



CIWM

# AN EPR OF EVERYTHING, STARTING WITH BATTERIES!

Extended Producer Responsibility and the need for change





## > FOREWORD

In this White Paper, the Chartered Institution of Wastes Management (CIWM) has set out recommendations to governments and legislators on how widespread issues related to hard-to-recycle products and materials, such as batteries, could be mitigated for the betterment and protection of society in general, and workers in the resources and waste management industry in particular.

The recommendations are largely based upon an extensive research programme commissioned by CIWM, and carried out over the last twelve months by env23 Ltd, looking at the subject of consumer understanding of, and attitudes towards, the impact of the management of batteries and battery containing products at the end of product life.

This has led to the broader consideration of producer responsibility principles, combined with other research and policy development programmes by CIWM.

© John Twitchen, FCIWM

The recommendations can be summarised as follows:

- 01 Targeted implementation of extended producer responsibility (EPR) to product types known to cause issues such as electrical items and batteries, as well as textiles and mattresses.
- 02 EPR being the default position for any new product being placed on the market which either uses critical raw materials or has the potential to cause 'environmental harm' at its end of life.  
Taken together, recommendations 1 and 2 are calling for 'an EPR of everything'.
- 03 Targeted implementation of deposit return schemes (DRS) for batteries and battery-containing products.
- 04 Battery manufacturers and retailers to act immediately and work with the CIWM to promote safer, simpler, and effective recycling.
- 05 Chemistry-specific recycling targets to be brought in and introduced as part of the process of updating existing battery producer responsibility legislation to an EPR for batteries.
- 06 Support the development of domestic rare-earth material circularity and 'tech' circularity businesses and a fundamental shift in attitudes from 'cost' to 'value' through principles such as: better design; warranties; repairability and the right to repair; and product servitisation – all of which increase an item's 'in-use' phase (i.e. make it last longer!), eliminate waste, and improve resource efficiency.

We expand upon our recommendations with supporting evidence in this White Paper.



## > INTRODUCTION

The United Kingdom is still trying to bury the problem of hard-to-recycle products and materials, less often in landfill (it is 2024 after all!), more often by either pretending there isn't a problem, hoping a magical solution turns up to save the day, or physically sending them 'away' to somewhere else where out of sight is definitely out of mind.

The problems are significant; the funding to solve the problem is not. We think these problems are 'away' but they are coming home to roost.

Often, 'away' is someone else's 'home.' **A beach in Ghana** covered in British clothes. **Villagers in India** melting the plastic off wires and circuits to recover rare and precious metals from British e-waste.

'Away' is full, broken, changing. 'Away' has had enough.

And we – us, here – we know we need to do better; we know we can. We need our words to be heard through our actions.

Britain must lead by example and accept responsibility for the products and materials it consumes. Businesses must step up and take responsibility for the impact of the products and materials they import, make, use, and sell here.

The problems are increasingly closer to home than we might think. Fires caused by powerful rechargeable batteries in cheap gadgets or even in clothes have increased dramatically, putting lives in danger – the lives of our colleagues, members of CIWM.

And the rivers and oceans we are so inspired by contain increasing amounts of plastic, entering food chains and ultimately us – humans. There is no doubt we have entered the **Anthropocene** – where humankind has exerted a lasting, and potentially irreversible, influence on the planet's systems, environment, processes, and biodiversity.



## > So why an ‘EPR of everything’?

### Where does responsibility lie for “cleaning up society’s mess”?

Presently, all roads lead to local authorities, who are left holding the fort. But local authorities should be the last resort, focused on protecting human health and the environment, not the front line for anything producers choose to throw at them. Surely, it was never the intention for local authorities to become international commodity traders (and try to do it in 400 different ways).

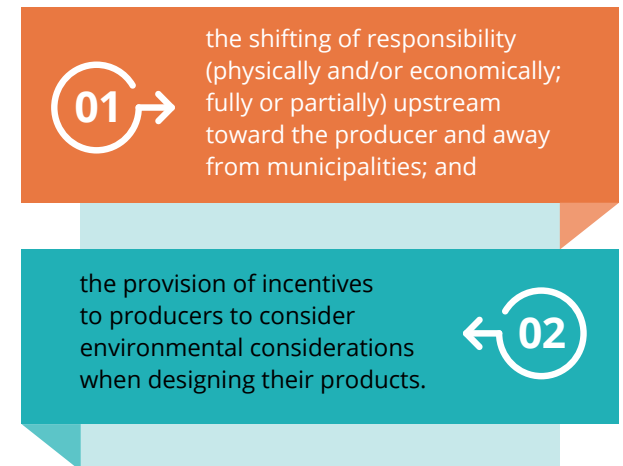


As ably supported as they are by waste, recycling and resource management companies combined, our front line CIWM colleagues don’t stand a chance when faced with the barrage of increasingly complex and often dangerous materials making up products with a rapidly diminishing life expectancy.

