



**Community Resources Network Ireland**  
**Improving Mattress Recycling**  
*Briefing Paper*



CRNI receives core funding through  
the EPA Circular Economy Programme

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# 1.0 Summary

## 1.1 Overall purpose of the report

CRNI has prepared this briefing paper to inform policy options for a mattress Extended Producer Responsibility (EPR) scheme for Ireland, informed by desktop research and stakeholder surveys and interviews. This is in response to the measure in A Waste Action Plan for a Circular Economy under the EPR topic area to “examine the feasibility of introducing further EPR arrangements for other waste streams, including for example bulky waste including mattresses”.

This builds on the work undertaken in and for the EPA chaired mattress working group, which was established through the National Waste Prevention Programme. The aim of the working group was to support the exchange of information and knowledge on end-of-life mattress waste management and recycling, provide evidence for policy and support mattress recycling social enterprises in their circular economy ambitions. This paper also aims to help inform the policy measures in the Waste Action Plan for a Circular Economy to examine the feasibility of introducing further EPR arrangements for other waste streams, including mattresses and to promote circular economy design principles for mattresses. It is noted this policy document also refers to the role of social enterprise in mattress recycling but points to the market being not fully mature enough to allow scaling up for sufficient impact.

The paper covers international best practice, explores potential EPR designs and other policy options, describes the current market in Ireland and provides feedback from key stakeholders. Within the scope of this study are any form of mattresses but not other bulky goods e.g. bed bases, furniture, carpets.

## 1.2 Overview - Mattresses in the Circular Economy

Mattresses are a complex and bulky product which have traditionally been managed within a linear economy model, being mainly handled at the bottom of the waste hierarchy.

A recent report commissioned by the European Bedding Industry Association (EBIA) estimated that there are approximately 360 million mattresses currently in use, with 47.2 million new mattresses sold each year and 42.5 million being disposed of in the EU<sup>1</sup>. Of those discarded mattresses the report estimated that only 14% are recycled with 34% going for Energy from Waste (EfW) and the remaining 51% being sent to landfill. In Ireland it is estimated that the current recycling rate is at or below this average (see Section 3.3.5).

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<sup>1</sup> Presentation given to EPR Club on EPR for mattresses, May 2021, available at <https://www.eprclub.eu/events/epr-for-mattresses/>



Mattresses are composed of four main materials including foam (mainly polyurethane (PUR) foam), springs (steel), an outer woven layer “tick” and a shell enclosing the core (typically Polyester (PE)). While spring mattresses typically make up a larger share of the mattress sales (e.g. in Scotland the share is 69%<sup>2</sup>), foam-only mattresses (PUR / latex) are also significant and growing in market share.

Some of the key challenges in delivering a more circular economy for mattresses are:

- There is limited **ecodesign** (although this is changing - see National Bed Federation (NBF) guidelines) which means that durability, the potential for reuse through repair or recovering, supporting the recycling potential through stitching or spring design is not well developed.
- There tends to be limited **reuse** of mattresses due largely to consumer and industry concerns regarding hygiene and cleanliness. However, reuse operators participate in the Belgian EPR scheme and it is estimated that in the UK approx. 600,000 mattresses are reused annually.
- Due to their bulky nature and often a lack of infrastructure, mattresses have been “seen as the poster child” of **illegal dumping**<sup>3</sup>, which leads to significant cleanup costs
- Mattress design in some cases hampers dismantling and **recycling**. Furthermore, many of the component materials can be challenging to recycle and there are limited outlets for this. The presence of fire retardants in these materials can further complicate the recycling potential.

The EBIA reports that the market is starting to shift toward more circularity. Key suppliers, such as the foam industry, are beginning to invest in recycling options while manufacturers and retailers are also looking to natural materials such as biofoams or the overall design<sup>4</sup> to ensure ease of dismantling or include recycled content.

### 1.3 Overview - Summary of Findings

While the original premise of this study was to deliver a briefing specifically on the feasibility of developing a mattress EPR for Ireland, this belies an overall objective which should be to move mattress design, use and End of Life (EOL) management to a **more circular model**. It is

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<sup>2</sup> Eunomia, *How to reduce waste and carbon emissions caused by mattresses: A review of global Extended Producer Responsibility schemes*, report for Zero Waste Scotland, 2020, available at <https://www.zerowastescotland.org.uk/content/review-of-global-extended-producer-responsibility-schemes-mattresses>

<sup>3</sup> Eunomia Research & Consulting Ltd for Zero Waste Scotland, *How to reduce waste and carbon emissions caused by mattresses: A review of global Extended Producer Responsibility schemes*, 2020

<sup>4</sup> See presentation from IKEA to EPR Club: <https://www.eprclub.eu/wp-content/uploads/IKEA-presentation.pdf>



recommended that the overall scope and objectives in relation to mattress collections and management are clarified with this in mind. From experience with other Member States, this process of setting “investment objectives” **should involve key stakeholders** from all types and sizes of organisation along the entire value chain from an early stage.

The recommended scope or focus of any policy discussion is every type/size of mattress, though in the context of an EPR scheme, mattresses should be **combined with bulky goods** to allow for a larger impact on waste arising and recycling volumes. More work is required to validate the quantity of mattresses (and bulky goods, if relevant) placed on the market and reaching end of life per year to fully understand the scale of the challenge and **establish a measurement methodology** in advance of any objectives being set.

From the extensive review and interviews undertaken for this paper, it was found that EPR schemes are viewed as effective policy measures for improving collection and recycling of mattresses, but that the very high administrative burden, narrow focus on one product group and other challenges tend to delay or prevent their development.

It is therefore proposed that a **roadmap** is developed that includes interim measures preparing the sector ultimately for an EPR scheme. Recommendations for a roadmap are set out in Section 4.0 of the report.

## 2.0 Review of EPR schemes

### 2.1 Purpose and Policy background

According to the EU Waste Framework Directive, EPR means “a set of measures taken by a member state to ensure that producers of products bear financial responsibility or financial and organisational responsibility for the management of the waste stage of a product’s life cycle.”

The **benefits of EPR schemes** are that they can engage an entire industry in creating ambition for the improved management of a particular product. This can lead to increased collection and improved reuse and recycling rates of the product or components, more eco-design to support end of life recycling or decrease the use of virgin materials, and consumer engagement on the importance of responsible disposal.

In principle, EPR schemes should ensure the cost of managing the end of life of a product is shifted from local authorities or citizens in general **to producers and consumers of that product**. That is, either the producers may bear the cost or, where market conditions allow, pass it onto the consumer. In some EPR schemes it is mandatory to pass costs onto the consumer via a “visible fee” at point of sale. An evolving aspect of EPR schemes is the modulation of fees



depending on the design of the product for durability, reuse or recycling, influencing consumer behaviour and providing a feedback loop to producers.

In practice, EPR involves producers taking responsibility for collecting end-of-life products, and for sorting them before their final treatment, which would ideally be reuse or recycling. Producers can typically meet their responsibilities either:

- directly through providing necessary financial resources, or
- by assuming the operational and organisational aspects of the process from local authorities, individually or collectively through Producer Responsibility Organisations (PROs).

Schemes may be voluntary or mandatory. Within the EU, some product streams are targeted by specific Directives, resulting in all Member States implementing EPR schemes to meet legislative requirements for waste collection and processing. Elsewhere individual Member States may choose to introduce EPR schemes for problematic waste streams such as tyres and farm plastics as seen in Ireland.

## 2.2 Mattress EPR schemes

### 2.2.1 Existing Schemes

The recent study *How to reduce waste and carbon emissions caused by mattresses: A review of global Extended Producer Responsibility schemes* (“ZWS study”)<sup>5</sup> provides a comprehensive overview of mattress EPR schemes. This report was developed to inform Zero Waste Scotland as to whether an EPR scheme could be effective in Scotland, how schemes operate from a practical, financial and data/information perspective, and to outline the most suitable options.

The review looked in-depth at:

- the mandatory EPR scheme in France for mattresses and furniture
- mandatory EPR schemes for mattresses in three US states – California, Rhode Island and Connecticut
- A voluntary EPR scheme for mattresses in Australia.
- voluntary take-back and recycling schemes for mattresses implemented by individual retailers or recyclers in the UK and the Netherlands.
- EPR schemes for carpets, notably in the US and the UK

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<sup>5</sup> Eunomia Research & Consulting Ltd for Zero Waste Scotland, *How to reduce waste and carbon emissions caused by mattresses: A review of global Extended Producer Responsibility schemes*, 2020





The outcome of the ZWS study was a set of three possible approaches to a mattress EPR scheme for Scotland:

- Model 1 – Mandatory industry-led EPR
- Model 2 – Mandatory government-led ‘pseudo’ EPR
- Model 3 – Voluntary industry driven EPR with targets

The report does not recommend any one model in particular, but does highlight that a key challenge with mandatory models (options 1 and 2) for Scotland would be avoiding market distortions at UK level. For example, if a visible fee were added to mattresses sold in Scotland, consumers may simply cross the border to purchase from England instead. This may also pose a problem for the Ireland / Northern Ireland border and will be taken into consideration in Section 2.3.3 below. Finally, the report recommended a number of complementary instruments to support any EPR schemes as set out in Section 2.3.2 below.

Since the ZWS Study was completed, another mandatory scheme has come into existence in Belgium. This scheme is described in detail in two webinars<sup>6</sup> as well as via the Valumat website. The scheme is currently mandatory in Flanders only, with partial implementation in Wallonia and Brussels and a target for full implementation by 2023. It is underpinned by collection and recycling targets and implemented as a collective scheme with a single Producer Responsibility Organisation (Valumat). Further design elements of this scheme are included in Section 2.3.

## 2.2.2 Emerging Schemes

With the Revised Waste Framework Directive requiring the separate collection of textiles by 2025 by all Member States and explicitly including mattresses within the definition of “municipal waste”, more and more Member States are exploring EPR schemes for mattress, bulky goods and textiles. Schemes for mattresses in England and Scotland have been in discussion for some time.

In Greece, mattress and textile EPR schemes are also currently being explored. A report *Support on EPR schemes for mattresses and textiles for Greece*<sup>7</sup> (“Greek EPR Report”) was published in March 2021 to provide technical assistance to the Hellenic Ministry of Environment and Energy, by supporting the competent Greek authorities and other relevant stakeholders to build institutional capacities, for the setup of such schemes. The report sets out a roadmap that provides a comprehensive and careful approach for the design of a mattress EPR scheme, including milestones and responsibilities of key stakeholders with an indicative timeline.

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<sup>6</sup> EPR Club webinar (May21) available <https://www.eprclub.eu/events/epr-for-mattresses/>, Zero Waste Scotland webinar (March 2021) available on request.

<sup>7</sup> Eunomia, *Support on EPR schemes for mattresses and textiles for Greece*, 2021, available at <https://www.giz.de/en/downloads/Final%20Report%20EPR%20textiles%20mattresses%20EN.pdf>



In Scotland, following agreement of a set of investment objectives (see Section 2.3.1), and the shortlist of models (ZWS study), there has been further stakeholder engagement and an outline business case was due to be published in 2021 / 2022. The business case is expected to conclude<sup>8</sup> that EPR as a policy measure is the most effective and efficient option. However, further development of a scheme is currently on hold due to competing priorities and efforts to provide greater policy consistency across the UK through a better regulation framework. As DEFRA is currently focused on EPR schemes for textiles, fishing nets and fishing gear, these EPR schemes may also become a priority for Scotland.

Other barriers can also hamper development of an EPR scheme - for example, in Italy an EPR for mattresses was drafted but not adopted due to a lack of recycling capacity and limited dismantling sites.

Discussions about textile EPR schemes may also impact mattresses - for example, in Germany an EPR scheme for textiles is currently under consideration. As highlighted in Section 2.3.5, textiles make up the shell and tick layers of mattresses.

## 2.3 Design considerations for EPR schemes

The EBIA was developing a blueprint for mattress EPR schemes across Europe<sup>9</sup> at the time of writing to encourage harmonisation. This was due for publication in September 2021, though at the time of publication of this report (June 2022) it was not publically available. Some high level recommendations for mattress EPR schemes within this blueprint were expected to include:

- **Market engagement and design:** Addressing free riding, potential distortions of the internal EU market and unnecessary administrative costs
- **Targets:** Clear and consistent definitions of recycling
- **Infrastructure:** Ensuring good collection systems are in place that preserve the reuse and recycling potential of mattresses (e.g. ensure they are kept clean and dry), facilitating the expansion of recycling options through research and investment in infrastructure
- **Ecodesign:** Taking into account ecodesign based on life cycle analysis and a harmonised understanding of eco modulation

These are elaborated further in Sections 2.3.1, 2.3.5 and 2.3.7 below. Zero Waste Scotland also sets out key design features or enablers of a mattress EPR scheme, which reflect the above and include market engagement, infrastructure and design for circularity. These design considerations are explored in more detail below.

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<sup>8</sup> Based on discussion with ZWS 17 August 2021

<sup>9</sup> Interview with Frederik Lauwaert, European Bed Industry Association (28/7/21)

### 2.3.1 Scope

In the Greek EPR Report, an early step of the roadmap to an EPR scheme is to determine the scope of any discussions, what items are and are not to be covered, which organisations will have obligations (i.e. Regulators, PROs, Waste management contractors, Local Authorities etc) and which producers (including importers) must contribute.

The **scope of mattresses** covered by EPR schemes highlighted in Section 2.2.1 generally includes every type of mattress (foam, bladder, box sprung, pocket sprung, topper pad etc.) and every size of mattress (King, Queen, Double, Single, Child etc.) although in some cases bed bases are also included.

The **scope of EPR schemes** can be mattresses only or broader schemes covering mattresses and other bulky goods as in the French scheme. As highlighted by Zero Waste Scotland<sup>10</sup>, mattresses are a very specific product group that does not present very large quantities of waste overall. If combined with other product groups, for example bulky waste (e.g. furniture), there would be larger volumes and a much bigger impact on waste arising and recycling volumes. This may also raise the priority of introducing such a scheme.

