

Do rechargeable batteries have environmental and social impacts?

While rechargeable batteries are critical for fighting the climate crisis, they are not free of environmental and social impacts. Here, we provide a robust, holistic, and accessible framework for researchers to use to assess these impacts for any battery material. The framework addresses four key issues pres

Why should we support new technology in power battery recycling?

Third, we should support new technologies. The power battery technology is in the development stage. The recycling technology must keep pace with the times, improve the cascade utilization rate and material extraction rate, and maximize the effective utilization of waste batteries.

Why do new energy vehicle retailers choose negative synergy?

When the pessimism of the new energy vehicle retailer is deeper, the more the new energy vehicle retailer does not trust the effectiveness of the new energy vehicle manufacturer's battery recycling, and the new energy vehicle retailer will choose more negative synergy out of the pursuit of their own interests.

Is the new energy battery recycling strategy optimal?

As finite rational individuals²⁴, the strategy choice of each participant in the new energy battery recycling process is not always theoretically optimal, and the new energy battery recycling strategy is also influenced by the carbon sentiment of manufacturers, retailers, and other participants.

Can new-energy vehicle power batteries be recycled?

The recycling of new-energy vehicle power batteries is a complex system problem that involves social, economic, environmental, and other aspects. The effect of each strategy and whether it is effective in the medium and long term must be explored.

Does irrational state influence new energy vehicle battery recycling decisions?

In the process of new energy vehicle battery recycling, each participant will show irrational state and carbon sentiment will influence the battery recycling decisions of new energy vehicle manufacturers and new energy vehicle retailers.

The uncertainties in a sustainable supply of battery minerals, environmental, social and governance complexities, and geopolitical tensions throughout the whole battery ...

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Recent project announcements support the observation that this may be a preferred method for capturing storage value. Implications for the low-carbon energy transition. The economic value of energy storage is

closely tied to other major trends impacting today's power system, most notably the increasing penetration of wind and solar generation ...

The vigorous development of the new energy automobile industry has highlighted the issue of efficient recycling of power batteries. Using a Stackelberg game, the pricing mechanism of dual-channel power battery recycling models under different government subsidies is investigated. Consequently, sensitivity analysis and comparison analysis are ...

6 ???· While lithium-ion batteries (LIBs) have pushed the progression of electric vehicles (EVs) as a viable commercial option, they introduce their own set of issues regarding ...

Ultimately, these changes may catalyze technological advancements within the battery industry. Furthermore, the EU New Battery Regulation will bolster the stability of the EU's energy storage industry, a development of paramount importance for the EU's future energy security. In the coming years, the demand for energy storage across various ...

The initial values and the data were collected ... sales volume of new EV batteries, collection rates, or social welfare, the boundary conditions of the choice of the two mechanisms are obtained ...

Battery recycling has significant environmental, economic, and social benefits. In terms of environmental impact, the waste lithium-ion batteries of China have great potential for ...

The negative impact of used batteries of new energy vehicles on the environment has attracted global attention, and how to effectively deal with used batteries of new energy ...

This report analyses the emissions related to batteries throughout the supply chain and over the full battery lifetime and highlights priorities for reducing emissions. Life cycle analysis of electric cars shows that they already offer emissions reductions benefits at the global level when compared to internal combustion engine cars. Further increasing the sustainability ...

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In March 2019, Premier Li Keqiang clearly stated in Report on the Work of the Government that "We will work to speed up the growth of emerging industries and foster clusters of emerging industries like new-energy automobiles, and new materials" [11], putting it as one of the essential annual works of the government the 2020 Report on the Work of the ...

The recycling of new-energy vehicle power batteries is a complex system problem that involves social, economic, environmental, and other aspects. The effect of each strategy and whether it is effective in the medium and long term must be explored. Therefore, this paper introduces the subsidy policy, improves

environmental awareness and other ...

The uncertainties in a sustainable supply of battery minerals, environmental, social and governance complexities, and geopolitical tensions throughout the whole battery value chain have shaped the global and regional concerns over the success of transport decarbonization. Here, focusing on the entire value chain of electric vehicle batteries ...

Worldwide, yearly China and the U.S.A. are the major two countries that produce the most CO₂ emissions from road transportation (Mustapa and Bekhet, 2016). However, China's emissions per capita are significantly lower about 557.3 kg CO₂ /capita than the U.S.A 4486 kg CO₂ /capitation. Whereas Canada's 4120 kg CO₂ /per capita, Saudi Arabia's 3961 ...

Lithium-ion batteries (LIBs) are essential in the low-carbon energy transition. However, the social consequences of LIBs throughout the entire lifecycle have been insufficiently explored in the literature. To address this gap, this study conducted a comprehensive review ...

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