

## Documents

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**Opportunities and challenges of recycling and reusing lithium-ion batteries for sustainable mobility**  
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### Abstract

The growth of lithium-ion battery (LIBs) applications in electric vehicles and consumer electronics are rapidly increasing, further supplemented by the global energy sector's transition into more sustainable energy production and consumption. This not only boosts resources demand, but also generating huge amounts of spent batteries that must be properly managed. Recycling becomes a necessity, not only to support circular economy, but also to recover rare metals and reduce the hazardous pollution of LIBs components. There are many benefits for LIBs recycling, especially in environmental protection, energy transition, and economic benefits. Yet, a successful venture into LIBs recycling depends on a few factors: the recycling technology, the resources (spent LIBs), the location of the facilities for disposal and recycling, the local and regional regulatory framework, as well as the environmental impact. Therefore, it is necessary to identify and assess the systemic elements that exist within the recovery modes and phases of LIBs in a local context. This will enable a more informed decision to be made for further development of any LIBs recycling project. © 2023 Institute of Physics Publishing. All rights reserved.

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