Vietnam lithium battery environmental assessment

What is a lithium-based battery sustainability framework?
By providing a nuanced understanding of the environmental, economic, and social dimensions of lithium-based batteries, the framework guides policymakers, manufacturers, and consumers toward more informed and sustainable choices in battery production, utilization, and end-of-life management.

What are the goals of a battery sustainability assessment?
For instance, the goal may be to evaluate the environmental, social, and economic impacts of the batteries and identify opportunities for improvement. Alternatively, the goal may include comparing the sustainability performance of various Li-based battery types or rating the sustainability of the entire battery supply chain.

Can lithium-ion batteries reduce fossil fuel-based pollution?
Regarding energy storage,lithium-ion batteries (LIBs) are one of the prominent sources of comprehensive applications and play an ideal role in diminishing fossil fuel-based pollution. The rapid development of LIBs in electrical and electronic devices requires a lot of metal assets,particularly lithium and cobalt (Salakjani et al. 2019).

What is the life cycle of a lithium ion battery?
The lithium-ion battery life cycle includes the following steps: 1. Mining /Extraction of raw materials used for its package and cells. 2. 3. Manufacturing of intermediate products (cathode, anode, electrolytes) that is used for the construction of pack and cells. 4. 5. 6. 7.

What is the minimum recycled content of lithium ion (Lib)?
EU-mandated minimum recycled content in LIBs of 20% cobalt,12% nickel,and 10% lithiumand manganese will contribute to reducing associated GHG emissions by 7 to 42% for NCX chemistries. Among the different recycling methods,direct recycling has the lowest impact,followed by hydrometallurgical and pyrometallurgical.

Are lithium-based batteries sustainable?
The sustainability of lithium-based batteries can vary significantlybased on temporal and geographical contexts due to differences in energy mixes,technological advancements,and regulatory environments. The review might not be easily generalizable across different regions and time periods.

A lithium battery is a device that converts its own stored chemical energy into electrical energy. Lithium batteries can generally be divided into three categories - consumer batteries, power batteries, and energy ...

Competitive Analysis of Best Companies in Vietnam Battery Market Vietnam Battery Market: Competitive Landscape Market Characteristics: The Vietnam Battery Market is characterized by a fair level of

consolidation, showcasing a blend of global and local players. The landscape features both specialized companies and conglomerates, with local firms holding significant market ...

In 2012, Graedel and colleagues introduced a framework for criticality assessment (Graedel et al., 2012), which encompassed supply risk, environmental implications, and vulnerability to supply restriction.This framework laid the groundwork for an integrated approach to criticality assessment and was applied to metal resources in subsequent research (Graedel et al., 2015).

This review offers a comprehensive study of Environmental Life Cycle Assessment (E-LCA), Life Cycle Costing (LCC), Social Life Cycle Assessment (S-LCA), and Life Cycle Sustainability Assessment (LCSA) methodologies in the context of lithium-based batteries. Notably, the study distinguishes itself by integrating not only environmental ...

Lithium-ion batteries are used for energy storage and as an energy source in a wide range of applications from small handheld to powering consumer-driven vehicles.

Vietnam Lithium Ion Battery Market is expected to grow during 2024-2030 ... and innovation to meet the growing demand for lithium-ion batteries while addressing environmental concerns. COVID-19 Impact on the Market . The Vietnam lithium-ion battery market faced challenges due to the COVID-19 pandemic. Disruptions in supply chains and manufacturing activities influenced ...

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By introducing the life cycle assessment method and entropy weight method to quantify environmental load, a multilevel index evaluation system was established based on environmental battery characteristics. The results show that the Li-S battery is the cleanest battery in ...

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This study addresses the need to assess and identify viable metal-ion battery alternatives to Li-ion batteries, focusing on the rapidly industrializing context of Vietnam. It acknowledges the criticality of developing ...

In Vietnam, a rapidly developing nation facing environmental concerns, effective LIB recycling is crucial. This paper evaluates the current status and potential of LIB recycling from EVs in Vietnam, highlighting limited research and adoption of modern recycling techniques.

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Keywords: life cycle assessment, lithium-ion battery, supply chain GHG emissions, electricity decarbonization, battery recycling. Signi cance Statement . Understanding the environmental impact of ...

A sustainable low-carbon transition via electric vehicles will require a comprehensive understanding of lithium-ion batteries" global supply chain environmental ...

The purpose of this study is to calculate the characterized, normalized, and weighted factors for the environmental impact of a Li-ion battery (NMC811) throughout its life cycle. To achieve this, open LCA software is employed, utilizing data from product environmental footprint category rules, the Ecoinvent database, and the BatPaC database for ...

The growing demand for lithium-ion batteries (LIBs) in smartphones, electric vehicles (EVs), and other energy storage devices should be correlated with their ...

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