

New energy vehicles with free batteries for life

Could a new lithium-ion battery make electric cars more sustainable?

MIT researchers have now designed a battery material that could offer a more sustainable way to power electric cars. The new lithium-ion battery includes a cathode based on organic materials, instead of cobalt or nickel (another metal often used in lithium-ion batteries).

Could a battery make electric cars more sustainable?

Many electric vehicles are powered by batteries that contain cobalt -- a metal that carries high financial, environmental, and social costs. MIT researchers have now designed a battery material that could offer a more sustainable way to power electric cars.

Could MIT battery material be a sustainable way to power electric cars?

Lamborghini has licensed the patent on the technology. Dinca's lab plans to continue developing alternative battery materials and is exploring possible replacement of lithium with sodium or magnesium, which are cheaper and more abundant than lithium. An MIT battery material could offer a more sustainable way to power electric cars.

Should new energy vehicles be recycled?

Volume 10, Issue 13, 15 July 2024, e33800 In recent years, new energy vehicles (NEVs) have taken the world by storm. A large number of NEV batteries have been scrapped, and research on NEV battery recycling is important for promoting the sustainable development of NEVs.

Are NEV batteries recyclable?

NEV batteries contain large amounts of metals and have high recycling potential. Lithium is a strategic resource in the new energy era and a key material for batteries [51,52]. Improper disposal of lithium in NEV waste batteries can cause serious pollution of water sources and soil.

Are fuel cell electric vehicles better than battery-based electric vehicles?

Fuel cell-based electric vehicles are better than battery-based electric vehicles because of their short refueling time and light weight. Fuel cell electric vehicles (FCEVs) are a subset of electric vehicles that power an electric motor with the electricity produced by a fuel cell within the vehicle.

There's a revolution brewing in batteries for electric cars. Japanese car maker Toyota said last year that it aims to release a car in 2027-28 that could travel 1,000 kilometres and...

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Battery recycling is an important aspect of the sustainable development of NEVs. In this study, we conducted an in-depth analysis of the current status of research on NEV battery recycling from a new perspective using bibliometric methods and visualization software.

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But mechanical engineers have now found a way to make these Li-S batteries last longer -- with higher energy levels -- than existing renewable batteries. Lithium-sulfur batteries have never...

Besides the machine and drive (Liu et al., 2021c) as well as the auxiliary electronics, the rechargeable battery pack is another most critical component for electric propulsions and await to seek technological breakthroughs continuously (Shen et al., 2014) g. 1 shows the main hints presented in this review. Considering billions of portable electronics and ...

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Under the current international situation, the use of newer clean energy has become a necessary condition for human life. The use of new energy vehicles is undoubtedly closely related to most people's lives. As the core and power source of new energy vehicles, the role of batteries is the most critical. This paper analyzes the application and problems of ...

In the previous study, environmental impacts of lithium-ion batteries (LIBs) have become a concern due the large-scale production and application. The present paper aims to quantify the potential environmental impacts of LIBs in terms of life cycle assessment. Three different batteries are compared in this study: lithium iron phosphate (LFP) batteries, lithium ...

While electric vehicles exhibit a substantial reduction in life cycle emissions compared to their gasoline-powered counterparts, it is imperative to note the environmental ...

Now nanotechnologists from Queensland University of Technology (QUT) in Australia have developed an ultra lightweight supercapacitor that can easily be combined with regular batteries to dramatically boost their ...

This study aims to establish a life cycle evaluation model of retired EV lithium-ion batteries and new lead-acid batteries applied in the energy storage system, compare their environmental impacts, and provide data reference for the secondary utilization of lithium-ion batteries and the development prospect of energy storage

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batteries. The functional unit of this ...

Rechargeable batteries, which represent advanced energy storage technologies, are interconnected with renewable energy sources, new energy vehicles, energy interconnection and transmission, energy producers and sellers, and virtual electric fields to play a significant part in the Internet of Everything (a concept that refers to the connection of virtually everything in ...

This study comprehensively compares four prominent sustainable vehicle technologies: biofuel-powered vehicles (BPVs), fuel cell vehicles (FCVs), electric vehicles (EVs), and solar vehicles. We examine each ...

The global energy transition relies increasingly on lithium-ion batteries for electric transportation and renewable energy integration. Given the highly concentrated supply chain of battery ...

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