

Renewable Energy Storage



Experts project that renewable energy will be the fastest-growing source of energy through 2050. However, delivering the full benefits of sustainable energy generation requires support from sustainable energy storage solutions. Highly sustainable, domestically made lead batteries help achieve U.S. environmental and economic low-carbon energy goals, and accelerate energy independence.

Lead Batteries Maximize Renewables

Renewable energy sources like wind and solar don't work without reliable energy storage. Essential lead batteries facilitate this storage in multiple ways:

- **Regulate Variability:** Lead batteries smooth out power variability and prevent disruptions. They store excess energy when demand is low and release it as demand increases.
- **Stabilize the Grid:** Lead batteries bolster the grid, so utilities can avoid replacing or making expensive upgrades to transmission lines designed to send baseload power out from central power stations.
- **Bridge the Transition:** As the move to electrification accelerates, the storage capacity of lead batteries helps utilities use a mix of conventional and renewable energy.

- **Reach Remote Areas:** Lead batteries store and optimize renewable energy for basic conveniences and medical emergencies in remote and rural areas with no electricity.

A Sustainability Role Model

The sustainability profile of lead batteries adds to the sustainability of renewable energy. The three components of a lead battery are recyclable. That reduces manufacturers' reliance on foreign countries for new raw materials.

- **Over 99%** of spent lead batteries in the U.S. are recycled. Estimates show fewer than 15% of lithium-ion batteries in similar uses are recycled.
- A typical new lead battery is comprised of **80%** recycled material.
- The lead in lead batteries can be **recycled infinitely**, with no loss of performance.

“The lead battery industry is primed to be at the forefront of the energy storage landscape.”

— Mike Judd, Chief Executive Officer and President, Stryten Energy





Public Service Company of New Mexico has a solar energy farm that uses lead batteries to effectively store solar input and regulate energy distribution.

Cost and Performance Leader

Lead batteries are a proven, venerable technology, with significant recent innovation. Those scientific breakthroughs have dramatically increased lead batteries' technical performance, further making them a reliable, affordable energy storage solution.

- + Once installed, lead batteries can be **one-third the cost** of similar energy storage systems.
- + A comparable analysis of lithium-ion and lead battery systems, including decommissioning, showed lead batteries had an **end-of-life net credit** of \$33 per kwh versus lithium's \$91 cost per kwh.
- + **Up to 20 years** A lead battery's demonstrated lifespan.
- + **100%** By 2030, the cycle life of current lead battery energy storage systems is expected to double.
- + **120°F to -40°F** When used properly, lead batteries can capably withstand extreme temperatures.

Delivering Safety

Lead batteries have a long history of being the most reliable, safe and trusted technology available for energy storage. Unlike newer battery technologies, lead batteries have more than a century of safe use.

- + The **most widely used electricity storage battery on earth**, comprising 50% of the worldwide rechargeable battery market share.
- + A **very low risk of fire or explosion** resulting from overcharge, heat exposure, mechanical damage, and short-circuiting.
- + The **preferred choice** for a safer installation near schools, hospitals, apartment buildings and residential areas.



Lead batteries are one of the most **environmentally sustainable** battery technologies, due to the circular model of the industry.

BATTERY COUNCIL INTERNATIONAL Formed in 1924, BCI joins together battery manufacturers and recyclers, marketers and retailers, suppliers of raw materials and equipment, and battery distributors from across North America and around the world. BCI members are committed to responsible manufacturing and recycling processes, and serve as a unified voice for environmental, health and safety stewardship.

Learn more at [BatteryCouncil.org](https://www.BatteryCouncil.org)

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ESSENTIAL ENERGY EVERYDAY