

Smarter Regulation: UK Product Safety Review

Response from the Institution of Engineering and Technology (IET)

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We are pleased to submit a response to the Department for Business and Trade, and the Office for Product Safety and Standards consultation on Smarter Regulation: UK Product Safety Review. We have included a summary of our response, together with more detailed answers to the various questions.

We would be happy to provide you with further details on this important topic at a time of your convenience. Please do not hesitate to get in touch.

Best regards

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Our main recommendations with regards to Li-ion related products

The IET is interested in the safety of electrical products. In this consultation response, we focus our attention on measures to improve safety with regards to Li-ion batteries and related battery management systems, chargers and conversion kits. This is because of the growing threat to life and property from fires due to the thermal runaway hazards of Li-ion related products, especially in Personal Light Electric Vehicles (PLEVs) such as e-bikes and e-scooters.

We recommend the following to enhance consumer safety:

1. Regulation and stronger enforcement measures that aim to prevent the manufacture, marketing and sale of unsafe Li-ion batteries and related products in / to the UK.
2. The development of a standard that defines a suitable level of functionality in a mandatory battery management system (BMS) that ensures the safe operation of Li-ion products.
3. The use of a proportionate regulatory framework that reflects product risk levels so as to reduce business and regulatory burdens, whilst ensuring public safety.
4. The creation of centralised, reliable UK data to ascertain the relationship between the growth in PLEV fires, their increase in circulation and a rise in the use of unsafe / old equipment. Relevant data should be used for awareness campaigns for consumers.
5. The development of guidance by regulators together with industry associations on carrying out pre-market risk assessments.
6. The mandatory use of e-labelling at manufacturer level with enforcement powers for regulators. Labels should provide easily understood, secure and accessible safety information on Li-ion related products. They should include information on reporting unsafe products, and a recommendation to replace old products in line with manufacturer guidelines. The obligatory inclusion of safety details would make monitoring easier for regulators.
7. Greater accountability by online marketplaces for the safety of all listed products, with the availability of enforcement penalties where failings occur.
8. Overall responsibility given to the OPSS for enforcing safety standards for all consumer products in the UK market. This includes overseeing online marketplaces as the current self-regulation approach hasn't been sufficiently effective in removing unsafe products. This would also give consumers a single point of contact for redress.
9. Greater OPSS involvement with international alert systems for dangerous products, such as [Safety Gate](#). Both the OPSS and international systems need sufficient staff and financial resources to operate effectively to raise consumer awareness levels and change purchase behaviours, thereby complementing enforcement measures.

Consultation Questions and Responses

1. Are there any specific products where action within the current product safety framework could be taken to reduce business burden, encourage innovation and/or increase consumer choice without compromising safety?

- 1.1. The IET is interested in the safety of electrical products. In this response, we focus our attention on Li-ion batteries, including battery management systems (BMSs), chargers and conversion kits from unregulated manufacturers. Many authoritiesⁱ have warned of the growing threat to life and property from fires due to the thermal runaway hazards of Li-ion batteries. The very rapid increase in the number of firesⁱⁱ has occurred primarily in Personal Light Electric Vehicles (PLEVs) such as e-bikes, e-scooters and hoverboards from unregulated manufacturers where robust quality control standards are not adhered to.
- 1.2. We recommend more regulation and enforcement to prevent the manufacture, marketing and sale of unsafe Li-ion batteries and related products in / to the UK. Batteries fall into the scope of the EU General Product Safety Directive (GPSD) to ensure that only safe products are sold. However, they are not included under CE / UKCA marking and must not currently carry these marks. They could be brought into the scope of UKCA marking, but it is important to keep this in line with CE marking to avoid creating additional barriers to international trade.
- 1.3. We also recommend the development of a standard that defines a suitable level of functionality in a mandatory battery management system (BMS) that promotes safe operation. The BMS should temporarily suspend, or permanently remove access to power when certain operating parameters are exceeded. Ideally the BMS would record a depreciating life-expectancy of the battery and give a clear indication of when it should be replaced. Mandating a BMS that informs the consumer of the state of health of a battery and its need for replacement creates the most effective safety control that can probably be achieved in practice. It will not stop counterfeits and consumers who buy them to save money. We believe the common misconception that cheap is best can be reversed if manufacturers are given a unique product trustmark that encourages them to highlight the advantages of buying a premium product that outperforms and outlasts cheaper, unsafe alternatives. This message is not new to the UK consumer, and the potential revenue generated by creating a responsible public attitude to replacing unsafe batteries may be an attractive proposition for manufacturers.
- 1.4. Regulation should also require that all charging equipment is manufactured for the UK electrical supply – the use of voltage convertor adaptors or multi-point adaptors should not be permitted. Chargers / power supplies are already required to be CE / UKCA marked. It should also be considered that consumer products designed to operate at above 200V must be fitted with a BS1363 plug or an approved conversion adaptor.
- 1.5. On a related theme, there are no specific accredited courses for PLEV maintenance. The City of Guilds accredits certification to those who complete a Level 2 Certificate in Cycle Mechanics. However, this course does not include an electrical element. Therefore, to ensure a cradle to grave concept for PLEV electrics, and to assure regulations are maintained, only certified bike mechanics with an accredited electrical competency should maintain PLEVs.