In some, indeed in many cases local authorities may be best placed to collect, to process; however this must be funded and individuals and organisations must accept responsibility for their impacts. We all have a duty of care but ultimately, accountability should fall on those responsible for producing and putting products on the market, and who are in the position to influence and specify designs and materials which are consistent with the concept of a circular economy – its design, longevity, reparability, resilience, safety, recyclability, and reincorporation of materials and components.

**The end-of-life impact of products and materials cannot be a carefree and unconscious process by those carefully and consciously exploiting raw materials.**

The Organization for Economic Cooperation and Development (OECD) definition of EPR is ‘an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle,’ and typically characterised by:



Whilst EPR should be the default position, there is a hierarchy of need with products such as batteries, Waste from Electrical and Electronic Equipment (WEEE), and textiles the most important to have EPR regulations applied to them as soon as possible. These products are causing the greatest and most urgent concern from multiple perspectives, particularly in relation to people safety and planetary impact.



## > Let's talk about deposits

Often, and in large part due to a complete lack of communication or any ongoing relationship with the consumer since the point of purchase, decisions over how to recycle or dispose of a product must be made by the consumer at the end of a product's life. This could be moments or indeed many months or even years after purchase.

Deposit return schemes may not be every producer's or retailer's cup of tea, but they are an extremely important mechanism in joining up the point of purchase and the point of recycling or disposal decision – they keep the consumer and the manufacturer connected; they provide an in-built call-to-action. Deposits have an important role to play.

Critical to what happens next, and ending the fallacy of 'away,' is a change of attitudes, behaviours, and cultures, in which deposits can play an important, efficient, and effective role. An urgent, systemic review of who should do what is required. It should be irrelevant 'who' currently collects an item or a category of products: it must be about the best outcome, the best way, making the right decisions.

This needs leadership to drive it, and it needs to be outcomes focused. It needs to start right now. The transition to circularity will require what's sacred to be discussed, not getting hung up on 'business as usual' – open minded by default.

Prevention – avoiding the creation of waste, and reducing the amount and hazardousness of waste – is an essential element of the EPR of everything. EPR policy needs to drive better design, better execution of purpose, better resource efficiency through extended life where possible, and of course much better provision for the collection, reprocessing and incorporation of materials back into new products.

This needs to be fully funded through producer responsibility and driven by targets and, where necessary, taxes and levies.





## > Cost versus value – changing the narrative

A frequent criticism levelled at EPR and deposit return schemes is that they place cost burdens onto citizens, a factor that is accentuated by the current cost of living crisis. However, the debate is actually about consumer value for money. It's about cost versus value. Cost, where an item is considered 'a bargain' because it is cheap, may not offer the best value compared to another item which has, let's say, a 20% price premium but is designed to last twice as long. The 'cost per use' is much better.

Consumers have been trained into believing 'cheap' is equal to 'value' – however, cheap is often poor value for money. An argument against EPR is that it will increase the cost to the consumer: the consumer pays the price eventually, but the costs of 'cheap' are hidden.

The real price of a cheap electrical product where the rechargeable batteries cannot be removed or replaced is the cost of damage to refuse collection vehicles, damage to waste and recycling facilities, installation of increasingly elaborate fire detection systems, a 500% increase in insurance premiums, additional complexity of kerbside collection schemes in an attempt to collect the 'nth' this or that

forced onto local authorities with no market for the end product and no funding to support schemes. And the cost to the consumer of buying another one; repeat as above.

All this extra cost is paid by the consumer – primarily by council tax payers through increased costs (or felt through a reduction in recycling or other council services, where that is the only choice open to a municipal authority).

Deposits do not add cost to the consumer. They add complexity to 'Business as Usual' operations for manufacturers and retailers, which may require short term investment to operationalise. However, deposits, as part of a wider EPR scheme, also drive attitudes, behaviours, and cultures, both of consumers and of manufacturers and retailers. They drive innovation and invention. They drive investment. They drive domestic capacity and even manufacturing.

They drive value for money for the consumer, aka the council tax payer, aka the voter. And they help to protect human health and the environment, at home and 'away.'





# ➤ CIWM BATTERY RESEARCH PROJECT

So why start with batteries?	8
What most consumers think about batteries	9
We need a new deal for consumers	13
CIWM's 'New Deal for Consumers' in detail	15
CIWM's support for developing circular economy opportunities	17
Vapes – a salutary lesson	17
Conclusions	18





## > So why start with batteries?

The CIWM Battery Research Project set out to review public attitudes towards current producer responsibility arrangements for batteries and engage stakeholders to inform and influence future management and recovery of used batteries. The work builds on previous sector and issue engagement by CIWM including a 2020 webinar, and recent work carried out by the Environmental Services Association (ESA).

Fires caused by batteries are a crisis for the resources and waste sector, for taxpayers, for homeowners, and for Government. Addressing the problem is an emergency, and an emergency response is required. Batteries are a perfect candidate for extended producer responsibility and a deposit return scheme.

