

# Tram learning to make energy storage batteries

Can a tram's driving strategy reduce energy consumption and extend battery life?

However, trams may face expensive battery replacement costs due to battery degradation. Therefore, this paper proposes a multi-objective optimization method for the tram's driving strategy to reduce operational energy consumption and extend battery life. The method describes the optimization problem as second-order cone programming (SOCP).

Why are lithium batteries used in energy storage trams?

Compared with the traditional overhead contact grid or third-rail power supply, energy storage trams equipped with lithium batteries have been developed rapidly because of their advantages of flexible railway laying and high regenerative braking energy utilization.

What does a battery pack do on a tram?

As the sole power source of the tram, the battery pack can supply power to the traction system and absorb the regenerative braking energy during electric braking to recharge the energy storage system. The traction system mainly consists of the inverter, traction motor, gearbox, and axle.

How do energy trams work?

At present, new energy trams mostly use an on-board energy storage power supply method, and by using a single energy storage component such as batteries, or supercapacitors.

Why are energy storage trams important?

The modern tram system is an essential part of urban public transportation, and it has been developed considerably worldwide in recent years. With the advantages of safety, low cost, and friendliness to the urban landscape, energy storage trams have gradually become an important method to relieve the pressure of public transportation.

How to optimize the driving strategy for a tram?

In recent years, optimizing the driving strategy for the tram has become a research hotspot. However, the existing driving strategy optimization often focuses only on energy saving while ignoring the possible adverse effects of the driving strategy on the battery life.

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Which energy storage system is best for a tram? Battery energy storage system with good energy density and

## **Tram learning to make energy storage batteries**

power density characteristics is currently the preferred choice for on-board energy ...

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