



INTERNATIONAL
TRADE
ADMINISTRATION

U.S. ENERGY STORAGE TRENDS & UPDATES

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Agenda

- Overview of U.S. energy storage trends
- U.S. Government Initiatives
 - National Blueprint for Lithium Batteries
 - Supply Chain Review
 - Long Duration Energy Storage Shot
 - U.S. Clean Tech Export Competitiveness Initiative
- Conclusion

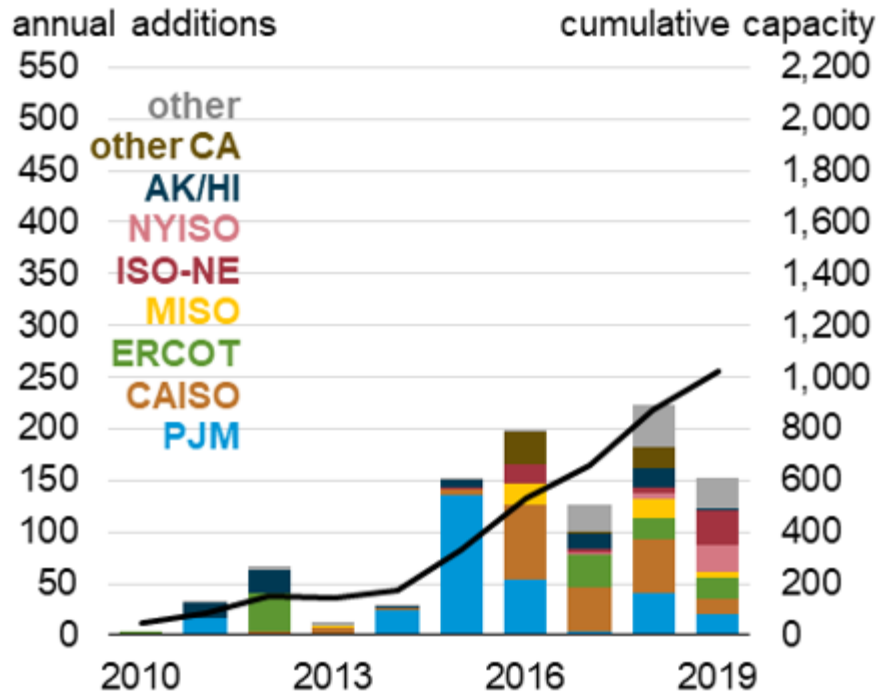


U.S. ENERGY STORAGE INDUSTRY TRENDS

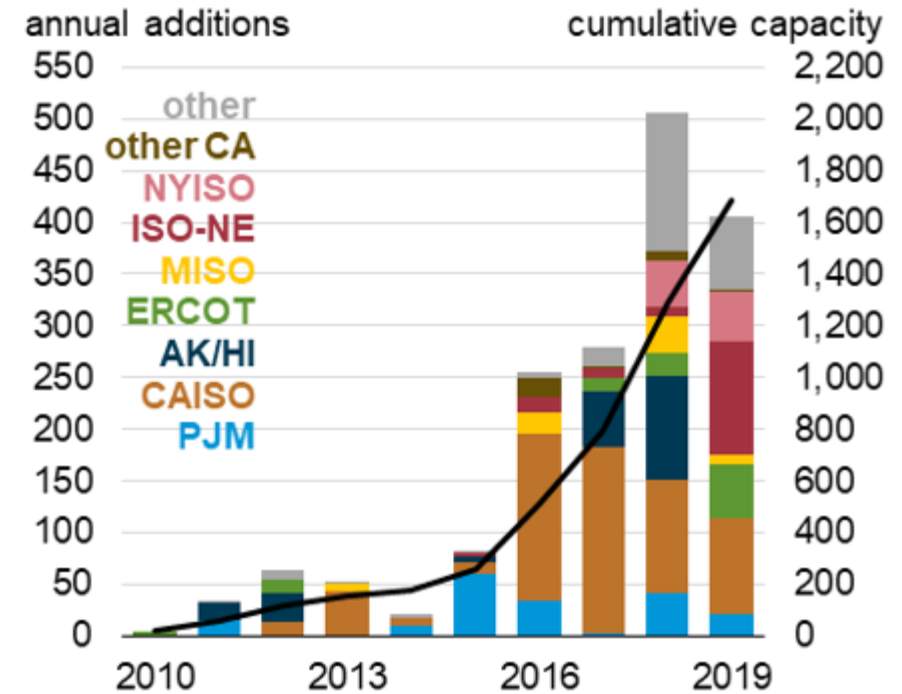
U.S. Battery Storage Additions

Figure ES1. Large-scale battery storage capacity by region (2010–2019)

power capacity
megawatts



energy capacity
megawatthours

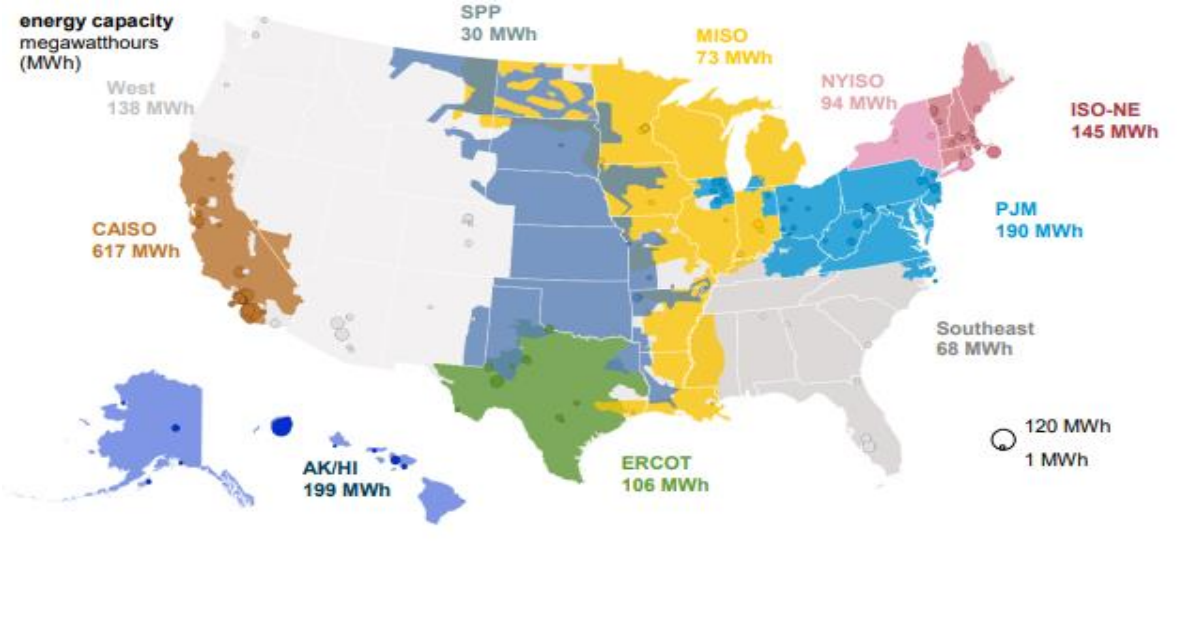
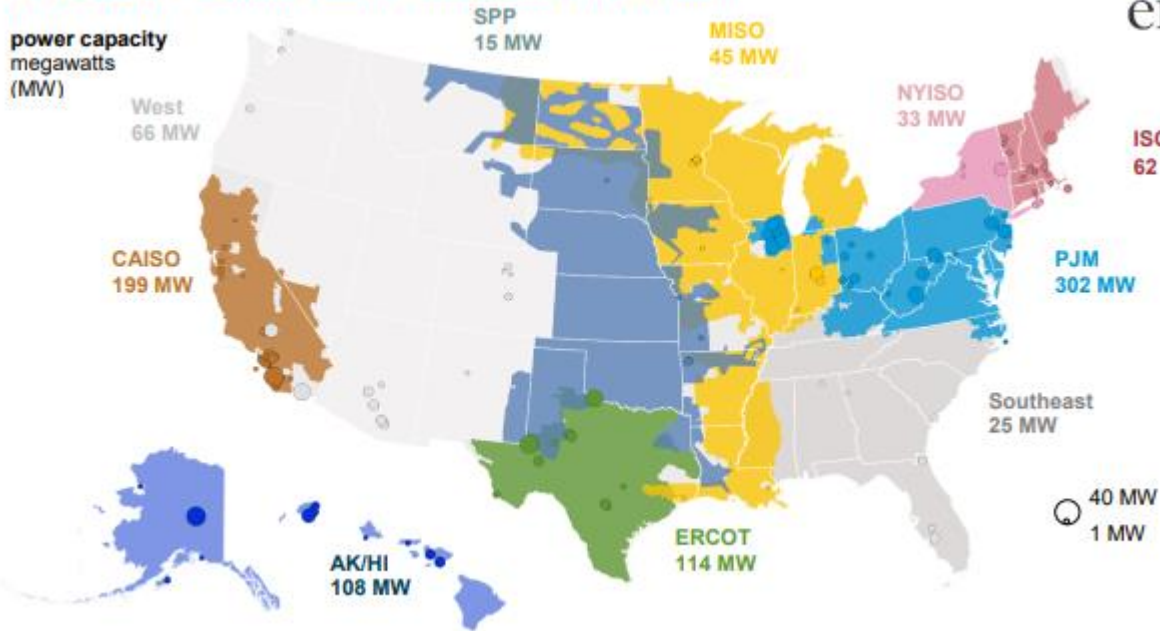