As regards **producers**, generally these are considered to be anyone first placing the item on the market for sale which includes manufacturers, importers, brand owners and distance sellers. However, take-back obligations assigned to these producers may vary depending on the scheme design and size or capacity to service consumers (e.g. distance sellers).

### 2.3.1 Market Engagement

The EBIA points out that a key success factor in any mattress EPR scheme is the involvement of all stakeholders including manufacturers, retailers, authorities, industry suppliers, consumers and recyclers<sup>11</sup>. Furthermore, these stakeholders should be actively involved in setting up any PROs and in governing the system.

For example in Belgium, France and the Netherlands industry has taken the lead in establishing PROs with the Governments setting guidelines on, for example, targets for recycling that a PRO has to meet. Éco-Mobilier in France was created initially by 12 retailers and 12 manufacturers and currently has more than 5,500 industrial members/producers. In Belgium it was the industry that established Valumat during the development phase of the EPR scheme. The scheme includes agreed separate collection, dismantling and reuse/recycling goals for 2021, 2023, 2025 and 2030 under the acceptance obligations.

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<sup>10</sup> Interview with Anastasios Markopoulos and Izzie Eriksen, Zero Waste Scotland (17/8/21)

<sup>11</sup> Interview with Frederik Lauwaert, European Bed Industry Association (28/7/21)



With a lot of pressure on industry to become more sustainable, the EBIA notes there is generally widespread buy-in from the mattress industry to EPR schemes and the idea that something better needs to be done with end-of-life mattresses. The EBIA notes that while mattress manufacturers are increasingly designing dismantable and circular mattresses, they are concerned about the potential impact of eco modulation or ecodesign requirements on the diversity of their portfolio, as elaborated in Section 2.3.6.

In Scotland, a first step in the development of a mattress EPR scheme was agreeing with industry via the strategic partner, the National Bed Federation, the investment objectives which underpin any case for intervention. The agreed objectives were:

- to maximise the circular economy impact of mattresses (through recirculating materials, influencing the eco-design of mattresses),
- to reduce the negative environmental impacts of mattresses (reducing the amount going to landfill)
- to support just transition principles (creating employment opportunities, ensuring low income communities are not disproportionately affected), and
- to influence / inform consumer behaviour around purchasing, maintaining mattresses
- to ensure any scheme is efficient for industry (that it is relevant not just for Scotland but also for England, Wales and Northern Ireland which share a common market and borders)

Other key considerations outlined by Zero Waste Scotland for industry are the development of cost-effective solutions, collaborative target development and setting, inclusive scheme design, enabling collective responsibility and levelling the market.

Free-riding is a major consideration for any EPR schemes, particularly due to the large presence of online mattress retailers. Ensuring all mattresses sold via physical or online retail are captured in the scheme is a key measure in establishing a sense of level playing field. A good example of this can be found in Belgium, where Belgian authorities entered into an agreement with Amazon directly on how to deal with online sales.

## 2.3.2 Structure and Governance

### EPR Scheme Designs

As noted above, the ZWS study identified three main EPR scheme designs:

**Industry led mandatory EPR schemes** are the most widespread for mattress EPR schemes. These are overseen by government agencies or bodies which are responsible for granting licences for EPR PROs to operate, which include terms of reference that can cover, for example,



targets<sup>12</sup> or other goals. Schemes are underpinned by legal obligations meaning that businesses cannot opt out of their obligations or costs and must either participate in a compliance scheme or self-comply.

The PROs under these licence agreements can determine the fees, tackle the issue of free-riders and provide incentives for eco-design such as modulation of fees. All of the mandated schemes require documentation from their members and can conduct audit work. As industry-led schemes, the PROs are often governed by a board made up of industry representatives. They work to support industry Members and are guided by Members in their activities including fee setting etc. While the industry-led approach helps to ensure buy-in and collaboration, continued oversight by public authorities is important in ensuring social and environmental goals are delivered effectively.

In four of the five mattress schemes reviewed in the ZWS study, there is a single PRO paid by producers to run the scheme but in France there are two PROs working closely together. The new Belgian scheme, not included in the Eunomia study, is also mandatory and offers a single PRO which was established by mattress manufacturers and federations (Valumat vzw).

Another form of EPR is **government led and mandatory**, referred to as a “pseudo” EPR in the Eunomia report. In this instance, the government delivers the PRO-equivalent administration rather than industry. Due to this alternative structure such a scheme would not have to comply with the EU Waste Framework Directive and Article 8a restrictions on what fees can be charged for, as consumers pay government directly rather than indirectly as in EPR.

Finally, self-governance is an option in the case of **industry led voluntary mattress schemes**, as seen in Australia. In these schemes, it is voluntary for producers to belong to any PRO and there are no legal requirements or regulations applicable to them. There are often (but not always) collection and recycling targets in place. It is noted that while voluntary schemes can be successful, it can take longer (than mandatory schemes) to achieve recycling goals especially in the absence of concrete targets. For example, the National Bed Federation has highlighted that many retailers do offer take-back facilities but there is a need for regulation to ensure it is more consistently rolled out.

While EPR as a concept could be considered to be a preferred route for most product groups in theory, developing an EPR scheme can be a very lengthy process and take up **significant administrative capacity**. Furthermore, as highlighted in Section 2.2, there can be multiple competing priorities in developing EPR schemes. In particular, in the face of limited administrative capacity, consideration must also be given to which streams can have the most impact. As highlighted in Section 2.3.1, **combining mattresses with bulky waste** may have a much bigger impact on waste arising and recycling volumes.

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<sup>12</sup> E.g. as outlined in the ZWS study, the Mattress Recycling Council (MRC) in the US puts forward a stewardship plan for California, Rhode Island and Connecticut, in order to meet the targets set by states under statute.

## Complementary measures

Complementary measures or minimum requirements for any EPR scheme are set out in the ZWS study as necessary to ensure that the lowest quality items cannot be placed on the market and to encourage, incentivise, or mandate that items are more durable, refurbished and remanufactured, and contain higher quality recycled materials. These include:

- Mandatory for free take-back by retailers, costs recovered through levy charged at point of purchase;
- Minimum product requirements (see Section 2.3.7)
- Green Public Procurement (GPP) buying standards for the public sector to drive demand
- Continuing support for Circular Economy (CE) innovation, focusing on the sector, combined with financial incentives

These are also referred to throughout this report.

As noted above, **information and awareness activities** play a very important role in EPR schemes and obligations around awareness campaigns are often built into PRO licence agreements. EPR schemes rely on the willingness of individuals to change current behaviours and participate, provided they are empowered to do so<sup>13</sup>. Therefore, sharing information and awareness is essential in engaging householders and businesses in the recycling programmes. This information may include, for example, how to extend the lifespan of products, and the benefits of reuse and recycling.

As there are many different stakeholders involved in EPR schemes (producers including manufacturers and retailers, individuals and businesses, collection points such as Civic Amenity Sites and recycling outlets) effective communications can be challenging and involves tailoring messages to multiple audiences.

## Alternative Policy Mechanisms

There are a number of policy measures by which greater circularity can be delivered for a particular product stream, EPR being just one. Other alternatives to the PRO model are instruments such as product take-back requirements, economic and market-based instruments (such as deposit return schemes or advance disposal fees), bans, or a combination of these. Determining investment objectives and the case for intervention, as shown in Section 2.3.1, helps to inform which would be the most effective pathway to take.

The ZWS Business Case as referred to in Section 2.2.2 is expected to describe EPR as part of a list of different policy approaches to improving mattress circularity. Nine alternative policy measures were explored in total (e.g. do-nothing, landfill ban, tax, investing in recycling

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<sup>13</sup> (Ref PRI Review)

infrastructure) and assessed against the investment objectives. As noted in Section 2.2.2 while it is expected the report will conclude that an EPR scheme can most effectively deliver on the investment objectives, further development of a mattress EPR scheme is on hold due to competing priorities.

In the interim, one option suggested by ZWS is to develop a **framework for mattress recycling** which would aim to create scale to grow the market for recycling. For example, in Scotland this could involve creating a framework for local authorities to use recycling services. It is noted that this model is based on a waste management sector involving competition for the market rather than competition in the market.

Another options is to help support the expansion of treatment capacity. Recommendations from another ZWS report, *A Business Case for Mattress Recycling in Scotland*<sup>14</sup> (“ZWS Recycling Case”) included:

- incentives for businesses e.g. grants or loans to purchase capital equipment at start-up, or later in the business cycle to make it more efficient, subsidies or grants, potentially based on the number of mattresses processed or materials sold to end markets.
- support to ongoing operations that provides certainty over income from each mattress processed e.g. subsidies for business rates or leasing, supporting innovation in technologies and techniques which enable lower cost mattress recycling.

Some options for encouraging circular design include design competitions for circular mattresses or exploring **procurement** opportunities such as leasing of mattresses into the public sector (health sector, student accommodation) with condition that mattresses are refurbished or recycled at end of use or end of life.

**Landfill bans** can be considered to be complementary to an EPR scheme. However, they do not help to drive circular design. It is noted that Scotland is due to introduce a landfill ban in 2025.

**Deposit refund schemes** (DRS) are designed to improve the capture rate of products by incentivising their return. A fee is charged at the point of purchase and refunded to the purchaser when the product is returned via a specific pathway. DRS schemes can help to improve collection rates, reduce litter and improve reuse and recycling rates, in particular through improving the quality of the secondary material (reducing contamination)<sup>15</sup>.

In a DRS, the financial incentive (to get one’s money back) is central to the approach. This is more successful than a rewards-only scheme as people are more motivated to avoid a loss (the

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<sup>14</sup> Chapman A & Bartlett, C, *A Business Case for Mattress Recycling in Scotland*, report for Zero Waste Scotland, available at [https://www.zerowastescotland.org.uk/sites/default/files/Report%20-%20A%20Business%20Case%20for%20Mattress%20Recycling%20%28MAP002-002%20Nov%2012%29\\_1.pdf](https://www.zerowastescotland.org.uk/sites/default/files/Report%20-%20A%20Business%20Case%20for%20Mattress%20Recycling%20%28MAP002-002%20Nov%2012%29_1.pdf)

<sup>15</sup> <https://www.oecd.org/stories/ocean/deposit-refund-schemes-58baff8c>



deposit they paid) than to obtain a gain of equal value<sup>16</sup>. Key success factors identified for beverage container DRS include a high enough deposit, convenient return options for consumers and robust governance.

The costs of DRS systems are typically covered by the material revenues from the returned recyclate, unredeemed deposits (deposits not claimed for a refund) which amount to approximately 10% of deposits paid by consumers and in some cases producer fees. The costs of the scheme include handling fees paid to retailers to compensate them for the costs of taking back used containers from their customers as well as administrative costs, transport, etc.

Typical examples of DRS to date cover beverage containers (e.g. glass, PET) and containers. These are single use products that are returnable shortly after use, which means the turnaround time between deposit and return is very short. By contrast, mattresses have a typical lifespan of 7 years. Furthermore, clean and non-contaminated beverage container recyclate would tend to attract a positive value while mattresses generally incur an overall cost due to the challenges of dismantling and managing difficult to recycle components.

### 2.3.3 Policy and Market Design

Local market conditions also impact on the design of an EPR scheme. According to EBIA, the market conditions that most affect EPR design are outlined below. Section 4.4. also provides a summary of the below EPR scheme design considerations.

#### Trade position

A reliance on imports can pose a challenge regarding enforcement, compliance and free riding. On the other hand, companies that are relying on exports can also be impacted by trade barriers when EPR schemes are put in place. For example, the National Bed Federation estimates 20% of mattresses sold are imported of which more than 50% are foam mattresses.

Another trade consideration is the interaction across national or regional boundaries. As noted above, where Scotland is developing an EPR scheme the border with England becomes an important consideration because of the cross-border movement of products for purchasing and disposal. Similarly, the EPR scheme in Belgium is mandatory in Flanders while Wallonia or Brussels will only fully implement it by 2023. Where a visible fee is imposed at point of purchase on mattresses in one jurisdiction and not another, consumers may cross the border to avoid paying it.

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<sup>16</sup> Eunomia, *Improving the Capture Rate of Single Use Beverage Containers in Ireland*, 2020, available at <https://assets.gov.ie/89537/e5054d08-b398-4346-a69b-8f31839c19cd.pdf>





## Market concentration

If few producers dominate the market, there will be less administrative burden and it will be easier to implement a mandatory scheme. If there is a low market concentration then an EPR scheme will need to involve many SMEs, and more resources will be required to properly engage the sector and enforce the scheme. For example, the National Bed Federation has found that there are approximately 150 to 200 manufacturers with facilities in the UK, most of which are SME and micro enterprises.

## Targets and other waste and energy policy

A strong supportive local policy context is important in developing an EPR scheme.

Recycling targets are integral to EPR schemes. In the US and Belgian EPR schemes, targets are set for the quantity of mattresses to be collected as well as the percentage of collected mattresses to be recycled. In Connecticut the collection target includes goals for specific sectors e.g. accommodation, prisons. Collection targets in the US are set for a number of units (e.g. 38,500 mattresses in Connecticut for targeted sectors, 1.2 million units in California) whereas in Belgium the collection target relates to a % of mattresses discarded, increasing from 30% in 2021 to 80% by 2030.

In Belgium the treatment target relates to both reuse and recycling and is set to increase from 10% in 2021 to 75% in 2030. In France, there are treatment targets for recycling and recovery e.g. for 2023 it is 50% recycling / 90% recovery target though Eco-Mobilier also has an internal of 0% to landfill. In California there is a separate “preparing for reuse” target of 150,000 or 10% of collected mattresses. In the Californian and Australian schemes, recycling targets include base units which are easier to recycle than mattresses. On the other hand in France and other US EPR regions (Connecticut, Rhode Island), the recycling target only covers mattresses which accounts for differences in reported recycling rates.

