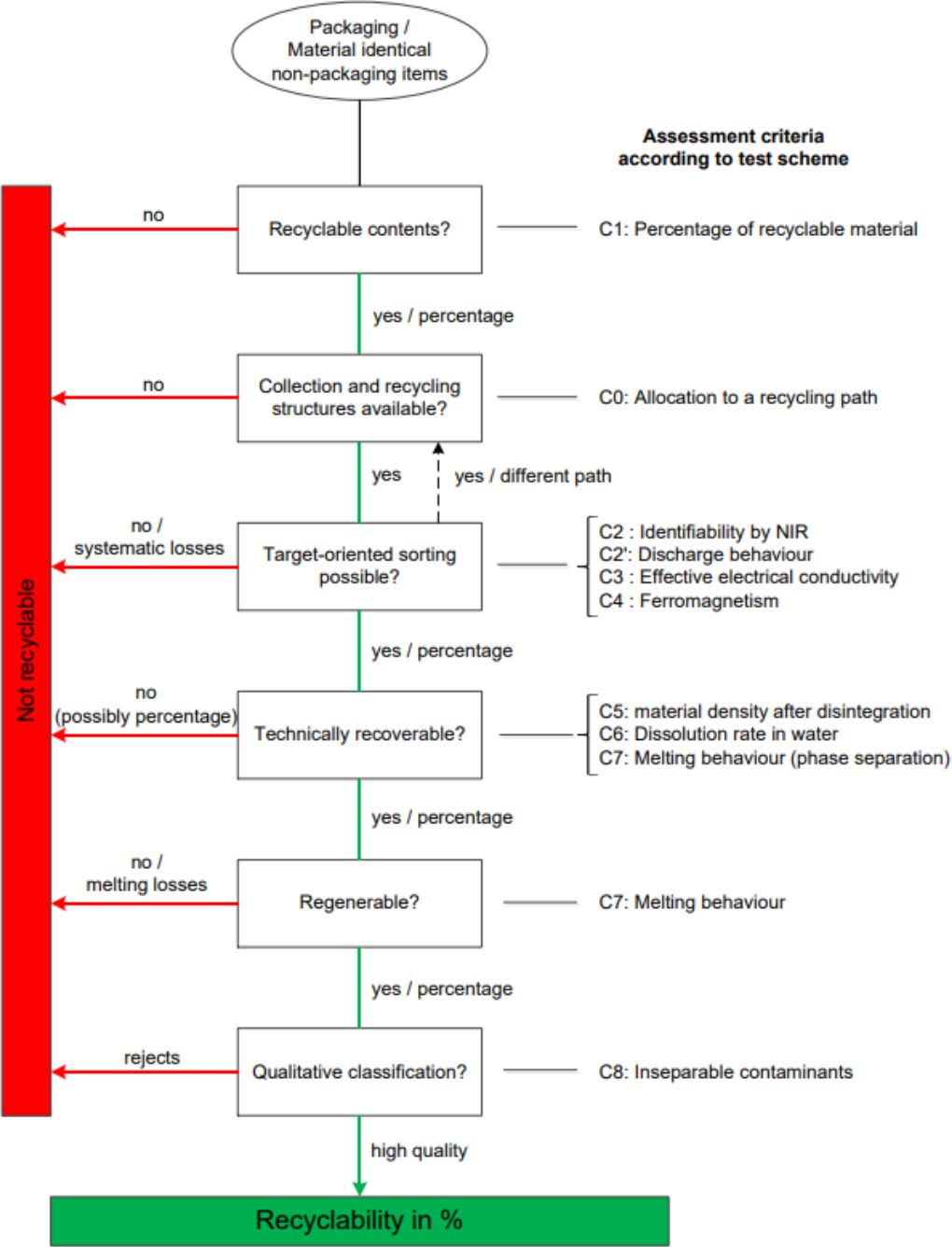
This type of methodology might be reasonable to apply against a backdrop of a relatively homogenous recycling infrastructure within a Member State. This is not necessarily the case at present, although the direction of travel is clearly towards a higher quality and more consistent approach to collection, sorting and recycling.

It may also be the case that using this methodology (or something similar) to assess the likely recycling rate for each packaging format placed on the market could have relatively high administrative costs, and in principle, the assessment would need to be amended whenever the 'common infrastructure' changed, or whenever modifications were made to packages.

¹⁶ Löhle, S., and Institute of Cyclos-HTP (2017) Verification and examination of recyclability

However, such an approach could, for example, also be used to highlight to packaging designers and fillers the design formats, and changes therein, which were likely to be subject to higher and lower fees where the modulation of fees is based on what is actually recycled. Indeed, if the data capture system was improved, then it should be possible to develop a schematic flow chart of where packaging with specific features creates problems for recycling processes.

Figure 4-2: Institute Cyclos-HTP – Flowchart Illustrating Calculation Likely Recycling Rate



Source: Löhle, S., and Institute of Cyclos-HTP (2017) Verification and examination of recyclability

Modulation of fees would thus be based on the recycling performance of each packaging format, specifically, the distance of recycling rates from the average (across all packaging types, or for the specific packaging material – see discussion in Section 4.3.3.3). Those whose performance is above the average see their payments reduced whilst those whose performance is below the average see their payments increased. The net effect of these modulations, consistent with the constraint of cost coverage (see Section 4.2.4) is revenue neutral.

Accounting for High Quality Recycling

Given that there is considerable interest in ensuring that the recycling process delivers the best environmental outcomes, the quality of material recycled, and the use to which the material is put, is of particular interest. A second tier of modulation may be considered which uses as the basis for modulation, not the average total recycling rate for all packaging, but the average ‘high quality’ recycling rate achieved. This would give an incentive to ensure more of the packaging which is recycled finds its way into high quality applications.

The approach to defining, and modulating for, ‘high quality recycling’ would need to be defined and considered. There are a range of possibilities but to simplify matters and limit the contestability of such an approach, it would seem appropriate that high quality recycling be defined relative to the greenhouse gas savings of the commercial use delivering the greatest benefit. For example, high quality recycling for material X could be defined as ‘any recycling which delivered 75% or more of the greenhouse gas savings delivered by the most beneficial commercially applied recycling application’.

4.3.2.3 Reusability

Reusability is explicitly noted in Article 8a(4)(b). However, it is important to recognise the limits of the support that can be provided through explicitly modulating in favour of reusable packaging, and to be aware that other instruments would also be needed to be applied to promote a significant shift.

Under a collective scheme, reusable packaging should only pay a one-off fee the first time it is placed on the market. This already provides a broad incentive for the use of reusables, while at the same time giving a financial driver for the packaging item to be reused as many times as possible in order to minimise the effective fee per use.

The alternative, of offering a fee set below the net costs of end of life management could provide an incentive – if the fee were lower than for single use alternatives – for those placing on the market items that are actually used only once, to declare themselves to be reusable to obtain a lower fee. This issue would then need to be tackled through the provision of evidence of the number of reuse cycles achieved, increasing data and verification requirements and associated administrative costs.

Given the focus on seeking consistency of approach - harmonised to the extent possible - across Member States, and the availability of other policy instruments that can

incentivise reuse and other forms of waste prevention, it's recommended that rather than applying reusability as an explicit criteria for fee modulation, reusable packaging:

- Should have a separate fee category;
- With fees that cover end of life costs; and
- Are applied only the first time that such items are placed on the market.

In addition, such fees should also be modulated in line with design for recyclability requirements in order to incentivise items to be both readily recyclable as well as reusable.

4.3.2.4 Recycled Content

Recycled content is not explicitly noted in Article 8a(4)(b). However, to move towards a circular economy for packaging requires a greater uptake of recycled content, and an example of modulation in favour of recycled content already exists in France. In addition, the new German Packaging Act (VerpackG) obliges PROs to incentivise the use of recycled content.

Fee modulation does have the potential to assist the move towards greater uptake of recycled content. However, it is not necessarily the most appropriate instrument to stimulate a move away from virgin material towards recycled content. Other instruments such as a materials tax, with different levels for virgin and secondary materials reflecting the respective environmental externalities would be most appropriate, or potentially a fee and rebate system.¹⁷

A key principle in applying fee modulation, as described in Section 4.2.2 is that it is better to focus a policy instrument on doing one thing well, than on seeking to achieve multiple objectives. A tension can be created within an EPR scheme if it is seeking to do too many things. A focus on seeking to meet the recycling targets in a way that is cost-effective and fair to different packaging formats gives a clear steer to the way in which an EPR scheme should use fee modulation. However, to also introduce an incentive for recycled content can disrupt the efficient operation of the price signals.

It's important to note that different materials and packaging formats would be more or less amenable to incorporation of recycled content. Accordingly, if an 'across-the-board' incentive were applied through fee modulation, it would be easier for some types of packaging to respond than for others, given, for example, legal restrictions related to food contact packaging. For metals it can be argued that incentives for recycled content in packaging are not required, as sufficient demand already exists – not just in packaging, but in all metal applications.

¹⁷ Eunomia Research & Consulting Ltd (2018) Demand Recycled: Policy Options for Increasing the Demand for Post-Consumer Recycled Materials, Report for the Resource Association and WWF-UK, 30th October 2018, available at <https://www.eunomia.co.uk/reports-tools/demand-recycled-policy-options-for-increasing-the-demand-for-post-consumer-recycled-materials/>

Given the above, where incentivising recycled content focuses on specific materials and applications, if a bonus is provided for the use of recycled content, given the constraint of cost coverage, the bonus must be funded from elsewhere. If the bonus is funded from across all the fees, then the costs for *all* producers are higher as a result of seeking to increase recycled content in a specific material/application. If, however, the targeted bonus, for recycled content in, for example, PP is funded by a malus applied to PP without recycled content, then those using virgin PP are effectively penalised (relative to other polymers) because the polymer is amenable to high levels of recycled content.

This raises the wider question of what the EPR scheme is seeking to achieve through incentivising recycled content. With a sole focus on achieving the target recycling rates in a way that is cost-effective and fair, the aim of the EPR scheme is clear. However, there are no overall targets for increased recycled content (apart from in PET beverage bottles under the SUP Directive). The question of where recycled content incentives would be applied, and the size of the incentive, could thus become a focus of contention.

It would thus be better for recycled content to be incentivised through other means, leaving EPR schemes for packaging with a clear focus on achieving the recycling targets in the most appropriate way.

Given the importance of seeking consistency of approach - harmonised to the extent possible - across Member States, the availability of other policy instruments that can incentivise recycled content, and the possibility of a further incentive through modulating for high quality recycling (as mentioned in Section 4.3.2.2, and further elaborated in Section 4.3.3.3) recycled content should not be a criteria to be applied for fee modulation.

4.3.3 Recommendations for Implementation

Given the focus on seeking a harmonised approach, and using fee modulation where it can be most effective, the recommended approach comprises the following:

- A more granular fee structure to better reflect the net costs associated with end-of-life management of packaging formats;
- An immediate focus on the use of Design for Recyclability Guidelines to modulate fees to bring about significantly improved design in the short term; and
- A longer term shift to using the recycling rate as the ultimate criteria for fee modulation.

4.3.3.1 A More Granular Fee Structure

Member States should require a more granular fee structure. This is an important step in moving towards a fairer approach whereby the fees paid better reflect the net costs that the system incurs for managing the specific packaging format, in line with the principle outlined in Section 4.2.5.

Developing a standard approach, to be applied consistently across all EPR schemes for packaging, will create a harmonised structure with the potential to thus provide more

consistent data, helping to tackling issues of free-riding (see Section 6.0), while also serving to reduce reporting burden (see Section 5.2.2).

In the interest of seeking a harmonised approach, EPR schemes should align with the example of Fost Plus, which has gone the furthest in developing a more granular fee structure. The fee categories as shown in Table 4-3 should thus be applied, with separate categories for reusables as required.

Table 4-3: Recommended Fee Categories for Packaging EPR Schemes

Materials
Glass
Paper – Carton (≥85%)
Steel - (≥50%)
Aluminium - (≥50% and ≥ 50μ)
PET - Bottles and Flasks - Transparent no colour
PET - Bottles and Flasks -Transparent blue
PET - Bottles and Flasks -Transparent green
HDPE - Bottles and Flasks
Beverage Cartons
PP - Bottles and flasks and other rigid
PS – Rigid packaging except EPS and XPS
HDPE – Rigid packaging other than bottles and flasks
PET – Transparent, other than no colour, blue or green
PET – Rigid packaging other than bottles and flasks, transparent
PET – Bottles and flasks, opaque
PE – films
Other rigid plastics (except EPS, XPS, compostables)
Other films (except compostables)

Complex packaging of which the majority is paper – carton ($\leq 85\%$)
Aluminium packaging $\leq 50\mu$ composed solely of aluminium
EPS, XPS and compostable plastics
Complex packaging of which the majority is plastic
Plastic/aluminium laminates
Wood, cork, textiles
Complex packaging of which the majority is glass
Complex packaging of which the majority is steel
Ceramics, porcelain

Source: FostPlus

This is the *minimum* level of granularity that should be achieved. Further granularity of fee structure is likely to be desirable in due course, especially as the recycling rate, as described in Section 4.3.3.3 becomes the predominant criterion for modulation.

4.3.3.2 Modulate with Reference to Design for Recyclability Criteria

Where DfR guidelines produced by or in association with recyclers exist, the packaging within the relevant fee categories should be subject to modulation, such that items that:

- Achieve a **YES** for *all* relevant aspects are eligible for a bonus;
- Achieve a **YES** in some aspects but achieve a **CONDITIONAL** in *any* aspect will face the standard fee; and
- Achieve a **NO** in any individual aspect are subject to a malus

Modulating by recyclability through reference to DfR guidelines should bring about rapid changes in packaging design over a relatively short time period. Reference should be made to the guidance in Section 4.2.7 on determining the appropriate magnitude of the modulation.

Reducing the variability in packaging design within a specific format through raising standards across the board also facilitates the move to a greater focus on using the recycling rate at the ultimate criteria for fee modulation, as described in Section 4.3.3.3. All else being equal, the more homogenous the format in terms of its design for recyclability, the more accurately the modulation by recycling rate will reflect the performance of all packaging within the specific format. Accordingly, while there may still be a need for modulating with reference to DfR guidelines once the format specific recycling rate plays a more prominent role in modulation (in such a case, the base fee for the format is modulated by the recycling rate, with further modulation of this base fee

with reference to DfR criteria), the need for modulation by DfR will be expected to reduce over time.