Source: U.S. Energy Information Administration, 2019 Form EIA-860, *Annual Electric Generator Report*

Source: https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery_storage_2021.pdf

Regional Installations

Figure 2. Large-scale battery storage installations by region (2019)



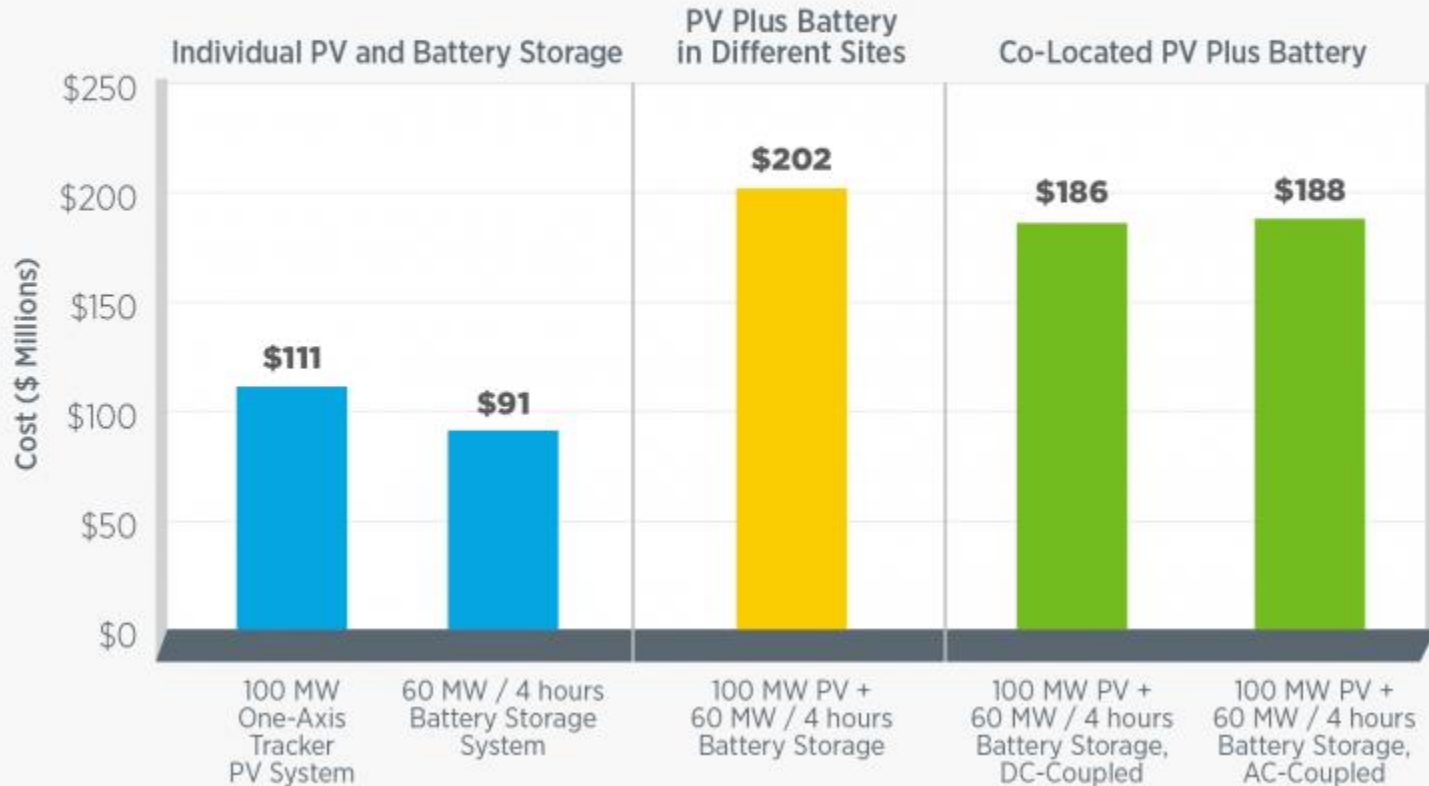
Source: U.S. Energy Information Administration, 2019 Form EIA-860, *Annual Electric Generator Report*
Note: Energy capacity data for large-scale battery storage installed in 2019. Gray regions are not covered by RTO/ISO's.

