# Nrel battery pack cost

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The 2024 ATB represents cost and performance for battery storage with durations of 2, 4, 6, 8, and 10 hours. It represents lithium-ion batteries (LIBs)--primarily those with nickel manganese cobalt (NMC) and lithium iron phosphate (LFP) chemistries--only at this time, with LFP becoming the primary chemistry for stationary storage starting in ...

The 2022 ATB represents cost and performance for battery storage across a range of durations (2-10 hours). It represents lithium-ion batteries (LIBs)--focused primarily on nickel manganese cobalt (NMC) and lithium iron phosphate (LFP) chemistries--only at this time, with LFP becoming the primary chemistry for stationary storage starting in ...

This report updates those cost projections with data published in 2021, 2022, and early 2023. The projections in this work focus on utility-scale lithium-ion battery systems for use in capacity expansion models. These projections form the inputs for battery storage in the Annual Technology Baseline (NREL 2022).

The 2023 ATB represents cost and performance for battery storage across a range of durations (2-10 hours). It represents lithium-ion batteries (LIBs) - primarily those with nickel manganese cobalt (NMC) and lithium iron phosphate (LFP) chemistries - only at this time, with LFP becoming the primary chemistry for stationary storage starting in ...

However, the NREL storage cost report (Fu et al., 2018) does detail a breakdown of capital costs with the actual battery pack being the largest component, but significant other costs are included. This breakdown is different if the battery is part of a hybrid system with solar PV.

SAM"s default battery cost values were chosen to be roughly representative of battery costs for a project in the United States to help you get started using the model. You should review and change those costs for your own analysis.

Battery cost and performance projections are based on a literaturereview of 25 sources published between 2016 and 2019, as described byCole and Frazier(2019)Cole, Wesley, & Frazier, A. Will. (2019). Cost Projections for Utility-Scale Battery Storage (No. NREL/TP-6A20-73222). Retrieved from National Renewable Energy Laboratory website: https://Click to jump to reference.">(2019). Three different projections from 2017 to 2050 were developed forscenario modeling based on this literature:

ATB CAPEX, O& M, and round-trip efficiency assumptions for the BaseYear and future projections through 2050 for High, Mid, and Lowtechnology cost scenarios are used to develop the NREL StandardScenarios using the ReEDSmodel. See ATB and Standard Scenarios.

For more information on the power vs. energy cost breakdown, see Coleand Frazier(2019)Cole, Wesley, & Frazier, A. Will. (2019). Cost Projections for Utility-Scale Battery Storage (No. NREL/TP-6A20-73222). Retrieved from National Renewable Energy Laboratory website: https://Click to jump to reference.">(2019).

Future projections are taken from Cole and Frazier (2019)Cole, Wesley, & Frazier, A. Will. (2019). Cost Projections for Utility-Scale Battery Storage (No. NREL/TP-6A20-73222). Retrieved from National Renewable Energy Laboratory website: https://Click to jump to reference.">(2019), which generally used the median of published cost estimates to develop a Mid Technology Cost Scenario and the minimum values to develop a Low Technology Cost Scenario. Analysts" judgment was used to select the long-term projections to 2050 from a sparse data set.

Round-trip efficiency is the ratio of useful energy output to useful energy input. Cole and Frazier (2019)Cole, Wesley, & Frazier, A. Will. (2019). Cost Projections for Utility-Scale Battery Storage (No. NREL/TP-6A20-73222). Retrieved from National Renewable Energy Laboratory website: https://Click to jump to reference.">(2019) identified 85% as a representative round-trip efficiency, and the ATB adopts this value.