4.3.3.3 Modulate by Recycling Rate

Under this approach to modulation, packaging formats for which the recycling rate was above the average in the previous year would benefit from a reduction in their fee and those packages for which the recycling rate was below the average in the previous year would be confronted with fee increases.

Longer term, as improved data becomes available, the recycling rate should become an increasingly important aspect of modulation, and should ultimately become the predominant criteria as more finely-grained information becomes available as to the recycling rate of different formats – and as improvements in design for recycling improve the consistency in respect of recyclability within formats across the board. A start can be made with relatively high-level categories, but it would be expected that those already making better design choices, and for which the recycling rate is correspondingly higher, would push for greater levels of disaggregation over time (to reflect the benefits the system derives from their choices).

A decision would need to be made as to whether modulation should take into account the average recycling rate for all packaging, or the average achieved within a specific material category. Packaging companies are used to schemes setting fees on a material by material basis and so this might be considered the appropriate way forward. Recognising, however, the fact that packaging items made from different materials compete in the marketplace, and that the system seeks increases in recyclability of all packaging, it might be considered that modulating across all packaging types would be a fairer approach, and one more likely to give rise to greater incentives through modulation.

In this regard it's important to note that materials with a relatively low recycling rate, such as plastic, are affected much more by modulation when this is linked to an 'all materials' recycling rate, whilst the opposite is true for materials with a high recycling rate. If fees were calculated based on a comparison of each packaging type to the recycling rate for that material, the variation presented through modulation, set by the performance of each packaging type relative to others of the same material type would be expected to be lower. Essentially, including all packaging materials increases the range of recycling rates included, and hence, the extent of the fee modulation.

Incentivising High Quality Recycling

Given that there is considerable interest in ensuring that the recycling process delivers the best environmental outcomes, the quality of material recycled, and the use to which the material is put, is of particular interest. A second tier of modulation should be considered which uses as the basis for modulation, not the average total recycling rate for all packaging, but the average 'high quality' recycling rate achieved. This would give an incentive to ensure more of the packaging which is recycled finds its way into high quality applications.

The approach to defining, and modulating for 'high quality recycling' would need to be determined. There are a range of possibilities but to simplify matters and limit the contestability of such an approach, it is suggested that high quality recycling be defined relative to the greenhouse gas savings of the commercial use delivering the greatest benefit. For example, high quality recycling for material X could be defined as 'any recycling which delivered 75% or more of the greenhouse gas savings delivered by the most beneficial commercially applied recycling application'.

In the case of modulating for high quality recycling, the question of whether modulation should happen for the average achieved by all materials, or for each material individually is as relevant here as for modulating for 'total recycling rates'. Here, the argument is much stronger for following a material specific route since the use of materials in higher and lower grade applications is a greater problem in some material markets than in others.

Under modulation for high quality recycling, the rationale for investing to improve the quality of outcome is enhanced. In the case of plastics, for example, there would be a stronger motivation for investment in further colour sorting and hot washing of some mixed plastic polymers which might currently end up only in extrusion applications. Such investments might mean that more plastics were used as direct substitutes for virgin polymers, with attendant environmental benefits.

Accordingly, under such an approach, modulation would comprise two elements:

- 1) **Modulation based on the recycling rate:** this is calculated each year and is based on the performance of each packaging format against the average *for all packaging formats*. Those whose performance is above the average see their payments reduced whilst those whose performance is below the average see their payments increased. The net effect of these modulations is revenue neutral; and
- 2) **Further modulation on the high quality recycling rate:** this is calculated each year and is based on the performance of each packaging format against the average 'high quality recycling rate' *for packaging formats made from a given material*. As with the recycling rate element, those whose performance is above the average see their payments reduced: those whose performance is below the average see their payments increased. The net effect of these modulations is revenue neutral.

An illustrative example of the effect this might have on fees in the UK context is provided in Figure 4-3. This is based on a study for Defra, which estimated format-specific recycling rates at the greatest level of granularity possible at present, calculated base fees for each format, and then modelled the recycling rate modulation (termed 'unrecyclability' fees) and the 'high quality recycling' rate modulation element (termed 'beneficial recycling' fees) at a number of different levels. In the example, the recycling rate modulation fee is set at £400 per tonne, and the 'high quality recycling' fee at £150 per tonne.

In the example the high quality recycling fee remains the same across materials, but in practice, it may be preferable to apply this fee only to those materials where the issue of differing 'quality' of uses gives the most concern. This is likely to be the case for glass, plastics, and potentially, wood. It follows that the modulating element for these materials could be as shown, but with material specific beneficial recycling fees set closer to zero for aluminium, steel, and (possibly) paper and card.

Such an approach will incentivise users of packaging with lower recycling rates to seek to reduce the extent of the additional costs implied by the system by increasing the recycling rate of their packages. They might do this by one or more of:

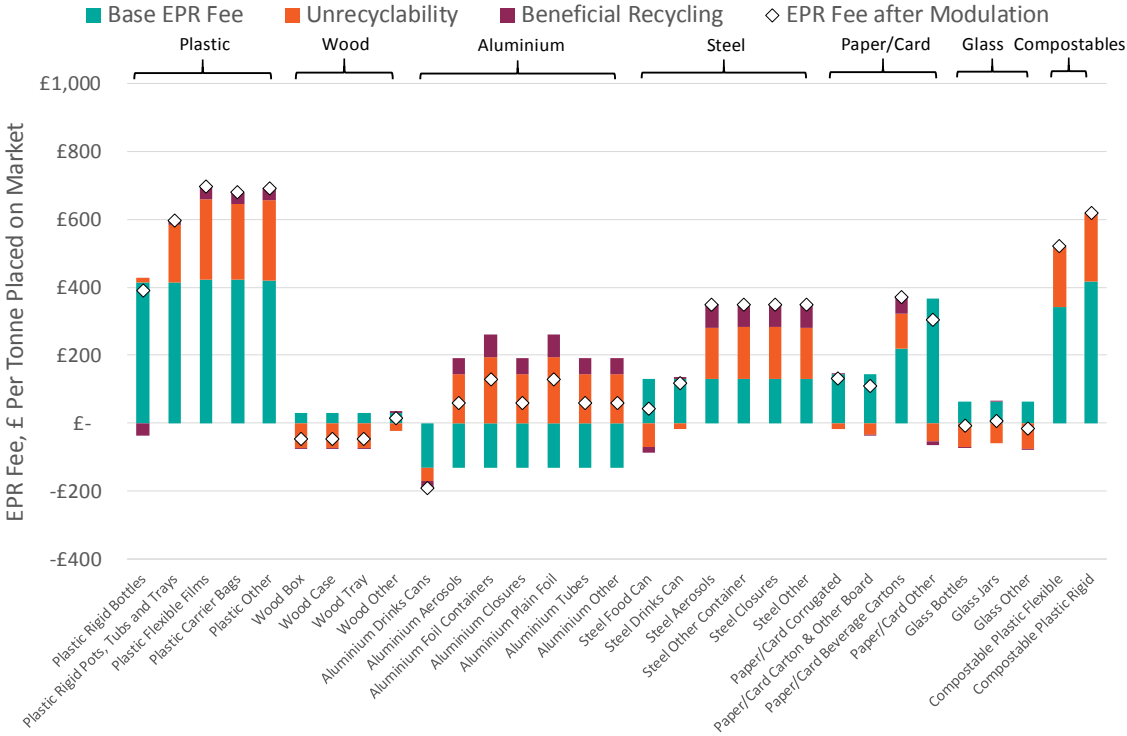
- changing their choice of packaging to formats which are easier to recycle;
- pushing for increased investment in collection, sorting and recycling technologies; or
- moving to different business models (such as those based on reuse / refill).

In principle, the average recycling rate will be 'chased upwards' and the extent of modulation implied by a given recycling rate fee can be expected to shrink as the gap narrows between best and worst performing packaging formats.

Each Member State and EPR scheme would need to undertake initial research to identify the appropriate starting point for such fee levels, bearing in mind the importance of providing a sufficient incentive to bring about change, either through packaging design, or investment on collection, sorting and recycling infrastructure. This should take the form of an appraisal, looking ahead over a period of perhaps ten years, to involve consideration of the extent to which a producer may benefit financially, in present value terms, from increasing the recycling rate of their package through changes to design, or from ensuring that there is appropriate investment in recycling of their packaging.

If the modulated element is set too low, then the scope for a producer to save money on modulated fees through increasing recycling may be limited since the effect of modulation is weak. As the recycling rate fee increases, however, so the scope for savings increases.

Figure 4-3: Illustrative Example in the UK Context – Recycling Rate (Unrecyclability) Fee @ £400 per Tonne, High Quality (Beneficial) Recycling Fee @ £150 per Tonne



4.4 Electrical and Electronic Equipment

This section is laid out as follows:

- Section 4.4.1 reflects on current and planned legislation;
- Section 4.4.2 addresses the issue of granularity of base fee categories;
- Section 4.4.3 discusses potential criteria for modulation; and
- Section 4.4.4 presents recommendations for implementation.

4.4.1 Current and Planned Legislation

In considering the context in which fee modulation will operate, it is important to note current and planned legislation. It should be noted that France is the only country using an explicit fee modulation method for EEE and further information on this can be found in the accompanying study.

The WEEE Directive has a focus on end of life considerations, and Annex VII requires the removal and selective treatment of certain materials, substances and components of separately collected WEEE. The list in the directive includes items that are hazardous or very environmentally damaging, such as capacitors and CFCs, and those that contain high-value and critical raw materials (CRMs), such as printed circuit boards and screens. While not mandatory, the CENELEC standards for WEEE treatment set out appropriate means of achieving these Annex VII objectives and reflect the 'state of the art' treatment as referred to in Article 8 on proper treatment in the WEEE Directive.¹⁸

The other relevant instruments are the mandatory Eco-design Directive for energy related products (ErPs) and the voluntary EU Ecolabel. Until recently the Eco-design Directive has been focused on energy efficiency, however the Commission has recently adopted EcoDesign implementing regulations, setting out some requirements in respect of reparability for several product groups:

- Refrigerators
- Washing machines
- Dishwashers
- Electronic displays (including televisions)
- Light sources and separate control gears
- Refrigerators with a direct sales function (e.g. fridges in supermarkets, vending machines for cold drinks)
- Welding equipment

The implementing regulations for above mentioned products inter alia state that:

- Spare parts (as listed in the measure) have to be replacable with the use of commonly available tools and without permanent damage to the appliance.

¹⁸ CENELEC is the European Standards body for Electrotechnical Equipment

To give one simple example for lighting, luminaires have to have a removable light source. In addition, in order to enhance the repair market, manufacturers have to ensure the availability of repair and professional maintenance information for professional repairers.

- In order to promote reparability, and therefore to increase the lifespan of appliances, the availability of the spare parts (as listed in the measure) over a long period of time after purchase has to be ensured, , e.g.:
 - 7 years minimum for refrigerating appliances (10 years for door gaskets);
 - 10 years minimum for household washing-machines and household washer-dryers;
 - 10 years minimum for household dishwashers (7 years for some parts for which access can be restricted to professional repairers);

During that period, the manufacturer shall ensure the delivery of the spare parts within 15 working days.

It is expected that further product groups will be addressed in a similar fashion as implementing regulations are reviewed or new ones developed. Work is in progress regarding ICT products and Ecodesign/ Energy Labelling possibilities, via the ICT Taskforce set up within the European Commission.

Accordingly, given existing and possible future regulation for reparability, modulation according to this criteria would need to take into account that some product groups are already subject to such minimum requirements.

Finally it should be noted that a reparability scoring and labelling system is in the process of development under the lead of JRC which could inform any modulation criteria on reparability, ideally with modulation approaches being aligned with the JRC's scoring system.

4.4.2 Granularity of Fee Categories

Many of the EU WEEE systems already use a reasonably detailed sub-categorisation, often based on the 10 original categories and sub-categories thereof. In the UK, for example, there is a breakdown by 14 product categories and sub-categories with different levels of fees being applied according to the net costs of collection and treatment, taking into account material values. Some schemes have even greater sub-divisions, with Finland having over 30.

This detailed categorisation is appropriate in that the fees should reflect the 'recyclability' of the broad category type – in that they will account for costs of recycling net of material revenues - but it does not reflect the differences between products within the category in respect of eco-design. For example, the typical cost of recycling vacuum cleaners may be reflected through having a sub-category for vacuum cleaners within the category 'small domestic appliances', but this would not help to differentiate between brands, or indeed models, in terms of their reparability, for example, or hazardous substances content.

To drive eco-design therefore requires both a sufficiently fine-level categorisation that minimises cross subsidy between product groups, and additional criteria within product groups to modulate the fees, in order to further drive brand- and model-specific eco-design. The following WEEE categories, as defined in the WEEE Directive, are recommended as a minimum level of granularity for fee structures:

1. Temperature Exchange Equipment
2. Screens and equipment containing large screens (over 100cm²)
3. Lamps
4. Large (mainly household) Equipment
5. Small (mainly household) Equipment
6. Small IT and Telecomms Equipment

Over time, it is recommended that there be a greater granularity of fee structure across schemes, and that there be a move to greater harmonisation of such fee structures and associated reporting requirements.

4.4.3 Potential Criteria for Modulation

4.4.3.1 Eco-labels

Eco-labels offer a useful reference for potential criteria. Those of relevance include EU EcoLabel criteria for televisions, which will be revised in 2020 and be enlarged to encompass all electronic displays, those available through the TCO label for IT equipment¹⁹, and those from the Green Electronics Council's EPEAT (the Electronic Product Environmental Assessment Tool) criteria.²⁰ These labels include criteria of relevance around life extension, hazardous substances, material recovery and use of recycled content.

TCO and EPEAT are type 1 eco-labels used by many global manufacturers. TCO Certified is available for office IT products: displays, notebooks, tablets, smartphones, desktops, all-in-one PCs, projectors, headsets, and data centre products: network equipment, data storage products and servers. EPEAT covers computers and displays, mobile phones, TVs, imaging equipment and network servers. A wide range of large brands have TCO and EPEAT certified products and label their products accordingly.

