

Joint Industry Paper Integrated Batteries in the Revision of the EU Battery Directive

We, the undersigned joint group of associations, would like to enrich the policy debate on the revision of the Batteries Directive and the Sustainable Batteries Initiative with industry-wide data, insights and policy recommendations. Our respective members are working hard towards the circular economy and do not believe it wise to abandon the benefits of integrated batteries in this context.

The rechargeable batteries market is forecasted to be worth \$170B by 2030 (total of 1,500 GWh), driven by trends such as e-mobility, energy storage and digitalization.

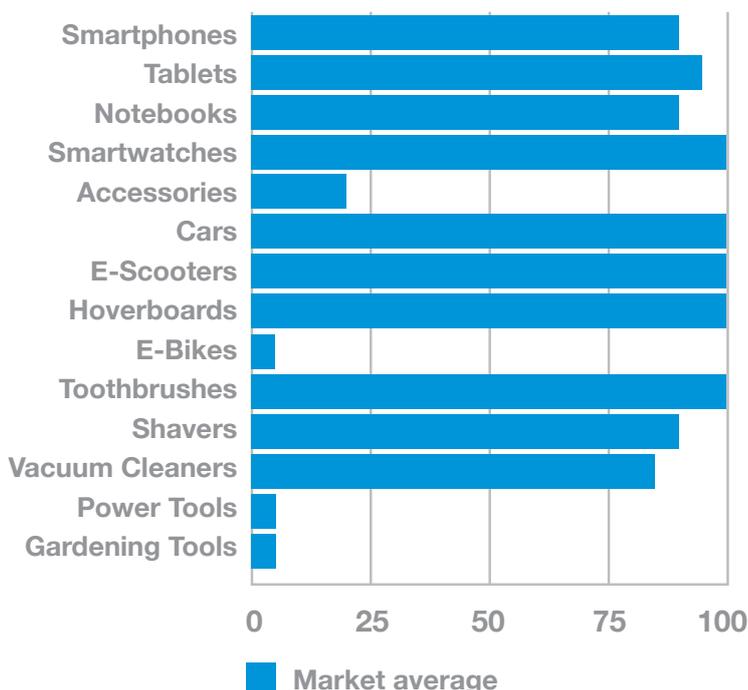
Applications of integrated batteries

Integrating batteries has long been a design strategy to leverage innovations and functionalities that would otherwise not be available. We define “integrated batteries” as embedded in the device by design, not removable without tools. Rechargeable batteries are integrated across a great many product categories, some of them are shown as an example in Figure 1. When rechargeable batteries are not integrated, there is a functional reason. E-bikes, power tools or accessories for electronic products all allow for battery exchange in the middle of a work flow. When batteries are integrated, there are good reasons for that, too: across our sectors, we see smartphones, notebooks, smartwatches, gardening tools, toothbrushes, shavers, toys and other products integrate batteries to increase water resistance or dust protection, and hence not only improve product performance but also battery lifetime. Cars, e-mobility applications and

electronic products integrate batteries for safety and reliability reasons to reduce vibration and exposure to external shocks. Cars also benefit from reduced weight and reduced CO2 emissions linked to this design strategy. Across most of our sectors, products with integrated batteries can benefit from thinner or smaller form factors, or extra space that becomes available for other components, driving both cost and material efficiency. In some cases, such as medical devices, applications are used in extreme environments where integrated packaging of battery and device are the only way to ensure protection from moisture ingress over long periods of time (e.g. 10 years). An important reason for integration in the case of lithium-based rechargeable batteries is consumer safety. The integration of a battery ensures voltage, current and temperature limits.

% Share of Integrated Batteries per Product Category

'Integrated batteries' defined as embedded in the device by design, not removeable without tools



Integrated batteries are the norm for many applications with rechargeable batteries. Requiring a different design by regulation would impact environmental performance, customer expectations, lifetime, functionality, cost and material efficiency while forcing device manufacturers across many product groups into re-design.

Innovation outlook and integrated batteries

In addition, there are exciting battery innovations on the horizon. We caution against changes to Art. 11 of the Batteries Directive or other eco-design measures, which could hamper the deployment of those innovations. Bendable, flexible batteries are predicted to come to mass production in the next 2-4 years, and thin film (solid state) batteries are forecasted to see a market growth by 2025 to \$400-600 million. These batteries are intended to be used in smart cards, wearables, flexible displays, medical and cosmetically transdermal patches, IoT, sensors, smart packaging, pacemakers, hearing aids, capsule endoscopes, military and e-textile applications, as well as automotive and large ESS, just to mention some. Battery innovations like these can be environmentally benign (biocompatible), can have high temperature stability, low self-discharge and high power density.