2. Do you agree that we should examine options for a framework where regulatory requirements are more closely linked to the risks of the product in question? Yes / No / Don't know.

- 2.1. Yes, the IET agrees with the use of a proportionate framework as it could reduce business and regulatory burdens, and consumer costs for safe products. However, an accurate, comprehensive system is needed that reflects actual risk levels, so as to ensure public trust and support. In the case of Li-ion batteries, the numbers of daily incidents and their consequences need collating and analysing.

- 2.2. The use of risk assessments needs to be underpinned by more granular information on the growing number and cause of Li-ion fires. This includes the extent to which the increase is due to more e-bikes being in circulation, whether it relates more to a growth in unregulated equipment (bought online or otherwise), or whether it relates to batteries / charger coming to the end of their 'safe' operational lives etc.
- 2.3. There seems to be a lack of centralised, reliable UK data on the causes of building fires. As such, the information on fires caused by malfunctioning Li-ion accumulators in PLEVs is anecdotal in nature. Information from other sources, such as New Yorkⁱⁱⁱ, suggests that the safety problem must be addressed by government regulation. This entails the need to ascertain the extent of the rapidly increasing problem reliably so that possible regulatory measures can be evaluated. Countries such as Germany appear to have data on the causes of building fires in a more easily accessible format for all interested parties. We recommend such a data-gathering regime be adopted in the UK. This would enable greater analysis and a more targeted approach to ensuring product safety and tackling liability issues. Data can also be used for awareness campaigns to consumers, both to protect against purchases of unregulated items and to draw notice to the need to change old equipment before an incident occurs.
- 2.4. We are concerned that unregulated batteries / chargers / conversion kits used with PLEVs present a high fire risk. Unless evidence clearly proves to the contrary, we believe such equipment should face the same stringent requirements as those in the most regulated areas for this technology, such as the automotive industry, in line with the ECE R100.03 regulation. In particular:
 - All rechargeable batteries must have a BMS which monitors individual cell voltage and pack current, plus multiple temperature sensors.
 - If any cell temperature approaches a safe limit, the power from the system should reduce. If the temperature reaches the upper safe limit the power should be disconnected. Current during charging should be controlled to safe limits.
 - Road vehicle battery packs should have isolating contactors on all power cables, plus automatic contactor functional checking on every drive cycle.
 - Suppliers of PLEVs must have a functional battery management system to prevent thermal runaway in use and when charging.
- 2.5. Proportionate frameworks should be subject to regular review to ensure they take account of new innovations and technologies that could otherwise distort safety regulations.
- 2.6. The IET also recommends that the Government mandates the registration of all PLEVs. Unique certification would let designated officials check registrations and impound non-certified devices. Regulations could also require manufacturers to deposit a list of approved battery suppliers with authorities on a regular basis. Again, officials would be authorised to impound any device featuring uncertified equipment.