As noted in Section 2.3.2, some regions (e.g. Scotland, where it is due to be introduced in 2025) have implemented bans on mattresses or textiles to landfill. The UK Environment Bill and Waste prevention programme will involve a review of EPR schemes for textiles, which will capture mattresses also.

In addition, where a country may have adequate or excess landfill or incineration capacity it may be more difficult to develop cost effective alternatives or set ambitious targets for recycling. Other considerations include, for example, the extent of illegal dumping which, if high, can help support alternative policy solutions like EPR schemes.

## 2.3.4 Fees and Costs

### Producer fee determination

In existing mattress EPR schemes, producers are required to pay fees according to the amount of product they place on the market. These fees are expected to cover:

- the cost of treating their share of the collected wastes including storage, logistics, treatment to meet recycling targets and the cost of disposal of non-recyclable mattresses
- the cost of administering the scheme
- the cost of research as supported by the EPR scheme (in several schemes),
- the cost of preventative measures and awareness campaigns.

The Greek EPR Study recommends that defining the costs that the scheme should cover needs to be determined early on - for example, whether costs should cover only the financial contributions to facilitate collection and recycling in line with the targets, or whether additional costs to cover illegal dumping, awareness campaigns or other requirements should be addressed.

Further details on the distribution of costs for current or future schemes are provided in Table 1.

**Table 1: Spend by EPR schemes by cost category**

	% total spend		
Costs	EcoMobilier <sup>17</sup>	Flanders <sup>18</sup>	US Schemes <sup>19</sup>
Recycling and recovery	64% is used to finance sorting and recycling	Cost to establish / facilitate collection and recycling in all communities - €4 million per annum + small fund to subsidise gate fees at recycling centres (unknown).	Collection / transport / recycling accounts for 70% of the expenses  (no separate data available on collection vs treatment costs)
Logistics and collection	27% goes to support collection partners, communities and associations	Amount to give to shops acting as deposit centres for old mattresses (unknown)	
Funds and contributions	9% goes to cover operating costs	Contribution to encourage innovation and R&D - €500k each year	10% goes to miscellaneous including enforcement in some cases
Administration, other	(no data on funds / contributions / administration / communications)	(no data on admin / communications costs)	10%
Communications			10% (Marketing)

It is also noted that in France, 5% of the fees collected via EPR schemes covering re-usable streams and waste streams (such as textiles, furniture and WEEE) are used to finance re-use and preparing for re-use activities conducted by social enterprises. This “Fonds pour le Réemploi Solidaire” will support the creation of 70.000 jobs for the most disadvantaged groups by 2030 <sup>20</sup>.

In France, fees are determined by the Administrative Council made up of leading producers within the scheme, using a formula that reflects the actual costs of the collection and recycling contracts.

<sup>17</sup> <https://www.eco-mobilier.fr/tout-savoir-sur-leco-participation/>

<sup>18</sup> Eunomia, Support on EPR schemes for mattresses and textiles for Greece, 2021, available at <https://www.giz.de/en/downloads/Final%20Report%20EPR%20textiles%20mattresses%20EN.pdf>

<sup>19</sup> Webinar, Zero Waste Scotland – Mattress EPR schemes in three jurisdictions, March 2021

<sup>20</sup> RREUSE, France to create a Solidarity Re-use Fund (and other re-use friendly measures)!, position paper, 2020, <https://rreuse.org/france-to-create-a-solidarity-re-use-fund-and-other-re-use-friendly-measures/>



While Government bodies have no say in fee setting, it is in the interests of the producers to keep the fees as low as possible so as not to deter sales. In Belgium, Valumat determines a fixed amount annually depending on the market conditions for collection, transport and processing.

#### Per mattress contributions and visible fees

In Belgium the current contributions range from €4.25 incl. VAT (cot mattress) up to €17 per product placed on the market depending on the size of the mattress. Similarly in the French scheme, mattress size impacts determine the contribution. Proposals in the Greek EPR Report are to differentiate mattress fees based on mattress size, thickness, and type (i.e., pocket sprung, polyurethane foam etc.).

Contributions per unit placed on the market are either absorbed by producers or passed onto consumers. In some schemes it is obligatory to reflect PRO fees in invoices. In Belgium it is obligatory to declare the fees in business-to-business invoices (either directly or as an “environmental contribution”) but only voluntary to declare the fees to customers to avoid an excessive administrative burden. In France an “eco-participation” fee must be visible and separate to the product price in all retail price tags, on receipts and on e-commerce sites. The ZWS Study also recommended that retailers provide free take-back with costs being recovered through a levy charged at the point of purchase.

One issue highlighted in the Greek EPR Report is that multi-year contracts established prior to the introduction of an EPR scheme may make fee accountability difficult post-introduction. That is, multi-year agreements between mattress consumers (hospitals, hotels) and mattress suppliers may not account for the additional costs associated with implementation of the EPR scheme prior to its introduction.

#### Payments to Collectors & treatment facilities

Payments to the collectors and dismantling centres of recovering, transporting and treating mattresses are in some cases linked to the reporting of data.

In Belgium, final sellers of mattresses who voluntarily accept discarded mattresses when purchasing a new mattress and professional users who have mattresses collected by an approved collector are paid a rate of 330 €/tonne or approx. 5 € per mattress<sup>21</sup>.

The Mattress Recycling Council recommends linking payments to mattresses processed, not just collected. It was also recommended that contracts are based on weights not units with truck scales providing weights at contracted facilities<sup>22</sup>.

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<sup>21</sup> <https://valumat.be/en/i-operate-a-facility-or-institution-professionally/fee-for-operators-of-facilities-or-institutions>

<sup>22</sup> Webinar, Zero Waste Scotland – Mattress EPR schemes in three jurisdictions, March 2021

## Set up costs

The initial set up costs of new PROs can also be substantial. Due to the slow feedback loop on financing, the US scheme recommended retaining 6 month reserves for any new scheme, which is particularly important in times of disruption e.g. COVID. A key proposal in the Greek EPR Report was that at the beginning of the scheme, the producers would be charged fees that encompass the costs needed for collection and processing as well as making a contribution that could help pay off the loan used to establish the collection infrastructure.

### 2.3.5 Collection and Treatment Infrastructure

Collection and treatment infrastructure is at the heart of any effective EPR scheme. Ideally an EPR scheme would help to close the loop on products and/or materials through supporting the development of increased and effective collection, sorting and treatment capacity, diversification and job creation.

#### Collection

Collection points for EPR schemes can involve retailer take-back instore or, door-to-door collection by dismantling facilities and drop off points e.g. public recycling centres and / or directly at dismantling facilities.

Retailer take-back schemes involve accepting an end-of-life mattress when a new one has been sold and/or is being delivered. In this case, the delivery vehicle typically collects the mattress from the customer and transports it to a management point such as a recycler/disposer, possibly via interim storage. This process occurs at a cost to the retailer, which may be recouped directly from the customer.

The RPS report *Baseline Research into a Potential End of life Mattress Scheme for Ireland*<sup>23</sup> (“RPS Baseline Review”) reported that the overall participation rate of customers in take-back schemes in the UK in the absence of any EPR scheme were estimated by NBF in 2016 to be approximately 2-3%. The reasons for such low participation rates and the wide discrepancies between the estimates (as Argos-UK estimated take-back rates of 20%) were not clear but may be due to lack of retailer promotion or lack of consumer interest or both. A discussion on take back in Ireland is provided in Section 3.3.1.

In France there are approx. 4,800 collection points for furniture and mattresses, mainly via Civic Amenity Sites but also through retailers and the social economy.

In Flanders, the acceptance obligation means inhabitants must be able to drop off mattresses at a nearby CAS for free though not all CAS are obliged to accept mattresses. The CAS operators

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<sup>23</sup> RPS, *Baseline Research into a Potential End of life Mattress Scheme for Ireland*, report for the EPA, not published



(municipalities) enter into agreements with Valumat regarding the nature of storage and transport (to optimise recycling), treatment outlets that can be used and requirements for communications with consumers. They go to tender for the transport and recycling of collected mattresses. Some key challenges associated with this include:

- bringing staff up to speed with screening of potentially recyclable mattresses at Civic Amenity Sites - applying limited criteria e.g. can't be wet, must be whole and not cut (as some citizens cut mattresses to transport them)
- citizens find it confusing that mattresses are free to discard at CAS but other streams must be paid for
- As not all retailers are obligated to take back mattresses, more waste is now coming into Civic Amenity Sites and there is a perception that retailers are not taking full responsibility

For retailers, there is a voluntary opt-in system to collect used mattresses with a financial incentive. This was designed to encourage a quality take-back system for mattresses, and to accommodate and avoid competition issues for online retailers or generalist department stores which would not have the ability to put in place take-back arrangements. Take-back providers (retail outlets providing voluntary service) in Flanders are required to agree to certain conditions such as not charging for the collection of the old mattress, providing a dry storage area for returned mattresses and only working with approved collection / treatment organisations.

Reuse centres can also enter into agreements with Valumat where reuse is an option.

## Reuse

There is generally low demand for used mattresses. Hygiene and cleanliness are key factors in mattress reusability. Poor quality or unhygienic EOL mattresses, or mattresses damaged or mixed with other waste post-collection, exposed to the elements or inappropriately handled during storage or transport can render them unusable. In some instances, such as redeploying “nearly new” used mattresses to those in need, reuse may be an option. As highlighted by the RPS Baseline report, mattress reuse and rebuilding requires a sanitisation process, with either dry heat or chemical disinfectants.

However, as highlighted in the Greek EPR Report, the health, safety, and contamination issues associated with reusing mattresses limit reuse opportunities and shift the focus from reuse, normally the highest priority, to recovery and recycling of component parts.

## Recycling

In terms of recycling, two types of treatment capacity require consideration for mattresses - dismantling capacity where clean mattress components are extracted, and material recycling capacity where extracted components are sent for material recycling.

As noted in the ZWS Recycling Case, transporting waste mattresses over long distances is generally avoided due to their bulk and low value. Therefore, mattress dismantling and to a lesser extent, recycling are reliant on a relatively local supply of waste mattresses. However, while local dismantling capacity is present in many jurisdictions, recycling capacity requires a greater level of investment and therefore materials are often exported. In this case, according to EBIA, quality control and transparency can be an issue in relation to the end market for materials.

Currently the options for recycling of many of the components extracted from mattresses are limited. Some options are set out in Table 2 below, as described in the RPS Baseline Research.

**Table 2: Reuse and Recycling Options for extracted components**

	<b>Dismantling / recycling description</b>	<b>Reuse / recycling markets for material</b>
<b>Springs</b>	Comes in various designs / shapes / configurations. Largest component of mattresses, easily separated apart from pocket sprung mattresses	Reuse is an option though consumer buy-in can be a challenge. Widespread recycling, though the bulky nature of springs if not shredded reduces value esp for transport. The fall in metal prices in the last 5 years has posed financial challenges for dismantling facilities.
<b>Flexible polyurethane foam (PURF)</b>	Used in mattress core. Very low bulk density - cost and environmental impact a limiting factor for transport.	Reuse is more challenging particularly due to hygiene concerns. Manufacturers do not explore this option. Can be chemically recycled or shredded, rebonded and used for carpet underlay and sports surfaces or as sound or thermal insulating materials. Flakes can be mixed with glue and pressed into large blocks for various applications (including mattresses). Can be transformed into PURF trim, but finding an output market for this is challenging. Markets that could be supplied by recyclates are either very small (e.g. synthetic sport pitches) or already saturated. Also competes with production-waste PURF that is currently being recycled internally.
<b>Latex foam</b>	Used in mattress core. Can either be naturally or synthetically derived, with a mixture of both commonly used.	Foam can be sanitised and sent for granulation into padding and used in small amounts when combined with other materials, e.g. for carpet underlay. Processes exist for the production of latex foam from end-of-life feedstock materials. These are used in the production of the latex cores for mattresses and may use natural, synthetic or mixtures as a feedstock.

<b>Shell</b>	Composites of stuffing and non-woven layers around the core. Mainly made of natural fibres (cotton, wool, felt/flocking), foams (PURF, latex); textiles (polyester) held together by glue or stitching.	Certain streams have recycling potential, e.g. pure polyester layers have high value and high recyclability. Other shell materials may have localised markets. Textiles from mattresses are often of low quality (short fibre length) and not economical or possible to separate due to the stitching or bonding in place. It is more effective to sell mixed bundles of textiles. Washing for reuse / recycling is not generally viewed as cost effective due to the low value of textiles. Textiles are acceptable to lower value markets for use in automotive felts. The composition is not consistent enough to be used in shoddy according to mattress recyclers.
<b>Tick</b>	Outer layer, helping hold and protect the inner core and shell materials and adding comfort. Can be fixed or removable, and made from cotton, polyester, silk, wool or viscose.	As for above - textiles can be low quality and it is most effective to sell these textiles as mixed bundles to the mixed textiles market.

Flame retardants are present in mattresses as a result of fire safety regulations, posing a challenge for reuse and recycling. As described in the RPS Baseline Review, Ireland and the UK require an open flame test as a fire resistance standard for furniture, which necessitates the use of flame retardants. In addition to the performance of the mattress, the filling materials themselves may be subject to fire safety legislation, particularly in the case of foam fillings.

Some of the fire retardants used 20 to 30 years ago are now banned, but these legacy substances arise in end-of-life mattresses today. For mattresses manufactured today, the RPS Baseline Review notes there is conflicting information about the extent of flame retardant use. Foam manufacturers do not always disclose the flame retardants used, claiming this information as proprietary and providing materials to meet a specification. One option to improve visibility of the presence of flame retardants would be labelling or material passports in declaring the presence or otherwise of these substances<sup>24</sup>. However, administrating a system like this and engaging industry could be very complex.