TCO, like the EU EcoLabel, is a pass-fail system, while the labelling system that goes with EPEAT works as follows:

- Bronze-rated products meet all of the required criteria in their category;
- Silver-rated products meet all of the required criteria and at least 50% of the optional criteria; and

¹⁹ <https://tcocertified.com/tco-certified/>

²⁰ <https://greenelectronicscouncil.org/epeat-criteria/>

- Gold-rated products meet all of the required criteria and at least 75% of the optional criteria.

4.4.3.2 Disassembly and repair

Ease of disassembly and repair/reassembly is the most appropriate core criteria. This will help to facilitate repair and increase the lifetime of the whole item by enabling replacement of components (and potentially upgrading as well as repairing), while, importantly, also making it easier to recycle at end of life and recover key components for reuse in the process (thereby helping to reduce the need for large inventories of new spares that may never be used). This would particularly be the case where high standards are imposed that require actual disassembly as opposed to shredding/fragmentation, which do not necessarily meet Annex VII requirements of the WEEE Directive or CENELEC standards for WEEE treatment.

However, the recent EcoDesign implementing regulations cover several key consumer EEE product groups and include a range of minimum requirements. Consequently, modulation in regard to disassembly and repair would need to:

- Cover a wider range of products than those already addressed (as described above). Disassembly criteria should be appropriate across many products, for example including small appliances, ICT and other types of consumer electronics.
- Cover more explicit disassembly requirements, in particular in terms of access to key components that can become (cannibalised) spare parts, and noting that the term ‘without permanent damage’ could be open to interpretation; and
- Upgradeability of products, physically and in terms of software.

Our short-term recommendations are given further on in this document, however in the medium-term, Member States should look to base modulation in regard to reparability on the repair scoring system in process of development, under the lead of JRC. Ideally a single set of criteria would be used for modulation under EPR, and for GPP and the EU EcoLabel, where possible.

By way of example, disassembly criteria for Imaging Equipment under EPEAT (from IEEE 1680.2) are defined as follows:

- External enclosures, chassis, and electronic subassemblies shall be removable with commonly available tools or by hand. This shall include:
 - Product shall utilize commonly used fasteners for joining components, subassemblies, chassis and enclosures; an exception shall be provided for special fasteners needed for safety and/or anti-theft reasons.
 - All disassembly for recycling purposes can be done exclusively with commonly available tools or by hand.
 - Access to points of connection and clearance shall be adequate for ease of dismantling of enclosures, chassis, and electronic subassemblies.
 - Non-separable connections (e.g., glued, welded) between different materials shall be avoided unless they are technically or legally required or utilized for safety purposes or in an anti-theft application.

- Electrical and communication wiring and cables that connect to external devices or sources of power or data shall be removable from all products by hand or with commonly available tools (such as a screwdriver) in such a way as to be removed without being cut or in any way rendered unusable, unless required for technical or safety reasons.
- Whole external power supplies shall be removable with commonly available tools or by hand but are not required to be further able to be disassembled.

4.4.3.3 Information for repairers and recyclers

Article 15 of the WEEE Directive already mandates that Member States require that:

“... producers provide information free of charge about preparation for re-use and treatment in respect of each type of new EEE placed for the first time on the Union market within one year after the equipment is placed on the market. This information shall identify, as far as it is needed by centres which prepare for re-use and treatment and recycling facilities in order to comply with the provisions of this Directive, the different EEE components and materials, as well as the location of dangerous substances and mixtures in EEE. It shall be made available to centres which prepare for re-use and treatment and recycling facilities by producers of EEE in the form of manuals or by means of electronic media (e.g. CD-ROM, online services)”.

Some eco-labels require freely accessible information for those repairing WEEE, however, and so the additional consideration here (above Article 15 requirements) could be around specific and free information around repair for the independent repair sector; i.e. those not working under OEM or retailer approved service / warranty contracts.

4.4.3.4 Spare parts

Spare parts availability and cost is a key issue in terms of life extension, however, as noted above, the recent EcoDesign implementing regulations cover several key consumer EEE product groups and include a range of minimum requirements, including spare parts availability. Consequently, modulation in regard to spare parts for these product groups would need to consider:

- Whether additional spare parts could be added (although the EcoDesign list is already reasonably comprehensive);
- The extent to which the price of spare parts might be considered ‘reasonable’ (of key importance for independent repairers) – while the parts may be available, they may not be commercially viable to use in the context of a repair outside of warranty;
- Faster availability of spare parts than defined by the regulations; and
- Whether digital files for 3D printing should be allowed as an alternative to the availability of certain spare parts.

Industry sources note that the legal requirement is already strict enough when it comes to quick delivery, especially when it comes to a part required several years after a product is last placed on the market, and quick delivery is costly, since the part should

either be readily available stored in multiple warehouse locations across Europe or otherwise would need to be shipped by air.²¹ This cost would then have to be included in the spare part price.

On spare part costs the industry also notes that keeping a large inventory of spares is costly and judging 'reasonable cost' needs to be done in the context of the particular product.²² The cost of spare parts for an entry-level appliance cannot be compared to the cost of spare parts from premium manufacturers. It is worth noting, however, that an increase in the need to keep spares for a longer period than normal would likely drive a greater standardisation of parts, which would in turn reduce costs, as would making available digital files for 3D printing of certain spare parts (increasingly possible even for metal parts).

This 'reasonable cost' of key spares, to use as an eco-modulation criteria, could be defined as a percentage of the original product costs, and established through market surveillance and discussions with the repair sector and OEMs. It is worth noting, however, that once disassembly, repair and upgrade is incentivised, this will lead to the development of a stock of spare (albeit second hand) parts which should serve to both prevent waste that might be associated with making spare parts just to stock) and reduce costs. In addition, the effect of modulating by warranty period will incentivise a reduction in the need for repair, thus further reducing the stock of spare parts that needs to be held.

4.4.3.5 Durability and warranty period

Aside from disassembly and reparability, product durability and reliability are key to circular economy and reuse potential. On durability, fees can be modulated based on the inherent durability of the product where this is clear. For example, in the French system LED lighting receives a 20% discount "owing to the absence of mercury and the long-life cycle".

Otherwise, it would be desirable to modulate according to durability within a product category. The French system uses only the availability of spare parts and information for repairers in relation to durability/life extension, both of which would seem to be relatively weak drivers for durability *per se*. The new implementing regulations under Eco-Design take a similar approach, although as noted above, cost is not considered. The EU Ecolabel criteria for personal, notebook and tablet computers (expired in August 2019) but included considerations around upgrade:

Personal computers should have facilities that enable the following: Exchangeable and upgradeable memory and graphic cards. Expansion capability: presence of at least four USB interfaces.

²¹ Comments on draft criteria from APPLiA; Home Appliance Europe

²² *ibid*

While these approaches are helpful, a more comprehensive approach would reflect the actual tested lifespan of a product. EU legislation already requires this for LED lightbulbs, for example, whereby 90% of any batch of LED light bulbs should last at least 6,000 hours. This would be time consuming (even with accelerated testing) and costly for many EEE producers, however, given the wide range of models on sale.

The length of the free manufacturer's warranty period could, however, be considered a reasonable proxy for durability, and potentially also one reflecting ease of repair. Free extended warranties are only costly if the product is not reliable and/or easy to repair, and hence reflect the producer's confidence in the quality of the product. At present some brands offer long warranty periods to differentiate for commercial advantage but often in a partial way, for example 10 years, on a motor only, for a washing machine. Rewarding a longer free whole product warranty period through a bonus via EPR fees would help to offset the potential extra cost for producers of longer warranties and hence drive up product lifetimes in general.

To strengthen the effect of this approach, this use of warranty period as a proxy for durability in eco-modulation could be combined with mandatory labelling of the warranty (for the whole item, and potentially key components if appropriate) to a set EU standard to avoid any ambiguity and provide a level playing field within a category. In addition it would be helpful, as a price signal to consumers, to also indicate the cost of the appliance per year of free warranty. For example a product costing €200 with a 1 year warranty would be indicated as €200 per year of warranty, while one costing €400 with a 4 year warranty, would be indicated as €100 per year of warranty. This approach would require that consistent market surveillance is undertaken to verify the declarations.

4.4.3.6 Battery life

Battery life is an extremely important parameter for EEE devices with an integral battery that is not easy to replace by the user since this is a major cause of items being replaced, creating WEEE. It has been suggested that an option here could be to define a minimum number of charge cycles with at least 60% of the charge capacity remaining.²³ This is, however, something that is perhaps better dealt with through revisions to the Batteries Directive.

4.4.3.7 Hazardous Substances

On hazardous substances, many manufacturers go well beyond RoHS requirements through application of prohibited and restricted substance lists, and use this as a point of differentiation. Accordingly, this could be used as a modulation criterion to drive reduced use of hazardous substances to an extent greater than that required under

²³ Digital Europe Recommendations for the Modulated Fees Guidelines, 15th October 2019

RoHS. The French system picks out all brominated flame retardants in its criteria, and all BFRs and other relevant POPs could be targeted in general given how problematic they are in terms of WEEE plastics recycling.²⁴

Discussions with producers suggest that this is seen as a complex undertaking, although such an approach has certainly been used before, for example in the eco-declaration labels used for mobile phones (the Eco-rating used by O2 and Vodafone), while EPEAT also includes reduction of hazardous substances in its criteria, for example restriction of the use of:

- beryllium;
- antimony;
- phthalates;
- bromine and chlorine content of plastic materials; and
- substances on the EU REACH Candidate List of SVHCs.

The (now expired) EU Ecolabel criteria for personal, notebook and tablet computers had a similar requirement:

The product or any part of it does not contain substances identified as substances of very high concern and included in the list foreseen in Article 59 of Regulation (EC) No 1272/2008 nor substances or mixtures meeting the criteria for classification in the hazard classes or categories. Concentration limits for substances meeting criteria or Regulation (EC) No 1907/2006 should not exceed 0,1 % weight by weight.

The EU Ecolabel criteria for “televisions” (which will be revised in 2020 and enlarged to “electronic displays”) require that:

Plastic parts heavier than 25 g shall not contain: - flame retardant substances or preparations that are assigned any of the following risk phrases: R45, R46, R50, R51, R52, R53, R60, R61 as defined in Council Directive 67/548/EEC and its amendments. - a list of flame retardants containing organically bound bromine, nor chloroparaffin flame retardants with chain length 10-13 carbon atoms and chlorine content > 50% by weight.

An approach to this would therefore consider:

- the whole SVHC Candidate List under REACH; or
- a short pragmatic list of hazardous substances used in EEE, based on the most stringent current restricted substance lists of the global OEMs

²⁴ While the recast POPs Regulation prohibits various chemicals, DecaBDE, for example, is exempted from prohibition in EEE to which RoHS applies.

In addition, going to a lower concentration for existing RoHS restricted substances would also be helpful, although potentially difficult to track at very low concentrations, and less impactful than adding additional chemical restrictions.

4.4.3.8 Recycled content

On recycled content, the percentage of PCR plastic could be used as a criteria for modulation. In the French system there is a criteria requiring >10% PCR. EPEAT generally requires a minimum PCR content of 5% and options for higher amounts depending on the item and the weight of plastic used in the product. An example is given below:

Required—Minimum content of postconsumer recycled plastic

- Product criterion: Any product containing plastic parts whose combined weight exceeds 100g shall contain at least 5g of postconsumer recycled plastic.
- The following may be excluded from the combined weight total: printed circuit boards, labels, cables, connectors, electronic components, optical components, ESD components, EMI components, and bio-based plastic material.
- For products that contain less than 100g of plastic after the exclusions are removed, the manufacturer may declare “Not applicable”.

The (expired) EU Ecolabel criteria for personal, notebook and tablet computers includes the following:

The external plastic case of the system unit, monitor and keyboard should have a postconsumer recycled content of not less than 10% by mass.

While recycled content is not mentioned under Article 8a of the WFD, there is a need to drive uptake in a sector where use of secondary plastics is very low, and WEEE plastics are often problematic to recycle and have limited markets, not least due to legacy POPs (e.g. Brominated Flame Retardants).

Any such approach would need to be in the context of wider moves under the EU Plastics Strategy, REACH and POPs Regulation to deal with legacy chemicals and quality issues, and to provide the necessary volumes of materials at a reasonable price.

4.4.4 Recommendations for Implementation

In line with the overarching principles as described in Section 4.2, there are a number of key points to bear in mind in respect of fee modulation for EEE.

- There is a risk of watering down impact and increasing complexity for producers and PROs if different criteria are used in different Member States. Harmonisation of criteria across Member States is therefore very important, and consequently recommendations are made in this document that Member States should follow where possible;
- While the single most important criteria could be considered to be disassembly and reparability, there are a number of other important factors that influence circularity and that are being implemented by the leading brands. These good practices should be rewarded and consequently it is recommended that a small

number of criteria are used in combination to determine the bonus, varying to a degree by product group as appropriate;

- It is not strictly necessary to apply modulation to all product categories at the outset – it would be appropriate to focus first on those where the greatest benefit can be achieved and/or the criteria are more easily applied and adherence can be readily demonstrated; and
- Other policy instruments should be considered if potentially more impactful than eco-modulation.

The criteria recommended in the sections below combine Circular Economy objectives around durability/reliability, repair, upgrade, and end of life disassembly for recycling:

- **Disassembly, repair and upgrade** is a key priority since it cuts across various aspects of CE, including recyclability. Hence Member States should modulate on this aspect, where minimum EcoDesign requirements do not already exist through Implementing Regulations, in which case the other criteria need to take precedence.
- **Spare parts availability** – easy availability of spare parts, that are economically viable to use in a repair scenario, is also critical, although the need to determine a ‘reasonable’ cost in this regard is problematic. It is recommended, however, that the availability of free digital files for 3D printable spares, is used as a criteria as this helps to overcome the potential barrier to using spare parts outside of warranty. The availability of physical spares, where minimum EcoDesign requirements do not already exist through Implementing Regulations, should also be used as a criteria.
- **Extended warranty** - this criteria combines well with that of disassembly, repair and upgrade, and acts (as a proxy) to support the Circular Economy objective of durability/reliability. While there is to a certain extent a commercial driver for offering longer warranties in some case, this would increase the attractiveness of such approaches, with a bonus helping to offset any additional cost for producers.
- **Removal of hazardous substance**, beyond that currently mandated under RoHS and other regulations.
- **Recycled content in plastic parts** - an important consideration in a circular economy to better drive markets for waste plastics.