3. What role should standards and testing requirements play in supporting businesses to comply with the new approach?

- 3.1. Standards can provide businesses with a clear understanding of the safety requirements that their products must meet. This helps businesses identify and mitigate risks, and ensure that products are safe for consumers.
- 3.2. Testing provides businesses with evidence that products meet the relevant safety standards, thereby demonstrating compliance and avoiding enforcement action. Testing can also demonstrate where fabrication problems are present.
- 3.3. Standards and testing can reduce the risk of costly, time-consuming and reputation-damaging product recalls. This can improve customer confidence and so lead to increased sales. It can also enable market access with similar financial benefits. This can more than offset the opportunity costs and time commitment in preparing for standards and the complexities of compliance.

4. What types and areas of guidance would most likely help you understand your requirements under any new framework?

4.1. Guidance should be designed to help business compliance with a new framework, and help consumers make informed safety-based choices.

4.2. Guidance in layperson's terms would be useful on:

- Buying equipment containing Li-ion and how to buy replacement batteries. The product description should include details of the battery manufacturer.
- The types of hazards that products may pose and the level of risk of each hazard (as per Q2) so that mitigation steps can be taken.
- The conformity assessment process to ensure products comply with framework requirements.
- Enforcement and penalties for non-compliant products.

5. Whilst anticipated costs and benefits would depend on the design of a new framework, what type of costs, quantified, if possible, would you anticipate in understanding a new framework?

5.1. Costs and benefits include:

- The time to understand the new framework to ensure compliance and avoid ambiguities / misinterpretation which can lead to mistakes / delays.
- Money including capital and resource costs, staff training, and experts to help with implementation etc.
- Opportunity costs eg initial productivity costs / missed sales.

6. Do you support the development of guidance to assist businesses in carrying out pre-market risk assessment? Yes / No / Don't know.

6.1. Yes, guidance is essential in helping businesses carry out risk assessments before products are placed on the market. Risk assessments ensure compliance with IEC / ISO product safety regulations, so as to reduce the probability of recalls and other enforcement action. This is important for ensuring product safety for consumers.

6.2. Guidance to businesses on carrying out assessments should be developed by regulators in conjunction with industry associations. Risk assessment tools and database analysis can help identify and assess risks quickly and easily.

7. Do you agree with the proposal to establish a derogation process to help ensure supply of critical products in emergencies? Yes / No / Don't know.

7.1. Yes, a derogation process would allow businesses to temporarily place products on the market that don't meet all the normal product safety requirements. This could ensure the rapid and flexible supply of critical products in emergencies, whilst protecting businesses from reputational and financial damage.

7.2. The process needs to be tightly controlled, and only implemented where derogation is needed, where products are safe for designed use, and approved in a fair, evidence-based and impartial manner, and where there is an independent appeals process. Market and consumer trust would be undermined if certain businesses were perceived to benefit from favoured terms that led to financial gain or competitive advantage. The benefits of derogation for PPE equipment during the covid epidemic was undermined by such perceptions.

7.3. A derogation process should only be used in limited, exceptional circumstances, where benefits significantly outweigh risks. The safety of consumers must be the top priority, with any derogations from product safety regulations subject to strict safeguards and the swift cessation of derogations where no longer necessary.

8. Are there other circumstances, in addition to those set out in this proposal, where a derogation process would be helpful? Yes / No / Don't Know.

8.1. Yes, derogation could facilitate the testing and marketing of new / innovative products, so as to encourage businesses to bring new products to market temporarily in less costly, complex ways. Derogation could also support some humanitarian efforts by ensuring essential products are available in times of crisis, such as natural disasters.

9. Are there any other mitigations we need to consider as we look to introduce voluntary e-labelling to devices with screens or designed for use with screens? Yes / No / Don't know.

9.1. Yes, mitigations include:

- The accessibility of e-labels for all users, including those who are not digitally aware or who have disabilities. E-labels need to be readable and navigable by people who use screen readers, magnifiers, or other assistive technologies. Public awareness campaigns would be required to inform consumers about how to access product safety information digitally. Information would also have to be available in non-digital formats to ensure no-one was disadvantaged.
- Standard e-labelling formats for familiarity, and easily understood, clear e-labels.
- The security of e-labels so as to prevent unauthorized access or tampering. They need to be encrypted and protected from hacking.
- The liability of e-labels. Manufacturers and distributors of products may be liable if e-labels were inaccurate, out-of-date or misleading.