There were more than 1,200 fires caused by or suspected to have been caused by batteries at UK waste and recycling sites and vehicles in 2023 (Material Focus, 2024), an increase of 71% from 2022. These are batteries – in particular, high-powered, rechargeable batteries – that should not have been put in a bin, and should instead have been taken to a collection point.

The cost of the damage and lost time from these unacceptable and entirely avoidable fires caused by batteries is estimated at £158 million in annual damages (Eunomia, 2021). Fortunately, so far no-one has been killed in any of these incidents, however clearly there is significant concern that this fortune may run out.

There are three reasons why these high-powered rechargeable batteries are ending up in bins – the wrong waste in the wrong place:



Clear and impactful information on how to correctly dispose of used batteries is not reaching consumers at point-of-sale or disposal and consumer awareness of the hazards is low due to a lack of funding for campaigns;



Batteries are finding their way into more and more everyday items, from single-use vapes to toys and gadgets and even into clothes and shoes, and consumers may be unaware an item even contains a battery;



Producer responsibility rules have not kept up with changing chemistry and pervasiveness of technology, with little or no incentive for manufacturers or retailers to change, placing the burden of cost onto local authorities.

Championing extended producer responsibility, and supporting the sector’s transition to a circular and net zero economy are key commitments for CIWM – along with promoting safety for colleagues and consumer value for money.

### THIS IS WHY WE STARTED WITH BATTERIES





## > What most consumers think about batteries

Our consumer research shows that the public are concerned over the impact and danger of batteries, are keen to do the right thing and strongly support action for change.

### Manufacturers and retailers need to do more.

There is a lack of knowledge, information, and confidence amongst consumers on how to dispose of batteries and gadgets that may contain batteries. This is particularly

problematic in relation to cheaper/lower value and smaller items, such as vapes and rechargeable toothbrushes, whereas higher-value items are more likely to be traded in or sold on, with fewer ending up in a bin.

The table below shows how our respondents dispose of different products. Highlighted in orange are the greatest (but not the only) concerns. Typically, cheaper, and smaller electrical items containing rechargeable

batteries are the ones ending up in the wrong bin, or indeed any bin other than a dedicated collection point. For example, by aggregating the ‘wrong’ answers for electric toothbrushes, this item is likely to be disposed of dangerously by 40% of people. For rechargeable vapes, it is 43%.

Where batteries can be removed and replaced, i.e. traditional ‘AA’ batteries, they are much more likely to be taken back to a retailer or other collection point – by almost 70% of people.

### Typical disposal – by product

	Standard batteries (1,599)	Rechargeable Vapes/e-cigarettes (174)	Smartphone/tablet/laptop (1,942)	Power pack chargers (820)	Electric toothbrush (1,163)	Rechargeable toys (231)	Rechargeable power tools/appliances (815)	Electric scooters/bikes (123)
General rubbish	16%	24%	4%	16%	25%	12%	6%	2%
Household recycling	10%	13%	3%	8%	12%	5%	6%	3%
Street bin	2%	5%	1%	2%	3%	2%	1%	2%
Supermarket recycling	53%	9%	3%	10%	5%	4%	3%	3%
Left for someone to clear up	-	1%	-	1%	-	-	1%	5%
HWRC	10%	23%	15%	31%	37%	27%	54%	20%
Donate it	1%	4%	11%	6%	2%	20%	9%	9%
Gave it away	1%	5%	11%	8%	2%	10%	5%	9%
Sell it	-	4%	19%	5%	1%	9%	8%	26%
Trade-in scheme	1%	4%	15%	3%	2%	5%	2%	7%
Retailer take-back	6%	4%	11%	3%	2%	3%	2%	9%
Other	1%	5%	9%	9%	8%	2%	5%	7%

0-9 10-19 20-29 30-39 50-59 Percentage of respondents selecting those options

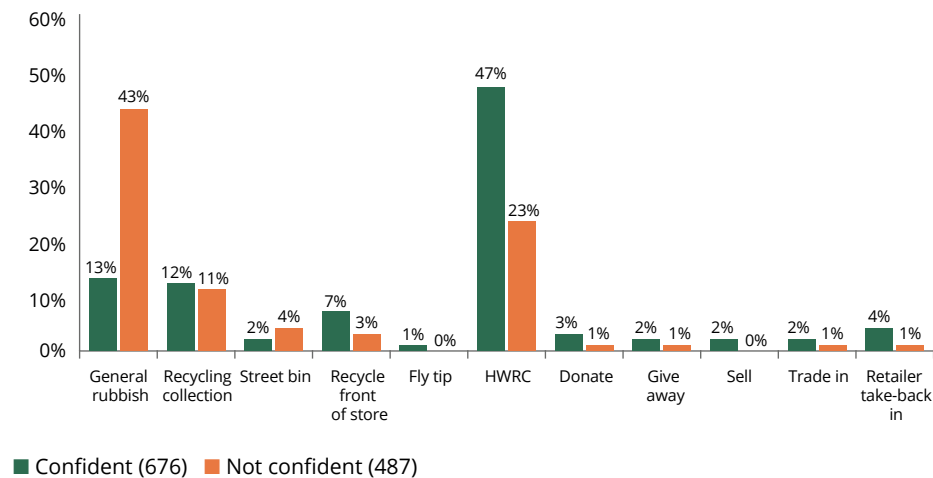
Impact of small items containing batteries ending up as the wrong waste in the wrong place Success of supermarket recycling collection point



