USG and Department of Defense Efforts to Secure the Battery Defense Industrial Base

NATTBatt 2025

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Wartime Implications of Li-ion Use

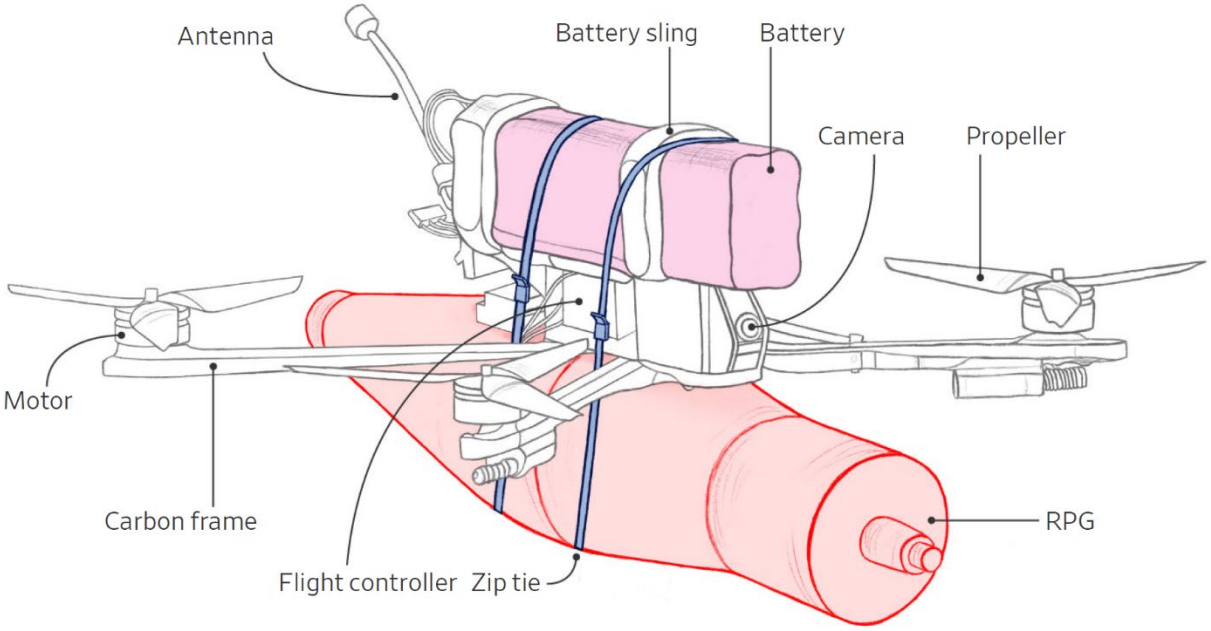
Ukraine

Ukraine says it could make 2m drones a year with financial help from west

Digital minister says country could double production but does not have money to contract for manufacturers' full capability

Ukraine war - live updates

A serviceman launches a Ukrainian mid-range reconnaissance drone near Bakhmut, Donetsk



Note: Diagram is schematic
Source: Sparrow Avia
Jemal R. Brinson/THE WALL STREET JOURNAL [1]

A commercial drone with a ~4lb payload can fly ~2 miles on a 300Wh battery [2]

A demand of 2 million drones each requiring a 300Wh li-ion battery would represent ~100% of DOD's total annual battery demand and >1,000% of DOD annual li-ion needs

[1] https://www.wsj.com/world/low-on-ammo-ukraine-tries-to-build-a-million-explosive-drones-57f8fb52
[2]. https://uavsystemsinternational.com/pages/heavy-lift-payload-drones