9.2. It is difficult to inspect Li-ion batteries and chargers, which is why robust labelling is important.

9.3. If introduced, we think that e-labelling should be mandatory at manufacturer level with the potential for fines, prosecutions, and product recalls to ensure compliance for businesses within the jurisdiction of UK authorities. We are concerned that a voluntary scheme would not lead to their widespread application at the standard required, which would undermine their use.

9.4. Manufacturers / distributors may need to invest in new technology, update systems or hire / retrain staff to ensure quality e-labelling programmes.

10. Are there other labelling requirements to which you consider that voluntary e-labelling could be expanded in future (to further types of statutory labelling requirements/additional product areas and/or to permit the use of QR codes)? Yes / No / Don't know.

10.1. Yes, e-labelling could also include:

- additional statutory labelling requirements, such as original Li-ion battery manufacturer details and any physical limitations.
- the use of QR codes to provide additional product information.

10.2. The benefits of e-labelling are that:

- It's an efficient and effective way of providing product safety information to consumers from any location, thereby enabling a wider audience reach. It can also be beneficial for products that are subject to frequent changes, such as technical specifications or safety warnings. This can improve product safety and consumer protection, and reduce compliance costs in a flexible, cheaper and more environmentally friendly way.

11. What additional mitigations, if any, do you think could be needed if voluntary e-labelling is expanded in future?

11.1. In addition to e-labelling, we ask that all lithium battery products, replacement batteries and chargers have a permanent hazard label warning of the risk of thermal runaway fires, and recommending replacing the battery in line with manufacturer's recommendations. A label should also recommend charging the battery outside wherever possible, or in a large open room with a fire alarm present. Charging should

not be done overnight, and not in an area that would block an escape route. Labels per se will not be sufficient to increase public awareness or change behaviours. A UK-wide, fully funded Government publicity campaign over an extended period is needed to supplement regulations and labelling so as to bring about the desired reduction in incidents.

12. Do you agree with the proposal to clarify cooperation duties for new business models, particularly 'online marketplaces'? Yes / No / Don't know.

- 12.1. Yes, it's important to clarify such cooperation duties. Online marketplaces have become major distribution channels for products. This has facilitated consumer access to a wider range of products, but it has also created new challenges for product safety.
- 12.2. Online marketplaces often act as intermediaries between buyers and sellers, where they do not take physical possession of the products sold. Despite their limited control in such instances, they should not escape liability for related safety hazards. Online marketplaces should be required to ensure that the products sold on their platforms are safe, or face enforcement penalties. They should
 - Be obliged to proactively monitor products on offer and remove items of a sub-standard / unregulated nature, informing enforcement authorities in the process.
 - Collect, verify and share information about third-party sellers of high-risk products.
- 12.3. In removing unregulated li-ion products, these measures would help create a more level playing field for those manufacturers / products that do comply with safety standards.

13. What practical considerations would Government need to take into account if such cooperation duties applied to new business models in the online supply chain?

- 13.1. There's a wide range of business models relating to online supply chains. This includes online sellers (who only sell their range of products) and online marketplaces (such as Amazon and eBay) where there are many sellers and little control over the quality of what is being sold. The Government would need to consider how cooperation duties would apply to each model in a fair and proportionate way, with appropriate enforcement penalties. Models that rely on large numbers of third-party sellers may need to add extra monitoring resources to ensure that products comply with safety standards.
- 13.2. The Government should designate OPSS to oversee cooperation on online marketplaces. The current self-regulation of online marketplaces hasn't been sufficiently effective in proactively removing unsafe products from sale. Government naming and shaming of online marketplaces could be a useful way of raising public awareness. The responsibility for online sellers should remain with Trading Standards which reports to the OPSS. Businesses will not want to damage their reputations and sales.
- 13.3. It is difficult to protect against unsafe products that are manufactured abroad. We recommend that the OPSS involves itself further with the EU's [Safety Gate](#) system to alert against dangerous non-food products. The concept of the system is welcome, complementing enforcement measures as a means of consumer protection. However, Safety Gate is a voluntary system that needs more staff and financial resources to have a robust impact on online marketplaces and to generate sufficient consumer awareness that changes behaviours. We believe the benefits of increasing OPSS resources would outweigh the costs.
- 13.4. Cooperation duties should be designed in a way that doesn't have a negative impact on innovation and competition, or raise market entry barriers / lead to higher prices.