Prior to the EPR scheme being introduced in Flanders, there was a strong CAS network but few recycling options particularly for flexible polyurethane (PU) foam, with a lot of recycling being sent directly to the Netherlands. This was considered to be a major barrier to implementation for the

<sup>24</sup> Interview with Zero Waste Scotland





scheme and a reason for the stepwise introduction of mandatory collection. In France, in order to provide a reliable supply of mattresses, Éco-Mobilier issues open calls for tender to select dismantling and recycling operators that waste mattresses can be transported to after collection. The scheme currently works with seven contractors across France to reduce transport impacts and reduce costs.

In Scotland, there is only one mattress dismantler with the majority of dismantling and material recycling taking place in England. The ZWS report, *A Business Case for Mattress Recycling in Scotland*<sup>25</sup> found that the lack of recycling capacity in Scotland provides a potential opportunity for starting up a business, recycling materials from waste mattresses; however, this is probably indicative of the marginal nature of this business. It provides a 3 year plan outlining how a potential mattress recycling operation in Scotland could be started and identifies barriers to establishing infrastructure including economic factors such as obtaining a high enough gate fee, high reliance on the gate fee due to the low value of materials to end markets and inability to reduce costs further due to tight margins. Many of these challenges have also been identified in the RPS Baseline Research.

As noted in Section 2.2.1, some supports that can encourage the development of treatment capacity include tax breaks, grants and low interest loans - not only for recyclers but also for manufacturers (to support innovation in circular design) and businesses involved in preparation for reuse / remanufacturing of mattresses.

In many cases - including in Ireland (see Section 3.3.6) incineration is a primary outlet for at least the Polyurethane foam and textile layers. However, there are an increasing number of material recycling facilities in development with, for example, Mattress Recycling EU and Electrabel who are investing in Belgium, in anticipation of a reliable influx of recyclable materials from mattresses due to the EPR scheme.

### 2.3.6 Monitoring and reporting

Enforcement is an important instrument for ensuring the proper implementation of EPR schemes. However, enforcement of EPR schemes tends not to be rated as high as environmental problems generating direct pollution, as the impact of non-compliant producers (missed targets, environmental problems) only manifests over a longer timeframe. On the other hand, it is essential in ensuring that obligated producers adhere to requirements, establishing a level playing field which is extremely important for producer buy-in, noted in Section 2.3.3.

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<sup>25</sup> Chapman A & Bartlett, C, *A Business Case for Mattress Recycling in Scotland*, report for Zero Waste Scotland, available at [https://www.zerowastescotland.org.uk/sites/default/files/Report%20-%20A%20Business%20Case%20for%20Mattress%20Recycling%20%28MAP002-002%20Nov%2012%29\\_1.pdf](https://www.zerowastescotland.org.uk/sites/default/files/Report%20-%20A%20Business%20Case%20for%20Mattress%20Recycling%20%28MAP002-002%20Nov%2012%29_1.pdf)



Addressing enforcement inevitably involves a trade-off between effectiveness and administrative costs. While EU guidelines provide some direction for enforcement activities, the regulations and their enforcement are particularly complex<sup>26</sup>.

### 2.3.7 Eco design / industry capacity for circular economy options

Mattresses are relatively complex in design and can have a lasting impact on the environment at EOL. As noted in Section 1.0, design for durability, reuse or recycling is currently limited and indeed, mattress design in some cases hampers dismantling and recycling. Furthermore, many of the component materials can be challenging to recycle and there are limited outlets for them. The presence of fire retardants in these materials can further complicate the recycling potential.

Introducing ecodesign requirements can help tackle some of these challenges upfront and reduce the longer term impact of EOL mattresses. It is notable that none of the existing mattress EPR schemes listed in Section 2.2.1 currently provide incentives through modulated fees for better design.

The National Bed Federation has published an *Ecodesign framework and principles for the UK bed sector*<sup>27</sup>. The guidelines include 10 ecodesign principles organised in three categories: People and Relationships, Products and Services and Processes. It covers how to identify products, services and practices that constitute good ecodesign. In the context of EPR schemes, it could also help to stimulate a “race to the top in terms of environmental outcomes”. The impact of this framework to date is not quantified, though the National Bed Federation notes that an increasing number of new ranges are being placed on the market with eco credentials. The Federation is also working toward providing third party verification for ecodesigned products.

Steps are being taken in Belgium with a view to introducing eco-modulation by 2025. This includes initially establishing a working group on design for circularity, with a €1M annual budget and considering collective solutions for mutual problems e.g. developing a material passport. In France, 2% of the turnover of Eco Mobilier is devoted to ecodesign training for industry, and additional financial support is provided for eco-innovation projects including €3M toward an innovation challenge in 2017 and €1.4M toward innovation partnerships in 2020 covering projects including, for example, foam recycling. The US Mattress Recycling Council also spends approx. €1M per year on research<sup>28</sup>. However, the Mattress Recycling Council is not considering eco-modulation due to the particular complexity of determining modulated fees for different types of mattresses.

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<sup>26</sup> (RPS PRI Review 2014)

<sup>27</sup> Oakedene Hollins, *Ecodesign framework and principles for the UK bed sector*, 2020, available at <https://www.bedfed.org.uk/wp-content/uploads/NBF-Eco-Design-Principles-for-the-UK-Bed-Sector.pdf>

<sup>28</sup> <https://mattressrecyclingcouncil.org/>



The EBIA recommends the inclusion of minimum product requirements as part of any EPR scheme. These should be based on life cycle analysis and a harmonised understanding of eco modulation, and implemented as 'essential requirements' within existing mattress manufacturing standards. Such requirements should take into account:

- Performance: fitness for purpose (such as firmness and support) where appropriate
- Warranty: Minimum 'free of charge' warranty periods as a proxy for durability, placing the onus on manufacturers rather than consumers
- Composition: Hazardous material restrictions beyond the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) regulation, recycled / organic content targets
- Design: Reparability and ease of dismantling / recycling
- Information: Mandatory product information ('passport') requirements around 'bill of materials' (BOM, including all chemicals), repair and recycling instructions (for businesses and consumers)
  - The free warranty period (noted above as a minimum requirement) and potentially the 'pre-use' price of products over the free warranty period;
  - Eco-rating, such as recycled content, reparability and 'ease of recycling'. This could potentially be integrated with, or equivalent in style to, the energy label for Energy related Products (ErPs). Eco-label would remain as a separate 'gold-standard' for those companies that see a market advantage

Efforts are also required to support demand for more sustainable options. The market for sustainable mattress options is relatively immature, and choices available to manufacturers for sustainable materials are limited<sup>29</sup>. With increased demand for sustainable materials, suppliers would be encouraged to invest more in alternatives e.g. biofoams. At present, sustainable mattresses are more expensive to produce, which poses a barrier to consumers who are already price sensitive to these high value products. Consumer attitudes in Ireland towards ecodesign of mattresses is addressed in Section 3.4.

One measure that could drive demand as noted by the ZWS study is setting Green Public Procurement (GPP) buying standards for the public sector. This could, for example, involve mandating of Whole Life Cycle Costing (WLCC) in public procurement and a progressive move towards mandatory use of core GPP criteria for mattresses.

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<sup>29</sup> Interview with Frederik Lauwaert, European Bed Industry Association (28/7/21)

It is also important to note for any eco modulation of fees or eco design aspects of an EPR scheme that the lag time in reuse or recycling of EOL mattresses is up to 20 years. Therefore, the impact of ecodesign measures do not become apparent for a considerable period of time. Eco modulation can also have a lesser impact than anticipated, where the variation is only small compared with the fee (e.g. 20% of a small fee, in the case of Eco-mobilier).

## 3.0 Current state of play in Ireland

### 3.1 The Irish mattress market

#### 3.1.1 Mattress Manufacturing and Retail

A key consideration for any new EPR scheme is data, to be able to quantify the issue. Experience with past schemes, for example for tyres<sup>30</sup>, found that the design of EPR schemes can be negatively impacted by incomplete or incorrect data being available upfront.

The RPS Baseline Research estimated that 452,570 new mattresses (excluding Irish made PURF and ‘other’ mattresses, for which data is not published) were placed in the Irish market in 2015. For this study, Table 3.1 in the RPS Baseline Research was updated with PRODCOM data for 2020. The updated figures are shown in Table 3 below.

**Table 3: Number and value of new mattresses sold on Irish market 2020**

<b>UPDATE 2020</b>	<b>Supports</b>	<b>Latex</b>	<b>PURF</b>	<b>Springs</b>	<b>Other</b>	<b>Total (known)</b>
2020 - Irish made	150,429	N/A	N/A	191,284	N/A	>341,713 (€57.2 m)
2020 - Irish made for Export (1,427 tonnes at 25 kg each)						57,080 (€17 m)
2020 - Imports to Ireland (5,893 tonnes at 25 kg each)						235,720 (€25 m)
2020 - Total consumption - (production + imports - exports)						520,353 (€49.2 m)

This shows that there were 520,353 mattresses placed on the Irish market (excluding Irish made PURF and “other” mattresses, for which data is not published) in 2020, representing an increase in total consumption of mattresses in Ireland of 40% since 2010. This compares with a population

<sup>30</sup> Interview with DECC official, August 2021



increase of 6.5% in the same period, indicating mattress consumption is increasing faster than population growth.

As noted in the RPS Baseline Review, UK made and imported cellular plastic foam (PURF) and cellular rubber and 'other' categories make up 41% of the UK market, and 61% of EU28 market, so the Irish made fraction might not be insignificant, but is not quantified.

There are 5 main manufacturers in Ireland with Kayfoam Woolfson T/A Kaymed and Kellet Group being the largest, as well as Briody Beds, The Natural Sleep Company and A & J bedding and furniture / Aurora beds with a number of smaller manufacturers including Beds & Bedroom Furniture, Comfortline, Cobra Bedding, Glenmore Beds and Glebe Bedding.

A preliminary scan identified 220 retailers of mattresses in Ireland comprising approx 360 physical outlets as well as online-only stores. 162 of these retailers only operate out of one store while the biggest chain comprises 19 stores (though this is not indicative of market share). This database was developed by searching stockists of Kaymed, Emma mattress, the natural sleep company and others, as well as carrying out a general google search.

### 3.1.2 EOL Mattresses Arising

The RPS Baseline Research estimated that at least 436,277 end of life mattresses were arising in Ireland in 2015 though more likely this figure is between 582,181 and 783,863 units. These ranges are based on calculations of replacement rates of new mattress sales and in-stock mattress estimates, mattress arisings in CAS and skips.

To update this figure, going from the calculation of new mattresses placed on the market in Section 3.1.1 and applying the displacement rate used in the RPS Baseline Review of 96.4% (the 3.6% balance being new mattresses bought to facilitate population or other growth), the end-of-life mattress generation rate for 2020 is estimated at 501,620. The upper range<sup>31</sup> provided in the RPS Baseline Research was not updated as part of this research. Thus the estimate of EOL mattresses arising is 501,620 though this figure could be up to 783,863 units.

The 501,620 EOL mattress generation rate represents at least 0.101 EOL mattresses per person compared with 0.112 EOL mattresses per person in Scotland and 0.078 EOL mattresses per person in Belgium<sup>32</sup>.

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<sup>31</sup> Based on Irish 'population' of beds & replacement intervals

<sup>32</sup> Ref ACR webinar - 900,000 mattresses are discarded annually in Belgium and 610,000 per year in Scotland

## 3.2 Design considerations

### 3.2.1 Market Engagement

A survey was devised for mattress retailers to understand the extent of mattress take back, typical charges and to gather qualitative feedback on other aspects (destination of mattresses, ecodesign). The survey questions are included in Annex A.

A representative sample of the retailer group based on 95% confidence level and 10% margin of error comes to 62. In total 43 retailers were contacted involving 75 phone calls and 37 emails, leading to 12 surveys being completed.

Other key stakeholders interviewed for this report include:

- Mattress manufacturers (Kaymed (Sept 2020))
- Mattress dismantlers (Ecomattress 2/9/21, Furniture Recycling Ltd 3/9/21)
- Frederik Lauwaert, European Bed Industry Association (28/7/21)
- Sorcha Byrne, Department of the Environment, Climate and Communications (4/8/21)
- Robert McLaughlin, Department of Agriculture, Environment and Rural Affairs Northern Ireland (Scheduled 20/9/21)
- Anastasios Markopoulos and Izzie Eriksen, Zero Waste Scotland (17/8/21)
- Beryl Gilmore, WEEE Ireland (4/8/21)
- Samira Nicolo, Retail Ireland (IBEC) (13/8/21)
- Avril Donlon, Ireland's Gum Litter Taskforce, IBEC (6/8/21)
- Nicholas Bond, WERLA Southern Region Coordinator, Richard Walsh Producer Responsibility Officer Southern Region, Sandra Smith Producer Responsibility Officer Eastern Midlands Region, David Barry Producer Responsibility Officer Connacht Ulster Region "WERLAs" (18/8/21)
- Enda Kiernan, CIWM (9/9/21)

Findings from the surveys and interviews are included throughout Section 3.0.

Experience with developing EPR schemes in the past has found that there can be a perceived negative impact on business which can lead to opposition from industry.

Initial feedback from retailers supports this. Seven out of 13 retailers responding to the survey were in favour of or acknowledged the value of an EPR scheme for mattresses although eight (sometimes the same respondent) flagged concerns about the possibility that any EPR fees would have to be absorbed by retailers (*"shops would have to take the hit on this, penalising retail again"*, *"not another stealth tax that just increases the cost of mattresses"*). This concern appears to arise from strong competition in the market (*"If only half get on board then it's a disaster, in our game it wouldn't surprise me"*) and uncertainty that the *"customer may be conscientious enough"* to want



to pay extra upfront particularly with the longevity of a mattress in mind. Retailers also cited increased business costs (e.g. shipping costs have increased by a factor of five from China) and the impacts of Covid on retail as already important factors adding pressure to costs. One retailer suggested any additional costs due to an EPR scheme could lead to more illegal dumping by retailers directly or via low cost waste management outlets.