By contrast, higher value or larger items are more likely to be traded or otherwise taken to a Household Waste & Recycling Centre (HWRC). Breaking this down for typical example items, the charts below show that the degree of confidence an individual may have does not necessarily follow through into markedly improved outcomes, showing a lack of information reaching consumers due to low point-of-sale and disposal cut-through.

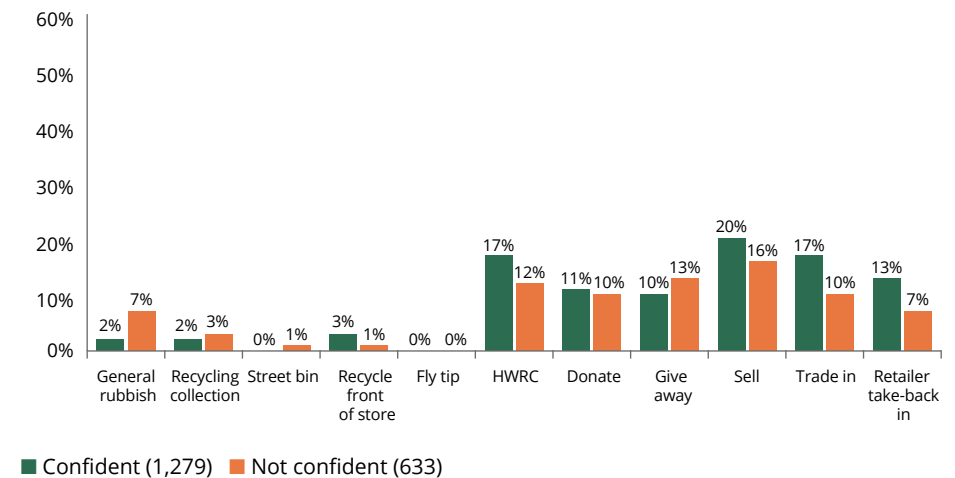
The link between disposal knowledge and disposal choices is present across all items. For rechargeable toothbrushes, those who are confident they know how to best dispose of them often opt for the HWRC; those not confident again often opt for the general rubbish.

Q. How do you typically dispose of each of these items?  
Electric toothbrushes



For items like smartphones and computers/laptops, better disposal knowledge increases the propensity to use routes such as selling, trade in, retailer take back and the HWRC.

Q. How do you typically dispose of each of these items?  
Smartphones, computers and laptops



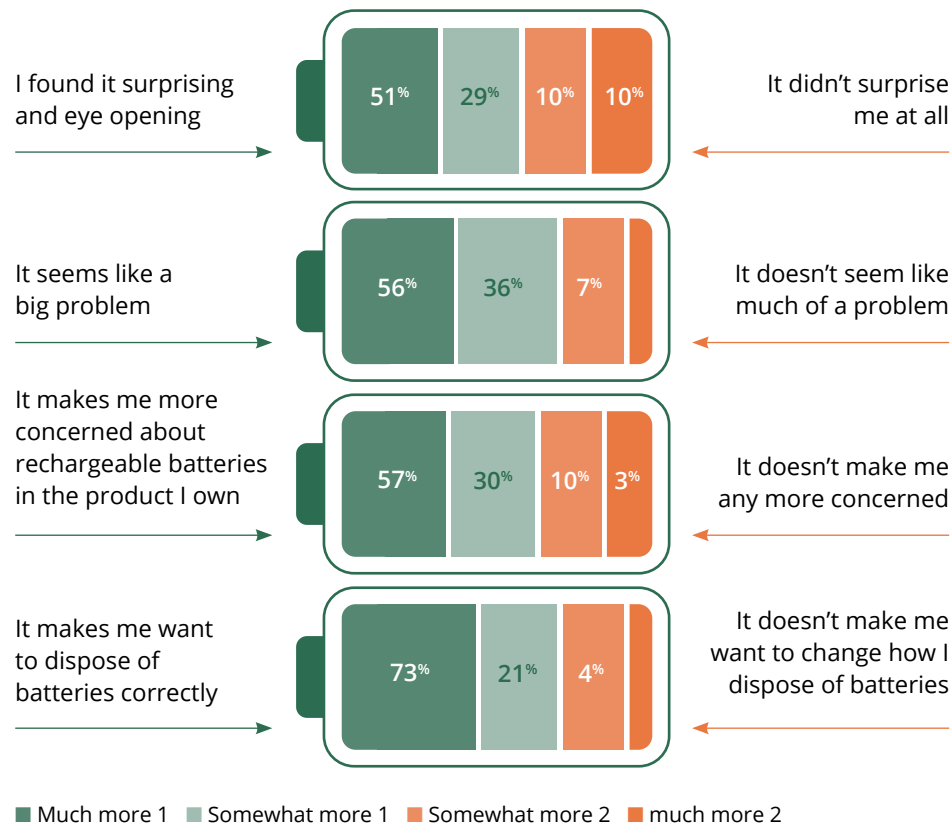


## The public are extremely concerned

The public are ‘petrified’ when they discover the true impact of putting the wrong waste in the wrong place, in this case a battery or an item containing a battery in the bin.

