

Bidirectional charging of energy storage containers for airports





Overview

Flightpath 2050, the European Commission's vision for aviation, requires that the aviation industry achieves a 75 % reduction in CO2 emissions per passenger mile and airports become emission-free by 2050.

Can unidirectional and bidirectional charging be integrated into a hybrid energy storage system?

In the case of bidirectional charging, EVs can even function as mobile, flexible storage systems that can be integrated into the grid. This paper introduces a novel testing environment that integrates unidirectional and bidirectional charging infrastructures into an existing hybrid energy storage system.

Can bidirectional wireless charging be implemented in commercial airport?

In this paper, the bidirectional wireless charging facilities are considered to be implemented in the airfield of the commercial airport for recharging the electric shuttle buses. The proposed system will combine the airport ground-side transport network with the power grid network towards a sustainable aviation target.

Why is bidirectional wireless charging important?

This is because bidirectional wireless charging allows energy to be transferred between the vehicle and the grid, enabling the vehicle to serve as a mobile energy storage system. This feature can help to balance the power grid and provide additional flexibility and resilience in managing the electric power system. Fig. 8.

Can a stationary hybrid storage system provide unidirectional and bidirectional charging infrastructures?

This work presents a combination of a stationary hybrid storage system with unidirectional and bidirectional charging infrastructures for electric vehicles.



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