The last of these could be incentivised through taxation (e.g. on primary polymers in general or on EEE items with less than 10% PCR in plastics), and this option should be explored by Member States to determine whether this would be a) possible/politically acceptable and b) more cost-effective and impactful than incentivising through modulation.

These criteria are explained further below:

4.4.4.1 Disassembly, repair and upgrade

For products not yet covered under the aforementioned Implementing Regulations under Eco-Design, the following criteria should be applied:

- Disassembly and reassembly for repair – namely that, to obtain a bonus the product should:²⁵
 - Allow key spare parts (to be defined) to be replaced with the use of commonly available tools and without permanent damage to the appliance, by repair professionals (either authorised by the OEM /retailer or independent).

In particular it is recommended that this criteria is applied to ICT equipment in the short term, given the large quantities and carbon impact of such products, in the absence of implementing regulations. These criteria could be amended as necessary following any introduction of minimum requirements and/or reparability labelling.

In addition, it is recommended that for ICT products to obtain a bonus:

- Product upgrade should be possible, including as necessary to the device memory, and all chips and cards, with the use of commonly available tools and without permanent damage to the appliance, by repair professionals (either authorised by the OEM /retailer or fully independent);
- That compatible software updates, essential for the basic use of the device, should be applied automatically and free of charge, with the consent of the user; and
- For ICT equipment and large household appliances, that a bonus is also considered for self-diagnostic software (that flags an issue and the necessary response) and/or external technical support (by internet and telephone) that allows consumers to troubleshoot and soft-fix minor problems.

4.4.4.2 Spare parts availability and cost

As noted above, digital files for the 3D printing of spares, where appropriate (e.g. excluding complex multi-component items with moving parts, such as washing machine bearings), should, to obtain a bonus, be available free of charge.

For products not yet covered under the aforementioned eco-design implementing regulations, essential physical spares (to be defined by the MS under each product category), should also be made available for at least five years after the final date of placing on the market in that country.

²⁵ Where more detailed definitions are required the use of existing and well developed and tested criteria, such as from EPEAT (e.g. for ICT products), EU or national eco-labels, should be utilised to help simplify data gathering and compliance for producers.

Member States could also consider whether it is viable to give a bonus where the cost of spare parts are deemed 'reasonable' in the context of the original cost of the new product (i.e. as a percentage). However, determining what constitutes 'reasonable' will require further engagement and investigation, so is not a short-term focus.

4.4.4.3 Extended warranty

A free extended warranty from the producer would help to drive more durable and reliable products and a bonus could be applied based on:

- The length of the whole product warranty offered by the producer, free of charge with the product, and without prejudice to existing statutory rights under EU and national consumer protection law.
- This should be an absolute minimum of 2 years, and could be varied by product group up to 5 years.

Ideally this approach to modulation would be combined with clear mandatory labelling, ideally at the EU level, for display clearly at the point of sale, including the length of the free warranty and the cost of the product, divided by the length of the free warranty to give a very tangible 'cost per year of protected life' for consumers.

4.4.4.4 Hazardous substance restrictions

To incentivise the elimination of hazardous substances beyond those already restricted by RoHS, and other EU/international mandated prohibitions and restrictions, a bonus could be applied in regard to products which (as appropriate):

- Exclude (to a level of 1000 ppm in a homogenous material >25g in weight, unless otherwise specified) a short pragmatic list of hazardous substances used in EEE, based on the most stringent current restricted substance lists of the global OEMs, and in particular:
 - chlorine and bromine content of plastic materials;
 - beryllium and compounds;
 - antimony trioxide;
 - arsenic (50ppm), e.g. as in display screen glass;
 - phthalates on the SVHC candidate list; and
 - PVC.

or, more comprehensively;

- Exclude the whole SVHC Candidate List under REACH (to a level of 1000 ppm in a homogenous material >25g in weight).

4.4.4.5 Post-consumer recycled plastic content

Driving use of PCR content is crucial in the circular economy. A bonus could be applied where there is a minimum of 10% PCR in plastic parts over 25g, and could be potentially increased to 20% or more for some product groups where the aesthetics of plastic parts are less significant.

A further bonus could be applied to the use of post-consumer recycled CRMs, including rare earths, in electronic components.

4.4.4.6 Using the criteria in combination, by key product groups

It is recommended that criteria are used in combination and vary by product group. This could work in a similar fashion to the French system to encourage the uptake of several inter-related practices and hence not allowing dilution of impact (e.g. through one bonus balancing out a malus). As an alternative, allowing greater flexibility and a slightly lower level of attainment, two bonus levels could be applied for a combination, as illustrated below for some key product groups:

ICT equipment (not yet covered by reparability criteria under Eco-Design):

Bonus:

- Disassembly / reparability²⁶ and
- Upgradeability (of parts/software) and
- Spare parts availability/free 3D files and
- Reduced hazardous substances

Or, if scoring, Bonus Level 1 = 3 out of 4 criteria met, Level 2 = 4 out of 4 criteria met

Malus: Any one of the above is missing

Or, if scoring, two or more of the above are missing

(Non-ICT) consumer electronics and displays (reparability criteria covered under Eco-Design)

Bonus:

- Upgradeability (of parts/software) and
- Free 3D printing files for spares and
- Free extended warranty for the whole machine and
- Hazardous substances

Or, if scoring, Bonus Level 1 = 3 out of 4 criteria met, Level 2 = 4 out of 4 criteria met

Malus: Any one of the above is missing

Or, if scoring, two or more of the above are missing

Appliances and equipment (reparability criteria covered under Eco-Design)

²⁶ Physical repair and including free and public repair information and self-diagnosis plus OEM technical support by internet and telephone for consumer troubleshooting and soft-fixes

Where the reparability criteria are covered by the existing minimum requirements under Eco-Design, the criteria could be used as follows:

- Free 3D printing files for spares and
- Free extended warranty for the whole machine and
- Hazardous substances and
- PCR content

Or, if scoring, Bonus Level 1 = 3 out of 4 criteria met, Level 2 = 4 out of 4 criteria met

Malus: Any one of the above is missing

Or, if scoring, two or more of the above are missing

Other appliances and equipment (not yet covered by reparability criteria under Eco-Design)

Bonus:

- Disassembly / reparability²⁷ and
- Spare parts availability/free 3D files and
- Hazardous substances and
- PCR content

Or, if scoring, Bonus Level 1 = 3 out of 4 criteria met, Level 2 = 4 out of 4 criteria met

Malus: Any one of the above is missing

Or, if scoring, two or more of the above are missing

It should be noted that products with an eco-label award, for example the EU Eco-label for Televisions, TCO certified IT products or EPEAT gold award products (computers, mobile phones, TVs, imaging equipment and network servers) or national and regional labels (e.g. Blue Angel or Nordic Swan) could also be considered for a bonus where meeting or exceeding the criteria otherwise used to allow a bonus.

It is important that these awards should not be used as the sole means of obtaining a bonus or determining a malus since these awards are often quite onerous to achieve and hence not necessarily available to SMEs.

4.4.4.7 Determining the Magnitude of the Modulation

In the French modulation system, in absolute terms, the differences in the fee between +20% and minus 20% (on the VAT added figure) is small; for example €3.60 for a fridge freezer (which may typically cost €400 or more), and just €0.2 for a vacuum cleaner

²⁷ Physical repair and including free and public repair information and self-diagnosis plus OEM technical support by internet and telephone for consumer troubleshooting and soft-fixes

(which may typically cost over €60), hence less than 1% difference on the actual product cost. The mobile phone is the only product group in the French modulation system that has a 100% malus charge for 'poor' eco-design. In this instance the +/- 100% is still only €0.02 due to the very low basic compliance fee for the mobile phone category (as there is a lot of reuse), hence the need for more than +/-20% modulation to provide any impact.

The French authorities therefore believe that this approach to modulation has very little impact on consumer choice and, since the fee gets paid for the producer by the consumer in their visible fee system, the current system provides very little incentive for the producers to modify their designs.²⁸

The 'visible fee', while small in terms of the difference in the product price, is seen as a useful tool in that:

- 1) It makes the EPR fee transparent to all, which is good for producers in terms of being able to see the fees charged by all PROs, although arguably bad in the sense that this can lead to a 'race to bottom' in terms of competing PROs constantly trimming costs to encourage more producers to switch schemes;
- 2) It indicates the legitimacy of the seller, hence helping to reduce free-riding (although this could of course be potentially faked if the seller was aware of the obligations); and
- 3) It makes a connection in the consumer's mind with the end-of-life issue. The fact that they know that they have paid towards the recycling process could have an impact on their willingness to seek out a recycling option rather than place it in the residual waste.

The visible fee can be used with an eco-modulation varying the fee for a particular producer with a particular PRO, and in fact this happens already in France, however this is problematic since it guarantees that consumers will pay the fee, whatever the modulation. The experience in France is that the small amount of bonus or malus in relation to the product cost means that, while 'visible', is unlikely to affect the consumers choice and hence will have no impact on the products market share. Consequently there is no reason for the manufacturer to change its design.

Unlike the visible fee, that comes to the PRO from the retailer, direct producer charges appear on the producers' bottom line and hence are far more likely to have a more significant impact on decision making. While producers would wish to pass on this fee to the consumers, this depends on market conditions. Margins on TVs, for example, are very tight in the EU and the largest retailers can pressurise producers not to increase product costs, hence making it less likely that the EPR fees are passed through to consumers.

It is therefore to be noted that:

²⁸ Discussion with the French Ministry of Environment, June 2019

- Where fees are paid directly the modulation factors can be small (as a percentage of the product price), since when applied to large brands across millions of items sold in the EU, the differences will still be impactful and hence are more likely to drive better eco-design; whilst
- Where 'visible fees' are used, there is the necessity to use larger modulation factors to have an impact on consumer choices, i.e. to affect the cost of the product in a meaningful way (e.g. at least 10%, which would be in line with minimum sales discounting to have an impact on consumers).

The modulation amount could be calculated based on discussions with the producers / brand owner to understand the relative cost of making the product more eco-friendly in line with the criteria.

Finally it should be noted that a visible fee could potentially be replaced by some sort of green product rating to provide the functions noted above (i.e. raise consumer awareness), and perhaps displayed on the current Energy Label (so as to avoid a further label). This could perhaps be done using a bronze, silver, gold rating (as used by EPEAT) to reflect the eco-modulation score in a non-financial sense. As with the energy label, a qualitative label (A to G in that case), the suggestion is that this may have more effect than indicating the actual financial saving involved, which is generally minimal as noted above.

4.4.4.8 Compatibility with Competitive Schemes

Fee modulation according to eco-design characteristics is relatively straightforward where there is a single scheme or clear PRO subdivisions by WEEE category. However it is far more complicated where there are competitive schemes working to allocated targets/amounts that they physically need to arrange collection for so as to meet their members' obligations.

In this instance, the size of the fee modulation (bonus and malus) would be set in absolute terms by a central Member State authority, and competing schemes would have to apply these as required, but would still be free to compete on price and service. This would be done in a bottom-up manner - each producer submitting its criteria data which would be turned into a fee modulation factor by the central body. It should be noted also that the market composition and hence the extent of bonus and malus factors need to be known in advance of the modulated fees being set for that year, and hence data would need to be provided a few months before, in an annual cycle for example.

There is concern from some PROs, that, depending on the mix of producers each PRO has, and the eco-design features of the products in the portfolio of each producer, a modulated fee could result in a deficit or excess of funding for a PRO compared to the no-modulation scenario. The PRO will still, however, generally have to deal with the same mixed WEEE from collection points, not just the WEEE of its own producers. In this case there may be a need (on a dynamic basis) to compensate the underfunded PRO for the difference between the fees it gets and those necessary to undertake collection and

treatment of the mixed WEEE, potentially taking this money from the PRO that has an excess. This could be achieved through redistribution via a central authority.

With a fee modulation there is also a risk that if the net balance of modulations overall is in favour of a 'bonus' (as a result perhaps of criteria that are too easy to achieve), there won't be enough money overall across all of the PROs to meet the necessary costs. If there is a greater proportion of products obtaining a bonus than expected, and fewer incurring a malus, an increased malus factor would need to be applied to those products, creating a greater incentive to improve. Flexibility in the malus magnitude may therefore be needed to balance the bonus effectively overall.

Conversely, but less problematic, a net balance in favour of a 'malus' could create a surplus of fees, although this could be capped at a certain level (and fed into a general fund, for example to support national communications) or factored down across all PROs to correct the surplus effect.

Another option is a 'malus only' approach, whereby the surplus is distributed between the bonus producers according to their particular eco-modulation scores.

Obligation Modulation

An entirely alternative approach, which has received considerable support from WEEE Forum members and some producers, is instead to modulate the amount / quantity of WEEE that each PRO needs to collect. In this instance, the resulting modulation factor would be applied to the producer's market share put-on-market (POM) tonnage and the individual producer tonnages would then be aggregated to set the PRO obligation.

A PRO with 'good' producers i.e. with producers that have designed their products in a way that facilitates reuse, repair, dismantling and recycling would have less to collect and hence lower costs overall. Producers would be charged based on their reduced tonnage obligation according to their individual modulation score.

As an example, consider only fridges and just two PROs competing in the market (with a few producers each), with an overall POM figure of 1,000t. Producer A2 has a range of products which overall have good eco-design features and at the beginning of a new year gets from the authorities a "POM modulation coefficient" of 0.8. Producer B3 has some poor design features across its range on balance, and gets a POM modulation coefficient of 1.2. The situation would then be as follows:

- PRO A adjusted POM:
 - Producer A1: POM of fridges = 100t
 - Producer A2: POM of fridges = 300t x 0.8 = 240t
- PRO B adjusted POM:
 - Producer B1: POM of fridges = 50t
 - Producer B2: POM of fridges = 150t
 - Producer B3: POM of fridges = 400t x 1.2 = 480t
- TOTAL adjusted POM of fridges = 1020t
- MARKET SHARES in fridge sector:
 - PRO A = 340/1020 = 33.3%

- PRO B = $680/1020 = 66.7\%$
- Target quantity of WEEE (Fridges) under Member State target is (say) 50% = 500t
- Therefore the two PRO allocations are:
 - PRO A = $500 \times 0.333 = 167t$ (reduced from 200t with no-modulation)
 - PRO B = $500 \times 0.667 = 334t$ (increased from 300t with no modulation)

PRO A can reduce the fees to Producer A2 (the fees of Producer A1 do not change) and PRO B has to increase the fees to Producer B3.

