

THE DIFFERENCE BETWEEN GRID-BASED ENERGY STORAGE AND INDEPENDENT SHARED ENERGY STORAGE



Does energy storage play a significant role in smart grids and energy systems? Abstract: Energy storage (ES) plays a significant role in modern smart grids and energy systems. To facilitate and improve the utilization of ES, appropriate system design and operational strategies should be adopted.



Can shared energy storage and transactive energy be used in smart grids? The shared economy as an emerging commercial model has attracted much attention and is widely applied in smart grids. This paper is focused on the state of the art of shared energy storage and transactive energy (TE) which are the typical applications of shared economy in smart grids.



How is the sharing economy applied in smart grids? In recent years, the sharing economy has been initially applied in smart grids to address the problems caused by increasing renewable energy. The typical applications include: Shared energy storage (Kalathil et al., 2019): it is the application of the sharing economy in the field of energy storage.



Does shared energy storage reduce grid usage? The utilization results show that when shared energy storage is used the reduction in grid usage to meet demand and the increase in discharging storage to meet demand results in the cost reductions in Fig. 7.



Is shared energy storage better than individual energy storage? The results of the numerical experiments show that shared energy storage has economic and operational benefits over individual energy storage. Specifically, cost savings between 2.53% and 13.82% and energy storage utilization improvements between 3.71% and 38.98% exist when using shared energy storage instead of individual energy storage.

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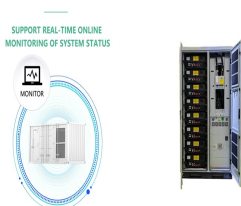
What is shared energy storage? Shared energy storage is generally applied in the supply, network, and demand sides of power systems. The shared energy storage at the supply side is mainly utilized for renewable energy consumption (Zhang et al., 2021). The proportion of renewable energy is greatly increasing due to the continuous promotion of "carbon peaking and neutrality".



Electrochemical energy storage has been widely applied in IES to solve the power imbalance in a short-term scale since it has the excellent performance on flexibility, ???



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Shared energy storage is a novel energy sharing method. Based on the difference between distributed energy storage and centralized energy storage, the shared energy storage ???



Shared energy storage (Kalathil et al., 2019): it is the application of the sharing economy in the field of energy storage. Energy storage has the spatial and temporal transfer ???

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For all investors in independent shared energy storage, the profitability of the energy storage's business model is closely related to the actual revenue in real projects. a specific penalty ???