



POSITION PAPER

BATTERIES IN ELECTRIFIED VEHICLES

1. Introduction

The most dynamic market for batteries is the one of the batteries for so-called electrified vehicles, strongly supported by European and national authorities in the transition towards decarbonized energy and transport sectors. These electrified vehicles include electric, hybrid and plug-in hybrid vehicles, as well personal cars as buses and trucks.

The characteristics of these batteries require another approach for the end-of-life management than the traditional portable batteries.

A first obvious difference between the batteries from electrified vehicles and portable batteries is the size and the weight. While an average portable battery weighs between 20 and 30 grams, the weight of the battery of an electrified vehicle ranges from several tens of kilograms for a hybrid vehicle, over multiple hundred kilograms for an electric vehicle to several tons for a bus or truck. As a consequence, the waste batteries from electrified vehicles require different collection systems, with an individual approach rather than mass collection and different logistics. Given their construction, batteries from electrified vehicles need dismantling before the chemical recycling process, contrary to most portable batteries.

Given the size and the chemical composition of most batteries from recent electrified vehicles (Lithium Manganese or Lithium Nickel Manganese Cobalt Oxide), the transport of these waste batteries is regulated by complicated ADR rules.

Except for a limited amount of cobalt in some lithium batteries, and lanthanides in the NiMH batteries, they do not contain valuable materials, which leads to high costs for the recycling process. We do not see any intrinsic value, that could have a positive effect on the cost in the near future, so we expect that the waste lithium batteries will not have a positive value in the future.

2. Financing systems, marking and registration

Extended producer responsibility (EPR) involves a shift in financial and operational responsibility to producers for the collection, recycling and responsible end-of-life disposal. This means in particular that each producer is responsible for the financing of the end-of-life management of the products that he has put on the market. He should be able to choose to fulfil this obligation either individually or by joining a collective scheme.

Separately invoicing the net collection and recycling costs will benefit the environment, consumers, authorities and all economic actors involved in the distribution of the new batteries. In particular, it guarantees the financing of the collection and recycling, and it simplifies the market surveillance activities of the national authorities, without having an impact on the commercial relations between the economic actors. For these reasons, Eucobat requests that the visible compliance fee on the invoices should remain possible.

As batteries in electrified vehicles are composed of multiple modules, stacks or cells, that can be removed during repair or refurbishment of the battery, producers also need to ensure the financing of the collection and recycling of these modules, stacks and cells. In order to enable this financing, a marking of the individual cells of the batteries with the registration information of the producer is required.

The Batteries Directive should describe the requirement to create and maintain appropriate take-back structures for these stacks, modules and cells, and strictly avoid improper disposal of them through collection schemes for portable batteries.

Given the long lifespan of the batteries in electrified vehicles, and the high cost of collection and recycling, each producer should, when placing a battery on the market, provide a financial guarantee to prevent costs for the management of waste from orphan products from falling on society or the remaining producers.

This financial guarantee could take the form of an advance payment of the collection and recycling costs when these batteries are put on the market, a blocked bank account, an insurance, a bank warranty,...

A financial guarantee for each battery put on the market also requires a registration of the battery, which could be linked to the registration of the vehicle.

3. Reuse and Second Use of the batteries

Repurposing end-of-life batteries from electrified vehicles could increase the sustainability of these batteries and could provide a potential way to reduce first-cost hurdle of these electrified vehicles.

A difference should be made between "reuse" and "second use". While "reuse" implies the complete or partial re-use of the battery for the original purpose the battery was designed for, possibly after inspection or refurbishment, the term "second use" is appropriate when the battery is used for a different application than it was designed for, e.g. the use of batteries from electrified vehicles in energy storage systems,.

The reuse and second use of waste batteries from electrified vehicles was not foreseen in the current Batteries Directive, and raises some questions.

In the case of second use of batteries from electrified vehicles, the liability for defective products should be clearly defined. Given the new application of the product, possibly implying technical adaptations, the person putting the batteries on the market for the second use, should be considered producer of the batteries in this framework and should put his name, trade mark or other distinguishing feature on the battery.

As 'waste' is defined as "any substance or object which the holder discards or intends or is required to discard", batteries discarded for the first use (propulsion of a vehicle), should be considered as waste.

In this case, it is very important to define precisely the respective responsibilities of the "first producer", who put the batteries on the market for the propulsion of vehicles, and the "second producer", who puts the batteries after repurposing on the market as stationary batteries.

In particular, it should be clear:

- At what moment the "extended producer responsibility" of the first producer comes to an end.
- Who bears the "extended producer responsibility" for the modules, stacks and cells that are removed during the repurposing process and that are not being reused.
- Who bears the "extended producer responsibility" for the batteries put on the market for second use, and how the marking of the batteries and the registration of the producer is taken care of.
- How the financial guarantees of the first and the second producer are regulated.

An important element is the question when the "end-of-waste" status is reached, and what procedures can confirm this.

Eucobat proposes that "end-of-waste" criteria would be defined at European level and should be based upon technical and safety standards for new batteries

4. About Eucobat

Eucobat aisbl is the European association of national collection schemes for batteries. They assure that all waste batteries are collected and recycled in an ecological sound way, and contribute this way to a better environment.