The likely scale and speed of any the shift between malus and bonus categories (post design changes or phasing out of certain models), once the modulation is implemented, clearly results in a very dynamic situation and regular updates would be required.

Concerns over Balancing Mechanisms

There is concern in some industry quarters that using a balancing approach between PROs competing on the same territory could create significant opportunities for fraud in some member states. This is because there would be an incentive for a PRO to encourage its members to declare more “bonus” products and fewer “malus” products, irrespective of the real balance of products placed on the market. Consequently there would be the need to have a high level of market surveillance and enforcement around such a system, with a central body / clearing house having full visibility of the POM and modulation factors. It is worth noting that schemes with a single PRO do not have any such complications.

4.5 Batteries

This section is laid out as follows:

- Section 4.5.1 sets the context by providing an overview of the EU market for batteries;
- Section 4.5.2 describes current and planned regulation;
- Section 4.5.3 reflects on the importance of a more granular fee structure;
- Section 4.5.4 presents possible modulation criteria; and
- Section 4.5.5 provides recommendation for implementation.

4.5.1 The EU Battery Market

Every year, approximately 1,100,000 tonnes of automotive batteries, 491,000 tonnes of industrial batteries, and 227,000 tonnes of consumer batteries, including portable batteries and integral product batteries, are placed on the market in the European Union.^{29,30} There are several main types of non-rechargeable batteries (primary batteries); zinc, alkaline, silver zinc, lithium metal (alkaline now being the most common), and eleven types of rechargeable batteries (secondary batteries), the most common being nickel metal hydride, lithium-ion (and variants) and lead-acid (mostly used in automotive and industrial applications). Each has its own pros and cons and particular suitability for specific applications, e.g. depending on the voltage and current discharge level.

Rechargeable batteries vary in terms of their capacity to store charge (mAh), their energy density (W/kg – i.e. how much power they can pack into every kg of material used), and the number of recharge cycles that they can tolerate before performance drops significantly. The market is changing drastically however. EPBA data for portable batteries show that sales of Li-ion quadrupled between 2004 and 2015 and are still growing quickly. In 2018, the market share of primary Zinc/Carbon batteries (by weight) had decreased to 52%, of which 87% were sold separately, 13% integrated in an appliance.³¹ The market share of rechargeable lithium batteries (by weight) has increased to 29%, of which 88% is sold integrated in an appliance. Only 12% is sold separately, mainly as replacement of integrated batteries. For NiMH batteries, 46% is sold separately, 54% is sold integrated in an appliance.

Rechargeable Li-ion batteries are now being widely used in cordless appliances and in e-mobility applications. While those integrated in EEE products are captured through WEEE reprocessing, and automotive and industrial batteries are captured through B2B routes, there is now the potential for large and heavy rechargeable batteries, for

²⁹ Study in support of evaluation of the Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators, Öko-Institut/Ernst & Young, 2019

³⁰ Eurostat, data for 2017 (excluding Italy, Malta and Romania).

³¹ All data from Eucobat/EPBA

example from e-bicycles, scooters, cordless vacuum cleaners and power tools, to arise in households. Some of these batteries may not meet the portable batteries definition, i.e. if they are over 4kg or designed specifically for professional or industrial use, and hence would not be the responsibility of the battery PROs.³²

4.5.2 Current and Planned Regulation

In terms of recycling, the Batteries and Accumulators Directive (2006) requires the following:

- a 45% collection rate for waste portable batteries;
- a prohibition on the disposal by landfill or incineration of waste industrial and automotive batteries, in effect meaning that all batteries (that are available for collection) should be sent for recycling; and
- the setting of recycling efficiencies to ensure that a high proportion of the weight of waste batteries is recycled (65% of lead acid batteries, 75% of nickel-cadmium batteries and 50% of other waste batteries).

From an EPR scheme perspective, the collection and treatment focus is on portable batteries since there is a target for these, and the automotive and industrial batteries have been largely lead-acid and have inherent net-value that drove the market to close to 100% collection and recycling rates. Fees, other than administrative fees, are only charged by EPR schemes for portable batteries. This situation may need to change in response to a wider range of batteries needing collection from household sources, such as larger (non-portable) e-mobility and cordless appliance batteries.

The Directive targets are broad ones and do not (at present) get into the specifics of sub-categories, and can effectively allow cross-subsidy from one set of battery chemistries to another. The Commission has now completed the evaluation of the Batteries Directive, published on the 9th of April 2019. The evaluation is part of a process that could lead to the Directive's revision.

A Preparatory Study in regard to a possible Eco-Design Directive for Industrial and Automotive Batteries is also being developed. This is considering minimum requirements for industrial/automotive battery performance and sustainability which can potentially help to guide criteria for eco-modulation in these products. The criteria discussed in the Preparatory Study as being used for eco-design minimum requirements for industrial/automotive batteries are as follows:

- Performance minimum requirements under consideration:
 - Minimum battery pack/system life time
 - Maximum auxiliary power consumption of the Battery Management System

³² Any battery over 4 kg is classed as industrial. Batteries below 4 kg may still be classed as industrial if they are designed exclusively for professional or industrial use.

- Sustainability minimum requirements under consideration:
 - Partial Open Battery Management - e.g. information on remaining capacity
 - Carbon footprint in manufacture
 - Battery information – e.g. regarding hazardous substances
 - Battery pack design – e.g. regarding disassembly / recyclability

The likelihood of an eco-design directive for batteries is as yet unclear, but it is important to note that any modulation factors would need to go beyond any mandatory minimum requirements set for batteries.

France has the most developed eco-modulation system for portable batteries and further information can be found in the final report that accompanies this guidance.

4.5.3 Greater Granularity of Fee Structure

It is recommended that the following baseline cost categorisation is used, based on the chemistries/type within the portable battery category (for primary and secondary rechargeable batteries):

Primary

- Alkaline
- Zinc-carbon
- Zinc-chloride
- Lithium metal
- Button cell
- Other

Rechargeable (secondary accumulators)

- Lithium
- Nickel metal hydride
- Lead-based
- Nickel cadmium
- Other

The baseline fees should reflect the actual net costs of collecting and recycling a particular type/chemistry where possible, i.e. where costs can be meaningfully differentiated, and hence to reduce the risk of cross-subsidy within portable batteries.

In addition to the baseline fees noted above, it is recommended that eco-modulation factors are applied to portable batteries. At present the scope for fee modulation is only for portable batteries as these are covered by collective schemes, although developments in e-mobility and cordless tools and appliances (in particular where non-portable batteries may arise more frequently in the home) may mean that there is a future need to address industrial and automotive batteries in regard to collection and recycling targets.

4.5.4 Potential Modulation Criteria

4.5.4.1 Rechargeability

Rechargeability is straightforward to verify and binary in terms of the way which the battery is advertised and sold. Portable rechargeable batteries can replace many single-use batteries, many of which are not being captured in separate battery collections and disposed of in residual waste for incineration or landfill.

Recent LCA work shows that when compared to disposable primary batteries, the use of rechargeable batteries gives a distinct environmental advantage for high consumption devices such as cameras, torches, and electronic toys, so long as there are around 50 recharge cycles.³³ It is worth noting that rechargeable batteries can be recharged hundreds of times (the exact figure is debatable, but a conservative estimate would be 200), although their charge capacity diminishes over time.³⁴ It is recommended that NiCd batteries should not be promoted due to their poor charge retention and hazardous content. Newer rechargeable batteries (e.g. NiMH and Lithium ion) have greater capacity overall and far lower 'leakage' of charge and are well suited to high power-demand applications.

Rechargeable batteries often cost four to five times the price of Alkaline equivalents, and hence (in the absence of a tax on single use batteries) there is a need to nudge consumer choice through the application of significant bonus and malus charges.

4.5.4.2 Recycled Content

Recycled content has been incorporated for a significant period of time by Energizer in several of its portable replacement batteries (e.g. AA), although it is understood that this is no-longer the case due to production difficulties. Despite this it seems necessary to try to encourage the use of recycled content in batteries through eco-modulation so as to help incentivise further developments in this area. Recycled content would include all materials recycled in a closed loop, back from used battery recycling.

4.5.4.3 Charge Capacity and Battery Lifetime

Charge capacity (mAh) for portable batteries could be considered a useful indicator of longevity, particularly for primary batteries. Charge capacity is only shown at present on portable rechargeable batteries but the concept also applies to primary (single-use) batteries and the EU Parliament would like to see capacity shown on these primary batteries to support consumer choice.

³³ Dolci G, Tua C, Grosso M, Rigamonti L (2016) Life cycle assessment of consumption choices: a comparison between disposable and rechargeable household batteries

³⁴ a rechargeable (NiMh) battery can be recharged at least 400 times – see <https://www.duracell.co.uk/product/ultra-rechargeable-ultra-aa/>)

The industry (i.e. the EPBA) notes that measured capacity is highly dependent on test conditions including the duty cycle (how many amps are being drawn) and cut-off voltage, however standard test conditions could be developed (under CEN) and applied (as for mandatory rechargeable labelling) and banding used to reflect inaccuracies; e.g. <1000 mAh, 1000 to 2000 mAh and >2000 mAh.

A simpler approach, as set out in French legislation, would be to impose a malus on zinc carbon primary batteries given that they have a far shorter lifespan than alkaline batteries. Primary zinc-carbon (dry cell) AA batteries have around 400–900 mAh capacity and are usually marketed as "general purpose" batteries. Zinc-chloride batteries store around 1,000 to 1,500 mAh and are often sold as "heavy duty". Alkaline batteries cost more than zinc-chloride batteries but hold additional charge; typically from 1,700 mAh to 2,850 mAh and do generally last longer in heavy duty applications. A malus could therefore justifiably be imposed on zinc carbon and zinc chloride relative to alkaline batteries.

A similar approach could be used for e-mobility batteries (were these to be in scope) but in regards to energy density, specific energy storage by weight, which is defined as MJ/kg (or Wh/kg), given the lack of any specific size to help define capacity as such. The recent Preparatory Study considered energy density as a performance measure but decided that:

"Because it is already an important design parameter for e-mobility and there is no evidence that setting a minimum requirement will be useful to influence the market."

The Preparatory Study also suggests that a 'lifetime criteria' could be defined that takes into account, for a rechargeable battery, the full life time, across numerous charge cycles managed by the batteries power management system. This could be assessed under an agreed CE test standard, although at present no such test exists.

4.5.4.4 Collection Rate

Collection rates for certain types of portable batteries, including large and heavy lithium-ion and NiMH batteries used in some e-mobility applications and cordless appliances, are low in many Member States, in part due to the inconvenience of taking such batteries to collection points. There is, however, a need to ensure that critical raw materials used in batteries, including lithium and zinc for example, are recovered to as high a degree as possible to further circular economy objectives. By applying a higher charge for batteries that have a low collection rate there is an incentive for producers to either move away from that type of battery or for the PROs in question to support improved collection of those items to reduce charges for their members. There is the risk however that this largely applies to the use of Li and NiMH batteries for which increased market share is desirable. There is also a concern that the required data, at the level of disaggregation required (by chemistry), may not currently be available, albeit data can be expected to improve over time if this were incentivised.

4.5.4.5 Recycling Rate and Recyclability

While Li-ion collection levels are low in the EU at present, and reprocessing capacity limited, the waste levels are expected to grow quickly. High performance Li-ion batteries require the use of some rare metals with a limited supply and often from sensitive environments or involving conflict zones. It is therefore necessary to establish take back and recycling systems, so that this source of secondary raw materials becomes available in Europe. More generally there is a need to ensure that other minerals used in batteries, including zinc for example, are recovered to as high a degree as possible to further circular economy objectives.

At present there is a broad target to recover 50% of the material where recycling portable batteries. Modulating to reflect the recycling rate by battery type/chemistry, especially in regard to the recovery of CRMs, would seem desirable but would be complex as the recycling process varies from one reprocessor to another and the relevant data, by battery chemistry, is not readily available. It would therefore be preferable to impose minimum recycling rates for certain materials under other instruments (e.g. a revision to the Batteries Directive).

An alternative would be to use a recyclability index, for industrial / automotive batteries at least, as discussed under the recent Preparatory Study for EcoDesign minimum requirements.

4.5.5 Recommendations for Implementation

In view of the various issues noted in the section above, and in line with the principal of keeping the criteria as simple as possible and to address key circularity issues, the following two criteria are recommended to determine eco-modulation factors:

- 1) Rechargeability (yes or no) where there are single use as well as rechargeable options, but excluding NiCd. The priority here should be AA (LR6), AAA (LR3), C (LR14), D (LR20) and 9v rectangular section batteries. A bonus should be applied to all rechargeable options, but excluding NiCd, and a malus to all single use batteries; and
- 2) Percentage recycled content in the battery product from closed loop battery recycling (all materials). A bonus should be applied to all batteries that include recycled content, a malus where no recycled content is used. This could be done as a banded measure, for example:
 - 0% PCR content malus
 - 4% or higher bonus level 1
 - 4% to 8% bonus level 2
 - >8% bonus level 3

In both cases, a tax would theoretically be preferable. However, in the absence of other criteria that clearly lend themselves to modulation in the case of batteries, it is recommended that schemes modulate according to the above two criteria.

In addition, it is recommended that a malus is applied to zinc-carbon and zinc-chloride primary batteries due to their low capacity and lifespan relative to alkaline primary

batteries. While a ban, at the EU level, would be simpler, in the absence of a ban it is an appropriate further criteria for modulation.

4.5.5.1 Magnitude of the Modulation

With batteries, the objective of eco-modulation may be both to influence consumer choice (e.g. to encourage greater use of rechargeables and to select batteries with recycled content) and/or producers in regard to the more detailed aspects of battery design (e.g. to design for inclusion of recycled content).

While small fees across many millions of units can have a significant impact on the producer, they need to be more significant, as a percentage of the products' costs, to have a significant impact on consumer choice when buying just a few units at a time. The French experience is that the very small fee variations applied to date have had relatively little impact.³⁵ Consequently it is recommended that, where the objective is to influence consumer choice, a bonus or malus should be applied that is a very significant proportion of the average cost of that battery type, for example +/-20% of the retail cost, rather than 20% of a relatively small collection and recycling charge.