Source: https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery_storage_2021.pdf



Standalone & Co-located Storage

PV Plus Storage Cost Breakdown

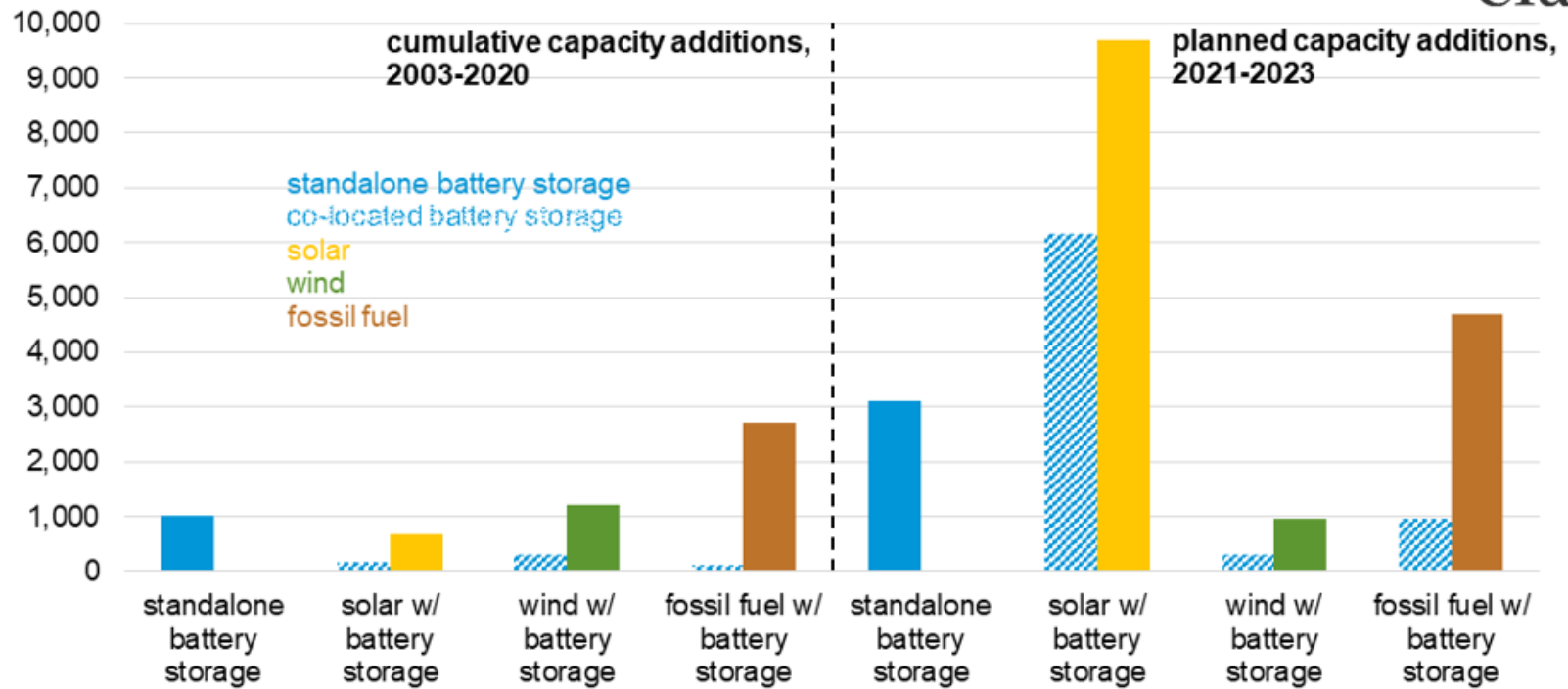


- Storage can be paired with anything or nothing!
- In the U.S., storage paired with solar qualifies for ITC
- Co-location cost savings associated with shared hardware, permitting, land preparation, etc.
- Wind PTC incentivizes production, not storing energy for later

