

Batteries: THE FOUNDATION OF AMERICAN POWER



Batteries: THE BUILDING BLOCKS OF AMERICAN POWER

Batteries power the technologies of the 21st Century. Consumer electronics, modes of transportation, medical devices, critical defense systems, satellites, AI data centers, and the electricity grid itself all depend on electric energy stored and delivered by batteries. And demand for these technologies is only set to grow.



BATTERIES BY THE NUMBERS

\$16.9 BILLION

U.S. Battery Market size in 2023, which is expected to grow five-fold in coming years

\$400 BILLION

Estimated value of the global battery supply chain marketplace by 2030

3.5 MILLION

U.S. workers needed in the battery value chain over the next decade

BENEFITS OF BATTERIES:



AMERICAN INVESTMENT

U.S. companies are working hard to lead battery technology development, with \$140 billion invested in battery supply chain manufacturing across the country.



ENERGY DOMINANCE

Batteries ensure the stability of the electricity grid to support growing demand from data centers and enabling transportation by road, rail, air, and water.



NATIONAL SECURITY

Batteries power critical electronic equipment used by the military, including drones, missiles, satellites, radios, night vision goggles, and other infantry gear.



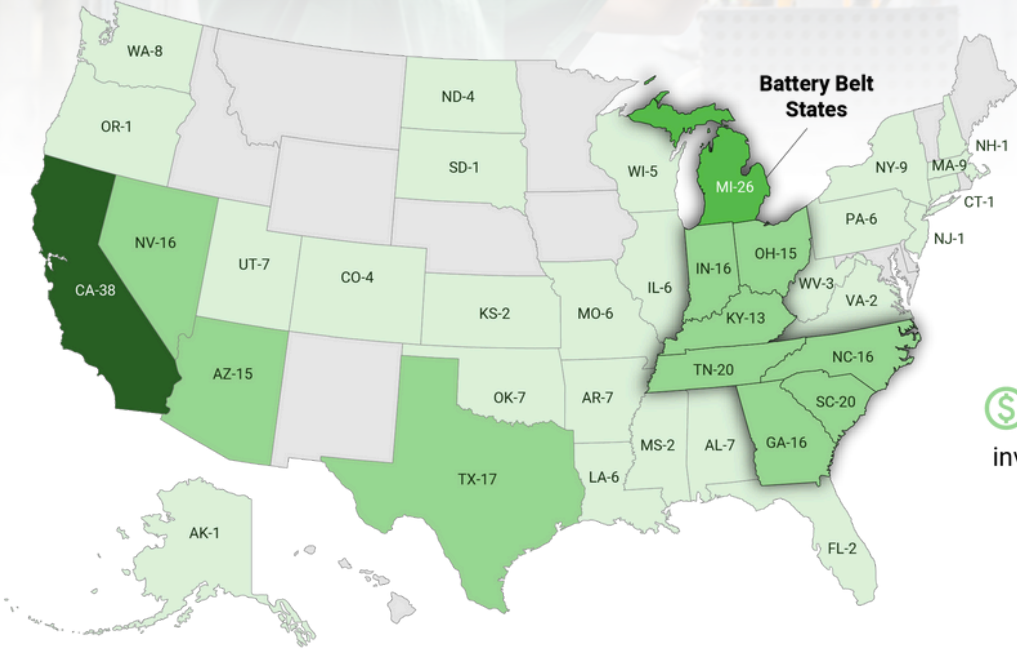
About NAATBatt

The Trade Association for Advanced Battery Technology in North America

NAATBatt promotes the development and commercialization of battery technologies and the revitalization of advanced battery manufacturing in North America. With nearly 400 member companies, NAATBatt represents today's battery technology innovators and North American market leaders.

Batteries: POWERING AMERICA'S 21st CENTURY ECONOMY

U.S. innovators developed lithium-ion battery technology. But where it once led, the U.S. now lags behind China and other nations in the manufacturing of critical battery materials and advanced battery technologies. This lag is both a danger and an opportunity for the U.S. to recharge and scale production of one of the 21st century's defining technologies.



Data based on U.S. Department of Energy's Announced Investments in American-Made Energy Map, 2024

The United States of Batteries: New U.S. manufacturing and supply chain investments across America's Battery Belt

New U.S. battery manufacturing and supply chain investments:



\$140B+ investments announced so far
90k+ new jobs

300+ new or expanded minerals, materials processing and manufacturing facilities

JOBS SUPPORTED BY SCALING THE BATTERY SUPPLY CHAIN:



Mining and Extraction



Chemical Processing



Manufacturing



Construction

INVESTMENTS

American battery makers need more than **\$100 billion of new investment** to fund their comeback. A consistent and long-term commitment to scaling this industry is essential for stability and growth.

