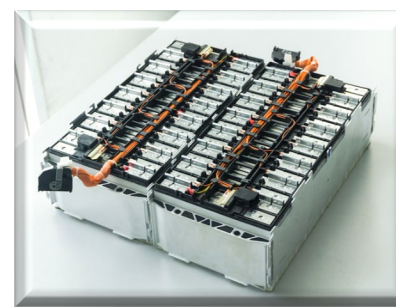
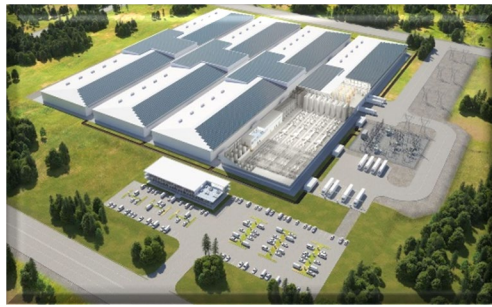




ENERGY ACADEMIC GROUP  
NAVAL POSTGRADUATE SCHOOL

# Federal Consortium for Advanced Batteries



## BATTERY WORKFORCE DEVELOPMENT

Naval Postgraduate School, Energy Academic Group  
*Sponsored by Industrial Base Policy, OUSD(A&S)*

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## Project Title: NPS BATTERY WORKFORCE DEVELOPMENT

### Executing Organization

- Naval Postgraduate School,  
Energy Academic Group

### Period of Performance

- Apr 2023 – Jun 2027 (50 months)

### Investment Sector

- Battery Workforce

### Executing Organization POCs

- Dr. Arnold C. Dupuy  
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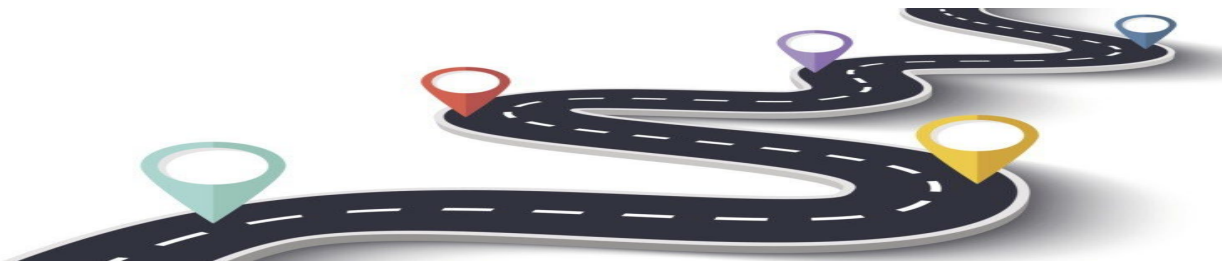
### Funding Source

- DPA Investments Portfolio

**Overview: To create action plans that will fill gaps in the domestic U.S. battery workforce, to include battery-specific and battery-related occupations and technologies, as contributors to national security.**

- **Growth of the battery sector** threatens to strain the supply chain as the industry struggles to meet legislative demands.
- U.S. national security depends upon a **domestic battery workforce** capable of supporting the anticipated demand for battery production and supply.
- The **U.S. is expected to double its manufacturing capacity by 2025**, with more than 10 new battery manufacturing plants (“gigafactories”) in the next 5 years.
- To meet this demand, the U.S. needs a robust supply chain and **educated/trained human capital** to produce state-of-the-art, reliable batteries at scale throughout the lifecycle—extraction through recycling.

- Phase I of the Project will produce a **strategic roadmap** that reiterates "why" corrective measures need to be taken (impact of as-is) and "what" needs to be done to supplement existing programs in creating a workforce capable of meeting the demand created by Li-Bridge goals, Federal incentivization, etc. at all levels of experience and education (hourly, professional, entry-level, managerial, highly-experienced, etc.). Will include proposed Courses of Action.
- Phase II of the Project will establish a **POA&M** to identify "how" the requisite measures might be implemented to build, maintain, and retain a skilled workforce.



# Status / Progress

- July 2023 - Completed ***Phase I(a) – Summary of Ongoing Efforts and Activities Report.***
- Created an **Advisory Group** with partners who serve as executive-level advisors throughout the project.
- Created a **Stakeholders' Group** with wider membership to increase our network of experts and widen the exposure of our research. Has resulted in extensive collaboration with academia, and data-gathering from industry.
- In the planning stages of **symposia which will incorporate programs of interest**, provide a forum for learning, and raise exposure further.

# Status / Progress

- Due April 2024 - **Phase I(b) – Strategic Roadmap** is in progress. Will describe what needs to be done and why. Several courses of action will be proposed at varying levels of effort and resourcing.
- Due April 2027 – **Phase II – Plan of Action and Milestones**. Will describe how to accomplish the chosen objectives in accordance with the selected course(s) of action.



