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Brussels, 15 September, 2020

Joint industry statement on the impact of restricting primary batteries in Europe

Fourteen trade associations consider the envisaged phase out of primary batteries incompatible with Europe's goal for a carbon neutral economy. The signatory parties support the European Green Deal and Circular Economy Action Plan, and are committed to provide European consumers with truly sustainable solutions – based on proven positive impacts on both the environment and the European economy. Primary batteries have a vital role to play in a number of different battery applications and complement an increasing area of use of rechargeable batteries.

Primary batteries, today, provide growing levels of power while being smaller and using less materials than previous generation's batteries. Since 2006, the environmental impact of primary batteries has even further decreased by implementing the collection obligation as set in the Batteries Directive 2006/66/EC. **All waste primary batteries brought to a collection point are also effectively recycled.** It is therefore with great concern that we see voices calling for a potential ban on primary batteries.

The European Commission is currently reviewing the Batteries Directive with a main focus on environmental sustainability. The proposed approaches and measures under discussion include a restriction or even a total prohibition of primary batteries. However, a recent assessment by the **Öko Institute¹** showed that even a **prohibition of primary batteries would only have a moderate effect on the amount of waste batteries** (-25 % by weight), while there would be a **huge negative impact on the environment**, in particular, global warming, human toxicity, aqua toxicity and environmental acidification.

Furthermore, **three life cycle assessments** carried out by portable battery manufacturers **demonstrate that primary batteries are more environmentally sustainable than other types of portable batteries** when operated in low drain devices, the prime area of application for primary batteries. The lower and more efficient discharge level of primary batteries combined with the need for repeated recharging of secondary batteries makes primary batteries the best choice for low

¹ Öko-Institut e.V., Institute for Applied Ecology: "Initial results of the study in support of the assessment of the Batteries Directive - Measure 4: Restriction of primary batteries", presentation during the stakeholder meeting of the European Commission on the revision of the Battery Directive on the 5th of May 2020

drain devices since these require lower power levels. Over 50% of the battery appliances market is focused on miniature, portable, lightweight, low drain applications and the prospects point to continued growth in this segment. The analysis of the Öko Institute indicates that a **total prohibition of primary batteries would require scrapping 70% of today's battery-powered devices, resulting in a considerable amount of waste.**

In fact, many products have already **transitioned to rechargeable batteries** where this is **both technically possible and advantageous from both an environmental and economic point of view** (patient monitors, digital cameras, barcode scanners, uninterruptible power supplies (UPS), power tools, just to mention some). In general, high drain applications without long stand-by times before use, are best suited for rechargeable batteries. In **low drain applications, however, primary batteries constitute a more sustainable solution** than rechargeable ones. Thanks to their low self-discharge rate and durability, they are often the **only option for a lifetime battery solution** which in some applications (utility meters, smart city or environmental sensors and asset tracking devices) can go as far as almost two decades.

Furthermore, and contrary to persisting opinion, **primary batteries cannot be compared to single use products** such as certain plastics where no organised collection and recycling infrastructure exists. Primary batteries are energy sources and they have great impact on a vast number of essential applications and sectors using primary batteries. They are designed to be **used many times in one or even multiple appliances, and in some cases for the entire use life of an equipment.** Qualifying primary batteries as 'single use products' is hence misleading.

We also want to stress that not all primary batteries can be easily replaced by rechargeable batteries in any type of appliances. **We caution against direct replacement ignoring the IEC** (International Electrotechnical Commission) **standards and the differences in voltage** between primary alkaline batteries and lithium ion rechargeable batteries, for example. Additionally, **many primary battery applications do not feature the technical infrastructure necessary for a rechargeable battery.** Some equipment is not suitable to connect to the grid (such as asset tracking), to attach a solar panel to (inter alia IoT) or to send a maintenance crew to recharge the battery on a regular basis (highly distributed uses).

Finally, the specific technologies used in primary batteries are increasingly enabling the development of rechargeable designs and applications. Our concern is that by limiting or eliminating the well-established EU primary battery value chain, the potential for these key battery technologies would be at risk as a whole.

In Annex 1, we include a non-exhaustive list of sectors using primary batteries and for which **an alternative does not exist or would impact negatively** on the functioning of the product, sustainability or reliability, not to mention the design and manufacturing process.

The undersigned associations highlight that phasing out primary batteries will, in addition to the negative impact on the environment as outlined above, result in:

- **Unnecessary scrapping of an extreme number of devices** currently powered by primary batteries resulting in a high number of products **going to waste prematurely**;
- Impact on **user experience**, take for instance medical applications of patients in critical medical conditions or in older age who would be impacted by the burden of recharging to maintain therapy;
- Extensive **re-design, re-validation and re-registration of products** to cater for:
 - More complicated battery management circuits including complete new mechanical designs;
 - More electronic parts and components (e.g. cables, chargers);
 - Existing manufacturing lines will become obsolete and new custom manufacturing lines will be required;
- Peripheral recharging instruments (extremely inconvenient in some cases such as medical implants);
- **Loss of EU leadership in key technologies** that are available for and are increasingly used in battery applications as a whole, whether primary or other.

In view of our support for the European Commission’s ambition to work toward a competitive, circular and sustainable environment and economy in the European Union, we want to caution against policy measures that result in more greenhouse gas emissions and waste, put at risk an existing European industry, create burdens and costs to various sectors, and negatively affect consumer expectations.