In The News

Dynamic Policy, Investment and Trade Environment

- Sep 2024 – Dept. of Commerce proposes ban on Chinese EVs
- Oct 2024 – China sanctions US defense firms
- Dec 2024 – China sanctions 7 more US companies in responses to NDAA
- Jan 2025 – China sanctions 28 more US companies to “safeguard national security and interests.”
- Jan 2025 – China proposes export controls on cathode and lithium processing technology
- Jan 2025 – Dept. of Commerce proposes ban on Chinese UAVs (comments due March 4 025)
- Jan 2025– **DoD Office of Strategic Capital announces opportunity for loans** ($10M-150M) to include energy storage technologies (~$980M)
- Jan 2025– DoD expands 1260H List to include CATL and others
- Jan 2025– **Dept. of Energy releases new Notice of Intent** to fund critical minerals and cell pilot line proposals ($725M)

Dynamic EV and Battery Production

- Jan 2023 – **BritishVolt** files for bankruptcy
- Jun 2023 - **Lordstown Motors** files for bankruptcy
- Nov 2023 – **Proterra** files for bankruptcy
- Jun 2024 – **Fisker** files for bankruptcy
- Nov 2024 – **NorthVolt** files for bankruptcy
- Dec 2024 - **E-One Moli** Vancouver Gigafactory on hold
- Jan 2025 – **Canoo** files for bankruptcy
- Jan 2025 – **iM3NY** files for bankruptcy
- Feb 2025 - **KORE** no longer building Arizona Gigafactory
- Feb 2025 – **Nikola** considers bankruptcy
- Feb 2025 – **Freyr** Cancels Georgia gigafactory