Source: <https://www.energy.gov/eere/solar/articles/solar-plus-storage-101>

Standalone & Co-located Storage

Figure ES3. U.S. large-scale battery storage power capacity additions, standalone and co-located megawatts



Source: U.S. Energy Information Administration, Dec 2020 Form EIA-860M, *Preliminary Monthly Electric Generator Inventory*

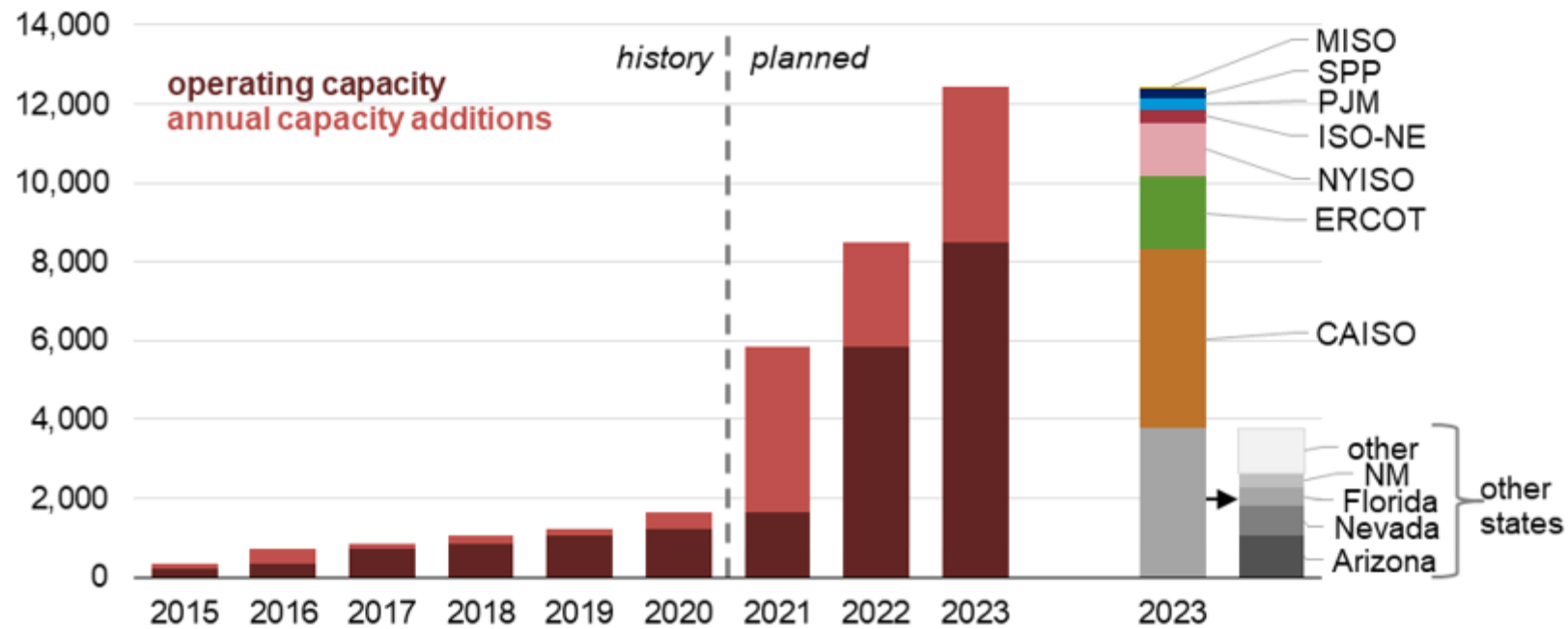
Note: Solid yellow, green, and brown bars indicate generating total capacity of solar, wind, and fossil fuels that have battery storage on-site.