We call on the **European Commission** to take our industry data into account and to **withdraw plans to generally phase out primary batteries in Europe**.

Signatories:



ANNEX 1

Impact of phasing out primary batteries of the European market:

Medical sector:

For medical devices the following considerations are paramount and make primary batteries the sole option to power these devices: hygiene and sterilisation, longevity and reliability (lifesaving therapies such as pacemakers or automated external defibrillators), performance and accuracy (in vitro diagnostic devices, pregnancy and ovulation digital self-tests), safety and performance especially during transport (monitors, temperature trackers), back-up electricity source (infusion pumps); and others. A ban on primary batteries would generate unacceptable public health implications.

Electrical and electronic safety-technology equipment sector:

Primary batteries are used in electrical and electronic equipment for memory back-up purposes as auxiliary batteries. They are also used in a multitude of remote controls. There are numerous products in the safety technology market where for reasons of lifetime, maintenance, safety, application and technology a ban on primary batteries will have negative impact on the availability, acceptance and competitiveness of these products.

For personal computing products primary batteries are rarely if ever replaced during the life of the PC, lasting five to ten years or longer. Primary batteries provide essential memory backup and real-time clock functions that cannot be reliably performed by their rechargeable counterparts. Rechargeable batteries would be less reliable for this application and negatively impact the user experience. Rechargeable batteries could completely discharge resulting in the loss of data and real time.

In addition, in certain cases legal implications have to be considered, e.g. for smoke alarm detectors. Smoke alarm detectors are harmonized building products under mandate M/109 and are developed and certified according to the EN 14604 standard. Several EU Member States have created legislation for installing smoke alarm detectors in all private households. Essential requirements of EN 14604 cannot be met only with rechargeable batteries. Especially for the housing industry, rechargeable batteries are not an alternative, as it is not legally possible to hold tenants responsible for the regular recharging of the smoke detector batteries and the removal and installation. For this reason, 3V lithium primary batteries are now the standard, as these batteries last for the entire lifetime of the smoke alarm detector, i.e. 10 years.

Information and communications technology sector:

Non-rechargeable batteries will be present in some ICT applications but are typically not a lifetime limiting factor. A non-exhaustive list of examples is hereby provided:

- remote controls, analogue quartz watches, electronic products using memory back-up functions;
- car keys, smoke detectors, emergency devices, remote monitoring devices (e.g. tire pressure), implantable medical devices, thermometers.

Primary batteries allow for risk control mitigation in case of unavailability of immediate electrical power to operate. They are therefore essential in disaster and emergency situations where there is no power as well as in remote areas with poor or no connection to the grid.

A multitude of sensors and remote-control applications use primary batteries to power the devices. The lifetime of the product is often covered by one battery with similar lifetime as the application. Primary batteries in these applications are indispensable and a conversion to rechargeable batteries is often not feasible technically and / or economically.

In applications subject to extreme weather conditions or high temperature (e.g. tyre pressure monitoring systems, water and gas meters, drill heads for oil and gas wells, gas-sensors, automatic toll devices) there is simply no alternative to primary batteries as rechargeable batteries cannot equally perform in under the same conditions.

Monitoring and controlling sector:

In applications subject to monitoring and control of sensitive areas (especially explosive atmospheres) there is in most cases no alternative to primary batteries as rechargeable cannot perform in the same conditions.

Utility metering:

Primary batteries can operate smart meters, like gas or water-meters for their entire lifespan of up to 20 years. Such lifetime solutions are an ideal field for primary batteries. A restriction on primary batteries would put the smart metering project and many other – also evolving – sensor based projects in danger and could thus even hinder innovation

Garden and outdoor power equipment sector:

Manufacturers of garden, landscaping, forestry and turf maintenance equipment use primary batteries in various types of machines. These types of batteries are notably integrated in circuit boards. Incorporating primary cells is important to maintain some functions, such as clock, safety and monitoring, even when the machine is not being operated. In addition to robustness of design, primary cells are used to maintain relevant software-controlled features (e.g. safety performance and data integrity). Primary cells are designed to last for the product's entire lifetime.

Recycling sector:

Because the recycling processes for primary alkaline and for lithium ion batteries are essentially different (including in manpower needs) these are not performed by the same recyclers. Recycling companies specialised in alkaline primary batteries would be out of business with a ban on primary batteries. On the short term and due to the highly competitive nature of the recycling market which is very dependent on the quantities of products available for recycling, a phase out in primary batteries will immediately affect the recycling capacity, jeopardising the recycling of the remaining primary batteries in the market.

Applications using hybrid systems:

For several long-term applications, a combination of primary and rechargeable batteries is used to strengthen the positive effects of both technologies. Namely high power capability combined with low self-discharge for rechargeable batteries and high energy with very low self-discharge for primary batteries. Notwithstanding these characteristics can only be reached by further product optimisation. For instance rechargeable batteries can be trimmed to deliver high power pulses even at low or very high temperatures, combined with a relatively low self-discharge level. The backside of this approach is an additional decrease in capacity. A primary battery, not

capable to deliver short term power, but optimised in energy density and self-discharge, can be used as back up and supply the system with the energy needed for many years, including during the entire lifespan of the application. This example demonstrates that a combination of primary batteries and rechargeable systems is necessary to offer the best suited and most sustainable solutions for different kinds of applications.