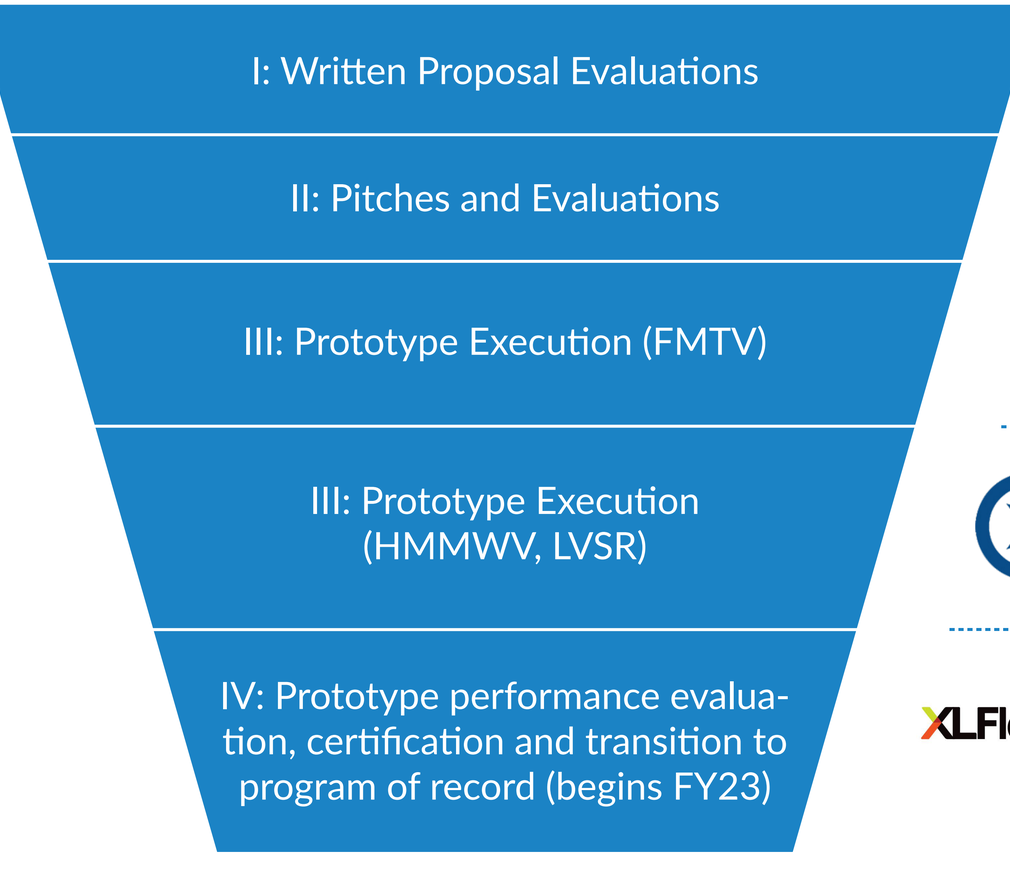
TACTICAL VEHICLE HYBRIDIZATION: REDUCING FUEL CONSUMPTION

DIU's competitive process provided the DoD with fast, effective, and low-cost access to the market.

- **COMMERCIAL ACCESS:** Accessed the market leaders, all non-traditional vendors
- **LOWER COST:** Non-traditional vendors' proposals were ~80% under budget in time and cost
- **CONTRACT SPEED:** Initial 2x contracts for the Army executed in ~90 Days; 2x additional <180 days



Commercial Solutions Opening Phase	Vendors	Dates
I: Written Proposal Evaluations	23 Unique Submissions	June, 2021
II: Pitches and Evaluations	9 Pitches and Evaluations	July, 2021
III: Prototype Execution (FMTV)	XLFleet, Volta Power Systems	July - September, 2021
III: Prototype Execution (HMMWV, LVSR)	Stealth Power, Blackburn Energy	March-April, 2022
IV: Prototype performance evaluation, certification and transition to program of record (begins FY23)	XLFleet, Volta Power Systems, Stealth Power, Blackburn Energy	Spring 2023

DEFENSE INNOVATION UNIT

ELECTRIC SEARCH AND RESCUE (ESAR)

Fully electric small watercraft supporting multiple missions

Problem: Military small watercraft that are powered by internal combustion engines create logistic, maintenance, storage, detection, crewing, and environmental challenges.

Solution: Prototype high-power, electric small craft capable of navigating high sea states via reduced or optional crews on missions ranging from SAR to insert/extract to payload delivery.

Impact:

- Enhanced operational flexibility and reduced logistical and maintenance burden by strategic, operational, and tactical users.
- A pathway to test and field larger platform electrification throughout DoD

Project Manager: Doug French

DEFENSE INNOVATION UNIT

ARCTIC GRID ENERGY SOLUTIONS (AGES)

Energy resilience in the Arctic region

Problem: The Joint Force requires continuous, reliable power for sustained Arctic operations down to -60°F (-51°C). To address this need, and to remain competitive in the Arctic, high performance microgrids with energy storage capabilities for extreme cold weather are required. There is a critical need for a military-ready energy system to support Arctic operations for our national security.

Solution: The primary solution is an energy storage/generator microgrid capability for extreme cold weather environments down to -60°F (-51°C).

Additional impacts include:

- Reductions in generator fuel resupply
- Improved insulation
- Internal passive heating
- Capture of waste heat given off by internal or external components
- Higher power quality for mission critical equipment

Impact:

- Operational prototype to support Arctic Edge 2024
- The microgrid may be adopted as part of the cold weather program of record for the Army Expeditionary Energy and Sustainment Systems.

DoD/USG PARTNERS: NORTHCOM J4, OUSD(A&S)/ OECIF. OUSD(R&E)/RR-TO, USN/ ONR, USA/ PM E2S2, USACE/ ERDC-CRREL

Project Manager: Nina Khan

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