Source: https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery_storage_2021.pdf

Planned Capacity Additions

Figure ES4. Large-scale battery storage cumulative power capacity, 2015–2023

power capacity
megawatts



Source: U.S. Energy Information Administration, Dec 2020 Form EIA-860M, *Preliminary Monthly Electric Generator Inventory*

Source: https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery_storage_2021.pdf



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U.S. GOVERNMENT INITIATIVES



High Level Direction

Executive Order on Tackling the Climate Crisis at Home and Abroad

JANUARY 27, 2021 • PRESIDENTIAL ACTIONS

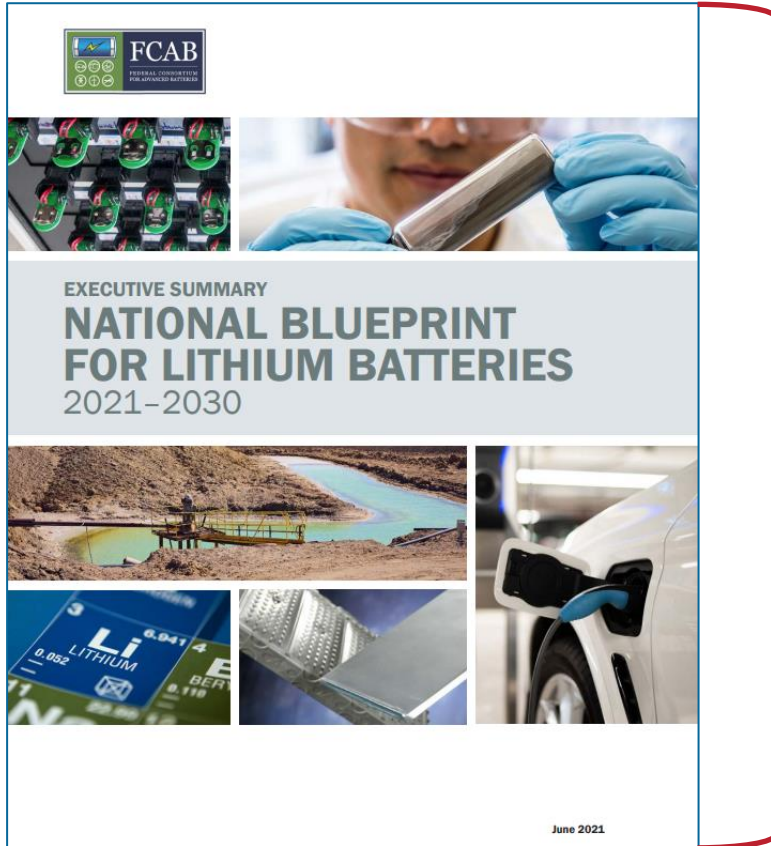
“The United States and the world face a profound climate crisis. We have a narrow moment to pursue action at home and abroad in order to avoid the most catastrophic impacts of that crisis and to **seize the opportunity that tackling climate change presents.** Domestic action must go hand in hand with United States international leadership, aimed at significantly enhancing global action.”