In particular it is necessary to have a large malus for single use batteries and/or a bonus for rechargeable portable batteries to make any impact on what is a currently very large cost gap; rechargeable AAs (LR6) for example often costing 4 or 5 times the price in upfront costs.

It is important that associated consumer information is provided that sets out the appropriate applications for the different types of portable batteries so that inappropriate choices aren't made. For example, the use of a low capacity battery in a heavy-duty application will result in more waste, while the use of rechargeable battery for an inappropriate one (e.g. to drive a camera flash), could also lead to poor performance and higher levels of waste. The EPBA can provide such information to Member States for presentation on battery sales stands or via QR codes for example.

It is also important to note that, while there is currently no visible fee option for batteries under the Directive (unlike WEEE), the application of a visible fee can be helpful in raising consumer awareness and improving collection via retailers (as discussed in the WEEE section above). While a visible fee can still reflect modulation factors, the price differential may not be noticed. As discussed above for WEEE, a traffic light labelling system, that reflects eco-modulation factors, could be used on sales display stands, potentially integrated with the EPBA information on applications noted above.

It is worth noting that a visible fee for portable batteries is supported by Eucobat³⁶:

³⁵ Corepile (2018) *Eco-modulation du barème pour la Filière Piles & Accumulateurs - PDF*, accessed 27 June 2019, <https://docplayer.fr/19951818-Eco-modulation-du-bareme-pour-la-filiere-piles-accumulateurs.html>

³⁶ Recasting the Battery Directive: introducing the visible environmental fee for batteries put on the market, EUCOBAT, April 2016

Separately invoicing the net collection and recycling costs related to waste batteries will benefit the environment, consumers, authorities and all economic actors involved in the distribution of the new batteries. In particular, it guarantees the financing of the development of a collection network with a sufficient density for effective collection of all batteries and of the required communication campaigns to create consumer awareness of this collection network, and it simplifies the market surveillance activities of the national authorities, without having an impact on the commercial relations between the economic actors.

As noted in the earlier discussions on the other product groups, care will be needed to ensure that revenue does not exceed costs and that the ongoing financial stability of the overall system, and individual PRO financing in competitive schemes, is carefully considered in regard to the overall net balance between malus and bonus charges.

4.6 Other Waste Streams

End of Life Vehicles (ELVs) were not explicitly considered in the study supporting the development of the guidance given the ongoing review of Directive 2000/53/EC.

The supporting study did gather information from EPR schemes covering agricultural plastics, fishing gear, furniture and textiles to establish:

- a) Any existing fee modulation practices for these products; and
- b) Stakeholder views as to appropriate criteria for modulation.

Full details are provided in the supporting study.

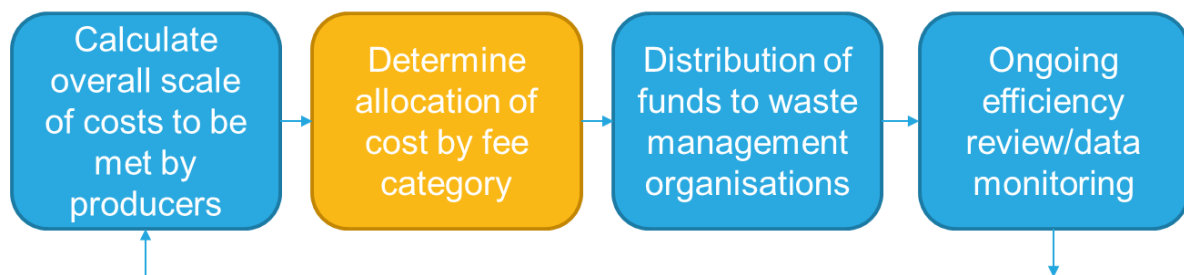
5.0 Equal Treatment

This section provides guidance for Member States on the application of Article 8a(1)(d) of the amended Directive 2008/98/EC, amendments having been introduced by Directive 2018/851.³⁷

The section is laid out as follows:

- Section 0 identifies relevant elements within the Directive;
- Section 5.2 elaborates the key principles; and
- Section 5.3 provides recommendations.

This section relates to the determination of the allocation of costs by fee category.



5.1 Relevant Elements within the Directive

The concept of equal treatment is included solely in Article 8a(1)(d) as follows:

“...ensure equal treatment of producers of products regardless of their origin or size, without placing a disproportionate regulatory burden on producers, including small and medium-sized enterprises, of small quantities of products.”

The two particular elements of note for the concept of ‘equal treatment’ are:

- Producers are treated equally regardless of their origin or size; and
- Disproportionate burden is not placed on producers of small quantities of products.

It is important that this is understood in the context of the polluter pays principle, which is enshrined in EU Law. Article 191(2) of the Treaty on the Functioning of the European Union (TFEU) states that:

“Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive

³⁷ European Parliament and the Council of the European Union (2018) Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on Waste, 2018/851

*action should be taken, that environmental damage should as a priority be rectified at source **and that the polluter should pay.***³⁸

The other element of context relevant to equal treatment in EPR schemes is the requirement for accurate information around production and end-of-life treatment of material. This has been a focus of the recent “Study to Support the Implementation of Reporting Obligations Resulting from the New Waste Legislation Adopted in 2018”.³⁹ This study sets out the methodology by which various environmental reporting obligations are to be measured. In all instances, accurate and comprehensive data is highly beneficial to the fulfilment of these reporting obligations.

5.2 Elaboration of Key Principles

By referring back to the Directive, the TFEU and the Reporting Obligations, and examining current practice, it is possible to derive a number of key principles that need to be adhered to in order to achieve equal treatment. The following section outlines each of these principles and the justification for them.

5.2.1 Reporting Burden – Producers of Small Quantities

Reporting should not be disproportionately challenging for smaller producers.

A significant issue identified by both Member States and PROs was the impact of administrative burdens on small producers. This is specifically discussed in Article 8a(1)(d) and was identified as an area for attention by stakeholders. The primary issue identified is the time and effort required by both the producers and the PROs in collating and processing the information required. Whereas major producers are considered to have sufficient administrative capacity, smaller producers are thought not to have this capacity readily to hand. It should be noted here that it is theoretically possible for a small producer (in terms of packaging or product placed on the market) to be a large business, in which case the administrative burdens would not be disproportionate to the organisation’s size, but could be argued to be disproportionate to the amount of material placed on the market. However, article 8a specifies that EPR schemes should:

*“...ensure equal treatment of producers of products regardless of their origin or size, without placing a disproportionate regulatory burden on **producers, including small and medium-sized enterprises, of small quantities of products.**”*⁴⁰

This indicates that burden should not be disproportionate to the amount of material placed on the market, regardless of the size of a producer.

³⁸ Emphasis added

³⁹ European Commission (2018) *Proposal for a regulation of the European Parliament and of the Council on the alignment of reporting obligations in the field of environment policy*, May 2018, http://ec.europa.eu/environment/legal/reporting/pdf/1_EN_ACT_part1.pdf

⁴⁰ Emphasis added

A further issue is the way that data is held by a business. Larger businesses are more likely to have advanced information management systems that enable them to deal with complex reporting requirements. An advanced information management system will allow for almost infinite data query combinations, enabling a skilled operator to access the information required (e.g. number of units, material type, material mass etc.) with relative ease. By contrast, smaller businesses may well not have such facilities, and therefore hold information in less accessible formats, or in a manner that requires significant processing to yield the answer. For example, it may well be that a smaller producer holds data on the number of units it has placed on the market, but does not hold this information by weight. This data will then need processing to facilitate reporting by weight, which may result in substantial administrative demands should there be a wide variety of different product weights for the products placed on the market.

Avoiding complexity for smaller producers can therefore be seen to be appropriate, especially in light of the specific requirement for there not to be disproportionate burdens.

5.2.2 Reporting Burden – Producers Selling to Multiple Markets

Reporting harmonisation should be facilitated across all Member States

An often-overlooked issue is the increase in administrative burdens faced by producers caused by engaging with multiple, varied EPR schemes. The fundamental challenge identified by many larger producers is engagement with a wide diversity of reporting requirements across different PROs. This diversity can occur wherever a producer sells into a number of different geographical regions where there are different EPR schemes in operation. Each PRO they engage with will have their own thresholds, fees and reporting requirements. It is the reporting requirements that are identified as most challenging for the producers, as providing data in multiple formats increases effort significantly.

Of course, these challenges could also be faced by smaller producers selling into multiple geographies, but it is more common among larger producers as they more often sell into multiple markets. It follows that this is also a form of divergence from ‘equal treatment’, as organisations selling into multiple markets are disadvantaged compared to those selling into a single geographical area, even if they are placing the same amount of material onto the market.

This form of inequality could - as described in Section 4.2.1 on overarching principles for fee modulation, and Section 4.3.3.1 in respect of reporting structures for packaging - be readily addressed by harmonising data reporting requirements, enabling producers selling across multiple markets to provide information in a repeatable manner to multiple PROs, reducing their burden. So long as data reporting harmonisation was sufficiently detailed this should not lead to any problems for PROs or Member States. It would also facilitate the provision of accurate data for reporting obligations, increasing the potential for identifying and thus tackling free-riding.

Through harmonising the reporting requirements, all producers would only need to report in one form regardless of size, material placed on market, or number of markets operated in.

5.2.3 Minimum Reporting Requirements

Reporting for smaller producers should not compromise market data integrity

Reporting for smaller producers should not facilitate free-riding

The major issues identified by producers relating to reporting requirements that vary according to the size of a producer are:

- 1) It can facilitate the **free-riding** phenomenon. By having a reduced or non-existent reporting requirement following the initial or regular registration assessment, there is significant opportunity for organisations to grow beyond the De Minimis threshold(s) without any visibility of this to PROs or Member States. Thus, reduced reporting requirements can have a significant benefit for organisations close to the threshold should they choose to withhold information, leading to them gaining an unfair advantage.
- 2) It limits the **accuracy and completeness** of data collected about the market as a whole. Accuracy of market data is important to ensure a level playing field, and is also critical to the EU's Reporting Obligations. Reduced reporting compromises the accuracy of such data, with gaps having to be filled with estimates based on a number of assumptions.

Given that reduced reporting requirements can facilitate free-riding, and that it provides incomplete data on the market which is required for reporting obligations, it follows that reporting requirements for smaller producers should not facilitate either of these issues.

5.2.4 Fee Equality

Fees should be charged according to the 'polluter pays' principle, for both end-of-life costs, and PRO operation (including administration)

Many PROs choose to offer reduced, flat-rate or even no fees to producers of smaller volumes of products. This is often done in the name of reducing administrative burdens, for example because a flat fee is simple to administer. This raises a contradiction with the 'polluter pays' principle. Whilst it is evident that smaller producers will produce less, it does not follow automatically that they should pay proportionately less for the end-of-life requirements of their packaging or products. Nor should they pay proportionately more if they happen to be disadvantaged by a flat rate calculation. If the polluter pays principle is to be respected, then it would require that smaller producers pay their fair contribution towards end-of-life costs regardless of their scale of operation.

This introduces a wider consideration of the funding of PROs and their operations, and how this is shared between producers. In order to address this, it is necessary, conceptually, to split the fees that PROs charge into the following two major elements:

- 1) Cost of end-of-life activities; and
- 2) Cost of operation of the PRO, including administrative functions etc.

As already discussed, the end-of-life costs are directly related to the polluter pays principle. Whether a smaller producer is paying nothing, less by proportion or indeed more by proportion than the major producers, there is a clear issue around fairness. It does not appear that paying the proportionate end-of-life costs associated with a small number of products can be classified as disproportionate according to Article 8a. If, therefore, the polluter pays principle is to be upheld, small producers should contribute proportionately to the end-of-life costs arising from the packaging or products they place on the market.

It is the second element, the cost of operating the PRO including administration costs, that creates greater challenges in determining 'equal treatment'. It is clear from PROs that it is much less burdensome per unit of compliance for them to engage with larger producers, as they have the capacity to engage in reporting requirements, and therefore require less support from the PRO. This is augmented by large volumes (and therefore revenues) associated with a single reporting obligation. By contrast, smaller producers are numerous and often require significant support, whilst contributing less in terms of revenue due to low volume throughputs. This dynamic could incentivise behaviour by PROs that attempts to exclude smaller producers if they have the ability to – for example by setting unrealistic fees to deter applications.

It could follow that the smaller producers should pay a greater administrative fee due to their greater need for support. This is clearly not tenable as it contradicts the requirement to not place disproportionate burdens on smaller producers, as identified in Article 8a.

In this situation, it is suggested that the 'polluter pays' principle could once again be used to inform an approach to 'equal treatment'. PROs exist in order to prevent 'pollution' through the collective funding of end-of-life operations for different product categories. The costs of running PROs is a direct consequence of the end-of-life requirements created by products and packaging being placed on the market. PRO operation costs should thus be funded **in proportion to the products or packaging placed on the market by a producer**, rather than the administrative burden it places upon the PRO.

Taking this approach would mean greatly reduced administration fees for smaller producers, with the larger producers covering most of the running costs of the PRO. At first glance this may seem 'unequal' to the larger producers; however, it is a reflection of the situation whereby the PRO exists to address end-of-life costs associated primarily with them.

It must be noted that in many cases the costs of operating a PRO are not separately charged for (for example with an annual membership fee), but rather are part of the fees charged for material placed on the market. It is not necessarily *how* the fees are presented to producers that matters, it is that the total fees payable by a producer reflect the 'polluter pays' principle, following the end-of-life demands they are

responsible for. It would be the responsibility of a PRO to ensure fee rates were set at a level whereby they could fully discharge their responsibilities.

5.2.5 Threshold Calculation

De Minimis thresholds (if any) should be determined using the minimum reporting requirements required for all producers

This principle stems from the Reporting Obligation requirements. This will require a basic level of reporting by all producers relating to material placed on the market. If all producers will have to report to a minimum standard, then it follows that this minimum standard should be the method by which any De Minimis thresholds are calculated. As all organisations will have to report to at least this standard, it would not create an additional administrative burden to use this minimum standard to determine thresholds (if any are used at all).