### The video of fires and incidents at HWRCs as a result of rechargeable batteries is highly impactful

Q. Please rate the video on each of the following criteria using the scale, depending on whether you agree more with the statement on the right



### The videos and examples shown at the workshop had a strong ‘shock’ impact that made several participants immediately reconsider some behaviours

- Many participants immediately related the safety issues to their own products and behaviours, as well as the things they put in their bin.
- The fact that fires caused by batteries are so difficult to put out was a concern.
- The “maximum number of charges” was a useful articulation for some, and led to a number of immediate concerns (e.g. handing down their smartphone to their granddaughter, or buying refurbished, or buying an electric car, might not be as good a choice as they first thought it was).



\*Citizens' workshop



## There is strong support for a deposit return scheme

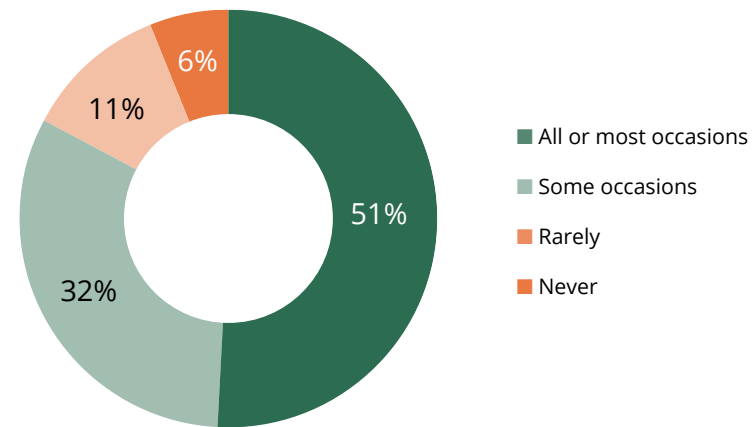
Continuing with ‘business as usual’ is unacceptable and change must happen in order that this urgent crisis for our industry, for taxpayers and for Government can be addressed.

Our research indicates that the public strongly support the use of deposits for items like batteries. The level of deposit doesn’t need to be very high or set at a percentage of the value of a product, because the big-ticket items when it comes to ‘wrong waste – wrong place’ are cheaper, smaller products such as vapes and toothbrushes.

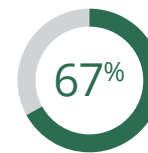


### Over four in five believe, based on the information provided, that they would be minded to use a DRS for batteries

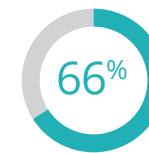
Q. Please indicate which option most closely describes your likelihood of using the deposit return scheme rather than your usual disposal method? Please give your honest answer; we are interested in what you think you WOULD do, not what you think you SHOULD do?



#### All or most occasions (average 51%)



Those who rate recycling 9-10 out of 10 in importance for them



Those who rate plastic waste 9-10 out of 10 in importance for them



## We need a new deal for consumers

01

Battery manufacturers and retailers need to act immediately and work with CIWM to **promote safer, simpler recycling**, ensure ‘the right waste in the right place’ and celebrate success, such as measures being put in place by the **Bicycle Association** to collect e-bike batteries, which make the problem and solutions more visible.

It is great to see voluntary schemes being implemented which take the issue of batteries, battery disposal and battery safety seriously and it is exactly these sorts of schemes that should become mandatory under EPR.

02

Chemistry-specific targets must be brought in and introduced as part of the process of updating existing battery producer responsibility legislation to an EPR for batteries, as a matter of urgency to ensure consumers can access collection points and industry-funded take-back schemes for high-powered rechargeable batteries and items containing these batteries – lead acid batteries account for 70% of recycling evidence but are just 3% of the UK market.

Currently compliance is a box-ticking exercise – targets are being easily met at the expense of disincentivising investment in capacity to handle and recycle non-lead acid batteries. This is a quirk of the current out-of-date regulations and needs reviewing urgently, however this amendment to the current regulations is only a quick fix to address the current emergency situation being caused by batteries; it is not a long-term solution.

03

Work should start immediately on a **deposit return scheme for batteries**. Our research shows the public strongly supports this measure and the problem items are generally smaller/cheaper where a modest deposit will have the highest impact.