- Executive Order on Tackling the Climate Crisis at Home and Abroad

“Today is “Climate Day” at the White House and — which means that today is “Jobs Day” at the White House. **We’re talking about American innovation, American products, American labor.** And we’re talking about the health of our families and cleaner water, cleaner air, and cleaner communities. We’re talking about national security and America leading the world in a clean energy future.”

- President Biden, January 27, 2021

National Blueprint for Lithium Batteries



GOALS TO ACHIEVE OUR VISION



1 Secure access to raw and refined materials and discover alternates for critical minerals for commercial and defense applications



2 Support the growth of a U.S. materials-processing base able to meet domestic battery manufacturing demand



3 Stimulate the U.S. electrode, cell, and pack manufacturing sectors



4 Enable U.S. end-of-life reuse and critical materials recycling at scale and a full competitive value chain in the U.S.



5 Maintain and advance U.S. battery technology leadership by strongly supporting scientific R&D, STEM education, and workforce development

- Seeks to address key gaps in U.S. battery supply chain.
- Promotes international partnership on key issues of mutual interest, e.g. enhancing resilience and raising environmental and social standards.

Source: <https://www.energy.gov/eere/vehicles/articles/national-blueprint-lithium-batteries>



100-Day Large Capacity Battery Supply Chain Report

BUILDING RESILIENT SUPPLY CHAINS, REVITALIZING AMERICAN MANUFACTURING, AND FOSTERING BROAD-BASED GROWTH

100-Day Reviews under
Executive Order 14017

June 2021

A Report by
The White House

Including Reviews by
Department of Commerce
Department of Energy
Department of Defense
Department of Health and Human Services



THE WHITE HOUSE
WASHINGTON

- In response to EO 14017 on Securing America's Supply Chains.
- Also included 100-day reviews of semiconductor, critical minerals and materials, and pharmaceutical supply chains.
- Broader 1-year review of energy industrial base also under development.
- Recommends key actions to support the development of a more resilient battery supply chain.

Source: <https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf>



DOE Long Duration Storage Shot

Long Duration Storage Shot



Reduce storage costs
by **90%***...

*from a 2020 Li-ion baseline



...in storage systems
that deliver **10+** hours
of duration



...in **1** decade

Clean power anytime, anywhere.

- \$1.16 billion included in DOE FY22 budget request to reduce long duration storage costs by 2030.
- Long Duration Storage Shot Summit planned for Sept. 23.
- More info and registration: <https://www.energy.gov/oe/long-duration-storage-shot-summit>

Source: <https://www.energy.gov/eere/long-duration-storage-shot>



Federal Register

- Request for comment published in Federal Register (FR) on August 30.
- Comment period closes October 1.
- FR Notice available here: <https://www.federalregister.gov/d/2021-18637>
- Submit individual comments here: <https://www.regulations.gov/document/ITA-2021-0005>

The screenshot shows the top of a Federal Register notice. On the left is the National Archives logo. In the center, it says "FEDERAL REGISTER" in large bold letters, with "The Daily Journal of the United States Government" underneath. On the right is the seal of the International Trade Administration. Below this is a blue bar with a white circle containing an 'N' and the word "Notice". The main title of the notice is "Request for Comments on U.S. Clean Technologies Export Competitiveness Strategy". Below the title, it says "A Notice by the International Trade Administration on 08/30/2021". There is a small flag icon to the right. Below that, a grey box contains the text "This document has a comment period that ends in 17 days. (10/01/2021)". To the right of this box is a green button that says "SUBMIT A FORMAL COMMENT". Below the button, it says "Read the 3 public comments" with a speech bubble icon.



Conclusions

- Rapid growth of U.S. energy storage market creating opportunities across a range of applications.
- U.S. companies have significant expertise building, operating, and optimizing stationary storage systems with software.
- U.S. Government is focused on supporting development of energy storage industry, including through programs discussed today.



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