5.2.6 Threshold Transition

Transitions from below to above any De-Minimis threshold should minimise scope for confusion and conflict

Even having a threshold can create a deviation from 'equal treatment' for those who happen to be close to it, as they may have to produce additional evidence to show that they are below the threshold if that is the case.

This is, of course, less likely to occur where the difference in cost to the producer between being above and below the De Minimis threshold is relatively small – for example moving to a full fee from a flat fee. Nonetheless, such 'threshold effects' should be noted as potentially creating divergence from 'equal treatment'.

5.2.7 Threshold Setting

It must be possible for Member States to set any de Minimis thresholds at levels appropriate to their specific circumstances

Harmonisation of thresholds across Member States (if indeed thresholds are used) could potentially pose a challenge as:

- 1) In smaller states, most or even all of the producers could fall under a De Minimis threshold that made sense for larger countries; or
- 2) In larger states, a large number of relatively small producers would not fall below the De Minimis threshold that made sense for smaller countries.

Member States therefore need to set thresholds appropriate for their particular local situation.

5.2.8 Larger Producer Stepped Rates

Stepped fees for larger producers should not be used

Whilst a rarity, in a couple of instances PROs operate a reduced fee rate for producers placing larger amounts onto the market. This is a source of divergence from 'equal

treatment', as it reduces the payments made for end-of-life costs, contradicting the 'polluter pays' principle. This is unnecessary and sends a signal to the market that greater volumes of products require less end-of-life processing per unit. Whilst it could be argued that there are economies of scale here for end-of-life treatment, it should not follow that these should be directed to those that create the most need for the end-of-life treatment.

5.2.9 Point of Compliance

A single point of compliance should be used across all Member States

There is a variation between EPR schemes with regards the element(s) of a supply chain at which compliance is required. A Member State has a number of points along the supply chain at which it could require compliance, and this could be achieved by a single point or multiple points.

Challenges arise when a supply chain is required to comply at multiple points as this then means that parts of a supply chain may fall under thresholds, whilst others are over thresholds depending on the different players in the supply chain at different stages. It may mean that some packaging or products are paid for on multiple occasions, whilst others paid for only once, or not at all if falling below certain thresholds.

It can be surmised that the complexity of operating an EPR scheme that attempts to achieve compliance at multiple points in the supply chain is such that administration will become more complex and therefore it is harder to identify non-conformity, such as free riders.

Using a single point of compliance for each waste-stream in a Member State introduces much greater simplicity into the system. It is known exactly when products and packaging need to be accounted for and therefore it is much easier to see which organisations need to be registered with a PRO. By extension there will also be fewer organisations needing to register with a PRO, further reducing burdens for the PROs. Consideration of where online sales sits in terms of producer and/or distributor status is an important consideration.

Whilst the costs associated with an EPR scheme will be administered at a single point of the supply chain for the supply chain of the products it addresses, they will end up being borne by the all of the players as costs will be reflected in prices in the chain, ensuring that the burden does not solely fall upon one type of producer (e.g. packer-fillers).

It is therefore suggested that for simplicity, but also to ensure maximum coverage by EPR schemes, a single point of compliance is used by PROs and that this point be harmonised across Member States such that there is complete clarity regarding who should be registered, and that organisations operating across borders know clearly whether they have to be registered or not. Consideration of where online sales sits in terms of producer and/or distributor status is important.

5.2.10 Competition

Competition cannot be on the basis of modulation or volume placed on the market

Transparent fee information should be available to producers

The polluter pays principle requires that there should be no link between the volume placed on market and price paid per unit to PROs for end-of life costs. This decoupling has a potential impact on the competition between PRO schemes where there is not a monopoly. It implies that the PROs can only make commercial offerings based on their overall efficiency (i.e. their operational costs).

This needs to be considered in the context of modulation. It has been noted in Section 4.2.11 that there should not be competition between PROs on the levels of fee modulation, as this would rapidly erode the potential influence of modulation if offers were made based on reducing the modulated element. By extension, it should also not be possible for PROs to make commercial offers that undermine modulation in an indirect manner, such as by varying fees according to scale.

It is therefore important that PRO schemes are not competing on either modulation or on volume placed on the market if modulation and equal treatment are to be respected. This requires that competition between PROs is limited to areas outside of these issues, such as their operational efficiency. This is in contrast to some current situations where competition exists, and is based on giving discounts to larger producers, clearly contradicting the polluter pays principle.

The need for transparency over fees to achieve equal treatment should also be noted. It is necessary for fees to be clearly and accurately communicated by PROs such that equal treatment is ensured and, where a competitive situation exists, producers have sufficient information to make an informed choice of PRO.

5.3 Recommendations

In light of these principles, it is possible to assess what this means for the design and operation of EPR schemes in the EU. In this section, the key elements of EPR schemes are discussed with reference to the 'equal treatment' principles and associated provisional guidance for Member States suggested.

5.3.1 Membership of a PRO

The relevant principles that affect PRO membership are:

- Reporting for smaller producers should not compromise market data integrity;
- Transitions from below to above any De-Minimis threshold should minimise scope for confusion and conflict; and
- A single point of compliance should be used across all Member States.

In order for there to be adequate reporting requirements for smaller producers, it follows that it is necessary that all producers, regardless of size or origin, should join an appropriate PRO and report accordingly. This requirement also prevents any issues

around policing of when producers should join a PRO, reducing the possibility of challenges occurring at a threshold.

In some instances, producers will discharge their end-of-life obligations themselves. In such situations these producers will still need to join a PRO in order to report their production figures and to validate their end-of-life treatment arrangements unless alternative provisions are in place whereby producers report directly to a central register, for example. In this instance, as the producer is addressing the pollution issue caused by their products, they need only be charged a simple administration fee.

A single point of compliance will simplify administrative demands and provide clarity on responsibility for end-of-life costs. For simplicity it is recommended that this single point of compliance is as follows (taking account of the restrictions imposed by the producer definitions in the relevant directives):

- Packaging:⁴¹
 - Where the Packer/Filler is located in the MS, the **Packer/Filler or brand owner**; or
 - Where the Packer/Filler is located outside the MS, the **Seller**, whether they are located in the MS or are a distance seller.
- WEEE:
 - Where the OEM is located in the MS, the **OEM or brand owner**; or
 - Where the OEM/brand owner is located outside the MS, the **Seller**⁴², whether they are located in the MS or are a distance seller.
- Batteries:
 - The **Seller**.⁴³

Further information regarding the obligations of online sellers is given in Section 6.0.

5.3.1.1 Summary Guidance

- All producers at a single, specified point in the supply chain should join a PRO, regardless of size of organisation or quantity of products or packaging placed on

⁴¹ In the case of Directive 2019/904 it may be more appropriate, for example, for manufacturers of single-use beverage cups, for example to be the producer, rather than the beverage vendors at individual establishments.

⁴² In line with the WEEE Directive producer definition, the seller would be the organisation that places EEE on the MS market for the first time on a professional basis. 'Placing on the market' means supplying or making available, whether in return for payment or free of charge, to a third party within the Community and includes import into the customs territory of the Community.

⁴³ In line with the Batteries Directive producer definition, the producer can only be the organisation that places batteries and accumulators on the MS market for the first time on a professional basis, which is termed here the 'seller'. 'Placing on the market' means supplying or making available, whether in return for payment or free of charge, to a third party within the Community and includes import into the customs territory of the Community.

the market, unless if responsibility is discharged individually, and producers report directly to a central register, for example.

- The single point of compliance should be as follows:
 - Packaging:
 - Where the Packer/Filler is located in the MS, the **Packer/Filler or brand owner**; or
 - Where the Packer/Filler is located outside the MS, the **Seller**, whether they are located in the MS or are a distance seller.
 - WEEE:
 - Where the OEM is located in the MS, the **OEM or brand owner**; or
 - Where the OEM/brand owner is located outside the MS, the **Seller**⁴⁴, whether they are located in the MS or are a distance seller.
 - Batteries:
 - The **Seller**.⁴⁵

5.3.2 Reporting Requirements

The four principles that affect reporting requirements are:

- Reporting should not be disproportionately challenging for smaller organisations;
- Reporting harmonisation should be facilitated across all Member States;
- Reporting for smaller producers should not compromise market data integrity; and
- Reporting for smaller producers should not facilitate free-riding.

To ensure market data integrity and help prevent free-riding requires adequate minimum reporting from all producers. When combined with a strong case for harmonised reporting for simplicity, this implies a common minimum standard of reporting that is not disproportionately burdensome for smaller producers. This standard would then also be the method of determining any De Minimis thresholds should they be deemed necessary.

⁴⁴ In line with the WEEE Directive producer definition, the seller would be the organisation that places EEE on the MS market for the first time on a professional basis. 'Placing on the market' means supplying or making available, whether in return for payment or free of charge, to a third party within the Community and includes import into the customs territory of the Community;

⁴⁵ In line with the Batteries Directive producer definition, the producer can only be the organisation that places batteries and accumulators on the MS market for the first time on a professional basis, which have termed here the 'seller'. 'Placing on the market' means supplying or making available, whether in return for payment or free of charge, to a third party within the Community and includes import into the customs territory of the Community.

Minimum reporting should be sufficient to enable adequate market data integrity, and is recommended in Table 5-1.

Table 5-1: Minimum Reporting Requirements

Waste Stream	Reporting Type	Categorisation
Packaging	Units Placed on Market	Product Group and Size. At present there is no appropriate set of product groupings and so it is suggested that the Commission develop an appropriate set of categories for reporting.
WEEE	Units Placed on Market	Categorisation from Directive 2012/19/EU
Batteries	Units Placed on Market	The proposed categorisation is included in the Section 4.5.3. This should be augmented with Industrial and Automotive as two additional categories

A more detailed reporting method should be the default for EPR schemes to ensure market data integrity and should only be replaced by the minimum reporting approach where it is deemed necessary to reduce the reporting requirements for smaller producers so as to avoid disproportionate burden.

Whilst Member States have no obligation to do so, harmonisation of requirements between Member States will facilitate significantly reduced burdens for producers. This relates to the type of data requested, the format of the requested data, and the frequency of requested data. If possible, Member States should consider if they can require reporting that aligns with other Member States.⁴⁶

5.3.2.1 Summary Guidance

- All EPR schemes must apply a minimum reporting standard to all producers, using units placed on the market within simple categorisations.
- Larger producers should be subject to the full reporting requirements.

⁴⁶ In due course there may be merit in seeking greater standardisation of reporting requirements across EPR schemes for different products/packaging in order to seek to further reduce reporting burden and improve data quality and coherence.

- Any minimum reporting standards must only be applied to a small proportion of the total volume of products or packaging placed on the market by producers.
- Member States should seek to harmonise reporting requirements and frequencies with other Member States in order to reduce administrative burden for producers.

5.3.3 Use of De Minimis for Reporting Requirements

In order to avoid disproportionate burdens to producers of small quantities of material, it may be desirable to have a minimum reporting requirement that requires less reporting. It is, of course, desirable for all producers to give full information to ensure that there is complete accuracy in data; however, it is realistic that this full reporting will provide a significant challenge to some smaller producers. It may be that the number of members for a given PRO who may struggle with reporting is sufficiently small that the PRO is able to adequately support them with reporting to remove the need for a reduced reporting requirement; however, this may not always be the case. Indeed, it is likely that the method by which smaller producers would be supported is through the use of conversion factors applied to unit reporting.

As a result, it is suggested that a PRO may apply a De Minimis approach for reporting requirements, but only between the minimum and full reporting requirements. It is not acceptable to operate further reduced reporting requirements as this will compromise market data. It is vital that the value of this threshold is set such that the majority of products accounted for by the PRO are reported to the full standard.

The method of setting of such a De Minimis threshold is discussed in a subsequent section.

5.3.3.1 Summary Guidance

- A De Minimis threshold may be used to determine when minimum reporting and full reporting to PROs are required. The Member State should decide whether this is permitted.
- No De Minimis threshold may be used to remove any producers from minimum reporting requirements to PROs.

5.3.4 Fee Requirements

The principle that affects fee requirements is:

- Fees should be charged according to the ‘polluter pays’ principle, for both end-of-life costs and administration.

They will fundamentally vary according to products or packaging placed on the market, but be modulated according to a number of criteria.

The above principle requires fees for **PRO operational costs** to be distributed according to the quantity of material placed on to the market. In many EPR schemes this is not the case, but it should be possible to achieve if the minimum reporting requirements are in place, as this will provide sufficient information to enable variable fees to be charged.

Unlike the fees for end-of-life costs, fees for PRO operational costs should not be subject to modulation. Introduction of modulation onto administrative fees would introduce complexities into EPR schemes that would not yield any particular benefit. By their nature, administration fees are small compared to the costs of end-of-life processing. Modulation of what is already a very small fee would not create any change in fee that could create any significant benefit, and would also require further analysis to be made by the PRO, increasing burdens.

Therefore, for simplicity, fees covering PRO operational costs should be in proportion to the quantity of products or packaging placed on the market, and applied to all producers. Thereby the 'polluter pays' principle is satisfied, and there is unlikely to be a disproportionate burden for smaller producers.

5.3.4.1 Summary Guidance

- PRO end-of-life fees should be levied according to the quantity of products or packaging placed on the market, but these may be modulated according to the fee modulation guidance.
- PRO operational cost fees should be levied according to the amount of material placed on the market for all producers, with no reference to any form of modulation.

5.3.5 Use of De Minimis for Fee Requirements

Once again it is helpful to split fees between end-of-life costs and administrative costs.

For **end-of-life costs**, introduction of a De Minimis threshold underneath which fees were reduced or even eliminated would be a clear contradiction to the 'polluter pays' principle as smaller producers would pay proportionally less (or nothing) for the end-of-life costs.

The **PRO operational cost** element of fees is perhaps less clear. If, as already argued, these fees are varied according to the quantity of products or packaging placed on the market, then the fees themselves will be very small indeed for smaller producers. Given that these fees will be very small for smaller producers, it would appear that introduction of a De Minimis threshold would not create any significant advantage for smaller producers, and indeed it may require greater administration to operate by the PROs as they will have to police the threshold.

As a result of this, it is recommended that there be no method by which a De Minimis threshold is used to vary fees, whether end-of-life costs or PRO administration.