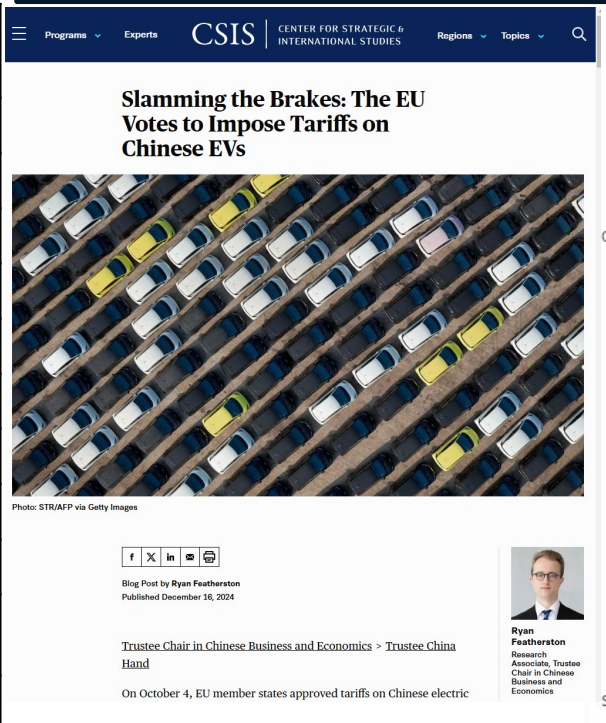
U.S. Government Actions

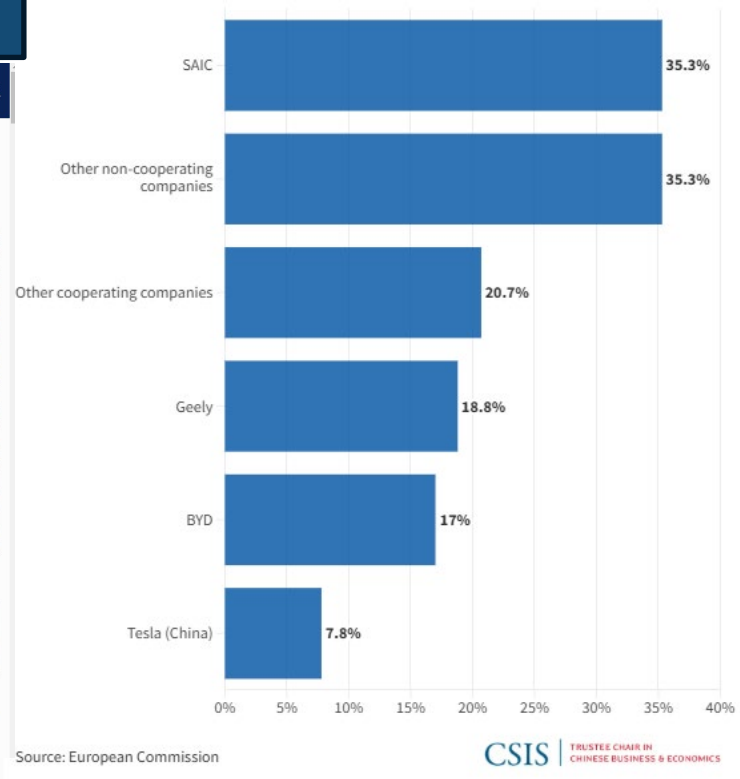
U.S. and Allied Tariffs

U.S. Tariffs (June 2024)

Product Category	Rate Change (effective date)
Electric vehicles	Increase from 25% to 100% (2024)
Batteries, Battery Components and Parts, and CM	
Battery parts (non-lithium-ion batteries)	Increase from 7.5% to 25% (2024)
Lithium-ion electrical vehicle batteries	Increase from 7.5% to 25% (2024)
Natural graphite	Increase from 0% to 25% (2026)
Permanent magnets	Increase from 0% to 25% (2026)
Semiconductors	Increase from 25% to 50% (2025)
Other critical minerals	Increase from 0% to 25% (2024)
Medical Products	
Facemasks	Increase from 0-7.5% to 25% (2024)
Syringes and needles	Increase from 0% to 50% (2024)
Medical gloves	Increase from 7.5% to 25% (2026)
Ship to shore cranes	Increase from 0% to 25% (2024)
Solar cells (whether or not assembled into modules)	Increase from 25% to 50% (2024)
Steel and aluminum products (including steel- and aluminum-intensive products)	Increase from 0-7.5% to 25% (2024)

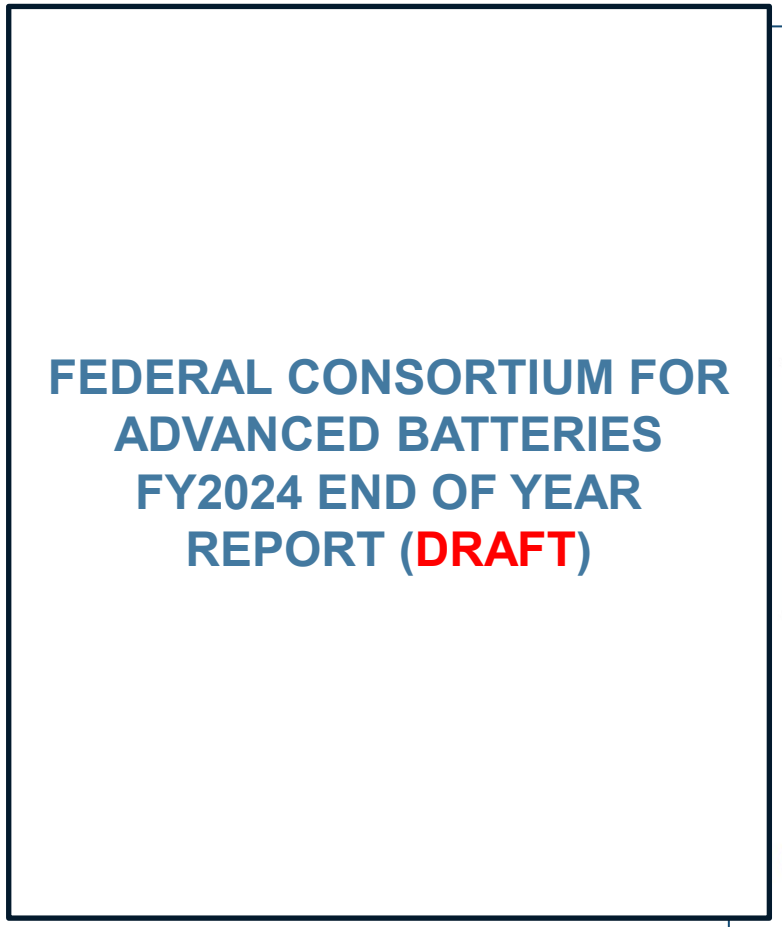
EU Tariffs (October 2024)