WORKFORCE

Working in tandem with states and universities, the federal government must address a **skills gap** to better prepare American workers for advanced manufacturing jobs.

INNOVATION

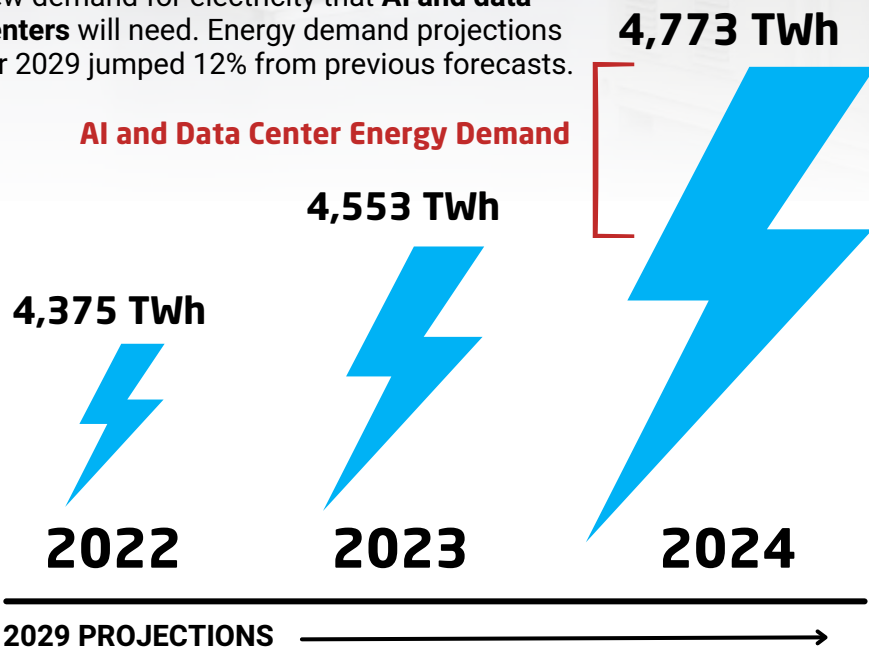
The U.S. must double-down on R&D investment in new battery chemistries, critical materials production, and next-generation manufacturing. The U.S. must protect and **re-invest in one of its key advantages: innovation.**

Batteries: SECURING AMERICAN ENERGY DOMINANCE

Energy storage provided by battery technology is becoming the backbone of the U.S. electricity grid. Energy storage provides essential dispatchable power to ensure balance and resilience for our aging electricity infrastructure regardless of how the electricity is generated. It also enables artificial intelligence (AI), providing back-up power and dynamic resource allocation to data centers. The U.S. cannot be a leader in AI technology unless it is also a leader in battery technology.

AI DRIVES ENERGY DEMAND GROWTH

Energy forecasters are waking up to the huge new demand for electricity that **AI and data centers** will need. Energy demand projections for 2029 jumped 12% from previous forecasts.



Data sourced from Grid Strategies 2024 report:

Strategic Industries Surging: Driving U.S. Power Demand.

BATTERY STORAGE: The Grid's Do-All Power Source

Reduce operating expenses (as much as 30% compared to a gas peaker)

Bridge the power needs between peak use and peak production

Flexibility to enable a variety of energy sources on the grid

Re-energize the grid after a blackout or extreme weather outage

WHO BENEFITS FROM BATTERY STORAGE?

From grid-scale storage technology to at-home battery backups, as much as 50 gigawatts of battery storage is planned by the end of 2025. If the U.S. cannot manufacture the required battery storage domestically, it will need to rely on potential adversaries and foreign producers to **protect our most critical infrastructure**.



GRID OPERATORS

Battery storage helps balance power demand and supply, while providing reliability without costly grid upgrades.



RESIDENTIAL RATEPAYER

Backup power availability keeps the lights on during extreme weather and blackouts, while reducing utility bills.



CRITICAL INFRASTRUCTURE

Battery storage serves as a backup power source for schools, hospitals, police stations, and military installations to bolster resilience.