We think a modest, flat rate deposit on all batteries or items containing batteries would be simple and effective, targeting the most problematic products and spurring action to address the issues flagged above. Retailers and manufacturers would need to ensure battery collections or collection points were available.

Deposits would have the additional effect of challenging manufacturers to come up with better product designs, drive more products to have removeable and replaceable batteries and bring about the beginning of the end of designed-in obsolescence dictated by battery life. This would vastly improve safety of products at the end-of-life, reducing the risk to CIWM members and the public, and improve value for money through repairability.

04

Support needs to galvanise around the development of **domestic rare-earth material circularity** and tech circularity businesses – this is not about amending end-of-life regulations, but a fundamental shift in attitudes from ‘cost’ to ‘value’ through right-to-repair and eco-design principles.

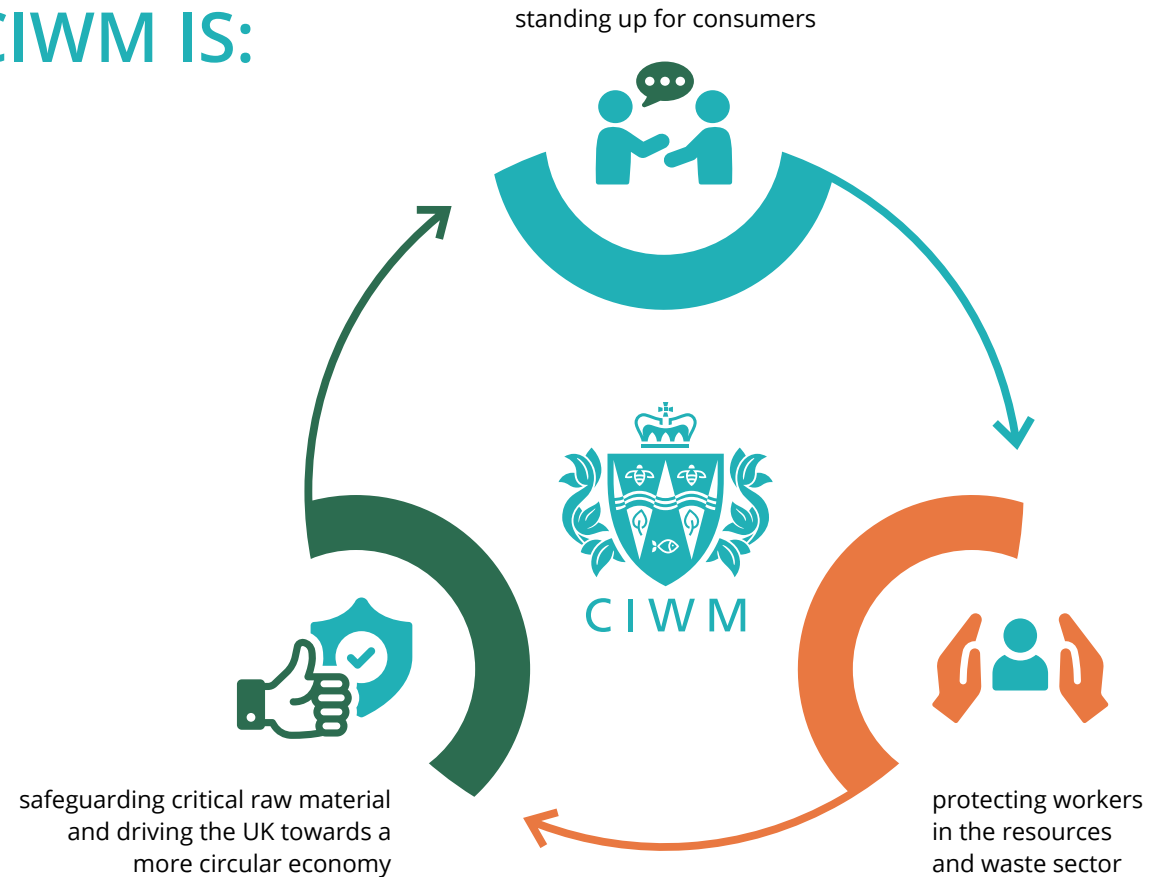


With global demand for rare earth materials expected to reach 466,000 Te by 2035, up from 170,000te in 2022, clearly there is demand for these materials. Urgent Government actions needed to support R&D investment in rare-earth material recycling.

Combined with the previous points, the UK should lead by example and move from being one of the most wasteful societies in the world when it comes to electrical and electronic equipment, to become one of the most progressive and resourceful, respecting the safety of others and grasping the opportunity presented by mining the urban environment for valuable materials, supporting manufacturing and export, creating jobs and skills as a result.

CIWM is taking a lead on the issues end-of-life batteries are having on workers within the resource & waste sector, and the lost opportunity that this currently presents as an example of why EPR needs to be extended.