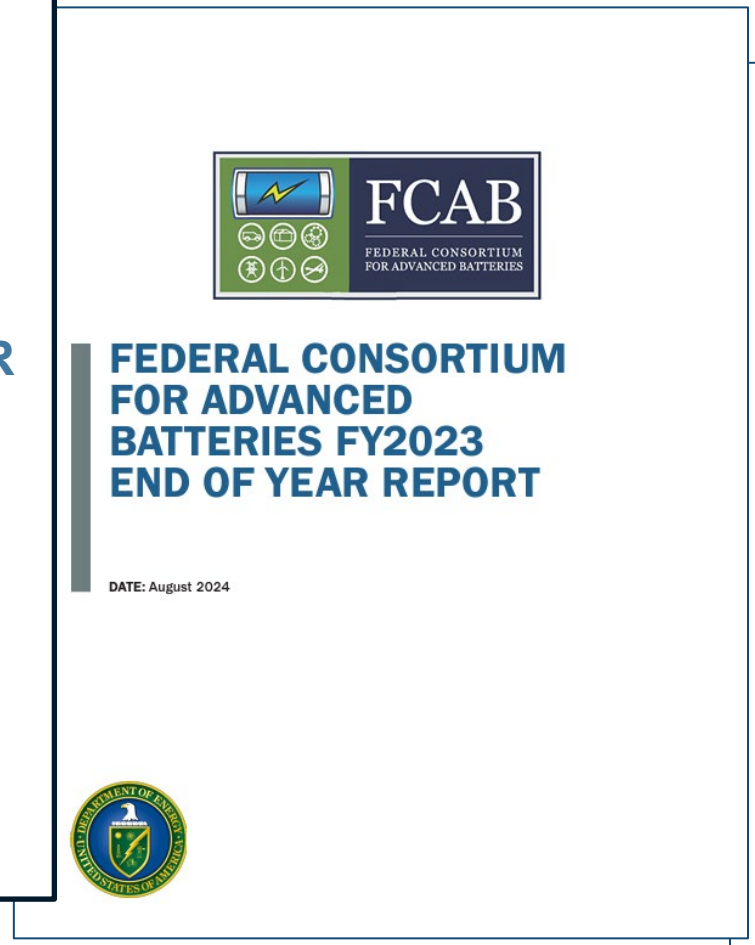


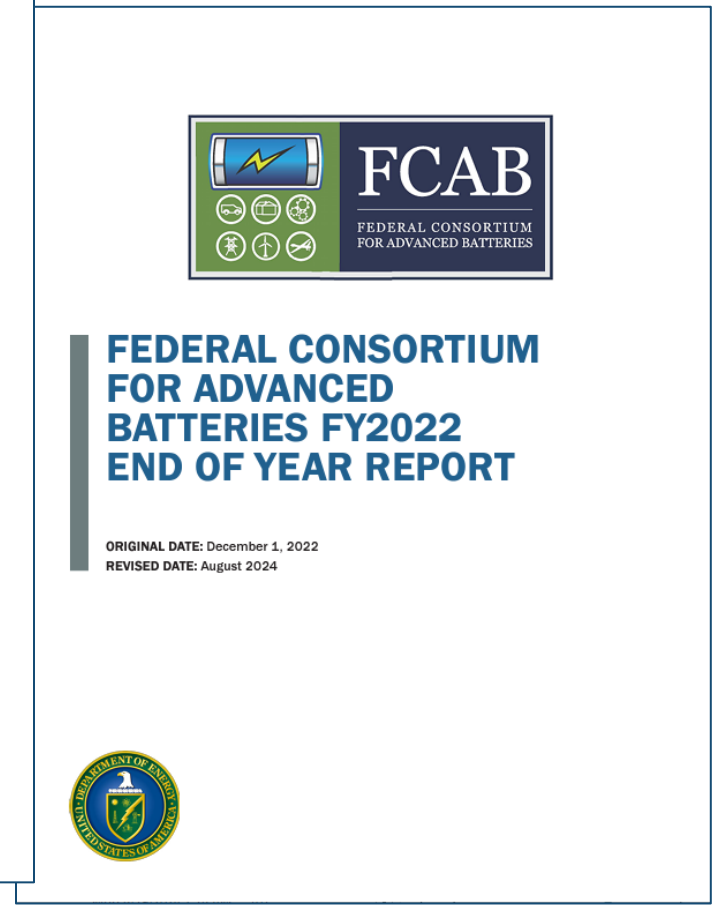


Canadian Tariffs (August 2024)

Federal Consortium for Advanced Batteries (FCAB) Publications







https://www.energy.gov/mesc/articles/federal-consortium-advanced-batteries-fcab-publications

Recent DOE And DPA Title III Project Awards

<u>September 20 - DOE FOA II Battery Project Selections</u>

- Li-ion recycling
- Cell production
- Lithium metal anodes
- Graphite from black mass
- Lithium brine extraction
- Graphite anode production
- Separator production
- Conductive additives
- Silicon based anodes
- Electrolyte salt
- Iron phosphate
- Nickel processing
- Synthetic graphite
- Solid state batteries
- CAM production
- Carbonate solvents
- Manganese sulfate
- Iron air batteries

<u>FY24 DPA Title III Project Selections</u>

- SEP 24 – Nano One LFP investment $12.9M (Canada)
- SEP 24 – Rare earth Recycling project $4.2M
- AUG 24 - Department of Defense Expands Workforce Development in Extractive Technologies $6.56 Million
- AUG 24 – Domestic Lithium Carbonate Thacker Pass Project - $11.8M
- AUG 24 – Ontario Cobalt Sulfate Refinery Project $20M
- MAY 24 – South32: $20M for battery-grade manganese mining
- MAY 24 – Fortune Minerals: $6.4M for cobalt and bismuth mining
- MAY 24 – Lomiko Metals: $8.3M for natural flake graphite mining and spherical graphite battery testing
- MAR 24 – Doe Run: $7M for hydrometallurgical plant for separation of cobalt and nickel

Standardization & Guiding Strategic Documents

