

New EU regulatory framework on batteries

Oeko-Institut

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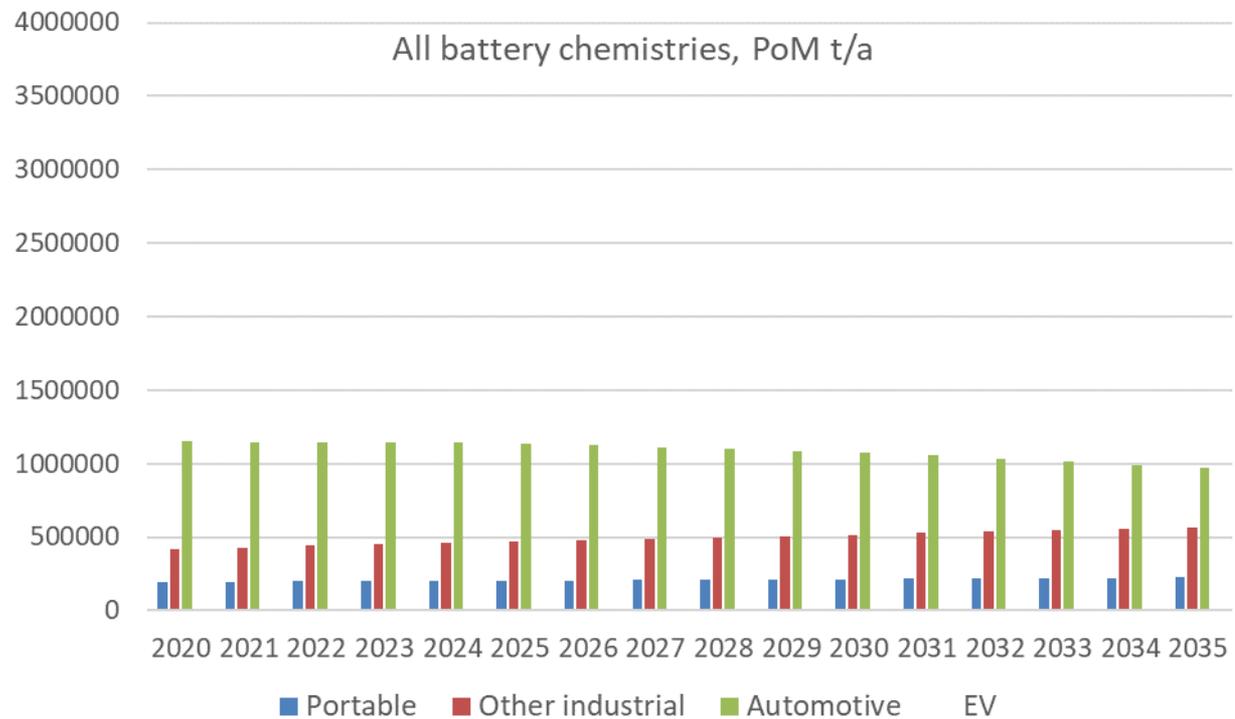


General background on batteries

- Reliable batteries are fundamental for the safety and functioning of many products, appliances and services, and are an essential energy source in our society.
- At the same time, waste batteries are potentially harmful to the environment, while also a potential source for secondary resources.
- The battery sector is dynamic and innovative. Since the Batteries Directive was adopted in 2006, it is hardly surprising that new applications, new battery types and new recycling technologies have developed, and new trends emerged.
- The current Batteries Directive is considered no longer fit for purpose
- Li-ion batteries are the battery type in focus for the years to come
- The electrification of the mobility sector (vehicles) is identified as the main driver of growth.
- The high importance of these developments has led to the European Commission's 'Strategic Action Plan on Batteries' and subsequently to a new EU legal proposal on batteries.