Those retailers with experience in WEEE take back were generally in favour of and / or appreciated the value of EPR schemes. Two retailers pointed out that there was opposition to the introduction of the WEEE EPR scheme initially, but that customers came around to it and that there are never complaints now about the visible fees.

### 3.2.2 Structure, Governance, Policy

#### Current EPR schemes in Ireland

The principal EPR schemes in Ireland are in the areas of Waste Electrical and Electronic Equipment (WEEE), batteries, packaging, end-of-life vehicles (ELVs), tyres and farm plastics. Four of the existing schemes are based on EU Directives while two are national schemes. Many of these are currently under revision either due to Directives being revised or new technical developments. At least four new schemes are currently in development for single use plastic items in line with the Single Use Plastic Directive.

The Waste Management Act, 1996 sets out the legislative basis for producer responsibility and regulations introducing obligations on producers. All Irish schemes are industry-led and mandatory, involving a collective approach that is discharged through Compliance Schemes. The DECC maintains an oversight function to ensure that the appointed PROs are performing and meeting specified targets with local authorities and the EPA as the main enforcement authorities. A feature of many EPR schemes in Ireland is that while they are similar in overall approach, they become bespoke to a particular waste stream in detail.

A 2014 review of EPR schemes in Ireland<sup>33</sup> (“PRI Review”) found important progress had been made with the current schemes, enabling Ireland to meet domestic and EU recycling targets. It found the effectiveness of PRI systems in meeting desired environmental outcomes depends on:

- monitoring of Producer Responsibility Organisations (PROs)
- interrelationships between PROs
- the effectiveness of the self-complier system
- information and awareness activities
- Enforcement

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<sup>33</sup> RPS and partners, *Review of the Producer Responsibility Initiative Model in Ireland*, report to the Department of Environment, Community and Local Government, 2014, available at [https://repak.ie/images/uploads/reports/PRI-Review\\_-\\_Main-Report-2014.pdf](https://repak.ie/images/uploads/reports/PRI-Review_-_Main-Report-2014.pdf)



- prevention and reuse and
- development of indigenous reprocessing capacity.

Specific recommendations were to continue to foster stakeholder engagement through stakeholder monitoring groups and to increase the role of retailers in the collection of PRI waste.

### Mattress EPR scheme

In the PRI Review, mattresses were identified as having significant potential for a PRI approach. A key challenge identified in establishing a mattress PRI was the mixed nature of bulky waste collections. It was recommended that enhanced retailer take back and the establishment of dedicated collection areas in civic amenity sites to allow clean and dry segregated items for collection would support recycling. The opportunity for mattress reuse or preparation for reuse was also raised but significant obstacles were identified including consumer perceptions and hygiene concerns.

The report recommended, for any new potential PRI streams, a detailed cost benefits analysis be carried out in comparison with other policy instruments, taking into account challenges such as identifying producers or enforcing obligations along a complex product supply chain, and consultation with the economic operators affected by the PRI.

More recently, the *Waste Action Plan for a Circular Economy* acknowledged the challenges associated with managing household bulky waste including tackling illegal dumping, the lack of collection infrastructure and appropriate storage and highlighted the role of social enterprises in mattress recycling currently. It commits to examining the feasibility of introducing further EPR arrangements for textiles and bulky waste including mattresses.

### Complementary measures

As noted in Section 2.3.2, getting consumers on board is key to a successful EPR scheme and providing information and awareness activities can be very important in engaging householders and businesses in reuse or recycling programmes. A programme of communications is built into the WEEE Ireland Scheme Approval 2017-2022 with DECC as follows:

*“WEEE Ireland shall operate a programme of national and sectoral educational and awareness raising activities. This awareness raising and communications campaign shall operate across all existing and emerging media platforms... exploring innovative new approaches to raising public awareness of the need to recycle waste batteries and WEEE.”*

Information and awareness activity in PRIs is a shared responsibility between the Department of the Environment, EPA, local authorities, PROs, waste collectors, producers and retailers.



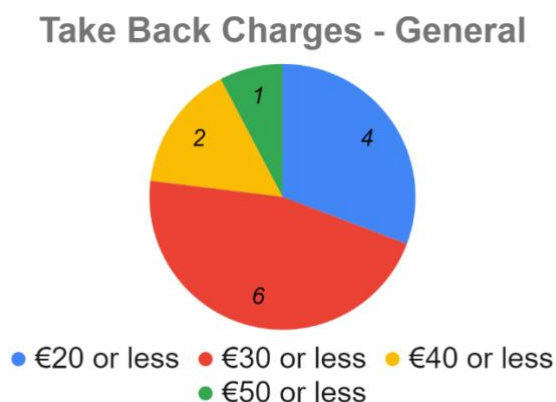
It is difficult to determine how engaged the public is currently in the appropriate disposal of mattresses. As noted in Section 3.3.1, most retailers offer take back schemes, but the participation rates by customers is not clear. Some retailers report that customers are more concerned about the inconvenience of getting rid of their old mattress and are likely to work with any service provider, even where it is not clear where the mattress is going. Furthermore as discussed in Section 3.4, there appears to be limited interest currently in eco friendly mattresses, or where there is, cost is a barrier to purchase.

### Charges/fees

There are various approaches to financing in EPR schemes in Ireland. Some schemes are 100% funded by producers while others obtain contributions from system users. For example, in the farm plastics scheme 70% of the costs are covered by producers and 30% by the farmers.

Establishing a scheme for mattresses would require knowledge of the costs to run the scheme in terms of collection, storage and waste treatment. Some of these costs are already known - for example, the recycling cost per mattress can be found from mattress recyclers<sup>34</sup> and ranges from approx €25 per single mattress up to €65 for a king or queen size mattress.

Out of a total sample size of 18 including retailers responding to the survey and retailers with online information, the relative take back fees charged are shown in Figure 1 for general mattresses (size not specified).



**Figure 1: Take back charges for general mattresses**

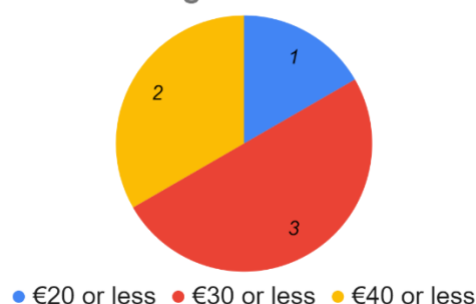
The relative take back fees charged by retailers are shown in Figure 2 for single and double mattresses.

<sup>34</sup> See e.g. Ecomattress recycling pricing at <https://www.ecomattressrecyclingireland.com/pricing> or Bounce back Recycling <https://bouncebackrecycling.ie/arrange-collection-mattress/>

Take Back Charges - Single Mattresses



Take Back Charges - Double Mattresses



**Figure 2: Take back charges for single and double mattresses**

As shown, prices typically range from €20 (especially in the case of single mattresses) to €30 in the case of double / general mattresses with the highest cost charged by a retailer identified at €50. These are generally lower than fees charged by mattress dismantling facilities. However, the general feedback from retailers was that price was not a significant issue for customers and that the convenience of mattress removal from the doorstep was a bigger driver. Comments included “customers are delighted to get rid of them even for a fee”, “most customers don’t mind paying, they wouldn’t otherwise know how to get rid of a mattress”, “99% customers accept a charge for the service”.

In the context of an EPR scheme for mattresses in Ireland, additional costs of logistics and storage at collection points, communications, administration and contingency or other funds would need to be determined. A particular challenge and cost for any scheme in improving mattress collections will be establishing suitable covered storage infrastructure and potentially supporting the separation of mattresses from skip collections<sup>35</sup>. This is discussed further in Section 3.3.1.

Contingency funds are also required for new schemes. A condition of Repak ELT’s licence granted by the DECC requires a contingency reserve fund of €5 million to be established by the end of the current licence period on 31st December 2022. As shown below, WEEE Ireland contributes €1,200,000 to a Local Authority fund for take back via the network of Civic Amenity Sites where WEEE can be taken back free of charge by consumers.

The distribution of costs for some of the other EPR schemes, based on annual report data, are shown in Table 4 below:

<sup>35</sup> Interview with the regional WERLAs 18/8/21

**Table 4: Spend by EPR schemes by cost category**

Costs	% total spend		
	WEEE Ireland	Repak ELT	Repak
Recycling and recovery	23%	61%	83%
Logistics and collection	28%		
Operations	8%		
Funds and contributions	25% (marketing fund, LA contribution, retailer contribution, EPA)	14% (contingency fund)	(not available)
Administration, other	13%	25%	15%
Communications	2%	-	3%

It can be anticipated that retailers may be sensitive to the cost model of any new EPR scheme. As highlighted in Section 3.2.1, EPR can be seen as a tax or cost to retailers, even where take back is already being provided.

For consideration are potential contributors to the scheme. As highlighted above, producers may not always be required to make 100% of the contributions. A proposal from one of the stakeholders interviewed was that waste companies could contribute to the removal of mattresses from the waste stream, as they otherwise pose significant inconvenience and logistical challenges.

### Monitoring and reporting

In Ireland both the EPA and local authorities are responsible for EPR enforcement with local authorities typically responsible for retailers and the EPA for producers. Local authority enforcement is supported by the Waste Enforcement Regional Lead Authorities (WERLAs).

Attaining the balance between administrative costs and enforcement effectiveness is a shared responsibility between PROs and the enforcement authorities<sup>36</sup>.

<sup>36</sup> RPS PRI Review



The WERLAs have noted that key success factors<sup>37</sup> for EPR scheme enforcement include:

- **open lines of communication and information sharing** between PROs or other bodies, local authorities and the WERLAs. Specifically, communication between the PROs and the retailers as well as the PROs and the WERLAs ensures stakeholders are informed of their obligations and flags any noncompliance enabling targeted use of WERLA resources.
- **engagement of industry** particularly during the development phase of an EPR scheme. For example, a large number of workshops took place during the development of the tyre EPR scheme which ensured significant focus on the new scheme and its success post-introduction in 2018.
- use of the national and centralised **electronic registration system** for obligated producers in the WEEE, batteries and tyres schemes which is managed by the Producer Register Limited (PRL). This assists in data collation and monitoring of non-compliant producers by enabling producers to declare in an anonymised way the quantities placed on the market, and automatically deducts fees based on this declaration. Accuracy of submission is extremely important to both Producers and the Scheme in the calculation of fees. This “black box” system helps to counteract any industry fears that competitors would see their sales data.
- **closed loop systems** involving visible monitoring charges (VMC) that are recovered by the retailer, a collective approach that is discharged through Compliance Schemes whose performance is managed through Ministerial agreements and clear lines of responsibility
- **buy-in from local authorities** is also important. Ensuring an EPR scheme does not significantly add to Local Authority workload and contributes to costs for example of cleanup operations could encourage engagement. For example, the tyre EPR scheme involves a contribution to a fund for dealing with historic tyre dumps. Mattresses are in some ways similar to tyres in that there is not much value in waste mattresses (which is similar for tyres) and they are bulky and difficult to deal with when illegally dumped.

Key challenges in enforcing EPR schemes include:

- **Prioritising EPR enforcement** over the many other priorities facing local authority enforcement staff including illegal dumping
- **Lack of resources** especially where the scale of the challenge is high (e.g. in the case of mattresses, the recycling rate would have to be increased from a low starting point of est.10%). Local authorities are directly responsible for enforcement but face multiple priorities as noted above. There are currently three PRO Officers nation-wide who have

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<sup>37</sup> Interview with the regional WERLAs 18/8/21

an advisory role for local authorities including providing guidance on enforcement in general, serving notices or going to court. With any new EPR schemes there may be a requirement for additional enforcement resources either within the PRO unit or the local authority sector. A contribution from the PRO schemes could facilitate this additional enforcement requirement.

- **Understanding the challenge of providing adequate storage** of collected mattresses in a dry condition for bulky goods. Making room for and investing in storage has proven a challenge for retailers in the case of WEEE collection.

Many of these measures tie in with recommendations from the RPS PRI Review to help streamline enforcement.

#### Other / alternative policy measures

Establishing a new EPR scheme can be very resource intensive. DECC is currently focused on establishing at least four new EPR schemes in the coming years in response to the SUP Directive. Therefore, there may be a considerable time lapse before any additional schemes such as a mattress EPR scheme can be addressed.

A number of alternative approaches are worth considering in this context.

#### *Taskforce with negotiated agreements*

The [Gum Litter Task Force](#) was established to achieve a long-term sustainable solution to the irresponsible disposal of chewing gum litter. It includes representatives of the chewing gum industry; Department of the Environment; Food and Drink Industry Ireland and local authority representatives. The campaign involves a set of integrated initiatives including education and awareness raising measures to ensure the greater visibility of the €150 fine for littering and reminding people that incorrectly disposed of chewing gum is actually litter.

The task force was developed following litter surveys that identified gum as the worst source of litter causing significant cleanup costs for local authorities. In response to this, the Government began to explore options including applying a tax<sup>38</sup> on gum sold to tackle the litter problem. Industry responded by proposing instead to set up this taskforce that could focus instead on education. The activities of the taskforce are agreed through negotiation between Government and industry in three year cycles, and are carried out by Ibec on behalf of industry. Due to the significant market share of one company, there is currently only one industry participant in the scheme (Wrigley via Mars Ireland). It is expected in Ireland that the relative contribution of any other players would be negligible, though discussions in the UK (driven by proposals from the UK government to introduce a tax) are expected to lead to a similar scheme with multiple contributors.

Overall, the campaign is recognised as having been highly successful at tackling gum litter.

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<sup>38</sup> <https://www.irishtimes.com/news/plan-to-tax-chewing-gum-and-atm-receipts-1.990881>



Another problem identified in the same litter surveys was ATM receipts. As for chewing gum, the Government proposed a taxation approach, involving a one cent charge on ATM transactions to help tackle the cleanup cost of receipt litter. Following an industry response, this led to another voluntary agreement between the Government and the banking industry to implement measures including bins and awareness measures.