14. Do you agree with the proposal to introduce due care requirements in relation to unsafe product listings? Yes / No / Don't know.

- 14.1. Yes, these requirements would enhance the provisions of the Consumer Rights Act 2015, improving product safety by forcing online marketplaces to ensure the safety and labelling of products, to clarify manufacturer details and take proactive action to de-list

unsafe products such as unregulated li-ion batteries. Online marketplaces would be held more accountable for the products they list, which is necessary given the difficulty in enforcing action against manufacturers outside the jurisdiction of UK authorities.

14.2. The proposals would also increase consumer confidence in online marketplaces and reduce the costs of recalls and enforcement.

14.3. Online marketplaces would need to invest in systems and processes to comply with requirements that benefit society. However these costs would be significantly lower than potential enforcement penalties.

15. Do you agree with the proposal to increase consumer-facing information on online product listings for higher risk products? Yes / No / Don't know

15.1. The IET agrees with the proposal because it would protect the public by identifying and reducing the number / range of unsafe products being sold online, such as non-standard Li-ion batteries and chargers. We propose that details include both manufacturer and seller contact details, to improve traceability and highlight responsibilities. Businesses would be less likely to promote substandard products and consumers could make informed purchase decisions.

15.2. We think that the addition of safety-related details should be mandatory as businesses would have little incentive to comply with a voluntary system. An obligatory system would make it easier for regulators to monitor the effectiveness of new requirements and take action (including penalties) accordingly.

16. What additional information would be useful to support consumers to purchase safe products?

16.1. Manufacturers and sellers should provide information in layperson's terms on the risks from specific products, such as those related to Li-ion battery fire risks and charging batteries. Few people understand the fire risks or the safe operating life of approved Li-ion battery products. A simple RAG risk rating scheme would provide clear, proportionate advice to aid consumer understanding. Details of what to do in case of fire would also be added to product labels, safety guides and online resources.

16.2. Information on how to identify safe products. This could include details on safety standards or certification marks. A special note could be added so consumers could distinguish between the similar EU CE and the China Export marks. The latter provides essential information to authorities, but it should be made clear to consumers that its purpose is not to offer any warranty or necessarily meet UK legislation / safety standards.

16.3. Information on how to report unsafe products to online marketplaces, the OPSS and relevant regional authorities, so such products can be speedily removed. Collaboration with similar international authorities should be enhanced to ensure concerted action to remove unsafe products worldwide.

17. Do you agree with the proposal to enhance the leadership and coordination role of OPSS? Yes / No / Don't know.

17.1. The IET agrees with the proposal and makes the following points:

- The OPSS should be given overall responsibility for enforcing safety standards for all consumer products that enter or are used in the UK. This is a public facing role that requires transparent and timely collaboration between UK and international agencies and businesses, and safety alerts for consumers. It would also entail regular updates to ensure standards remained current as technology develops and diversifies.
- The proposal would allow OPSS to take a more strategic approach to product safety, and proactively enforce laws against manufacturers / marketplaces to ensure that products on the UK market meet the required high standards. This role can only be successful if sufficient resources (financial, expertise) are allocated.

18. Do you agree with the proposal to create a new legal data gateway? Yes / No / Don't know.

18.1. Yes, the IET agrees with this proposal, as it would help key parties gain access to data needed for informed product decision-making. Information-gathering in support of market surveillance authorities in secure and confidential ways can only enhance product safety.

18.2. In particular, information on the following would be useful:

- Unsafe products, including unregulated / recalled / banned products.
- New and emerging product risks.
- Leading practices on product safety.