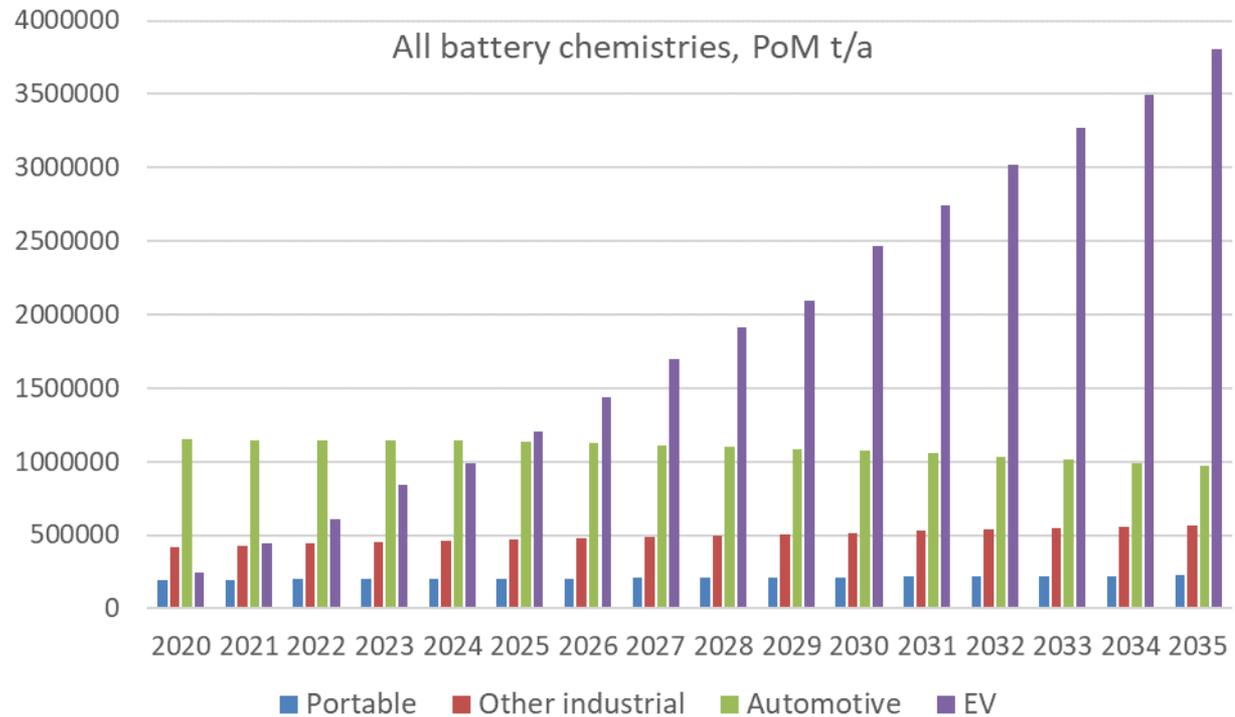
Battery market – categories / applications

Batteries placed on the market in the EU-27, years 2020 to 2035, in tonnes per year



