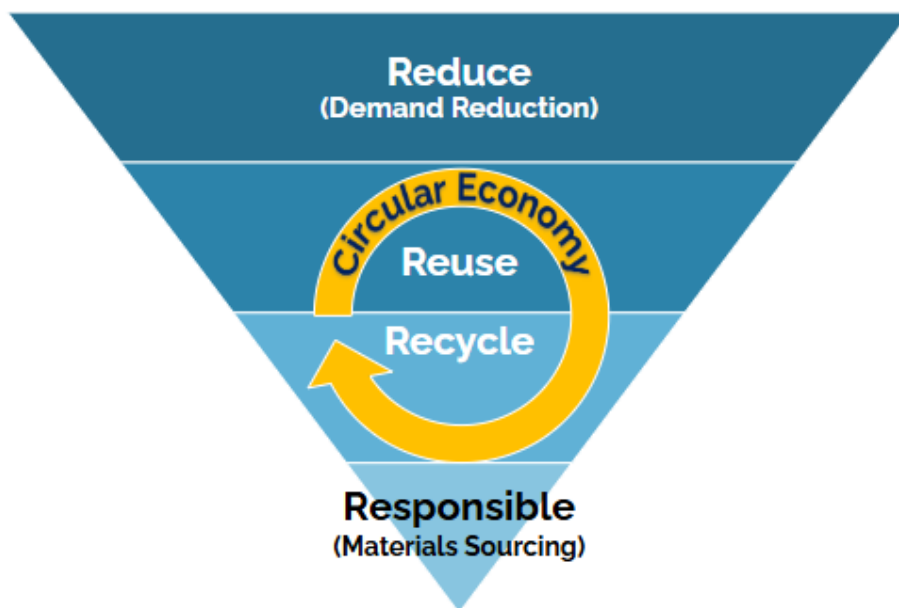


Powering the Future: A Guide to Creating an Ethical and Sustainable Battery Supply Chain

Every time you use a laptop or smartphone, you're already relying on the minerals that will power the EV transition. Batteries offer an enormous opportunity for cleaner transportation and a more resilient electric grid – but with [116 million EVs](#) on the road globally in 2026, demand for battery materials will surge. Unlike fossil fuels, battery minerals can be reused and recycled, creating the foundation for a domestic circular economy. Plug In America's position on battery minerals comes down to four steps: **Reduce, Reuse, Recycle, and Responsible Sourcing.**



Reduce: The most effective first step is reducing demand. Smaller, more efficient vehicles require fewer minerals: [one report](#) found that limiting EV battery size could cut lithium demand by up to 42%. Widespread low-level charging infrastructure reduces pressure to build ever-larger batteries. Public transit, car-sharing, and micro-mobility offer less resource-intensive alternatives. Emerging technologies like solid-state batteries and improved energy density will further reduce mineral requirements.

Reuse: EV batteries typically retain around [80% of their original capacity](#) after 8–12 years in a vehicle. These retired batteries are well-suited for second-life use as Battery Energy Storage

Systems (BESS), supporting renewable energy storage, grid resilience, and backup power for homes and businesses. Real-world applications already include [peak shaving](#), [grid support](#), [grid resiliency](#), and [data center load management](#). As the EV market grows, a cheap, plentiful supply of retired batteries will create cost-effective storage opportunities worldwide.

Recycle: Once batteries have completed a second life, the minerals inside can be recycled [almost indefinitely](#) with no loss in performance. [Research](#) projects that by 2050, recycled material could supply 45–52% of cobalt demand, 40–46% of nickel, and 22–27% of lithium for EVs — significantly reducing reliance on new mining and buffering against global price volatility. Tools like the [EU Battery Passport](#) can track a battery's full lifecycle — manufacturing history, materials, provenance, and more — improving transparency and decision-making across the supply chain.

Responsible Sourcing: Mining has a long history of environmental damage and social injustice. While there is no such thing as "sustainable mining," emerging practices can reduce its harms. U.S. mining law hasn't been updated since 1872, and reform is long overdue. Key principles include strong environmental protections and meaningful engagement with affected communities, particularly Indigenous peoples. In the absence of stronger regulation, Plug In America recommends the [Initiative for Responsible Mining Assurance](#) (IRMA) standards as a tool for holding mining companies accountable on human rights, labor, and environmental grounds.

Electric vehicles are a key component of a sustainable, equitable transportation future. Plug In America supports the following policies to minimize the environmental and social impacts of electrification:

- **Require EV battery recycling** through national policy, and support secondary sourcing and local recycling standards.
- **Implement a Global Battery Passport** to track battery lifecycles, inform policy, and keep extracted materials in circulation domestically.
- **Adopt extended producer responsibility**, placing end-of-life product management on producers rather than consumers, thereby incentivizing sustainable design and reflecting true environmental costs.
- **Reform mining laws** through legislation such as the [Clean Energy Minerals Reform Act](#), establishing mandatory best-practice requirements for mining.