

JOINT POSITION PAPER REMOVABILITY AND REPLACEABILITY OF PORTABLE BATTERIES (ART.11 OF BATTERIES REGULATION)

We, the undersigned joint group of associations, would like to share our joint position on the removability and replaceability of portable batteries foreseen in the proposed Article 11 of the Batteries Regulation proposal. The topics addressed in this paper may also inform the current discussions in the European Parliament about similar requirements for Light Means of Transport batteries. Our members drive forward many of the innovations related to battery-containing devices, which will be crucial in the transition towards a circular economy. Throughout the legislative discussions, we have contributed our expertise to provide sound and feasible improvements to ensure the safety of consumers and safeguard innovation.

The associations support the European Commission proposal to enable battery replaceability as a way to extend the durability of our electrical products. Based on decades of design experience and maintaining professional repair networks, we would like to share our insights on how to achieve the policy-makers' objectives of ensuring battery replaceability without endangering consumer safety or the functionality of the appliance.

As a general note, when referring to battery replacement we refer to the replacement of a complete battery. A complete battery includes all individual battery cells, necessary electronics as well as internal connectors and housing. The replacement of parts or individual battery cells within a battery pack is safety-critical and shall therefore not be enshrined in law.

That is why we issue the following recommendations on Article 11 to achieve battery replaceability without compromising on consumer safety, performance or innovative capacity of the sector:

Recommendations on Article 11

- 1. Battery replacement shall be performed either by qualified independent operators or end-users, as foreseen by the original Commission Proposal.** This is key to ensure that qualified independent operators are responsible for the replacement, whenever safety risks (e.g. fire, explosion) can occur following inappropriate replacement. Manufacturers should have the responsibility to choose the appropriate design strategy.

- 2. An adequate transition time of at least 24 months** for the application of obligations on replaceability. 24 months is the minimum period to perform all design steps to enable safe replacement of batteries by independent operators.
- 3. A defective battery must be replaced by an authorised technically identical battery** to avoid untrained operators using incompatible batteries or unqualified repaired batteries potentially leading to damage for consumers and repair operators, including safety risks.
- 4. Replacement should occur with publicly or commercially available tools.** Such an approach would ensure that the Regulation is more future-proof, allows for future innovations both on the tooling and the design sides, and does not limit the development of future or integration of currently already available functionalities. Any reference to “basic tools” should be removed.
- 5. Replacement should occur without causing permanent damage.** It is necessary to add the word “*permanent*” to damage, in order to enable independent operators to repair potential damage they may cause to the appliance during the replacement. For instance, replacement of batteries may lead to seal damages and to the need to replace them to ensure appliance safety (e.g. water tightness). As long as this damage is reversible, this should be allowed by the Batteries Regulation.
- 6. Safety in software.** Regulators, if they were to regulate software used in battery replacements, need to ensure that software is still allowed to prevent safety incidents and thermal events by establishing compatibility of the spare battery and its charging mechanisms with the device.

Please find detailed explanations on the recommendations mentioned.

1. Replaceability performed by qualified independent operators

It is important for manufacturers to pursue battery replaceability designs by end-users or professional operators allowing for best results in terms of durability, safety, reparability, and usability while also keeping enough flexibility for innovative designs and functionalities to be offered. As the Ellen MacArthur Foundation recognised already in 2017, *“there is no silver bullet in terms of design for circularity. What will determine the success of the design is whether it fits within the broader system in which the design operates.”* Companies may follow an end-user or a professional-operator repair strategy and *“both models have the potential to support a more circular use of resources [...] under the right conditions.”*¹

Article 11 of the new Batteries Regulation is regulating fast-paced, innovation-driven sectors. Innovations such as bendable batteries, printable batteries or new chemistries might enable

¹ Ellen MacArthur Foundation, *Circular Consumer Electronics: An Initial Exploration*, 2017
<https://emf.thirdlight.com/link/uylh69ffuojx-2dt8yd/@/preview/1?o>

functionalities or products previously unthinkable. Any requirements in Article 11 need to be future-proof to such an extent that they do not prevent similar breakthrough innovations in the portable battery sectors it regulates. The Regulation should hence be clear on its objectives but flexible enough in its prescriptions to avoid preventing that the next game changing innovation comes from Europe.