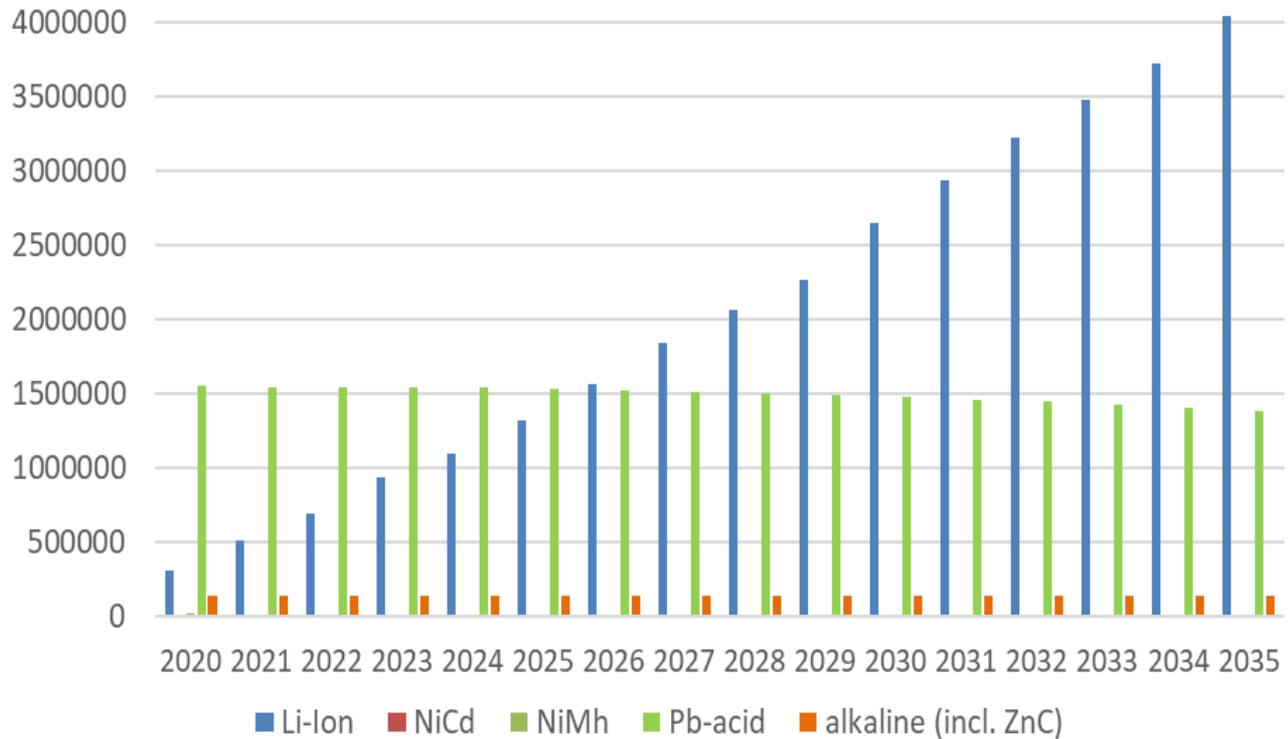
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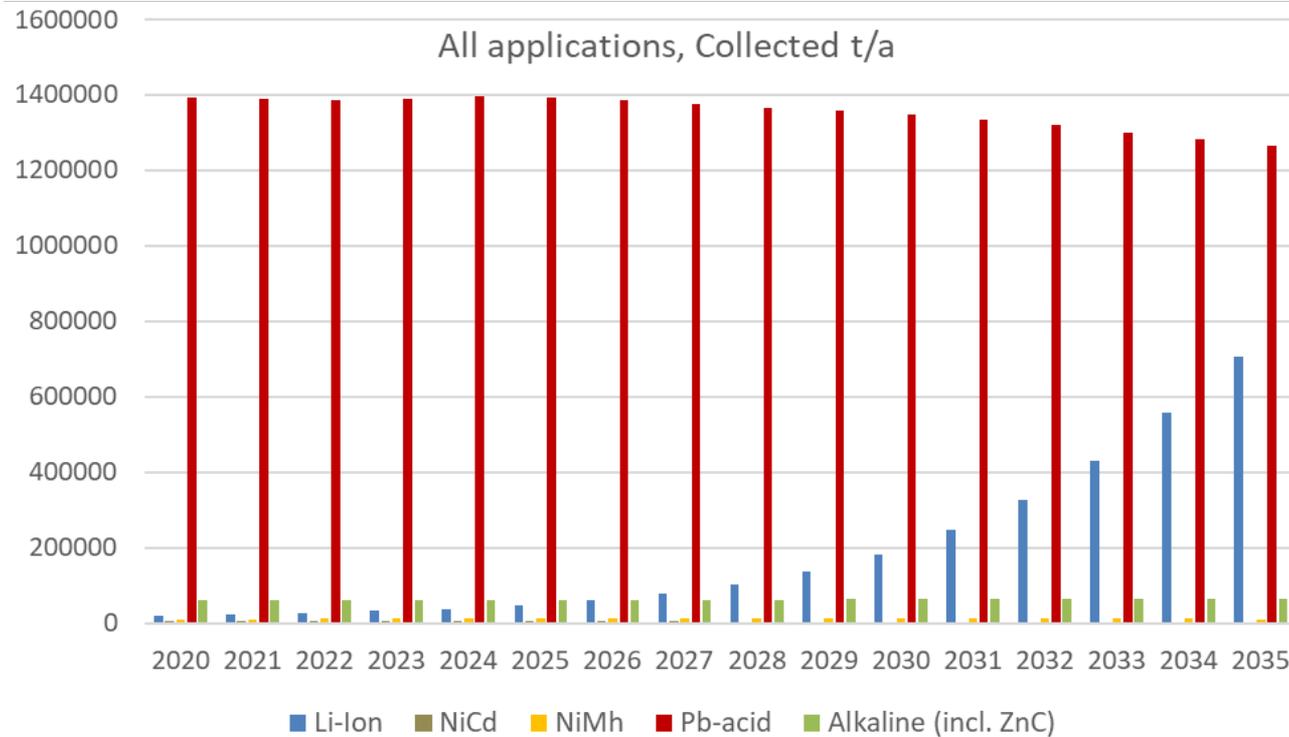
Battery market – battery chemistries

Chemical types of batteries PoM in the EU, years 2020 to 2035, in tonnes per year