The most exciting battery innovations on the horizon will allow for further miniaturization of devices and applications, and incorporation of smaller batteries, thus, positively impacting the raw material use for these products and user-friendliness. Any regulation and removability requirements need to be future-proof and should provide for appropriate exemptions.

Removability and repair

The EU is currently considering options to introduce a European Right to Repair. We would like to point out that recent revisions of landmark legislations have already strengthened the right of consumers to have easy access to repair. The new Waste Framework Directive (2018/851) imposes access to spare parts and repair instructions under certain boundary conditions (safety, quality, IPR) in its Art 9(1). The new Sales of Goods Directive (2019/771) continues to include the right to have a faulty product repaired or replaced free of charge, or to obtain a refund or a price and strengthen consumer rights in this regard with durability as a conformity requirement. Already today, every product with integrated batteries on the market has a repair service during the legally mandated warranty period.

In future policy discussions, we believe that the European Right to Repair should mean making sure that the consumer has access to a high quality, safe and secure repair option in all cases (in- and out-of-warranty). Consumers have a rightful expectation of a repair remedy of quality, safety and security. However, this does not mean that repairs can be carried out safely and successfully by consumers themselves, nor that they should in all cases have the right or ability to do so themselves. Especially for high-complexity devices (ranging from electronics to cars), trained and qualified personnel can guarantee the highest level of safety, whereas consumer-led repairs could impact the integrity of the repaired device, and such unintended

outcomes should be reflected in any future regulation. Battery safety is obtained by a combination of mechanical, electrical and electronic protections and part of it is achieved by the integration of the battery itself. The liability for product safety in case for repair or replacement can generally be best ensured by a qualified professional.



There is strong justification for focusing right to repair on the availability of repair options that ensure consumers have access to high quality, safe and secure repairs, instead of only on a

consumer-led repair. One such example are established manufacturer-associated repair networks, which provide consumers with convenient access to such repair options. Such authorised service providers or affiliated networks are optimised for efficiency, and therefore minimise environmental impacts beyond what

would be possible via consumer-led repair models. Conservative estimates put the number of repair and after-sales jobs associated with manufacturer after-sales/repair providers at over 240,000 globally, providing high-quality service in a circular economy. They also ensure proper end-of-life recycling options. **Any policy, whether focused on battery replaceability by design, consumer policy or repair operators should consider the impact on the existing vast repair network of professionals.**

All data provided in this position paper is based on Avicenne Energy (2020), commissioned study based on interviews with manufacturers

Signatories

APPLiA

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 50 billion, investing over EUR 1.4 billion in R&D activities and creating nearly 1 million jobs.

DIGITALEUROPE

DIGITALEUROPE is the leading trade association representing digitally transforming industries in Europe. The association stands for a regulatory environment that enables European businesses and citizens to prosper from digital technologies.

Together with its members, DIGITALEUROPE shapes the industry policy positions on all relevant legislative matters and contribute to the development and implementation of relevant EU policies. The membership represents over 35,000 businesses who operate and invest in Europe. It includes 76 corporations which are global leaders in their field of activity, as well as 40 national trade associations from across Europe.

EPBA – European Portable Battery Association

EPBA advocates for the portable power solutions of its members and works with regulators, NGOs and other stakeholders to create an environment of harmonized and fair legislation so customers may enjoy efficient and safe portable batteries to be conveniently used and recycled. For more information, visit our website: www.epbaeurope.net

Federation of the Swiss Watch Industry 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 59,000 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 2019, the Swiss watch industry exported over six million watches with a total value of CHF 6.2 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.

MedTech Europe

MedTech Europe is the European trade association for the medical technology industry including diagnostics, medical devices and digital health. MedTech Europe's mission is to make innovative medical technology available to more people, while helping healthcare systems move towards a sustainable path. MedTech Europe encourages policies that help the medical technology industry meet Europe's growing healthcare needs and expectations. It also promotes medical technology's value for Europe focusing on innovation and stakeholder relations, using economic research and data, communications, industry events and training sessions.

RECHARGE

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. RECHARGE's unique membership covers all aspects of the advanced rechargeable battery value chain in Europe: From suppliers of primary and secondary raw materials, to battery, equipment and original equipment manufacturers (OEMs), to logistic partners and battery recyclers.