Our products are complex devices that are not always suited for replaceability by the end-user due to safety concerns, as illustrated below:

- *Consumers, even with the right level of technical skill or qualifications may replace the battery by an unsafe and incompatible one:* batteries incorporated in appliances are specialised components optimised for specific functions, highest safety profile and energy efficient charging. If consumers use replacement batteries from third parties that do not meet the safety specifications of manufacturers and do not include required safety measures, the battery could overheat and expose consumers to risks of fire and explosion, as recognised by multiple sources including the globally recognised [certification agency UL](#), and [Fire and Emergency New Zealand](#). In some other cases, such as for e-bikes batteries, the main safety concern stems from potentially replacing individual battery cells as outlined in CONEBI's dedicated position paper.
- *Consumers may not know how to correctly operate the tools and battery:* while removing and replacing a portable battery, the wires could be left bare and accessible from the outside with the possibility of a short-circuit resulting in a fire. A consumer could not know how to take proper precautions with accessible parts, and it might create short-circuits due to improper manipulation. By incorrectly manipulating the pliers to cut the battery wires, the consumer can create a short-circuit or even ignite the battery when disregarding the potential for battery puncture or other types of mishandling causing a thermal event.
- *Risks of water-tightness compromised:* some of our products are in constant contact with water (e.g. toothbrush, shavers) and, as such, EU legislation mandates that they must provide protection against moisture and water ingress. Other appliances are protected against liquid ingress due to their highly portable nature (e.g. smartphones). If a water-tight device is opened for battery replacement, the sealing function can only be ensured after replacement by a professional. Improper replacement or contamination (dust/hair) on the sealing surface can compromise the repair. Hence, water-tightness testing using special equipment is needed to ensure a safe wet-use device after replacement. As consumers cannot test water-tightness after repair, water and humidity may penetrate the device. Water-electricity contact will then lead to corrosion and failure of electronic components. A professional replacement can ensure that the expected lifetime after the repair is not negatively affected. For our devices, trained and qualified professionals have the competencies and expertise to guarantee the highest level of quality and safety of repair of highly-integrated modern electronics, already ensured by EEE manufacturers through the design of their products. Manufacturers maintain a strong and qualified network of professional repair operators, creating thousands of jobs across Europe, whether officially associated with our products or not.

Therefore, we recommend that, for products that require special handling, replacement is performed by qualified independent operators, if the batteries have a shorter lifetime than the product, in line with the original Commission Proposal. This is necessary to minimise the risks of inappropriate replacement. Introducing the notion of “qualified” independent operators in the legislative text (Article 11.1) would be in line with the current Ecodesign Regulations that refer to the characteristics and competencies of professional repairers².

Furthermore, EEE manufacturers already provide services to ensure the safe replacement and repair of their products and offer consumers with convenient access to repair options while minimising environmental impacts beyond what would be possible via consumer-led repair models. It is highly important for the Circular Economy in Europe to keep investing in professional repair networks. To that aim, independent operators that have the relevant qualifications already exist and should be encouraged to be used for performing such an act of replacement and repair.

2. Transition time of at least 24 months

The proposed Batteries Regulation will have far-reaching impacts on the design, labeling and end-of-life handling of batteries and battery-powered products. Given the extent of the changes and the significant uncertainty over the final text of the Regulation, we call on the co-legislators to provide economic operators with the necessary time to implement requirements.

Given the discussions on the requirements on removability and replaceability of portable batteries, inevitable impacts would occur with a design process that takes significant time and efforts. **We strongly recommend ensuring a transition period of at least 24 months for the application of obligations on replaceability. This proposal is a minimum to perform all design steps to be correctly performed to continue an assurance of consumer safety after replacement by independent operators (e.g. due to water ingression).** Should the final Batteries Regulation include significant changes compared to the European Commission original proposal, there would be a need for additional transition time depending on the magnitude of the changes. With a lack of a transition period, there would be additional significant economic and environment impacts:

- **Potential scrapping of thousands of appliances.** Without a transition period, thousands of already manufactured appliances, still in the warehouse, will likely be scrapped, leading to tons of unnecessary e-waste.
- **Competitive disadvantage** for European plants currently employing thousands of highly qualified workers. European plants have highly automated production lines for which adaptation to new production processes is more time and cost-intensive compared to less automated plants outside Europe.