Finally, the PRI Review recommended that a Construction and Demolition waste EPR scheme also be explored. While this has not come to fruition, a Construction Waste Resource Group has been established, chaired by the Department of Environment, Climate and Communication. The EPA has also published Best Practice Guidelines for C&D Resource Waste Management Plans, based on public consultation<sup>39</sup>. Some excellent resources are also available for industry on designing out waste<sup>40</sup>.

Such alternative approaches could help inform options for improved mattress management, whether as an interim or longer term measure. For example:

- Viewing a product as a litter problem, and quantifying the cost of that problem, can create the impetus for industry contributions to tackling it
- Voluntary negotiated agreements between Government and industry can be successful at tackling litter problems and raising awareness

See also Section 3.3.1 for an estimate of litter costs related to illegal dumping.

However, the comparison to this form of scheme is also limited, since changing behaviour where the outcome is simple - such as using a bin rather than littering - is more straightforward than requiring customers to pay a recycling fee, as is the case for mattresses at end of life.

### *Deposit Refund Schemes*

The *Waste Action Plan for a Circular Economy* commits to introducing Ireland's first Deposit and Return Scheme for plastic bottles and aluminium cans. The objective of this scheme is to improve capture rates for recycling in line with the Single Use Plastics Directive requirements and to help tackle litter. The Eunomia report<sup>41</sup> supporting the DRS consultation did not identify any viable or alternative approaches to a DRS. The Department is currently working on developing this scheme following public consultation in late 2020.

As noted in Section 2.3.2, mattresses have a long lifespan and incur a treatment cost due to the challenges of dismantling and recycling extracted components. Therefore it is unlikely they would

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<sup>39</sup> See <https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf>

<sup>40</sup> See <https://www.epa.ie/publications/research/waste/Design-Out-Waste-Factsheets.pdf>

<sup>41</sup> Eunomia, *Improving the Capture Rate of Single Use Beverage Containers in Ireland*, 2020, available at <https://assets.gov.ie/89537/e5054d08-b398-4346-a69b-8f31839c19cd.pdf>



be a suitable candidate for a DRS type scheme.

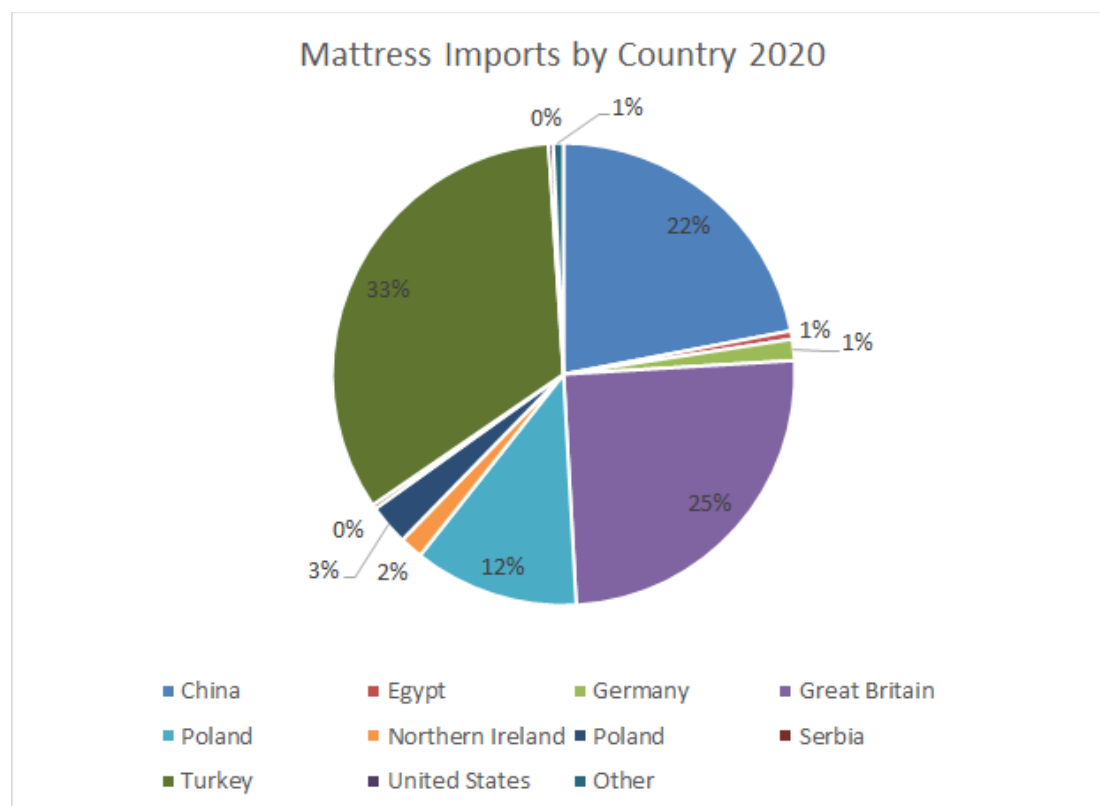
### 3.2.3 Policy and Market Design

As flagged in Section 2.3.3, local market conditions also impact on the design of an EPR scheme. Market conditions affecting Ireland are outlined below.

#### Trade position

As shown in Section 3.1.1, approx. 45% of mattresses consumed in Ireland are imported although this figure may be lower due to missing data on PURF and latex mattress production in Ireland. If it were assumed that the market is made up of 41% imported and Irish made PURF and cellular rubber as per the UK market, then this import figure could be estimated to be 36% approx, still not an insignificant figure.

The primary countries for import are shown in Figure 3, with Turkey the most significant at 34% followed by Great Britain and China.



**Figure 3: Mattress imports by country in 2020**

Another trade consideration as noted in Section 2.3.3 is the interaction across national or regional boundaries. As shown in Figure 3, mattress imports from Northern Ireland were minimal at less than 2% of total imports, while less than 0.5% exports were to Northern Ireland.

Clearly if an additional fee or cost were applied at point of sale in one jurisdiction and not another, consumers may cross the border to avoid this. For example, cross border shopping increased by €33 million in one year when shoppers in the South headed north to take advantage of the drop in value of sterling in 2016. However, mattresses are very bulky and difficult to transport for most individuals. Therefore, if all exporters (e.g. where any sales delivered to Ireland) are captured in a scheme, the majority of cross border activity should be covered.

#### Market concentration

As described in Section 3.1.1, Ireland has a relatively low market concentration involving many SME retailers. Approx. 75% of the mattress retailers identified had only one retail outlet with a further 6% having fewer than 5 retail outlets and 10% offering online only sales. This implies that more resources will be required to properly engage the sector and enforce the scheme compared with a more concentrated market.





Another noteworthy consideration is that Ireland's waste management sector is privatised. In other jurisdictions, local authorities manage bulky waste collections and this directly impacts on their cost base. In Ireland, bulky waste is managed through pathways as described in Section 3.3.1 involving a mix of public and private sector. This changes where incentives lie from a waste management perspective.

### National waste and energy policy

As noted in Section 3.2.2, the *Waste Action Plan for a Circular Economy* proposes a number of measures to improve reuse of bulky items and recycling of household bulky waste including:

- Providing appropriate reception facilities at Civic Amenity Sites (see also Section 3.3.1)
- Promoting circular economy design principles for the domestic furniture and mattress industry (see also Section 3.6)
- Banning bulky waste from landfill.

In addition, the revised Waste Framework Directive includes more stringent combined preparation for reuse / recycling targets. These are not only more ambitious in the rate that must be achieved, but are also more challenging for Ireland because they now must be measured against the entire MSW stream rather than specific material categories as was previously the case. While this will make it more difficult to meet the target, it also presents an opportunity to include previously uncounted activities within the target calculation.

In 2020, it is estimated that over 800 tonnes of steel was recycled from Irish mattress dismantling centres (see Section 3.3.4) although more may have been recovered through energy recovery of shredded materials or in overband magnets at bulky waste handling facilities. Data for any metal recovered at authorised facilities is captured through waste returns and counted toward the national recycling target. However, if the additional quantity of PURF or latex foams and textiles could also be recycled it would add a further 850 tonnes or more to the municipal waste recycling rates.

## 3.3 Infrastructure

### 3.3.1 Collection

An outline of mattress collection systems was provided in the RPS report and is further elaborated here based on the retailer survey.

#### Retailer or manufacturer take back

The RPS Baseline Review found that participation rates in retailer take back schemes in other countries are in the order of 1-20%. Of the (12) retailers surveyed by CRNI, only two did not provide a mattress take back service. Participation rates by customers in take back schemes were not part of the questionnaire. Some estimates provided by retailers range from 10% up to 80%



participation rates. From interviews with manufacturers, only some manufacturers handle end of life mattresses from wholesale activities such as hotel fit outs.

Two of the mattress dismantling facilities (Eco-mattress Recycling and Mattress Recycling - see below) work with retailers taking mattresses from take back schemes. In the survey, four of the 12 retailers consigned mattresses to these outlets. The Irish Prison Services has also supported mattress dismantling via tendering involving social clauses.

The remaining eight retailers responding to the survey - mainly smaller retailers with one or two retail outlets - sent mattresses to local waste management companies, consigned them directly to skips or brought them to local recycling centres. Some barriers identified to take back schemes include:

- Handling risks associated with Covid
- Level of soiling and contamination of some mattresses. To this extent, one retailer gives customers a bag to prepare the mattress prior to collection and avoid handling

However, most retailers felt they had to provide a take back service because if they did not they would lose customers. Therefore competitive pressure is already high. One retailer, who was unable to find an outlet for mattresses and therefore could not provide a take back service, felt that this was a big competitive disadvantage for them.

### Civic Amenity Sites

The *Waste Action Plan for a Circular Economy* highlights developing appropriate reception facilities at Civic Amenity Sites as an important policy option for tackling household bulky waste. Clean, dry, separate storage of end-of-life mattresses in particular at Civic Amenity Sites is required to facilitate mattress recycling.

The RPS report found that 50 out of 63 Civic Amenity Sites at the time of the report accepted mattresses. Most of these (24) were collected in bulky waste receptacles with other waste, while only 4 were separately collected in covered areas and 2 in uncovered areas. The remainder collected mattresses with general waste. While 11 Civic Amenity Sites reported using recycling/recovery outlets, the mattress recyclers had indicated that few local authorities consign end-of-life mattresses to recycling, implying that energy-from-waste is the likely outlet for most of these 11 facilities.

The National Review of Civic Amenity Sites<sup>42</sup> provides some more updated figures on mattress collection. Of the 29 CAS interviewed, 7 captured mattresses as separate streams, of which 4 relied on contractor containers and 3 used their own (local authority) container. While it is difficult to generalise based on this information, the figures indicate that there has been an improvement

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<sup>42</sup> The Eastern Midlands Regional (EMR) Waste Management Planning Office, the Southern Regional (SR) Waste Management Planning Office and the Connaught Ulster Regional (CUR) Waste Management Planning Office, *National Review of Civic Amenity Sites*, available [here](#)



in the number of appropriate (covered) separate collection facilities available for mattresses at CAS.

However, improved management of end-of-life mattresses at Irish Civic Amenity Sites is still required and should be addressed through the next steps of the review of CAS. Similarly, recording end-of-life mattress arisings at Civic Amenity Sites (separately to other bulky waste) would assist management.

In addition to ongoing collections, collection events have been taking place at CAS since 2017 through Ireland's Anti Dumping Initiative. In 2020 there were 47 amnesty events including mattresses, resulting in 14,168 mattresses being collected.

These amnesties have seen enhanced collaboration between Local Authorities and social mattress recyclers for one-off events. However, social recyclers still struggle to access mattresses for any longer term arrangements at Civic Amenity Sites as the tendering process is not designed to enable this as a separate service.

#### Collection Services - door to door

Ireland's mattress recyclers (see below) offer dedicated collection services for customers who can request a collection for a fee. As noted in the RPS Baseline Review, this system increases transport efficiency by eliminating an interim stopping point, which is also a potential contamination point.

Eco-mattress (based in Co. Dublin) provides a domestic collection service for end-of-life mattresses. Costs for both commercial and domestic collections vary depending on the quantity of mattresses and bed bases supplied, frequency of collections and distance from the recycling facility and are published on their website <http://ecomattressrecyclingireland.com/prices/>.

Bounce Back Recycling (based in Co. Galway) provides a province-wide domestic and commercial mattress collection service both on demand and from scheduled collection drives. Collection costs vary depending on the distance from the recycling centre (excluding scheduled drives), frequency of collections and number of units.

Some Local Authorities and many private waste companies also provide collections for bulky waste that exceeds 25 kilograms in weight and/or does not fit into the household waste bin either by item or via skips. According to the RPS Baseline Review, end-of-life mattresses are not typically a desirable material for waste collectors due to the challenges they present. Waste management organisations have noted in some instances that they would prefer not to handle end-of-life mattresses. For example, shortage of suitable storage space at some facilities does not favour storage of end-of-life mattresses, which are bulky.

Despite this, a significant fraction of end-of-life mattresses collected in Ireland is managed in mixed skip waste streams by these organisations. These are either mixed at the point of collection or are mixed after collection upon skip delivery to the waste bulking station. This mixing typically



contaminates and wets and damages the mattresses, reducing their usefulness to recycling operations.

### Illegal Dumping

Due to the bulky nature and lack of outlets for disposing of used mattresses there is a high level of fly tipping. This creates environmental problems often in sensitive remote areas and leads to significant cleanup costs. Furthermore, mattresses that have been dumped become wet and soiled and cannot be easily recycled if recovered.

The DECC makes funding available every year to the WERLAs to help tackle illegal dumping, through the Anti Dumping Initiative. Since the launch of this initiative in 2017, over 972 projects have been successfully delivered across all 31 local authority areas, including preventative measures such as bulky goods amnesty events (see above Civic Amenity Sites) or technology to contribute to a long-term reduction in illegal dumping incidents (e.g. drones, solar-powered rubbish compactors) as well as cleanup operations.

