OFFICE OF THE ASSISTANT SECRETARY
OF DEFENSE FOR INDUSTRIAL BASE POLICY

Lithium Batteries & National Security

U.S. Department of Defense

Distribution A. Approved for Public Release

Purpose

Why does the Department of Defense need extreme performance batteries?

What are the present challenges?

What is DoD doing about those challenges?


VENT
A9

Recent DOE And DPA Title III Project Awards

U.S. Department of Defense

September 20 - DOE FOA II Battery Project Selections

- 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

FY24 DPA Title III Project Selections

- 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

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Historic Peacetime DoD Battery Facts & Figures

U.S. Department of Defense

>1,300	Unique Rechargeable Batteries Purchased Each Year	>$155M	>581 MWh
>3,800	Primary, Thermal, Reserve, and Specialty Batteries	>$300M	>104 MWh
>5,100	All Known Unique Battery Designs in Service	>$455M	>685 MWh

>360

Manufacturers & Suppliers

~150

Program Office Customers

DoD Lithium Battery Strategy 2023 - 2030

U.S. Department of Defense

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 DoD Batteries (FY25 NDAA)

U.S. Department of Defense

SEC. 883. PROCUREMENT OF DEPARTMENT OF DEFENSE BATTERIES.

(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 activities.

(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.

(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) 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.

(7) Identify obstacles with respect to the raw materials required to achieve the goals of the strategy…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.

Military Standards in the DoD (Army example)

U.S. Department of Defense

1. Army battery policy influences requirements.
2. Army systems must leverage preferred batteries documented in a MIL-STD
3. MIL-PRFs define technical performance requirements and 4. Slash Sheets define variants
5. Resulting standard batteries are produced by industry, tested, and fielded
6. Delivery of standard, cheaper, safer, and more supportable solutions

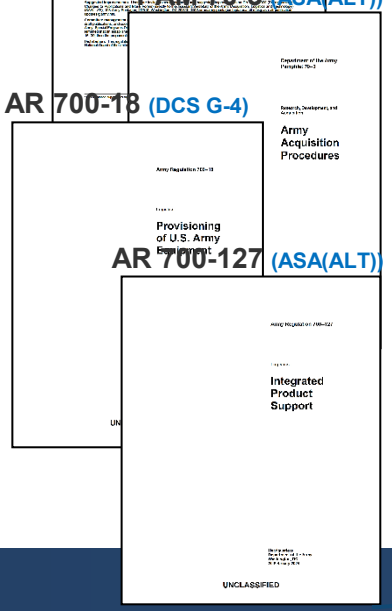
Guiding Policy

AR 70-1 (ASA(ALT))

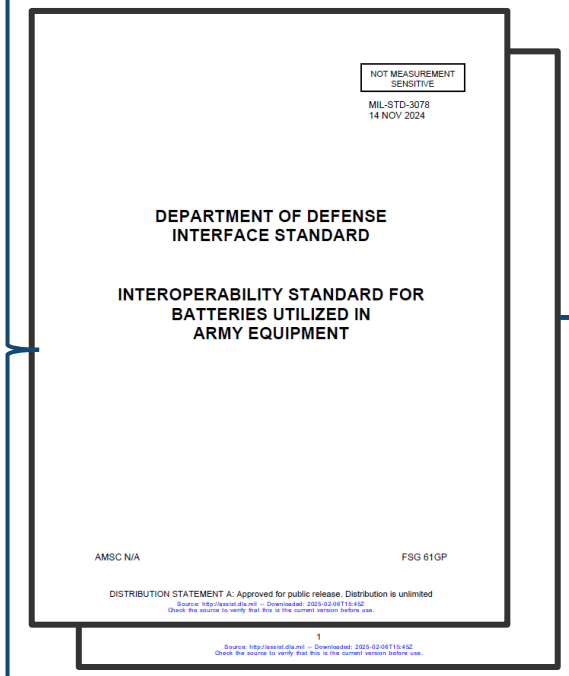
PAM 70-3 (ASA(ALT))

AR 700-18 (DCS G-4)

AR 700-127 (ASA(ALT))