Although it is early in the project, there are initial impressions:

- There is large-scale federal funding in this sector, although it's not always coordinated between depts, and usually not workforce-focused. Several depts have programs with the potential for broader duplication of effort. **Some level of specialization enabled through FCAB or another coordinating body may be effective.**
- Education and training are an afterthought in many programs. They are sometimes noted as goals, but no actual emphasis is evident from the output. This could result in isolated pockets of excellence, with **no cross-sector collaboration.**
- The battery industry lacks the type of **listing of occupations** which might facilitate the growing and educating of a workforce.

- The U.S. is already a significant actor in the upstream and midstream sectors of the battery supply chain, but in the downstream sector, academic and industrial training activities are sparse and challenging to identify. **U.S. national security requires a structured and comprehensive battery education strategy, which encompasses the full supply chain.**
- All three sectors of the battery supply chain need some mechanism for intra- and cross-battery sector workforce **coordination and communication.**
- All three sectors of the battery supply chain are in need of **recruitment and educational resources** to varying degrees and at varying levels.



# Overall Schedule

	2023	2024-25	2026-2027
<b>PHASE 1</b>	April 2023 – April 2024		
MAJOR DELIVERABLE:	Phase I(a) Report – Ongoing Activities	July 2023	
<i>Strategic Roadmap</i> that will identify the key steps to achieving gap mitigation.	Phase I(b) Report - Strategic Roadmap w/COAs		April 2024
<b>PHASE 2</b>		April 2024 – June 2027	
MAJOR DELIVERABLE:		June 2024 - Begin COA Execution	April 2027 - Completion and POA&M
<i>Plan of Action and Milestones (POA&amp;M)</i> leading to the systematic resolution and fulfillment of discovered gaps in battery and strategic mineral education and workforce.		COA Selection April-June 2024	Transition Plan Implementation – Jun 2027

# Transition Plans

- At completion of Phase I (April 2024), COAs will be presented and selected to guide Phase II.
- Phase II will encompass **initial implementation of corrective measures** to fill strategic mineral and battery supply chain gaps.
- **Transition plan from Phase II to maintenance** will be established during Phase II COA implementation.
- The capabilities established through this project's programmatic efforts should be **sustained through a coordinating body** or office that maintains oversight of industrial, governmental, and academic connections.







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# Project Quad Chart

## NPS BATTERY WORKFORCE DEVELOPMENT

### Period of Performance 04/2023 – 06/2027 (50 months)

	2023	2024-25	2026-2027
<b>PHASE 1</b>	April 2023 – January 2024		
MAJOR DELIVERABLE:	Phase I(a) Report – Ongoing Activities  July 2023		
<i>Strategic Roadmap</i> that will identify the key steps to achieving gap mitigation.	Phase I(b) Report - Strategic Roadmap w/COAs  April 2024		
<b>PHASE 2</b>	April 2024 – June 2027		
MAJOR DELIVERABLE:	June 2024 - Begin COA Execution  April 2027 - Completion and POA&M		
<i>Plan of Action and Milestones (POA&amp;M)</i> leading to the systematic resolution and fulfillment of discovered gaps in battery and strategic mineral education and industry.	COA Selection April-June 2024  Completion of Lessons Learned – Jun 2027		

### Project Timeline

### Project Objective(s)

- **Phase I** of the Project will produce a strategic roadmap with courses of action to fill the gaps in battery workforce programs.
- **Phase II** will establish and implement a POA&M to fill the gaps

### Justification for Funded Effort

- National Security requirement for domestic battery and strategic minerals workforce to meet Federal imperatives.

### Primary Stakeholders

- National Security Infrastructure, Industrial Base, Domestic Battery Supply Chain.

### Transition Target

- April 2026 - Begin preliminary iteration on POA&M

### Performer(s)

- Energy Academic Group, Naval Postgraduate School

### Financial Information

Source	FY23 \$k	FY24 \$k	FY25 \$k	FY26 \$k
OSD IBAS	\$1,200	\$1,000	\$1,500 (est)	\$1,300 (est)

### Technical Progress to Date

- Period of Performance: Apr 2023 – Jun 2027 (50 months)
- Evaluation of the state of the workforce and measures being implemented toward enhancement.
- Preliminary research into gaps between existing battery supply chain workforce programs

### Rationale for Project

- Supported by government incentives, the growth of the battery sector is straining the supply chain as industry struggles to meet legislative demands. U.S. national security depends upon a workforce capable of supporting the anticipated demand for strategic minerals and battery production and supply throughout the lifecycle—extraction through recycling.

### Anticipated Impact

- To meet anticipated demand and address vital national security interests, the U.S. needs a robust supply chain and trained human capital to produce state-of-the-art, reliable batteries at scale. This project will identify the gaps in the broader battery sector workforce skills and define and implement mitigating strategies to contribute to the fulfillment of the need for a fulsome workforce.