The spend through the ADI programme in 2020 was €3 million<sup>43</sup>. Unfortunately there is no breakdown available for the portion spent on bulky goods amnesty events. At least €1 million was spent on cleanup costs associated with illegal dumping though again, it is not clear what portion of this related to bulky goods including mattresses. This cleanup cost essentially represents the subsidy the State is currently providing to ensure appropriate end of life management and avoid dumping of bulky / general waste.

It is also noted that while litter clean-up costs may be directly incurred, there is also a disamenity value to litter that reflects the impact on community well-being, perceptions of community, and willingness of the community to pay for a less littered environment. This was quantified, for example, in the context of the proposed DRS<sup>44</sup>.

Therefore the overall cost of illegal dumping inclusive of the disamenity value is expected to be significantly higher than the ADI spend.

### 3.3.3 Reuse

There is no data available on the reuse of mattresses in Ireland.

Some used mattresses sales take place via peer-to-peer public exchanges such as [www.adverts.ie](http://www.adverts.ie) or Facebook marketplace and a limited number of charity retailers accept and sell on used mattresses, following a light cleaning process (e.g. Longford Women's Link).

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<sup>43</sup> <http://www.werla.ie/wp-content/uploads/2021/07/ADI-Report-2020-Final-1.pdf>

<sup>44</sup> Eonomia, *Improving the Capture Rate of Single Use Beverage Containers in Ireland*, 2020, available at <https://assets.gov.ie/89537/e5054d08-b398-4346-a69b-8f31839c19cd.pdf>

The mattress dismantlers (Eco Mattress and Bounce Back Recycling) also report that retailers often request destruction of mattresses consigned for recycling particularly where they are in good or as-new condition (e.g. returns, display models) to ensure they are not returned to the market, forming competition for their own product.

### 3.3.4 Dismantling

Mattress dismantling provides an opportunity to recover clean materials from mattresses for recycling. There are three dismantling centres in Ireland of which two are social enterprises:

- Eco-Mattress Recycling<sup>45</sup> in Dublin, which processes approximately 850 mattresses a week, but has the capacity to handle 1,000 mattresses a week.
- Bounce Back Recycling<sup>46</sup> in Galway handling approximately 450 mattresses a week, which was due to expand operations at the time of writing
- Furniture Recycling Ltd (Mattress Recycling)<sup>47</sup> in Longford, which handles an estimated 500 mattresses a week but anticipates reaching a capacity of 2,500 per week with expansion.

Eco-Mattress Recycling and Bounce Back Recycling operate as social enterprises and provide trainees on back to work training schemes with valuable work experience. A third social enterprise mattress dismantling operation, Boomerang Enterprises in Cork, closed down in 2019.

In all, it is estimated that approx. 84,000 mattresses are recycled in Ireland between the three facilities currently per year resulting in a rate of mattresses sent for dismantling of between 11% and 17%. The EU-wide recycling rate for mattresses is 14% and the Scottish recycling rate is estimated at 10%. However, the measure of recycling rates differs in different jurisdictions so may not be comparable. For example, in Ireland approximately half of the weight of mattresses goes for material recycling (see below) while the remainder is sent for energy recovery until such time as alternative outlets become viable. On the other hand, it is unclear how the remaining 80 to 90% of mattresses are treated and whether metals are also extracted via some form of rudimentary shredding / magnet systems. Taking into account only those sent for dismantling, Ireland's effective recycling rate would be 5 to 9%.

It is noted that, in Northern Ireland, there is another social enterprise mattress dismantling project, USEL Recycling Solutions<sup>48</sup>. In addition to recycling, USEL also manufactures mattresses, enabling them to inform the potential for closing the loop on mattress component reuse or the

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<sup>45</sup> For more information see [ecomattressrecyclingireland.com](http://ecomattressrecyclingireland.com)

<sup>46</sup> For more information see [bouncebackrecycling.ie](http://bouncebackrecycling.ie).

<sup>47</sup> For more information see [mattressrecycling.ie](http://mattressrecycling.ie).

<sup>48</sup> For more information see [usel.co.uk/u-recycle](http://usel.co.uk/u-recycle).



integration of recycled materials in the future. USEL achieves a high effective recycling rate through exporting extracted components to recycling facilities in England.

### 3.3.5 Material Recycling

Steel springs recovered from the mattress dismantlers are sold as scrap steel. Some operators are able to access markets (typically in the UK) for recovered textiles and foams. However, small volumes and large haulage distance make this market difficult to access profitably. The remaining mattress waste is currently primarily sent to a waste operator for onward treatment as either solid refuse fuel (SRF) or as refuse derived fuel (RDF).

Boomerang Enterprises, BounceBack and Furniture Recycling Ltd have all explored promising options for textile waste (insulation, dog mats) and polyester padding and PURF (attic storage tank jackets / stairway insulators / attic insulation). Materials have also been tested for acoustic and thermal properties. To date, these have not been developed into a commercially viable solution in Ireland nor has the end of waste status been resolved for these potential products.

Furniture Recycling Ltd is currently trialling equipment in Longford that can convert foams and textiles into an insulation material. This equipment has the potential to handle a large number of mattresses within Ireland as well as other products such as bedding (duvets, pillows) and textiles (e.g. denim). In this trial phase the quality of product as an insulation material is to be proven. The product would also require end of waste status. Furniture Recycling Ltd has also indicated plans to relocate the equipment to another site, in which case a waste permit or licence would need to be obtained. Therefore, this outlet may be two to three years from realisation.

### 3.3.6 Energy Recovery and Landfill

According to the RPS Baseline Review, energy-from-waste is the primary treatment outlet for end-of-life mattresses and is expected to remain so until other technologies/techniques/outlets develop and mature. Disposal to landfill is understood to be limited due to the lack of landfill capacity in Ireland and reluctance of landfill operators to accept this bulky waste.

As noted in the RPS Baseline Review, due to the large scale of waste management organisations the charges for collecting and recovery / disposal of end of life mattresses may inadvertently or otherwise undercut recycling.

## 3.4 Ecodesign

The mattress retailer survey included questions on whether retailers consider eco friendly criteria when sourcing mattresses and whether customers ask for eco friendly options when purchasing mattresses.



A small number (four out of twelve) of the retailers surveyed did find customers were asking for eco friendly options. A larger number (at least half of respondents) offered eco friendly or natural fibre options. Reasons for a switch to more eco friendly designs included:

- **Increased supply:** One retailer noted a change in the design of new mattresses available (e.g. increase in recycled content) and anticipate this will grow. Another retailer noted the growing supply of craft industry mattresses containing for example bamboo or horsehair. Compass Furniture is a proactive example of manufacturers in Ireland specialising in these.
- **Demand due to health reasons:** Another retailer targeting the back pain market specialised in durable (lasting for at least 15 years) mattresses that are made from sustainable and biodegradable materials. They found their customers were more likely to seek eco friendly alternatives because they prefer sleeping on natural materials. Other retailers noted that anyone with allergies prefer natural fibres. Another retailer noted that a lot of younger people are more eco aware, and ask for eco friendly or hypoallergenic, antibacterial materials.
- **Quality and information availability:** One retailer noted people are now doing a lot of research online when looking for mattresses and are no longer just looking for the cheapest products. Furthermore, tenants are getting fussier, so landlords are not buying as many mattresses any more (as they will be replaced). More people are looking for quality at a good price.
- **Demand for sustainability:** One larger retailer reported that over 80% of our customers consider sustainability when buying products and services, based on their customer insights survey. In response, they have increased the floor space in store for sustainable offerings.

One respondent noted that most mattress or mattress materials (fabrics etc) are sprayed or are hypoallergenic or contain fire retardants making it difficult to meet organic criteria or other eco friendly standards. They noted that the quality of foams can vary by manufacturer, and that while Kingcoil offers graded memory foams others do not provide any grading which raises questions about quality. They also noted that memory foam, albeit made from a synthetic material, is highly durable and can last up to 15 years while a natural fibre mattress may not last nearly as long. Some lower end mattresses only last two to three years. They felt that manufacturers should be required to use certified foams to assure quality from a health perspective.

More than half of the retailers responded that there was little or no demand from consumers for eco friendly options and that they did not typically seek eco friendly options when sourcing mattresses. A primary reason given for why consumers do not purchase eco friendly options was cost. One retailer noted *“once they hear the prices (of mattresses made from natural fibres and*

foams) they change their minds - for example, a 5ft natural fibre mattress could retail at €1,200 with another regular 5ft mattress retailing beside it at only €600”.

A mattress manufacturer flagged a number of challenges in delivering more circular economy options including:

- **Lack of end markets** to recycle mattress components
- **Negative perceptions and quality issues** associated with the reuse of components including springs (which can create uneven indentation when used) as well as foam and textiles (which pose contamination risk and hygiene concerns)
- **Low consumer appetite** / interest in recycled content in new mattresses
- Reputational damage caused by **unsanctioned recovering and reuse** of used mattresses

Overall the extent of ecodesign of mattresses appears to be limited in Ireland. Of the mattress retailers surveyed, there was generally low customer demand reported for eco friendly options apart from in niche areas (e.g. for health reasons) although more eco friendly options are becoming available on the market. However, there remain challenges in getting consumer buy-in for mattresses with recycled content.

## 4.0 Recommendations

Mattresses are both complex and bulky and are primarily managed within a linear economy model. While the original premise of this study was to deliver a briefing specifically on developing a mattress EPR for Ireland, this belies an overall objective which should be to move mattress design, use and EOL management to **a more circular model**.

The recommendations below are based on the review of international best practice, review of the current market in Ireland and feedback from interviews with key stakeholders.

**Recommendation:** The overall scope and objectives of any policy interventions in relation to mattress collections and management need to be clarified. From experience with other Member States, this process should involve key stakeholders from an early stage.

### 4.1 Aims and Objectives

As outlined in Section 2.3.1, determining overall investment objectives can help provide a basis for policy evaluation.



**Recommendation:** As a key first step for any policy intervention, investment objectives for Ireland should be determined in collaboration with key stakeholders. A platform should be created to engage with producers, retailers, dismantlers/recyclers, waste companies and authorities on the priorities for better management of mattresses and/or bulky goods (see below).

These stakeholders should include representatives from all types and sizes of organisation along the entire value chain including manufacturers, retailers, authorities including enforcement, customers, collectors and end of life treatment facilities. This will help to minimise any future barriers or limitations resulting from any disruptive, unplanned, or unexpected scenarios. It will be important also to address concerns noted in Section 3.2.1 regarding the requirement for retailers to absorb EPR fees.

The EBIA and ZWS objectives could be used as a starting point, as follows:

- Maximise the circular economy impact of mattresses
- Reduce the negative environmental impact of mattresses
- Support the just transition principles
- Influence and inform consumer behaviour around purchasing, maintaining and managing end of life mattresses
- Ensure any scheme is efficient for industry

## 4.2 Scope

The scope of intervention must also be determined early in the process.

**Recommendation:** Based on international experience, it is recommended to include the following within the scope.

- every type of mattress (foam, bladder, box sprung, pocket sprung, topper pad etc.) and every size of mattress (King, Queen, Double, Single, Child etc.)
- in the context of general or interim policy measures, boosting mattress recycling should be the overall focus.
- in the context of an EPR scheme, mattresses should be combined with bulky goods to allow for a larger impact on waste arising and recycling volumes, and a higher priority in policy.

Another important consideration is the ability to **measure the scale** of the challenge. Current estimates are that around 520,353 mattresses are placed on the Irish market, and that this market is growing faster than population growth. However, this is based on partial information as highlighted in Section 3.1. The RPS Baseline Review suggests a very large range of potential



quantities placed on the market above this figure. Furthermore the estimate of how many mattresses reach end of life per year is based on a rough estimate of replacement rates, although figures correlate with EOL mattress generation in Scotland and Belgium.

Where other bulky goods are included, further work would be required to measure the scale of bulky goods placed on the market and reaching end of life, as was estimated for mattresses in Section 3.1.2.

**Recommendation:** More work is required to clarify the quantity both placed on the market and reaching end of life per year to fully understand the scale of the challenge and establish a measurement methodology in advance of any targets being set.

## 4.3 Policy Options

### 4.3.1 Recommended Approach

EPR schemes are viewed ultimately as effective policy measures for improving collection and recycling of mattresses. They ensure the entire industry is engaged in creating ambition for mattress recycling, helping increase collection, reuse and recycling rates and support eco-design.

However, the very high administrative burden associated with introducing these schemes, the narrow focus on one product group and other compounding challenges such as lack of infrastructure or market conditions, means that Member States or regions do not always pursue this option as a priority. The Belgian scheme, for example, has taken at least 10 years to come to fruition. Following extensive development work, ZWS has put on hold any further developments. Furthermore, there are no EU Directives requiring EPR for mattresses though textiles may be subject to mandatory EPR in future.

In Ireland, both the RPS PRI review and the *Waste Action Plan for a Circular Economy* have recommended exploring the feasibility of a mattress PRI scheme. However, the Department of Environment is facing other priorities including the establishment of at least four new EPR schemes in response to the SUP Directive.

**Recommendation:** It is proposed that a roadmap be developed that includes interim measures preparing the sector ultimately for an EPR scheme. Recommendations for a roadmap are set out below. As recommended in the RPS PRI Review, a detailed cost benefits analysis should also be carried out in comparison with other policy instruments and consultation with the economic operators affected by the PRI in advance of any plans for a future scheme.



### 4.3.2 Roadmap: Maximising the circular economy impact of mattresses

*Influencing the eco design based on life cycle analysis and a harmonised understanding of eco modulation, recirculating products / materials and facilitating the expansion of recycling options through research and investment in infrastructure,*

#### Ecodesign

As highlighted in Section 3.4, the extent of ecodesign of mattresses appears to be limited in Ireland. As an estimated 54% (see Section 3.1) of mattresses consumed are made in Ireland, there is an opportunity to support the local manufacturing sector in adopting eco design principles.

