

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.

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.

How a power battery affects the development of NEVs?

As one of the core technologies of NEVs, power battery accounts for over 30% of the cost of NEVs, directly determines the development level and direction of NEVs. In 2020, the installed capacity of NEV batteries in China reached 63.3 GWh, and the market size reached 61.184 billion RMB, gaining support from many governments.

Do emotions affect the evolution of the new energy vehicle battery recycling system?

Emotions, an irrational factor, can significantly change the stability of the evolution of the new energy vehicle battery recycling system by influencing the behavioral decisions of decision makers, and heterogeneous emotions have different effects on the evolution of the system.

Does the price of raw materials affect the cost of NEV batteries?

From what is mentioned above, it is easy to see that the price of raw materials in the upstream industries of the battery industry directly affects the cost of NEV batteries, which in turn affects the cost of NEVs and the selling price of NEVs, and ultimately has an impact on whether consumers are willing to buy NEVs.

How will a lack of policies affect the NEV battery industry?

As a core component of NEVs, the battery itself is market-driven by policies, and the lack of continuity in supporting policies will leave the NEV battery industry without supporting policies in the long run, which may slow down the development of the whole industry.

The article explores new battery technologies utilizing innovative electrode and electrolyte materials, their application domains, and technological limitations. In conclusion, a discussion and...

In order to answer these questions, this paper constructs a two-party game model based on a closed-loop supply chain perspective, analyzes the behavioral decisions of ...

Here, an electrochemical-thermal coupled model is developed as a digital twin model for rational design of ultrahigh-power LiFePO₄/graphite LIBs. The model can accurately predict the batteries' performance and help to predetermine the optimal parameters to achieve an ultrahigh power capability. After model-guided optimization, the battery shows a high energy density of ...

To efficiently utilize renewable yet intermittent energy sources such as solar and wind power, there is a critical need for large-scale energy storage systems (EES) with high electrochemical performance. While lithium ...

Using used batteries for residential energy storage can effectively reduce carbon emissions and promote a rational energy layout compared to new batteries [47, 48]. Used ...

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It can be seen that the moderate optimism of new energy vehicle manufacturers and the rationality of new energy vehicle retailers help new energy vehicle battery recycling, ...

For example, in the Implementation Measures for Encouraging the Purchase and Use of New Energy Vehicles, the Shanghai government mentioned that "new energy vehicle manufacturers should fulfill relevant commitments and responsibilities, abide by relevant national and local regulations, and connect relevant data, such as the codes of vehicles and power ...

In order to answer these questions, this paper constructs a two-party game model based on a closed-loop supply chain perspective, analyzes the behavioral decisions of manufacturers and retailers in the process of new energy battery recycling, explores the key parameters affecting new energy battery recycling, and then provides practical ...

A new energy battery is also one of the future development goals of mankind, it is an energy-saving battery that can reduce the pollution of the environment. But poor charging speed and poor continuity are its weaknesses. However, it does not stop it from gradually replacing the original traditional battery and becoming the mainstream battery in the future. Nanomaterials play a ...

In general, energy density is a key component in battery development, and scientists are constantly developing new methods and technologies to make existing batteries more energy proficient and safe. This will make it possible to design energy storage devices that are more powerful and lighter for a range of applications. When

there is an ...

To efficiently utilize renewable yet intermittent energy sources such as solar and wind power, there is a critical need for large-scale energy storage systems (EES) with high electrochemical performance. While lithium-ion batteries (LIBs) have been successfully used for EES, the surging demand and price, coupled with limited supply ...

Using used batteries for residential energy storage can effectively reduce carbon emissions and promote a rational energy layout compared to new batteries [47, 48]. Used batteries have great potential to open up new markets and reduce environmental impacts, with secondary battery laddering seen as a long-term strategy to effectively reduce the ...

6 ???· Potentially safer, more energy dense, and perhaps eventually cheaper than today's batteries, these devices promise leaps in performance and new applications in an increasingly ...

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