19. Do you agree with the proposal to have a single point of contact for product safety recalls? Yes / No / Don't know.

19.1. Yes, we agree with the proposal as the current system of multiple enforcement agencies for product safety recalls can be inefficient, duplicative and confusing for parties. A single point of contact would make it easier for consumers to find definitive information and report safety issues. It would ensure a more streamlined agency approach for timely, flexible and cost-effective operations.

19.2. The OPSS is well-placed to take on an enhanced role as it has a national reach and can quickly disseminate transparent, authorised information to consumers and businesses. OPSS also has expertise in product safety regulation and can provide guidance to businesses on compliance. However, as mentioned, it would need enhanced resources to carry out the role in a comprehensive way.

20. Do you agree with the proposal to consolidate and align existing enforcement legislation? Yes / No / Don't know.

20.1. Yes, the IET agrees with the proposal as the current UK legislation landscape is fragmented and complex. The EU GPSD does not have any requirement to carry out a risk assessment whereas the EU Low Voltage Directive (LVD) does. Such instances can lead to duplication / inconsistencies / gaps – and the UK is no longer has any influence in amending EU legislation. This makes it difficult for businesses to ensure compliance. Other benefits of consolidated legislation are:

- future-proofing capabilities and aligned information and resources.
- improved efficiency, enabling a more flexible and tailored approach.
- reduced time and costs from both legislative and business perspectives.

21. Do you agree with the proposal to introduce improvement notices, civil monetary penalties, and enforcement undertakings? Yes / No / Don't know.

21.1. Yes, we believe the proposed new powers will help protect consumers by providing enforcement authorities with a stronger and more flexible range of tools to tackle non-compliance efficiently. These will help stop unsafe products entering the market and proactively lead to their swifter removal:

- Undertakings allow businesses to take improvement steps to resolve issues in a quick, cheap, and flexible way, benefiting both them and authorities.
- The threat of significant civil monetary penalties (eg % UK sales, % global turnover) provides a strong incentive for compliance.

21.2. The new powers need to cover both traditional and online marketplaces, domestic and overseas manufacturers where possible - it's easy for online accounts to disappear and new ones to be set up.

22. Do you agree with the proposal to explore changing inspection powers? Yes / No / Don't know. If there are substantial risks posed by home-based businesses, can the risk be balanced with the privacy rights of residents, when carrying out inspections?

22.1. Yes, the IET agrees with the proposal as current inspection powers do not adequately address the risks posed by home-based businesses. They are often more difficult to monitor to ensure compliance with product safety regulations than businesses operating from traditional premises. Inspections should be sufficiently rigorous to deter the sale of unsafe products. However, there does need to be a balance between privacy and inspections with proportionate intrusions into people's homes based solely on needs.

23. To inform consideration of whether the civil product liability regime remains fit for purpose, can you provide any examples where the current product liability regime: a) is unclear because of technological developments (e.g., lack of clarity about who is responsible for safety of an AI/smart product or when software is updated); or b) doesn't enable consumers to seek fair redress; or c) doesn't provide businesses with clarity and confidence to develop new products?

23.1. In response to a)

- Under the current regime the manufacturer is liable for a defective product. This would remain the case with faulty Li-ion batteries and related products. However, it is also the duty of the supplier to ensure that defective products are not available for sale. As mentioned, product regulations need updating to bring online marketplaces under liability regulations.

23.2. In response to b)

- Access to the legal process can be very expensive in the UK, which makes it difficult for private individuals to get fair redress. The system to support consumers has become less clear since the disbanding of the Office of Fair Trading in 2014. Rather than responsibility lying with three bodies – the Financial Conduct Authority, Trading Standards and Citizens Advice – it would be easier for consumers to have a single point of contact for redress, namely the OPSS.

ⁱⁱ Record numbers have been recorded for e-bike and e-scooter fires in London ([FSM](#) 4 Sept 2023).

ⁱⁱⁱ New York has taken the issue so seriously that it has [banned the sale](#), lease or rental of e-mobility devices, as well as related storage batteries that fail to meet recognised safety standards.