#### **As interim measures:**

- the new NBF *Ecodesign framework and principles for the UK bed sector* and the proposed EBIA minimum product requirements could be used to facilitate a discussion with industry on eco design. This could be done via a seminar or series of workshops with NBF, whose Presidency is currently held by an Irish manufacturer. Circuleire as the national manufacturing platform could also have a role in supporting circular design, through bringing together mattress recyclers, setting up a thematic working group and funding innovation projects (as the current Cirtex recycling project is being funded).
- demand should be supported by the public sector through public procurement frameworks, for example through encouraging leasing of mattresses with condition that mattresses are refurbished or recycled at end of use or end of life. In Ireland this could be supported as part of the wider Green Public Procurement guidance and training being spearheaded by the EPA.

#### **As a longer term measure:**

- eco design should be built into any EPR scheme. This should follow EBIA recommendations to implement 'essential requirements' within existing mattress manufacturing standards taking into consideration performance, warranty, composition, design and information as set out in Section 2.3.7.
- Explore opportunities for the EPR scheme to support labelling or material passports in declaring the presence or otherwise of these substances
- Where an EPR scheme is combined with bulky goods, manufacturing standards or eco design recommendations for furniture should also be adopted
- Eco modulation or contribution toward a fund to support eco design should be part of the cost structure of any EPR scheme



## Maximising Reuse

### **As an interim measure:**

- Efforts should be made to measure or contextualise the level of reuse of mattresses currently and work with manufacturers to identify the barriers and how to overcome them, particularly in relation to as-new or nearly new goods which may be destroyed for branding reasons.

### **As a longer term measure:**

- Include in any EPR targets reuse in addition to recycling (see also Belgium, California)
- Where an EPR scheme is combined with bulky goods, it would be more easily met by furniture. Some part of a target may need to be earmarked to ensure mattress reuse is still explored.

## Recycling

Effective **recycling rates** in Ireland are estimated to be between 5% and 10% of mattresses placed on the market. This is below the average reported EU recycling rate of 14% although definitions of recycling between regions may differ.

There are three facilities dedicated to mattress dismantling in Ireland with capacity of 84,000 mattresses, though some recycling is also taking place via shredding or dismantling carried out by waste collection companies. While steel springs are recycled, other components (particularly foam and textiles) are bulky and large haulage distances make recycling markets for these streams difficult to access profitably from Ireland. About half of the mattress waste is sent for onward treatment as either solid refuse fuel (SRF) or as refuse derived fuel (RDF). Additional treatment capacity and material recycling outlets would be required to support an EPR scheme.

One mattress dismantling facility has plans to develop a treatment outlet for significant quantities of foam and textiles from mattresses, which could be a game changer for mattress recycling rates. Recycling, particularly of foams, is a major challenge for EPR schemes in other Member States.

### **As an interim measure:**

- Supports will be needed to grow recycling rates including:
  - Subsidies (e.g. business rates or leasing) or other supports to enable growth in dismantling capacity
  - Research and development support to exploring additional local outlets for components



- Grants, loans or other support (facilitating permits, end of waste) to support the development of infrastructure for local treatment capacity for components or to facilitate access to international treatment capacity

**As a long term measure:**

- Separate and ambitious reuse and recycling targets should be set for mattresses and furniture. In Belgium the treatment target (reuse and recycling) is set to increase from 10% in 2021 to 75% in 2030. In France, the treatment target (recycling and recovery) is 50% recycling / 90% recovery for 2023.
- An EPR scheme needs to be properly designed to provide a guaranteed income stream for dismantling facilities and provide certainty to material recyclers of a steady feedstock. For example, tenders for dismantling and recycling operators could provide certainty and a reliable supply of mattresses.
- An EPR scheme should include a contribution to R&D to explore outlets for extracted components

#### 4.3.3 Roadmap: Reduce the negative environmental impacts of mattresses

*Ensuring good collection systems are in place that preserve the reuse and recycling potential of mattresses*

The majority of retailers provide take back schemes although participation rates are unclear. Some manufacturers also handle end of life mattresses from wholesale activities. The mattress dismantlers also offer dedicated collection services for customers who can request a collection for a fee.

Less than a quarter of Civic Amenity Sites interviewed for the National Review of Civic Amenity Sites provided for the separate covered collection of mattresses, showing a slight improvement on the previous findings in the RPS Baseline Review. Collection events through Ireland's Anti Dumping Initiative have added to mattress volumes collected via CAS. Some individuals use these as a way to avoid a take back charge by retailers. However, general feedback from retailers was that price was not a significant issue for customers and that the convenience of mattress removal from the doorstep was a bigger driver.

There is also significant expenditure on anti dumping initiatives and illegal dumping cleanups currently which could be offset in future by investment in more accessible or affordable collection.

**As an interim measure:**

- Measure the direct cost of mattress / bulky goods cleanup and amnesty events via the ADI
- Require a minimum number of CAS segregate and appropriately store (covered) mattresses via the next steps of the review of CAS
- Support CAS operators in screening potentially recyclable mattresses, applying limited criteria, and recording quantities separately to other bulky waste
- As more CAS provide appropriate collection and storage, wind down free amnesty events and introduce nominal charges at mattress collection events to disincentivise hoarding / take back fee avoidance
- Introduce a landfill ban by 2025 to stop direct disposal
- Explore the potential of establishing a task force with negotiated agreements to raise funds (informed by the above cost of tackling dumping) to tackle the cost of cleanup of illegal dumping, education and awareness. It would be important that this type of scheme does not detract from the development of an EPR scheme in the longer term.

**As a long term measure:**

- Collection targets should be set as part of an EPR Scheme. In Belgium the collection target relates to a % of mattresses discarded, increasing from 30% in 2021 to 80% by 2030.
- An EPR scheme would cover the costs of collection, screening and storage at CAS and subsidise the cost of take back schemes by retailers enabling collection infrastructure to expand and become more accessible.
- Within an EPR scheme, a voluntary opt in system for retailers with a financial incentive appears to be successful in other jurisdictions, encouraging quality take back, and avoiding competition issues for online retailers or generalist department stores
- A visible fee at point of sale appears to be an effective approach in other mattress EPR schemes and has worked well for tyres in Ireland. One issue with introducing such a fee could be multi-year contracts established prior to the introduction of an EPR scheme.

#### 4.3.4 Support just transition principles

*Creating employment opportunities, ensuring low income communities are not disproportionately affected*



The WAPCE also highlighted the role of social enterprises in mattress recycling currently. Special consideration should be given to providing support for social enterprises, for example through social criteria in procurement.

**As an interim measure:**

- Public Sector Bodies should be encouraged to review and adopt the Irish Prison Service framework contract model, which is progressing measures to accommodate social enterprises (e.g. social clauses, reserved contracts) in mattress recycling
- Local Authorities should be encouraged to support more circular and social aims at Civic Amenity Sites, by for example splitting contracts into lots or facilitating smaller contracts for specific streams like mattresses and/or by specifying that successful awardees of larger tenders provide social gain through subcontracts.

**As a longer term measure:**

- The model of supporting job creation in the social economy through EPR schemes should be adopted, with 5% of collected fees dedicated to supporting this activity.

#### 4.3.5 Influence / inform consumer behaviour around purchasing, maintaining mattresses

Less than half of the retailers reported consumer interest in eco friendly options for mattresses. However, demand for such options is necessary to encourage suppliers and manufacturers to invest in alternative materials and designs. Furthermore, the participation rates in take back schemes, and consumer awareness of appropriate EOL mattress management is unclear.

**As an interim measure:**

- To better inform these assumptions a wider survey of customer attitudes toward mattress design, reuse, recycling and disposal would be useful.
- Reward (e.g. through a quality mark or award system) or publicise more eco friendly mattresses, in line with the NBF guidelines and working with mattress manufacturers
- As noted above, explore the potential of establishing a task force with negotiated agreements to raise funds to tackle education and awareness.

**As a long term measure:**

- As part of an EPR scheme, a contribution should be made to education and awareness campaigns to:

- support demand for more sustainable options at the point of purchase
- encourage responsible management including lifetime extension
- encourage end of life recycling via take back or other schemes
- Broader communications would also be required as part of an EPR schemes to inform producers, collectors and outlets
- A quality mark, as proposed by NBF, should be explored to overcome negative perceptions associated with the reuse of components or inclusion of recycled materials

#### 4.3.6 Ensure any scheme is efficient for industry

*Addressing free riding, potential distortions of the internal EU market and unnecessary administrative costs*

Ireland currently imports approx 36 - 45% of mattresses sold. The majority are imported from Turkey followed by Great Britain and China. Only 2% imports were from Northern Ireland and the bulky nature of mattresses would likely pose a barrier to consumers transporting mattresses across the border. Therefore, the risk of an EPR scheme distorting trade across the border does not appear to be high.

##### **As a long term measure:**

- As for other EPR schemes (WEEE, batteries), considerable effort would be needed to ensure all producers including importers are captured in a scheme to establish a level playing field.
- The EBIA Blueprint recommendations should be taken into consideration in any future mattress / bulky goods EPR discussions.

## 4.4 EPR Design Considerations

### 4.4.1 Structure and Governance

All Irish schemes are industry-led and mandatory, involving a collective approach that is discharged through Compliance Schemes. This is seen as a more workable option from an enforcement perspective and has proven effective in other Member States.



#### 4.4.2 Financing and Resources

A first step in defining the resource requirements for a new mattress EPR scheme would be identifying the costs that should be covered by the scheme – for example, whether the scheme should cover additional services beyond collection and recycling such as illegal dumping, awareness campaigns or other requirements.

While some costs associated with mattress handling are known for Ireland, many other costs e.g. logistics and storage at collection points, communications, administration and contingency or other funds would need to be determined. A particular challenge and cost for any scheme in improving mattress collections will be establishing suitable covered storage infrastructure and potentially supporting the separation of mattresses from skip collections.

Based on international EPR schemes and national EPR schemes, the following spend breakdown is typical:

- the cost of collecting, storing and treating mattresses to meet recycling targets and the cost of disposal of non recyclable mattresses - 70 to 80%
- the cost of administering the scheme incl enforcement - 10 to 15%
- Funds and contributions towards the cost of research and development, reserves, illegal dumping and other measures - 10 - 15%
- the cost of preventative measures and awareness campaigns - 2 to 5%

Contingency funds would also be required for the set up of any new scheme.

Contributions by producers typically vary by size of the mattress. Currently there is limited eco modulation in mattress EPR schemes but investment in research and development is more widespread.

Also for consideration is extending potential contributors beyond producers to waste companies (to avoid the inconvenience and logistical challenges of handling mattresses). The Farm Plastics scheme works on a similar basis.

Clearly this only sets out potential expenditure for a mattress EPR scheme. The inclusion of other bulky goods, which imply a different set of economics, may change this but is outside the scope of this study.

Payments to the collectors and dismantling centres of recovering, transporting and treating mattresses should be linked to the reporting of data and based on mattresses processed, not just collected. It was also recommended that contracts are based on weights not units with truck scales providing weights at contracted facilities



### 4.4.3 Monitoring and reporting

As outlined in Section 3.2.2, success factors<sup>49</sup> for any EPR scheme enforcement include:

- **open lines of communication and information sharing** between PROs or other bodies, local authorities and the WERLAs.
- **engagement of industry** particularly during the development phase of an EPR scheme.
- use of the national and centralised **electronic registration system** for obligated producers.
- **closed loop systems** involving visible monitoring charges (VMC)
- **buy-in from local authorities** and contribution to costs of cleanup operations

Supporting the resourcing of enforcement units will also need to be considered either at Local Authority or WERLA level, particularly given EPR enforcement tends to be overshadowed by other priorities such as illegal dumping.

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<sup>49</sup> Interview with the regional WERLAs 18/8/21



# Annex A: Retailer Survey Questions

## Mattress Retailer & Take Back Survey

CRNI has been asked by the EPA to help inform policy options for a mattress Producer Responsibility scheme. Our network supports social enterprises in reuse, repair and recycling and includes two mattress recycling organisations in Dublin (Ecomattress) and Galway (Bounce Back Recycling) so we understand end of life mattress management.

This survey is aimed at understanding how or whether end of life mattresses are taken back by retailers and the extent to which costs are recovered for their end of life treatment.

\* 1. Please enter the name of your company

\* 2. Do you currently provide a mattress take back service?

3. If yes then where are the collected mattresses sent?

4. Do you have any data you can share on how many mattresses you place on the market annually?

\* 5. Do you currently charge for mattress take back and if so how much?

- |                                              |                                         |
|----------------------------------------------|-----------------------------------------|
| <input type="radio"/> Nothing                | <input type="radio"/> Less than 30 Euro |
| <input type="radio"/> Less than 10 Euro      | <input type="radio"/> Over 30 Euro      |
| <input type="radio"/> Less than 20 Euro      | <input type="radio"/> Cannot disclose   |
| <input type="radio"/> Other (please specify) |                                         |

6. What are the main barriers to mattress take back? (please rank in order of priority from 1 = biggest barrier to 5 = lowest barrier)

☰	▾	Recovering cost from customer
☰	▾	Storage
☰	▾	Finding an outlet
☰	▾	Logistics
☰	▾	Not our core business

7. Are you aware of what happens to mattresses at their end of life in Ireland?

8. If a producer responsibility scheme were introduced for mattresses, it may require anyone selling mattresses to contribute to a scheme that would cover their end of life management. This cost contribution can be recovered through an upfront fee on mattress sales. Do you think there would be any issues with applying this cost at point of sale for the consumer to see? Do you have any other feedback on this?

9. Do you consider eco friendly criteria when sourcing mattresses?

10. Do customers ask for eco friendly options when purchasing mattresses?