

Energy storage aggregation operators

What is an aggregator in a power system?

An aggregator is a grouping of agents in a power system (i.e., consumers, producers, prosumers or any mix thereof) to act as a single entity when engaging in power system markets (both wholesale and retail) or selling services to the operator (MIT, 2016).

Will energy storage provide flexibility and regulation services in future power systems?

Abstract: With the growing penetration of renewable energy and gradual retirement of thermal generators, energy storage is expected to provide flexibility and regulation services in future power systems. Battery is a major form of energy storage at the demand side.

How can aggregators benefit the energy industry?

Aggregators can provide financial benefits to owners of distributed energy resources by maintaining demand and supply balance at a cost of USD 70 to US 100 per kW (Enbala, n.d.). By using aggregators to provide demand-side management and load shifting, investments in transmission and distribution grid reinforcements also could be minimised.

How does aggregation work?

The aggregation method proposed in this paper utilizes sensitivity functions and yields accurate results without requiring complete system information. This approach reduces the system's communication demands, enabling the VPP to aggregate effectively without relying on network topology information.

What is the research and development of energy storage systems?

The research and development of technologies for energy storage systems is a broad and dynamic field, ranging from pumped storage hydropower, thermal, pressure storage, chemical energy storage, electrochemical, etc. The latest innovations and future trends in this area can be explored in depth in the following work.

What role do aggregators play in electricity markets?

Regarding electricity markets, aggregators also have enormous potential, ... They will be a major player in these transactions, ultimately representing the one-way paradigm shift and allowing prosumers to fit into larger roles in the electrical environment than just passive consumers.



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