

# What does centralized energy storage mean

Does centralized coordination affect energy storage savings?

Small-scale energy storage systems can be centrally coordinated by "aggregation" to offer different services to the grid, such as operational flexibility and peak shaving. This paper shows how centralized coordination vs. distributed operation of residential electricity storage (home batteries) could affect the savings of owners.

What is energy storage (EES)?

The terms EES, "electricity storage", "energy storage", and "storage" are interchangeably used in this paper for referring to technologies that can store electricity and discharge it back at a reasonable response time. Examples of such technologies include secondary electro-chemical batteries, flow batteries, pumped hydropower storage (PHS), etc.

What are the benefits of centralized energy scheduling?

The savings are relative to the base case: No technology, static tariff, and No Progression scenario. Under centralized scheduling of the consumer's energy technologies in the electricity system, the typical electricity consumer gains substantially larger annual savings compared with the decentralized scheduling.

What is distributed energy storage?

Distributed energy storage is a solution for increasing self-consumption of variable renewable energy such as solar and wind energy at the end user site. Small-scale energy storage systems can be centrally coordinated by "aggregation" to offer different services to the grid, such as operational flexibility and peak shaving.

Why is centralized scheduling better than decentralized scheduling?

Under centralized scheduling of the consumer's energy technologies in the electricity system, the typical electricity consumer gains substantially larger annual savings compared with the decentralized scheduling. This is valid for all combinations of technologies, tariffs and future energy scenarios.

Why is centralized battery coordination important?

Centralized coordination offers greater savings to prosumers, especially, under time of use tariffs. Value of home batteries is dependent on the need for flexibility in the energy system in long term. Consumers without battery benefit from the impact of "storage coordination" on power prices, more than battery owners themselves.



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