5.3.5.1 Summary Guidance

- There should be no use of De Minimis thresholds to reduce the size of end-of-life fees for smaller producers
- Subject to the administrative fee being calculated pro-rata based on the packaging or products placed on the market, there should be no use of De Minimis thresholds to reduce the size of the administration fee.

5.3.6 Setting De Minimis Thresholds

It has been recommended that there be no De Minimis approaches for either element of PRO fees, and a single De Minimis threshold used for reporting should a Member State deem it necessary. The key principles relating to the setting of such a threshold are:

- Reporting should not be disproportionately challenging for any agent;
- De Minimis thresholds (if any) should be determined using the basic reporting requirements required for all producers;

The two principles are fundamentally the same. If all producers are to be required to report to a minimum standard, then it creates no extra burden to use this approach to determine which producers would fall below a De Minimis threshold.

The level of the De Minimis threshold, if used, will need to be determined such that it minimises loss of market data whilst facilitating reduced reporting burdens for producers of smaller volumes of products or packaging. The proportion of products/packaging placed on the market by producers of smaller volumes will vary according to each Member State. It is therefore not appropriate to set a specific level at which the De Minimis should be placed, whether by absolute volumes or by proportion. Instead it is recommended that Member States seeking to apply a De Minimis threshold consider at what scale of production full reporting will become achievable, and set the threshold accordingly, taking into consideration that only a very small minority of material should be falling under the De Minimis threshold.

It is also important to note that the De Minimis threshold could become a method of competition between PROs, driving up thresholds to reduce burdens. As a result, Member States should set a maximum level at which a De Minimis threshold can sit.

5.3.6.1 Summary Guidance

- If a De Minimis threshold is used, it should be determined according to the minimum reporting standards.
- The threshold should be set with reference to the local situation whilst ensuring that only a very small proportion of material placed on the market falls under the De Minimis threshold.
- Member States should determine a maximum threshold for the De Minimis using a placed on market approach.

5.3.7 Other Methods of Variation

The only other form of variation is by reducing fees for increased volumes placed on the market. This, as already discussed, clearly contradicts the ‘polluter pays’ principle, and should not be in use in EPR schemes.

5.3.7.1 Summary Guidance

- Other forms of variation, such as stepped fees for larger producers, should not be used.

5.3.8 Competitive Schemes

It should not be possible for PROs to compete by adjusting modulation or on the basis of volume produced. It should also not be the case that PROs can compete on any De Minimis threshold for reporting. As a result, it should only be possible for PROs to compete on the basis of operational efficiency. Member States should therefore carefully consider the value that might or might not be added by a competitive system given the parts of the schemes that are not appropriate for competition.

The simplest way in which to ensure there is not competition on modulation or volumes would be to require PROs to publish their fees. Additionally, in order for there to be sufficient transparency of information to facilitate equal treatment, it follows that fee information should be published by PROs for producers to make informed choices.

5.3.8.1 Summary Guidance

- Member States should ensure that PRO competition only occurs on the basis of operational efficiency.
- Fees should be published by PROs

6.0 Tackling Free-riding

6.1 Introduction

Free-riding typically takes the form of companies selling goods into a country where they are not contributing to either take-back for separate collection or funding the subsequent collection and treatment. Online selling, both from EU Member States and outside the EU, is becoming a particular problem in this regard and undermining legitimate producers, who have to do and pay more to compensate. Cross border trade is also a significant problem, in particular for smaller EU countries where lower cost goods may be available a short distance away in another Member State.

The following recommendations are presented as the most practical and cost-effective to pursue and would address both online and other key aspects of free-riding.

6.2 Key Recommendation - Multi-seller Platforms and Fulfilment Houses

Recent studies have shown that multi-seller platforms, in hosting many hundreds if not thousands of sellers that are non-compliant, are a major contributor to free-riding. The OECD study estimated that around 5% to 10% of all EEE sales are non-compliant, although subsequent work has shown that in some cases over 80% of sellers of certain products, such as LED lamps, can be non-compliant.⁴⁷ In many cases next day delivery is available, showing that the items in question are physically handled (rather than digitally) from an EU fulfilment centre, and hence that there is a legal entity in the EU that could take some responsibility.

Perhaps the most significant steps taken to tackle free riding in the WEEE compliance system is found in France, with the adoption in February 2020, of new obligations for online platforms.⁴⁸ These obligations require online multi-seller platforms such as Amazon to ensure that the collection and recycling of WEEE arising from products marketed and sold on such websites is properly financed. The online platforms will, by default, be held responsible if they cannot prove that a business that sells a product on their site makes an 'eco-contribution'.

It is recommended, therefore, that Member States should engage with multi-seller platforms as a key priority and obtain their commitment to action to deal with free-riding across EEE, batteries and packaging sales. Having different solutions and obligations at the Member State level can be problematic under Internal Market rules,

⁴⁷ Recolight investigations in the UK

⁴⁸ LOI n° 2020-105 du 10 février 2020 relative à la lutte contre le gaspillage et à l'économie circulaire https://www.legifrance.gouv.fr/affichTexte.do;jsessionid=BA3D39F50927B6906579115C6D42056B.tplgfr24s_2?cidTexte=JORFTEXT000041553759&categorieLien=id

therefore Member States should endeavour to follow the recommendations given here where possible.

Obligations could be at one of several levels:

- 1) Sign up to e-commerce codes of practice where available and is a standard for web sites that includes the showing of Producer Responsibility Organisation registration details for each seller (as required in Ireland), the legal entity address and contact information, and potentially a logo. This could build on the SafeShops.be model and similar e-commerce quality labels. This would provide a mechanism for enforcement authorities and informed consumers to check, but would still require a lot of work for the authorities in verifying the validity of registration details.
- 2) A requirement on e-commerce platforms, in compliance with the rules on intermediary liability foreseen in the E-Commerce Directive, to:
 - a. include information requested concerning seller EPR registrations as part of the platform registration and contractual process; and either
 - b. limit access to those that cannot show appropriate EPR documentation for the products they sell when this remedy is proportionate; or
 - c. take on the EPR obligations of their sellers (potentially as an AR or potentially as a producer) where the platform company:
 - i. is of sufficient size for this obligation not to be disproportionate (most multi-seller platforms would be); and
 - ii. facilitates import (fulfil delivery) and the seller is not EPR registered (with a PRO/AR); and/or
 - iii. the seller falls below an EPR de minimis in the Member State that excludes them from obligations.
 - d. provide seller quantity data in EPR product categories to PROs and regulators to allow auditing of declared quantities under EPR registrations, giving due regard to data protection rules.

Approach 2 is strongly recommended as the mandatory requirement that is most likely to have a certain impact and allows the regulators a far easier task than other options in that the onus is on a relatively small number of platforms, acting in a similar fashion to (if not as) ARs for the sellers on their sites. Approach 1 could still be utilised as a complimentary measure to help better inform consumers around seller legitimacy. It is worth noting that the multi-seller platforms are digital systems experts and will therefore be able to automate the process to minimise additional cost to themselves and their sellers.

It is worth noting in this context that the EU 'Blue Guide', as it applies to multi-seller online platforms, notes that:

“where fulfilment service providers provide services ... which go beyond those of parcel service providers, they should be considered as distributors and should fulfil the corresponding legal responsibilities. Taking into account the variety of fulfilment houses and the services they provide, the analysis of the economic model of some operators may conclude that they are importers.”

This would mean that it is legitimate to require fulfilment service providers to be obligated as distributors and potentially producers. It should be noted that not all multi-seller platforms undertake fulfilment, e-bay being a notable example. In this sense there may be less legitimacy to requiring such sites to take on AR or producer responsibilities, although 2 a), b) and c) would still be relevant.

It is to be noted that the EU Blue Guide also states that:

“Following Article 15 of the E-commerce Directive, Member States cannot impose either a general obligation on these providers to monitor the content or a general obligation to actively seek facts or circumstances indicating illegal activity. This means that national authorities cannot establish a general obligation for intermediaries to actively monitor their entire internet traffic and seek elements indicating illegal activities such as unsafe products. The ban on requesting general monitoring, however, does not limit public authorities in establishing specific monitoring requirements, although the scope of such arrangements have to be targeted.”

One of the larger platforms has proposed that all its EEE sellers are charged a flat rate fee per kg of product placed on the market; an average figure based on the overall obligation of all sellers across all EEE product groups. Whilst an interesting proposition, it should be noted that such an approach is flawed in several ways:

- Some sellers will already be registered and may therefore pay two sets of fees, once accurately through their own registration and once as an approximation through a flat rate platform charge;
- The flat rate charge will result in cross-subsidy between categories and no proper representation of eco-modulation factors;
- It doesn't allow for a Visible Fee to be shown for EEE; and
- It does nothing towards take back, unless part of the flat fee helps to subsidise municipality collection or bricks and mortar take back.
- Providing this service to its operators, something probably only large platforms with specific knowledge could design, would risk creating an advantage for certain platforms compared to others and contribute to tying the customer to that platform for convenience.

6.3 Other Potential Measures

6.3.1 Courier Obligation

Notwithstanding the current Blue Guide test (“where fulfilment service providers provide services ... which go beyond those of parcel service providers”) noted above, in some cases it would seem reasonable to place obligations on couriers and parcel services, where the seller (online or otherwise) does not have a bricks and mortar establishment in the country in question, i.e. are distance sellers without any other potential representative (such as a multi-seller platform or Authorised Representative).

This might be done potentially only for those over a certain size (i.e. the large multi-nationals), to take on the obligations (potentially as an AR) of distance sellers where the latter are not registered with a PRO or AR and the item is being delivered directly to the purchaser (i.e. the courier facilitates import). Larger courier and logistics companies, such as UPS, DHL, FedEx have delivery contracts with overseas e-commerce sellers and would therefore be motivated to ensure that:

- a) the sellers are registered where possible with a PRO/AR; or
- b) that any costs incurred by the courier company in fulfilling obligations are passed on contractually.

These obligations would only need to be financial in support of collection (where the courier does not want to be involved in physical take back, which has been shown in Belgium and the Netherlands to be problematic and not necessarily cost-effective) and treatment.⁴⁹ There may be a commercial benefit to companies in providing both logistics/courier and environmental compliance services bundled together across the EU and beyond. Reportedly, courier companies already have systems that allow the digital tracking of dozens of parameters per product/parcel, and hence it may only take marginal effort to increase this information to allow tracking of EPR registrations.

6.3.2 Harmonisation of EPR Regulations and Electronic Registration

Policymakers should consider making batteries, packaging and WEEE regulation for EPR as harmonised as possible in the sense of definitions for producer and distributor, the use of *de minimis* approaches and how distance sellers are dealt with. In regard to the last of these, legislation obligating the ‘facilitation of import’ could be used to capture couriers, multi-seller platforms and fulfilment houses.

Steps should also be taken to ensure that all producer and distributor registers are electronic, public and as standardised (e.g. in product code terms) for each product group as far as possible and with other Member States as far as possible (following EU guidelines). The trading name of the web site should be required for registration, as well as the legal entity name. The European Commission has implemented a common format for reporting in 2018, but further work is needed to extend to a fully harmonised producer registration system across the EU.

Further harmonisation, across product groups and Member States, will minimise confusion and cost for producers and facilitate information exchange and checking for free-riders by PROs and enforcement authorities.

⁴⁹ “Extended Producer Responsibility and the Impact of Online Sales”, OECD, 2018.

6.4 Co-ordination within and between Member States

Producer responsibility organisations, enforcement agencies, customs authorities, trading standards authorities and tax authorities should pro-actively share information in a structured manner to identify and counter free-riding. Cross checking customs data in regard to imports vs products that are declared under EPR registration is one example, and is already happening in some Member States.

EPR and VAT registration could also be linked (as in some parts of the USA) - a VAT registration for a seller of EEE, batteries or packaging requiring an EPR registration and vice versa. Customs authorities could also require an EPR registration and PRO contract whenever they detect the importation of a product covered by EPR legislation. This type of interlinking and cross-checking of obligations is already done automatically where there are relevant databases; e.g. for vehicle MOT, insurance and road tax in the UK.

In view of this, a solution which is systemic and allows for simultaneous collection of various types of product data, with data streams then going to the right authorities, and potentially customers, would be helpful but would need further investigation; for example in regards to potential digital solutions and in regards to the host for such as system, potentially customs authorities.

At the EU level, the enforcement agencies of all Member States should be encouraged to be represented on the European WEEE Enforcement Network in order to optimise seamless co-operation across Europe. Similar networks could be established for batteries and packaging.

6.5 More Explicit and Fast-acting Regulatory Powers

Explicitly build into national/territory legislation the ability to prosecute a company for illegal action in another country/territory to facilitate enforcement as per the UK example. Although, within the EU, this appears to be already technically possible through the principles of enforcement of judgements, enforcement agencies that were consulted saw all forms of prosecution as slow and costly given current approaches.

Member States should consider introducing additional enforcement powers, and enabling private actions, to prevent illegal online selling. In Ireland, for example, on-the-spot fines can be used to penalise non-compliant web sites rather than having to go through court procedures which can be slow and costly. In Germany, under the “Gesetz gegen den unlauteren Wettbewerb – UWG” law, a competitor can issue a “warning” (effectively a cease-and-desist letter) and demand compensation from a non-compliant producer, stop the producer from selling non-registered EEE (injunction), and request disclosure of sales and their recipients. The Federal Environment Agency can also request the “absorption” of profit gained through unfair competition.

6.6 Awareness Raising

Visible fees at point of sale (currently for WEEE only) can help signal the legitimacy of the seller in the eyes of the consumer. Visible fees potentially present problems in relation to the effectiveness of eco-modulated fees since the fees are paid by the consumer

rather than the producer, and often too small a variation to affect consumer choice. Alternative product labelling could be used to inform consumers (on a Bronze Silver Gold or A to G basis) of the products eco-modulation score which would have a similar effect, raising consumer awareness of the products 'green' credentials whilst flagging the legitimacy of the seller.

Credit card companies could also be potentially involved in sharing responsibility, the principle being, for example, that a consumer cannot use their credit card to purchase goods from a company that should be EPR registered but is not. This would require some form of digital systems approach. It is important, however, that this is not done in a way that creates internal market barriers.

In terms of awareness raising among overseas sellers, PROs (and Authorised Representatives under the EU WEEE Directive) should be obligated to undertake promotional and awareness raising work overseas, and particularly in the Far East. This could be done through professional networks and trade associations for example.