## CIWM IS:



Ultimately, we see a clear path towards ‘EPR of Everything’ as a policy priority area, focusing on materials, products, and sectors where either there is no current or direct producer responsibility code or requirement, or where what does exist has demonstrably fallen short in delivery or fallen behind current technology, policy or practice as is the case with batteries.



## CIWM's 'New Deal for Consumers' in detail

Regulatory and legislative measures, combined with the attitudes of better informed and motivated consumers, act as positive drivers for change.

Some commentators will no doubt try to counter this by stating, as they have in relation to packaging EPR changes, that “it is unfair on consumers for Government to be adding to ‘the cost-of-living crisis’ by introducing environmental taxes,” and use this as an excuse for inaction.

However, this is misguided and serves only to obfuscate from the real issue – cheap goods with built-in obsolescence are having a huge impact on peoples’ quality of life by making people pay multiple times for something like an electric toothbrush or a t-shirt that should last a lifetime.

And the double-whammy is that council tax bills are going up because of the pressures to collect more and more difficult waste streams, and pay for the damage to vehicles and facilities used by local authorities to manage recycling and waste.

Deposit return schemes and EPR schemes are not a tax on goods – they are the opposite, serving to highlight system failures (‘bads’), direct the right waste to the right place and support better value for consumers.

EPR should be used positively to ensure value for money for consumers and taxpayers: by ensuring sufficient funding is in place for collection and processing of products and materials; by increasing the ‘in-use’ phase for example through better design, warranties, reparability; and through innovation and servitisation to eliminate waste and improve resource efficiency.

Making things that last longer is key. Think of it in terms of cost-per-use. The cost-per-use of an item manufactured to last twice as long as a similar product will most likely make more sense as long as it is less than double the price. For more expensive products, servitisation (where an item is leased rather than purchased, and maintained as part of the deal), may make more sense.

These business models have existed in the past and still exist today for some purchases and products; our prediction is that they will make a come-back and should be considered more widely. We believe these models will be developed as a consequence of delivering EPR – there are already strong signals in key market sectors including white goods, lighting, furniture, and clothing.



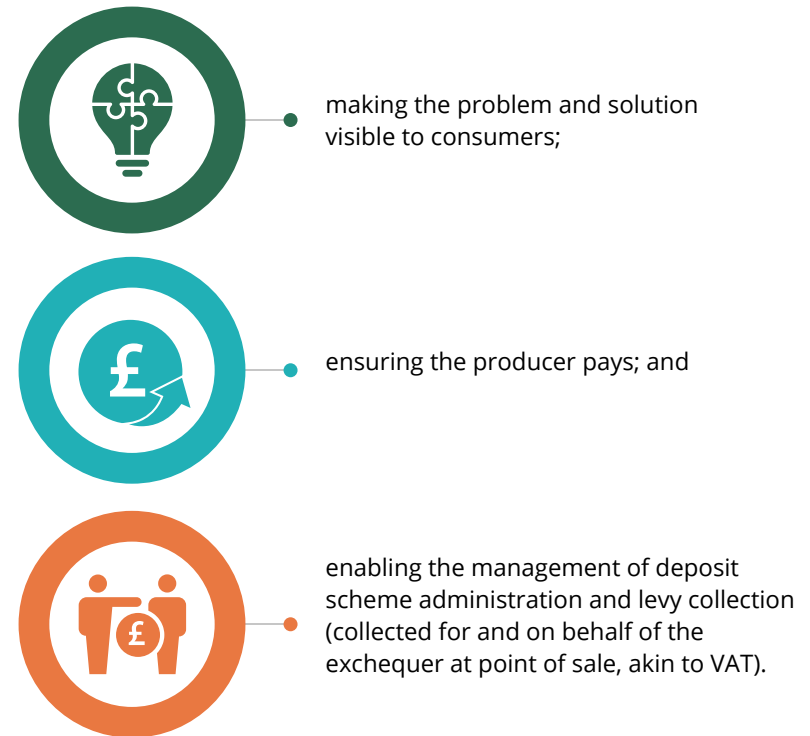


**Our report shows that action on batteries should be targeted:**

- 01** Clear and unambiguous definitions for battery types and categories to prevent the current lead-acid imbalance
- 02** Problem products tend to be lower-value, smaller items, e.g. rechargeable toothbrushes, vapes, etc, not higher value, expensive or large items, e.g. smartphone, laptop, cordless garden tools
- 03** Place a flat-rate deposit on batteries or products containing batteries, e.g. £2
- 04** Potential for an eco-design 'levy' on products where currently batteries cannot be removed or replaced, as an incentive to producers to improve design and/or to consumers to buy a different product in lieu of inaction by manufacturers
- 05** Unclaimed deposits/levy income should be used to promote research and development – these should be cost-neutral as the objective must be to set up systems for success... EPR should be there to cover collection/recycling costs

By encouraging removable batteries and supporting the right to repair, products will be better made, e.g. motors will have to last several battery-life cycles and/or be repairable too, ensuring products last longer and offer consumers better value for money.

