



Sustainable

Lead batteries are key to a cleaner, greener future. They are the most environmentally sustainable battery technology and a leader in renewable energy storage solutions.

Environmentally Sound

From design through recycling and reuse, the circular economy of lead batteries greatly reduces their environmental footprint.

- + An amazing **99 percent** of lead batteries are recycled,¹ making them the most recycled consumer product in the U.S.² (Less than 5% of lithium-ion batteries are collected and recycled.³)
- + Lead from lead batteries **can be recycled infinitely**, with no loss of performance.
- + Modern, closed-loop recycling in the U.S. **keeps more than 129 million lead batteries from landfills** each year.¹
- + Lead batteries rank among the **top five consumer product categories in sustainability**.⁴

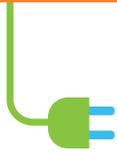
Essential in Green Technologies

Lead battery technology continually evolves to meet the needs of innovative applications in transportation and energy storage.

- + Lead batteries are **used worldwide in virtually every hybrid and electric vehicle**. They are an integral part of start-stop and micro-hybrid engine systems, which lower fuel consumption by up to 10 percent.⁵
- + Start-stop technology utilizing lead batteries is **eliminating 4.5 million tons of greenhouse gas emissions** annually in the U.S.⁶
- + A large number of **solar and wind facilities use lead batteries to regulate variability**. The batteries store excess energy when demand is low and release it when demand is high.



A new lead battery is typically comprised of **more than 80 percent recycled material**.⁴



In places with no access to a traditional power grid, **lead batteries store energy** from renewable energy sources to power solar lighting systems, solar home systems and mini-grids.

Electricity: A Lifeline to No-Access Areas

Lead batteries are critical in closing the gap between those who have access to electricity and those who do not, especially in remote geographic areas or overburdened cities.

- + Despite progress in global electrification, **840 million people still have no access to electricity.**⁷
- + **More than one in two people (573 million)** in sub-Saharan Africa, lack access to electricity.⁷
- + **Lead batteries are key** to powering **off-grid solutions that are essential** for cleaner cooking, refrigeration, education and greater connectivity.

Vital Power: Advanced Lead Batteries



Sustainable



Innovative



Essential



Safe

Learn more at EssentialEnergyEveryday.com



Essential Energy Everyday exists to increase awareness of the critical importance of lead batteries in powering our daily lives. We encourage continued investment in sustainable lead battery technology to store and provide energy on demand. Our initiative is supported by the two global trade associations that represent the lead battery and lead industries, **Battery Council International** and the **International Lead Association**.

¹ National Recycling Rate Study, Battery Council International, 2019

² Advancing Sustainable Materials Management: 2015 Fact Sheet, Environmental Protection Agency, July 2018

³ Vehicle Technologies Office's Research Plan to Reduce, Recycle, and Recover Critical Materials in Lithium-Ion Batteries, U.S. Department of Energy, June 2019

⁴ 2017 Impact Report, The Sustainability Consortium, 2017

⁵ "Environmental Impact and Life Cycle Assessment of Lead Battery and Architectural Sheet Production," *The International Journal of Life Cycle Assessment*, 2016

⁶ Consortium for Battery Innovation, 2019

⁷ Tracking SDG 7: The Energy Progress Report 2019, Joint Analysis: IEA, IRENA, UNSD, WB, WHO, 2019