

Energy storage on the power supply side

What is energy storage based on?

In this study energy storage is mainly used to balance the output of wind and PV, so it is assumed that energy storage is only deployed on the supply side of renewable power, only electrochemical energy storage based on lithium batteries is considered.

Why is energy storage necessary?

Energy storage is necessary because the demand side in a power utility is characterised by hourly, daily and seasonal variations, whereas the installed capacity of the supply side is fixed.

How does energy storage work?

In this case, the energy storage side connects the source and load ends, which needs to fully meet the demand for output storage on the power side and provide enough electricity to the load side, so a large enough energy storage capacity configuration is a must.

What is grid energy storage?

Grid energy storage, also known as large-scale energy storage, is a set of technologies connected to the electrical power grid that store energy for later use. These systems help balance supply and demand by storing excess electricity from variable renewables such as solar and inflexible sources like nuclear power, releasing it when needed.

Why is storage important in a power system?

In an electricity power system based on thermal, nuclear, hydro and renewable generation, storage will find a wide field of application and may perform various duties, which must be taken into consideration in order to gain the largest possible advantage in the supply side optimisation.

How can energy storage be used in a power system?

There are three possibilities for the use of storage in the power system: compulsory regime; optimal regime; and reserve regime. A compulsory regime arises when the planned load curve coincides with the rated load curve; there is a necessity for the energy storage unit to ensure power balance in the system.

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