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In this work, the battery performance metrics of Coulombic efficiency (CE) and capacity retention (CR) are derived in terms of cycling current and side-reaction currents at each electrode.

Capacity Retention in Lithium-ion Batteries

In simple terms, capacity retention refers to the ability of a battery to maintain its storage capacity over time and through various charge-discharge cycles. A



[MIT Energy Initiative conference spotlights research](#)

At the MIT Energy Initiative's Annual Research Conference, industry leaders agreed collaboration is key to advancing critical technologies amidst a changing energy landscape.

[Energy](#) , [MIT News](#) , [Massachusetts Institute of Technology](#)

Massachusetts Clean Energy Center CEO MBA '12 Emily Reichert highlights the state government's unique approach to fostering and keeping clean energy innovation.



[Study: Fusion energy could play a major role in the global response to](#)

Investigators in the MIT Energy Initiative and the MIT Plasma Science and Fusion Center have found that - depending on its future cost and performance - fusion energy has the potential

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In addition, as shown in Fig. 3, after cycling 50 times, no obvious attenuation of charge/discharge capacity can be observed from battery A with an energy retention rate of 99.9% maintaining, while



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A look at how AI can be used to help support the clean energy transition by helping to manage power grid operations, plan infrastructure investments, guide the development of novel

[New facility to accelerate materials solutions for fusion energy](#)

The new Schmidt Laboratory for Materials in Nuclear Technologies (LMNT) at the MIT Plasma Science and Fusion Center accelerates fusion materials testing using cyclotron proton beam



Making clean energy investments more successful

New research emphasizes the importance of well-validated models and forecasting tools in evaluating choices for investments in clean energy technologies and policies by governments and

Explained: Generative AI's environmental impact

MIT News explores the environmental and sustainability implications of generative AI technologies and applications.



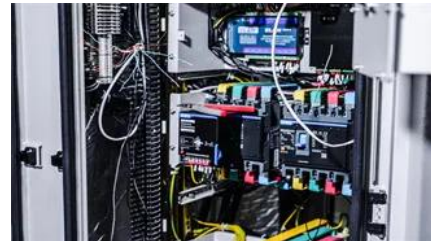
[Half-Cell Cumulative Efficiency Forecasts Full-Cell Capacity Retention](#)



Retained Capacity

Capacity retention is a measure of the ability of a battery to retain stored energy during an extended open-circuit rest period. Retained capacity is a function of the length of the rest period, the

Finally, we demonstrate the validity of these analyses for both half-cell and full-cell data by showing that half-cell cumulative efficiency provides a semi-quantitative prediction of full-cell



Enhance Energy Retention in Semi-Solid Batteries

The primary technical objectives for enhancing energy retention in semi-solid batteries encompass multiple interconnected goals. First, minimizing self-discharge rates to achieve retention

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This design enables the realization of high-capacity (14 Ah) Li⁺Ni95 pouch cells, which achieve a specific energy of 606.8 Wh kg⁻¹ while maintaining 92.9% capacity retention after 75



[Coulombic efficiency and capacity retention are not universal](#)

Coulombic efficiency and capacity retention are not universal descriptors of cell aging Marco-Tulio F. Rodrigues Chemical Sciences and Engineering Division, Argonne National Laboratory, Lemont, IL,

[What do Coulombic efficiency and capacity retention truly](#)

In this work, the battery performance metrics of Coulombic efficiency (CE) and capacity retention (CR) are derived in terms of cycling current and side-reaction currents at each electrode.



[3 Cell Standards for Temperature, Retention, Recovery](#)

What is the difference between energy retention rate and energy recovery rate? Energy retention rate measures a battery's ability to hold onto its charge during

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MIT engineers developed a membrane that filters the components of crude oil by their molecular size, an advance that could dramatically reduce the amount of energy needed for crude oil



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