INDUSTRIAL USERS

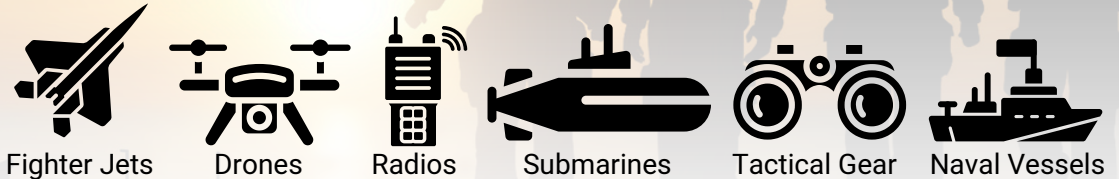
Battery storage helps industrial and data center users efficiently balance power supply and demand.



Batteries: VITAL TO NATIONAL SECURITY

America's national security depends on a military fully equipped for a modern battlefield. Batteries are increasingly at the heart of the technology powering and connecting soldiers around the globe. The Pentagon must be able to acquire those batteries from reliable, and preferably domestic, manufacturers that are not dependent on insecure supply chains.

**BATTERIES
ARE MISSION
CRITICAL**



It's not just equipment. Microgrids and battery storage at military bases ensure secure and resilient power for continued operations. Tactical fleet electrification enables silent mobility and improved power capabilities, bolstering battlefield adaptability.

DoD BATTERY PROFILE

360+

manufacturers and suppliers working with DoD to address battery needs

\$300 MILLION

annual use of specialty batteries, equal to 100 MWh of power

\$155 MILLION

annual use of advanced rechargeable batteries, equal to 600 MWh of power

12X

increase in DoD lithium-ion battery demand by 2050, under conservative assumptions

DID YOU KNOW?



By 2035, the U.S. Army plans to build microgrids at each of its **130 BASES** **WORLDWIDE.**

// A rifleman today requires an average of 12 watts of power in the form of AA and conformal wearable batteries. That means the weight requirement of batteries for a standard 72-hour patrol is about **15 POUNDS.** **//**

*"Army researchers hope to lighten Soldiers' battery load,"
U.S. Army, Sept. 2018*



Batteries: BREAKING FREE FROM FOREIGN SUPPLY CHAIN DEPENDENCE

Over the past decade China has made massive investments in its battery supply chain. Across every stage of the value chain, from mineral extraction and processing to battery manufacturing, China holds a significant share of the global battery market. China has also demonstrated a willingness to use its control of this market for raw political advantage. Our economic well-being and national security demand that we address this challenge.

U.S. energy dominance requires a healthy U.S. battery industry

The U.S. cannot achieve energy security if its electricity, defense, and transportation sectors rely on technology and supplies controlled by a single potential adversary. **The current state of the battery market should be of extreme concern to the U.S. government.**

CHINA CONTROLS

78% of global cathode production

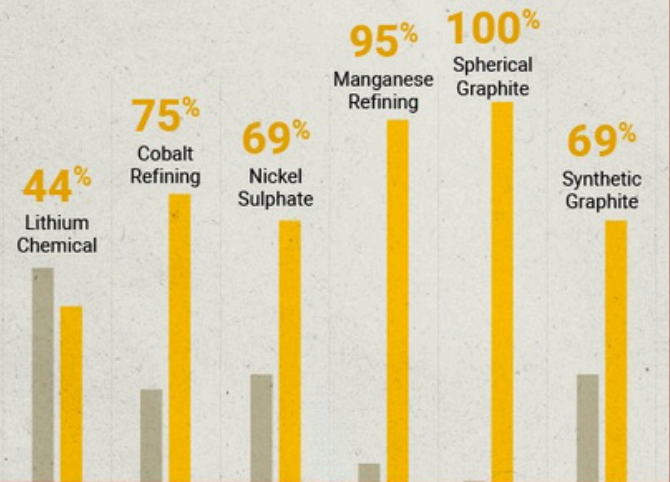
91% of global anode production

70% of global battery cell production

China's Minerals Processing Cartel

Nowhere is China's battery dominance more evident than its ownership of mineral processing:

China's % of supply across the chemical refining and production of the lithium ion battery value chain in 2022



Data from Benchmark Mineral Intelligence

KEYS TO BATTERY SUPPLY CHAIN INDEPENDENCE



More investment in mining, processing, and manufacturing of battery materials



Secure supply of equipment for processing facilities and battery gigafactories



Partner with allies, including Canada, to expeditiously secure the battery value chain



Battery recycling to ensure vital materials and technologies stay within our borders



Stable government policy, permitting reform, and public-private partnerships



R&D investments in innovative manufacturing technologies and battery materials