MIL-STD 3078



MIL-PRFs

- 32143 PRF
- 32383 PRF
- 32271 PRF
- 32565 PRF

Slash Sheets

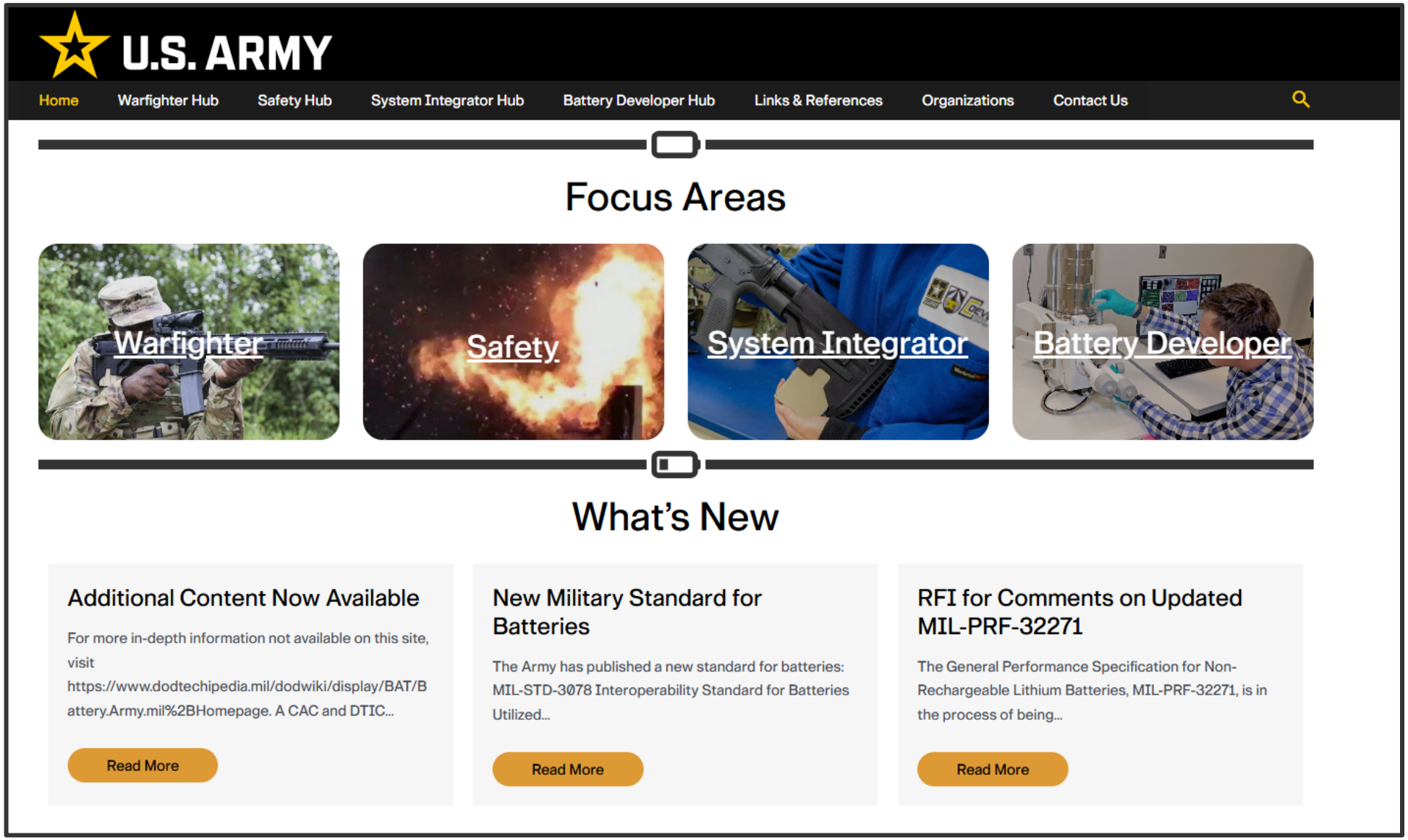
- 32383 /4 PRF → Conformal Wearable Battery
- 32383 /5 PRF → xx90
- 32383 /7 PRF → STUB
- → 6T

Standard Battery

Applications

No common UAS battery standards exist. Solutions are unique, low volume, and costly

Battery.army.mil



Summary

- Modern militaries utilize li-ion powered systems because they are the most combat effective technology.
- The global lithium battery landscape is dynamic and unpredictable, and DoD depends on the success of the commercial market.
- The U.S. Government is coordinating action through policy, investment, and buying behavior to shape and secure battery supply chains (IIJA, IRA, DPA, others).
- DoD is leveraging the good work done within partner agencies (Energy, Commerce, State, EPA, and others) to ensure the warfighter has secure access to advanced batteries.