Collection and recycling of waste batteries

Chemical types of waste batteries collected in the EU in tonnes per year



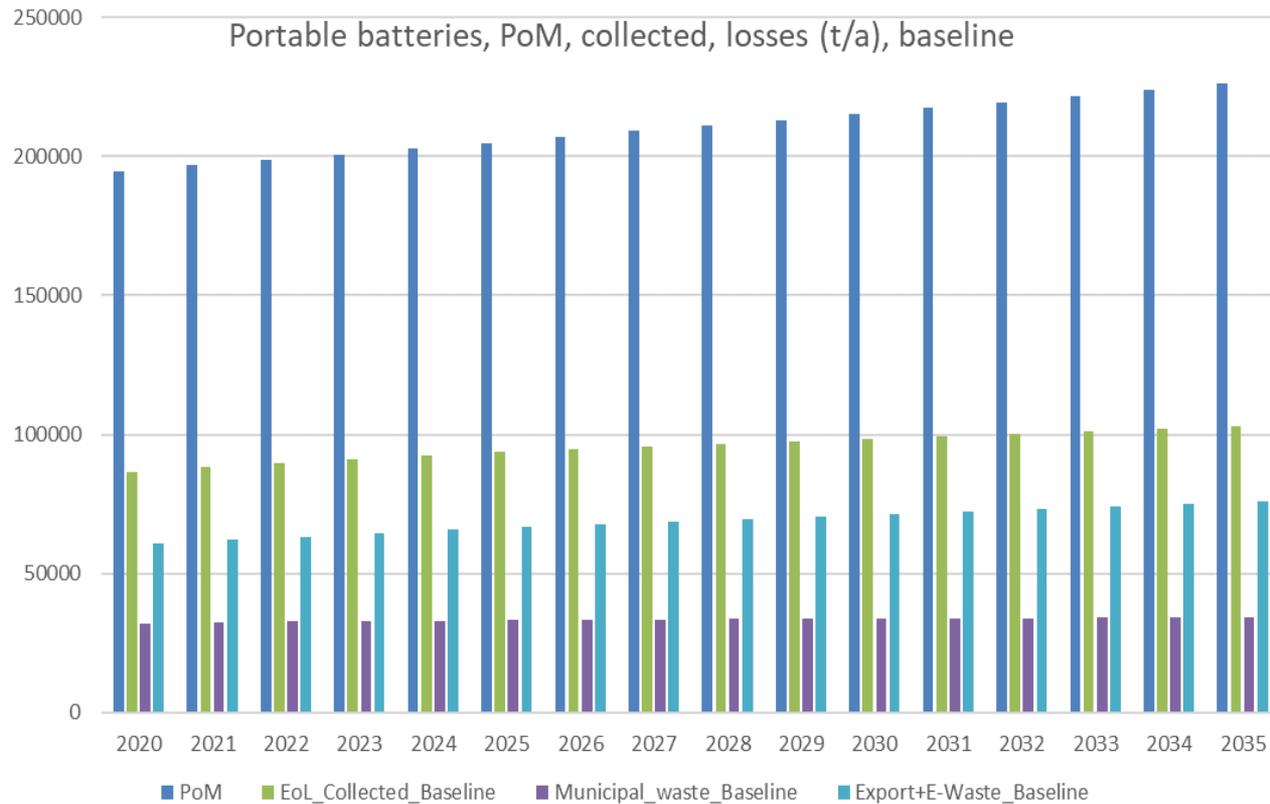
Batteries Directive – shortcomings in the collection

Problem description

- **Insufficient collection of portable batteries is a major shortcoming.** Improving and increasing collection need to be one of the priorities of the new EU regulatory framework on batteries.
- The current target for collecting waste portable batteries (**45% collection target**) does not promote a high level of collection.
- **45% collection means that more than half of total portable batteries are “lost”**
 - **batteries accumulate over many years in landfills or somewhere else**
 - **lost batteries may present a steadily growing risk to the environment**
- The collection target does not minimise the battery disposal as mixed municipal waste (there are no reporting obligations related to batteries ending-up in municipal waste).
- The high rate of non-compliance for this target is concerning since it increases the risk of pollution by hazardous components of waste batteries.
- Losses of portable batteries also prevent the achievement of other objectives (such as supporting a circular economy and attaining a high level of material recovery).

Portable batteries

Portable batteries: placed on the market, collection and 'losses'; in the EU in tonnes per year



Batteries Directive – shortcomings in Li-ion batteries

Problem description

- The recycling efficiency in current version of the Batteries Directive is not orientated towards recovery of (critical) materials and the Directive does not address specific materials to be recovered as a resources. In this regards the Directive lacks provisions for additional materials (e.g. Co, Ni, Li or other critical raw materials).
- Recycling efficiency of “other batteries” applies to Li-ion batteries. “Other batteries” no longer adequately represent the amount and relevance of Li-ion batteries.
- There are no separate targets for Li-ion batteries, which would ensure that batteries are collected (portable and industrial) and fed into high quality recycling processes (e.g. Li and Co are recovered including a high recycling efficiency for the whole battery).
- Most of today`s recycling processes for lithium-ion batteries focus on housing materials, BMS, cobalt, and nickel. Only few processes are established to recover lithium due to economic reasons.

Li-ion batteries - resources

Lithium used in Li-ion batteries: collected and recovered (t/a)

