

# Basic Assumptions of Energy Storage System Cost

Which energy storage technologies are included in the 2020 cost and performance assessment?

The 2020 Cost and Performance Assessment provided installed costs for six energy storage technologies: lithium-ion (Li-ion) batteries, lead-acid batteries, vanadium redox flow batteries, pumped storage hydro, compressed-air energy storage, and hydrogen energy storage.

How do we predict energy storage cost based on experience rates?

Schmidt et al. established an experience curve data set and analyzed and predicted the energy storage cost based on experience rates by analyzing the cumulative installed nominal capacity and cumulative investment, among others.

How important is understanding energy storage capabilities?

Understanding the capabilities of each energy storage is as important as understanding its costs.

How to calculate energy storage investment cost?

In this article, the investment cost of an energy storage system that can be put into commercial use is composed of the power component investment cost, energy storage media investment cost, EPC cost, and BOP cost. The cost of the investment is calculated by the following equation:  $CAPEX = C_P \cdot Cap + C_E \cdot Cap \cdot Dur + C_{EPC} + C_{BOP}$

What assumptions were made when determining the cost and performance of Technology?

The following assumptions were made when determining the estimates for the cost and performance of each type of technology in the analysis: For each technology, unit energy and power costs were obtained from literature and/or vendors.

Is thermal energy storage a cost-effective choice?

Sensitivity analysis reveals the possible impact on economic performance under conditions of near-future technological progress. The application analysis reveals that battery energy storage is the most cost-effective choice for durations of  $\leq 2$  h, while thermal energy storage is competitive for durations of 2.3-8 h.

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Web: <https://publishers-right.eu/contact-us/>

Email: [energystorage2000@gmail.com](mailto:energystorage2000@gmail.com)

WhatsApp: 8613816583346