² 'Professional repairer' means an operator or undertaking which provides services of repair and professional maintenance - Commission Regulation (EU) 2019/2023

Furthermore, given the short anticipated period of time between adoption and entry into force, and the lack of methodologies, a correct transition period for implementing such requirements is necessary.

3. Replacement with a technically identical battery

We want to emphasise that **a battery should be considered as readily replaceable where, after its removal from an appliance, it can be substituted by a *technically identical* battery authorised by the manufacturer, without affecting the functioning, safety or performance of that appliance. A battery should always be exchanged as a whole. Parts of a complete, certified battery must not be replaced.**

A battery integrated in a product is a complex component in interaction with other hardware (and software) components ensuring a proper functioning of the product. Batteries incorporated in appliances are part of the safety-critical components in safety test reports of Harmonized Standards for the presumption of conformity with the safety requirements laid out in the Low Voltage Directive. Using a battery which is not listed and tested by manufacturers will endanger consumers and repair operators. While the size of the battery, for example, could be standardised and could fit in an appliance for the replacement of the defective battery, differences in the chemistries and in the charging limits exist and should be known while replacing the battery. Replacing a battery with a wrong spare battery can lead to accidents, including fire or explosions (see point 1). In a professional environment, with qualified and authorised spare parts, such risks can be duly avoided. In a consumer-led repair environment, manufacturers need to reduce the risk of safety to the user and repair operator, as well as consider questions of liability.

Logically, portable battery replacements need to be undertaken with a technically identical battery in all its characteristics, going beyond size and wattage. In advanced electronics, the original battery is an integral part of the product that seamlessly interacts with the software and mechanical elements of the device and often contains additional circuitry with charging mechanisms. To guarantee the highest level of safety, we suggest not to consider the battery as a stand-alone component that can be replaced with any battery, but to prescribe the use of batteries that conform to the original specifications and are authorised spare parts by the appliance manufacturer.

4. Use of publicly or commercially available tools for the replacement

With regards to the means used for performing a proper replacement, we caution against prescribing that designs should enable replacements only with “*basic tools*”. Such language refers to a very limited list of tools prescribed in standardisation. However, the request to ensure tools are available to enable a repair is fair.

We recommend using a language less restrictive such as “tools available to the public” or “commercially available tools”, as defined in standard EN45554.

Such an approach would ensure that the Regulation is more future-proof, allows for future innovations both on the tooling and the design sides, and does not limit the development of future or integration of currently already available functionalities. As an example, liquid ingress protection reduces failure rates of portable electronics exposed to water significantly, and for wet-use household appliances, like toothbrushes, is a specific safety requirement for compliance with Union Law. This does necessitate an adjusted repair process that includes water tightness testing equipment after battery replacement.

5. Permanent damage

When replacing the battery, damage to the appliance may occur, such as seal damages compromising the water tightness of the appliance and exposing consumers to safety risks or performance issues due to water leakage.

Article 11 should allow for the possibility to repair or replace parts of the appliance that have been damaged during the replacement, as long as the damage is reversible.

That is why we recommend that replacement should occur without causing permanent damage. It is necessary to add the word “permanent” to damage, in order to enable independent operators to repair potential damage they may cause to the appliance during the replacement. This is in line with the 2019 Ecodesign requirements, namely that “*spare parts can be replaced [...] without permanent damage*”³.

6. Safety in software

In a number of advanced electronics appliances, software plays an important part in ensuring that a replaced battery’s charging mechanisms are safe and able to prevent thermal events. Once a battery is replaced by a spare, the software can ensure compatibility from a performance and safety perspective (e.g. consumers can receive a notification that a non-genuine part was used by a repair operator). We request the regulators, if they were to regulate software used in battery replacements, to ensure that software is at the very least still allowed to prevent safety incidents and thermal events.

For that purpose, general language such as “software shall not *affect* the replacement” is not fit for purpose, and should at least be preceded by “**Apart from ensuring safety** [...]”.