2021 – National Blueprint for Lithium Batteries - …Develop form-fit-function battery standards for defense, EV, and grid applications …Develop a federal policy framework for supporting U.S. companies manufacturing of electrodes, cells, and packs domestically and that encourage demand growth for lithium-ion batteries

2022 - Securing Defense-Critical Supply Chains

"Aggregate demand: Since each program consumes a small portion of total demand, it is difficult for industry to anticipate the number of orders from year to year. DoD can better signal to industry what the likely total demand is across multiple programs in the near term."

2023- DoD Lithium Battery Strategy 2023-2030

"The DoD must make significant investments in standardization of military batteries and cells over the next five to ten years to avoid substantial cost and availability risks for future high-volume battery needs. Standardization is the near-term opportunity for the DoD to reduce the types of batteries and aggregate battery demand"

2024 – National Defense Industrial Strategy

"To mitigate the risks of unnecessary customization, the DoD seeks an intelligent balance between customization and standardization…Increasing standardization allows for economies of scale, streamlined production processes, and greater interoperability."

2025-2026 – Forward-looking Updates:

- Revised National Blueprint for Lithium Batteries
- Potential Executive Order on supply chains?
- Update to the National Defense Strategy
- Update to the DoD Lithium Battery Strategy

August 2024 -USD(A&S) signed out a memo directing DoD Services to assess existing battery standardization policies for opportunities for improvement and to reduce the proliferation of unique battery designs in DoD.