**CIWM supports the expansion of take-back schemes which are the right approach to support the mission of 'simpler recycling':**



Whilst this will interrupt 'business as usual' and be mildly inconvenient for retailers and manufacturers, it's much less inconvenient than setting fire to vehicles and facilities used to manage society's waste and recycling, and continuing to lose critical raw material resource.





## CIWM’s support for developing circular economy opportunities

Alongside these measures, it is essential that scarce and expensive critical raw materials (CRM) in batteries are captured for current and future generations, providing readily accessible materials for the UK economy.

The narrative must be changed to support a circular economy not just for these materials but also for the products they are used in. There are significant potential economic benefits from CRM infrastructure investment in the UK and the first step is to invest in domestic battery recycling capacity, especially when linked to freeports and facing outwards to Europe and beyond.

This is supported by CIWM’s ambitions to assist members and the wider UK economy to transition to a circular economy as a key driver of, and an agent of change in, supporting the drive towards net-zero and the modernisation of our industry from waste to resources, adding significant value to the sector.

## Vapes – a salutary lesson

Vapes are a microcosm of everything that is wrong with the way new products are placed on the market without any consideration for end of life management.

They also perfectly demonstrate the consequences of incorrect disposal, and the lack of any EPR requirement with real teeth which essentially has placed all responsibility on the waste management industry and local authorities.

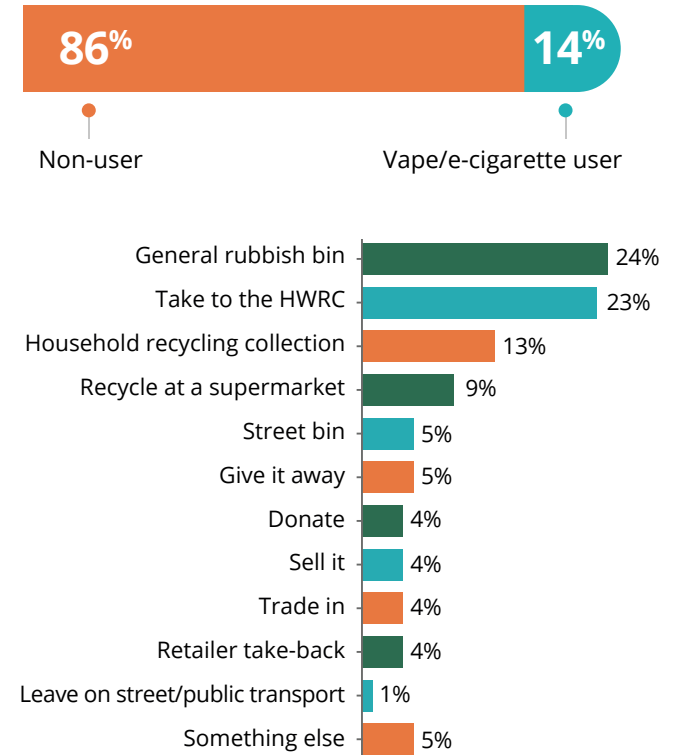
It was completely predictable. We must not allow this sort of mistake to happen again.

### Vapes/e-cigarettes

The survey for this report demonstrates that one in seven (14%) adults in the UK uses a vape/e-cigarette. This includes 8% who use a rechargeable vape, 7% a refillable vape and 5% a single use vape.

The survey also demonstrates that, for rechargeable vapes (NB. the survey did not ask about disposal vapes), the dominant disposal routes are the general rubbish bin (24% of rechargeable vape users typically dispose of it this way) and the HWRC (23%), followed by a dedicated council collection (13%).

The field work did not consider single use vapes, which will be **banned in the UK** as part of plans to tackle the rise in youth vaping and protect children’s health, the Prime Minister announced on 29 January 2024 on a visit to a school.





## Conclusions

The impacts of selling cheap, single-use plastic items containing a non-rechargeable, single-use battery are entirely foreseeable. The same is true of embedding powerful, rechargeable batteries inside electrical and electronic products – making them removeable and replaceable is the minimum requirement.

The experience with disposable vapes demonstrates that while problems were predictable, we will have had to wait around a decade, facing a growing problem, before legislation finally catches up.

It cannot be allowed to happen with clothing and aftermarket bike parts, both of which are increasingly appearing in general waste, containing high-powered, rechargeable batteries.

Moreover, the wider issues explored in this paper are compounded by the fact that overseas ‘away’ solutions’ days are numbered. The Textile Recycling Association (TRA) have **sounded the alarm about the imminent collapse of the textile recycling sector** due to global market challenges and a tightening of regulations in Europe.

This is despite warnings issued by TRA over two years earlier. The main impact will, of course, be on local authorities, charity shops and recycling collection companies, not on retailers and manufacturers.

**WE MUST ENSURE WE  
USE OUR FORESIGHT TO  
NEVER MAKE THE SAME  
MISTAKES AGAIN.**





Together, we stand for a world beyond waste  
[ciwm.co.uk](http://ciwm.co.uk)