³ European Commission, *Ecodesign measures explained*,
https://ec.europa.eu/commission/presscorner/detail/it/qanda_19_5889

Signatories

[AFNUM](#) - (Alliance française des industries du numérique) is the professional trade association in France that represents the manufacturers from the fields of telecommunication networks, mobile devices, consumer electronics, photography, and connected objects. AFNUM is part of the major French trade federation FIEEC (Fédération des industries électriques, électroniques et de communication), which represents over 3,000 business organizations.

[AmCham EU](#) - AmCham EU speaks for American companies committed to Europe on trade, investment and competitiveness issues. It aims to ensure a growth-orientated business and investment climate in Europe. AmCham EU facilitates the resolution of transatlantic issues that impact business and plays a role in creating better understanding of EU and US positions on business matters. Aggregate US investment in Europe totalled more than €3 trillion in 2020, directly supports more than 4.8 million jobs in Europe, and generates billions of euros annually in income, trade and research and development.

[APPLiA](#) - Home Appliance Europe represents home appliance manufacturers from across Europe. By promoting innovative, sustainable policies and solutions for EU homes, APPLiA has helped build the sector into an economic powerhouse, with an annual turnover of EUR 53 billion, investing over EUR 1.6 billion in R&D activities and creating nearly 1 million jobs.

[CONEBI](#) - represents the European Bicycle, E-Bike, Parts & Accessories Industries via its 15 national industry members. In the EU there are more than 1,000 companies providing more than 155,000 direct/indirect jobs. Via the CONEBI's national industry members, more than 500 small, medium and large companies are represented in CONEBI.

[DIGITALEUROPE](#) - represents the digital technology industry in Europe. Our members include some of the world's largest IT, telecoms and consumer electronics companies and national associations from every part of Europe. DIGITALEUROPE wants European businesses and citizens to benefit fully from digital technologies and for Europe to grow, attract and sustain the world's best digital technology companies. DIGITALEUROPE ensures industry participation in the development and implementation of EU policies.

[EPBA](#) - The EPBA advocates the portable power solutions of its members working with regulators, NGOs and other stakeholders to create an environment of harmonized and fair legislation so customers may enjoy efficient and safe batteries to be conveniently used and recycled.

[FH](#) - The Federation of the Swiss Watch Industry FH is the leading trade association of the Swiss watch industry. The FH represents and protects the commercial, legal and political interests of the Swiss watch industry, both in Switzerland and abroad.

With around 57,500 persons employed in the sector, the Swiss watch industry represents the bulk of the European watch industry. Moreover, it is a major client, possibly the largest, of the European watch component supply industry. The EU is a traditionally important market for Swiss watch exports. In 2020, the Swiss watch industry exported over six million watches with a total value of CHF 4.6 billion to

European Union Member States. Indirectly, tens of thousands of jobs in the retail trade in the European Union are dependent on the Swiss watch industry and the sale of its products.

[FIAR-CE](#) - is the Dutch trade association for manufacturers and importers of Consumer Electronics

[RECHARGE](#) - is the European industry association for advanced rechargeable and lithium batteries. Founded in 1998, it is our mission to promote advanced rechargeable batteries as a key technology that will contribute to a more empowered, sustainable and circular economy by enabling decarbonised electricity and mobility, and cutting-edge consumer products. RECHARGE's unique membership covers all aspects of the advanced rechargeable battery value chain: from suppliers of primary and secondary raw materials, to battery and original equipment manufacturers (OEMs), to logistic partners and battery recyclers.

[TIE](#) - Toy Industries of Europe (TIE) is the voice of the reputable European toy manufactures. Our mission is to promote the right of every child to play safely and securely and to promote fair practices and fair legislation, allowing responsible toy companies to continue to grow. TIE's membership includes 17 international toy manufacturers, eight European national toy associations, who represent their local manufactures, and eight affiliate members.

[ZVEI](#) - Electro and Digital Industry Association. The ZVEI promotes the industry's joint economic, technological and environmental policy interests on a national, European and global level. The electro and digital industry is the most innovative industry sector in Germany. Every third innovation in Germany's manufacturing sector stems from solutions of this industry. The industry has round about 877,000 employees in Germany. In 2021 the turnover was Euro 200 billion.