

Beijing new energy battery cabinet structure

Are battery swapping stations feasible in Beijing?

Policy suggestions are made for battery swapping station development in Beijing. To enhance the energy saving, emission reduction, and economic feasibility of battery swapping stations (BSSs), this paper develops a BSS configuration and operation model with three charging strategies for Beijing.

Do taxis use a battery swapping network in China?

This research uses the city of Beijing in China as a case study because of its plan to develop a large battery swapping network, including 200 BSSs [7]. Because taxis are likely to be early adopters of battery swapping and many existing BSSs are dedicated to serve electric taxis in Beijing, we modeled taxis as the only BSS users in this study.

Do we consider battery degradation cost in a battery swapping station model?

Battery swapping is still in its infancy, and as a result, not much data is available to support battery degradation modeling at the swapping station level. Thus, we did not consider battery degradation cost in this model. The specific system dynamics flow of this module is shown in Fig.

How are battery-swapping demands distributed?

The model assumes that the distribution of battery-swapping demands at each BSS is the same; all the reserve batteries are fully charged before the first operating hour of the BSSs; and the number of generator sets is according to the day-ahead scheduling.

Can battery cost reduction reduce BSS life-cycle costs?

Battery cost reduction can potentially decrease BSS life-cycle costs significantly, but it will take time for battery technology to develop. In the short term, business model innovation, such as requiring taxi companies to share the battery costs, can help increase BSSs' income.

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