DoD Lithium Battery Strategy 2023-2030

Strategy Objectives:

- Provide DoD program offices with safe, effective, affordable, and **standard** energy storage options
- Ensure access to battery systems when the supply chain is threatened
- Reduce the total time required to develop, certify, and field advanced energy storage-enabled systems
- Reduce the logistics burden associated with fielding advanced batteries to the warfighter

*Target of Q2 FY26 for DoD Battery Strategy Revision

SEC. 883. PROCUREMENT OF DEPARTMENT OF DEFENSE BATTERIES (FY25 NDAA)

(a) IN GENERAL.—The Secretary of Defense shall—
(1) coordinate a Department of Defense-wide approach to establishing a battery strategy to further leverage the advancements of domestic and allied commercial industry with respect to batteries; and
(2) in coordination with the Secretaries of the military departments and the other relevant elements of the Department of Defense, identify mechanisms for measuring and addressing risks to the defense supply chain, diminishing manufacturing capability, and material shortages for legacy system batteries by transitioning the Department to safer batteries with higher energy capabilities with supply chain growth.
(b) LEGACY BATTERY STRATEGY CONTENTS.—The strategy established pursuant to subsection (a)(1) strategy shall include the following:
(1) The establishment of a Department of Defense-wide accounting of advanced batteries for current and future applications, including obsolete batteries in existing systems, and improved mechanisms for aligning the battery procurement requirements across the Department.
(2) Requirements for the supply chain for batteries for the Department of Defense to enable to Department to leverage advancements by domestic industry and industry located in allies of the United States with respect to batteries.
(3) The application of the requirements described in paragraph (2) to the near-term, mid-term, and long-term horizons of the Department.
(4) Creating a Department of Defense-wide Science and Technology battery strategy, in coordination with the military services, to define an approach, technical targets, and link into procurement
(5) Consideration of the existing battery strategies completed by the services.
(6) A determination of how the military services can standardize the battery systems across the existing and future programs of such Armed Service.
(7) Identify obstacles with respect to the raw materials required to achieve the goals of the strategy established pursuant to subsection (a)(1) and determine ways to overcome such obstacles, including through the Industrial Base Analysis and Sustainment program of the Department of Defense and the use of authorities under the Defense Production Act (50 U.S.C. 4501 et seq.).
(8) Processes and guidelines for rapid testing and certification to field batteries.
(9) A discussion of the workforce challenges, if any, that may inhibit the Department of Defense from achieving the goals of the strategy established pursuant to subsection (a)(1).
(c) BRIEFINGS AND FINAL REPORT.—
(1) INITIAL BRIEFING.—Not later than 180 days after enactment, the Secretary of Defense, in consultation with the Secretaries of the military departments and the other relevant elements of the Department of Defense, shall brief the Committees on Armed Services of the Senate and House of Representatives on the approach to establishing the strategy described in subsection (a)(1).
(2) UPDATE BRIEFINGS.—Not later than 180 days after the date of the briefing under paragraph
(1), and not less frequently than every 6 months thereafter until the strategy described in subsection (a)(1) is established, the Secretary of Defense, in consultation with the Secretaries of the military departments and the other relevant elements of the Department of Defense, shall provide to the Committees on Armed Services of the Senate and House of Representatives a briefing on the status of the establishment of such strategy.
(3) FINAL REPORT.—Not later than September 30, 2026, the Secretary of Defense, in consultation with the Secretaries of the military departments and the other relevant elements of the Department of Defense, shall submit to the Committees on Armed Services of the Senate and the House of Representatives a final report on the establishment of the strategy pursuant to subsection (a).
(d) MILITARY DEPARTMENT DEFINED.—In this section, the term ‘‘military department’’ has the meaning given such term in section 101(a) of title 10, United States Code.

Summary

1. Modern militaries are utilizing li-ion powered systems because they are the most combat effective
2. The global lithium battery landscape is dynamic and unpredictable
3. The U.S. Government is taking coordinated action through policy and investment to enable secure battery supply chains and DoD is heavily leveraging the good work done within partner agencies to ensure the warfighter has assured access to advanced battery technology