

# Cost of hydrogen energy storage and lithium battery energy storage

Are battery electricity storage systems a good investment?

This study shows that battery electricity storage systems offer enormous deployment and cost-reduction potential. By 2030, total installed costs could fall between 50% and 60% (and battery cell costs by even more), driven by optimisation of manufacturing facilities, combined with better combinations and reduced use of materials.

How much does a hybrid energy storage system cost?

Compared to Just LIB or Just H<sub>2</sub>, the hybrid system provided significant cost reductions (see Fig. 5). Relying on only LIB for energy storage (\$74.8 million) was more expensive than relying on only H<sub>2</sub> (\$59.2 million), and significantly more expensive than the hybrid case (\$43.3 million).

How long does an energy storage system last?

The 2020 Cost and Performance Assessment analyzed energy storage systems from 2 to 10 hours. The 2022 Cost and Performance Assessment analyzes storage system at additional 24- and 100-hour durations.

How has battery storage changed the world?

Wider deployment and the commercialisation of new battery storage technologies has led to rapid cost reductions, notably for lithium-ion batteries, but also for high-temperature sodium-sulphur ("NAS") and so-called "flow" batteries. In Germany, for example, small-scale household Li-ion battery costs have fallen by over 60% since late 2014.

What is the difference between lib and H<sub>2</sub> Energy Storage?

Comparing the two energy storage subsystems, substantially more of the load is met by LIB than H<sub>2</sub> (88% vs. 12%), despite the LIB subsystem accounting for a slightly smaller portion of the microgrid cost (see Table 3).

Are lithium-ion batteries a viable energy storage solution for renewable microgrids?

Lithium-ion batteries (LIBs) and hydrogen (H<sub>2</sub>) are promising technologies for short- and long-duration energy storage, respectively. A hybrid LIB-H<sub>2</sub> energy storage system could thus offer a more cost-effective and reliable solution to balancing demand in renewable microgrids.



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