



Project Manager Expeditionary Energy & Sustainment Systems (PM E2S2)

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PM E2S2

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Powering The Army

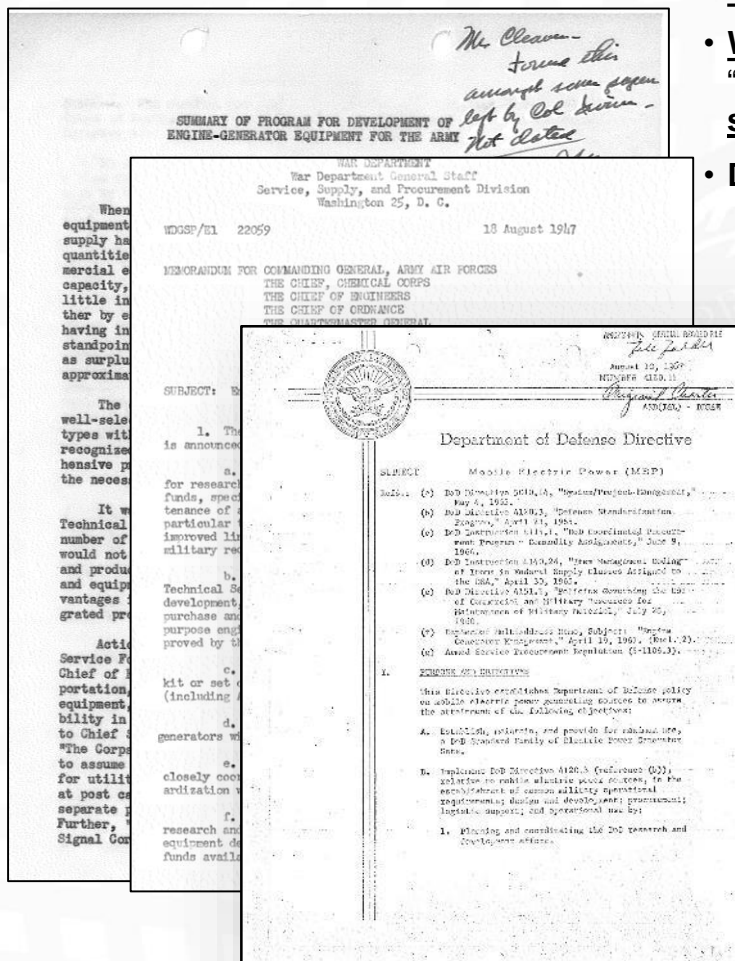
Board on Army Research and Development

National Academies of Science

UNCLASSIFIED

STANDARDIZED POWER HISTORY

- **Army Service Letter (25 JAN 1946)**
- **War Department Memo: Engine Generators (18 AUG 1947)**
 "All R&D of engine generators will be coordinated...to assure maximum standardization..."
- **DoD Directive 4120.11, Mobile Electric Power, 10 AUG 1967 (revised 2018)**



1967-1993
1st Generation Sets
 Military Standard
 (MIL-STD)
 (1.5kW-100kW)



1993-2010
2nd Generation Sets
 Tactical Quiet
 Generator (TQG)
 (5kW-60kW)

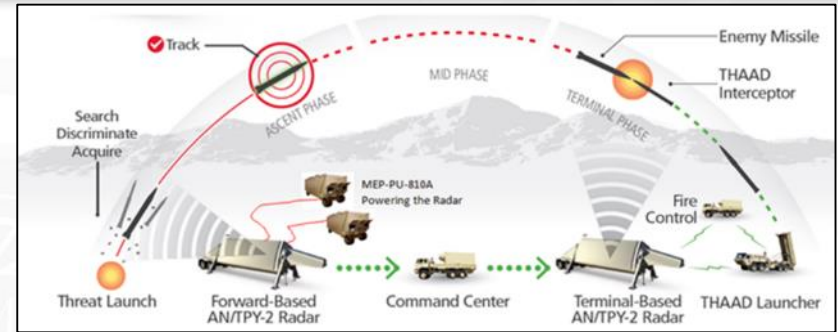
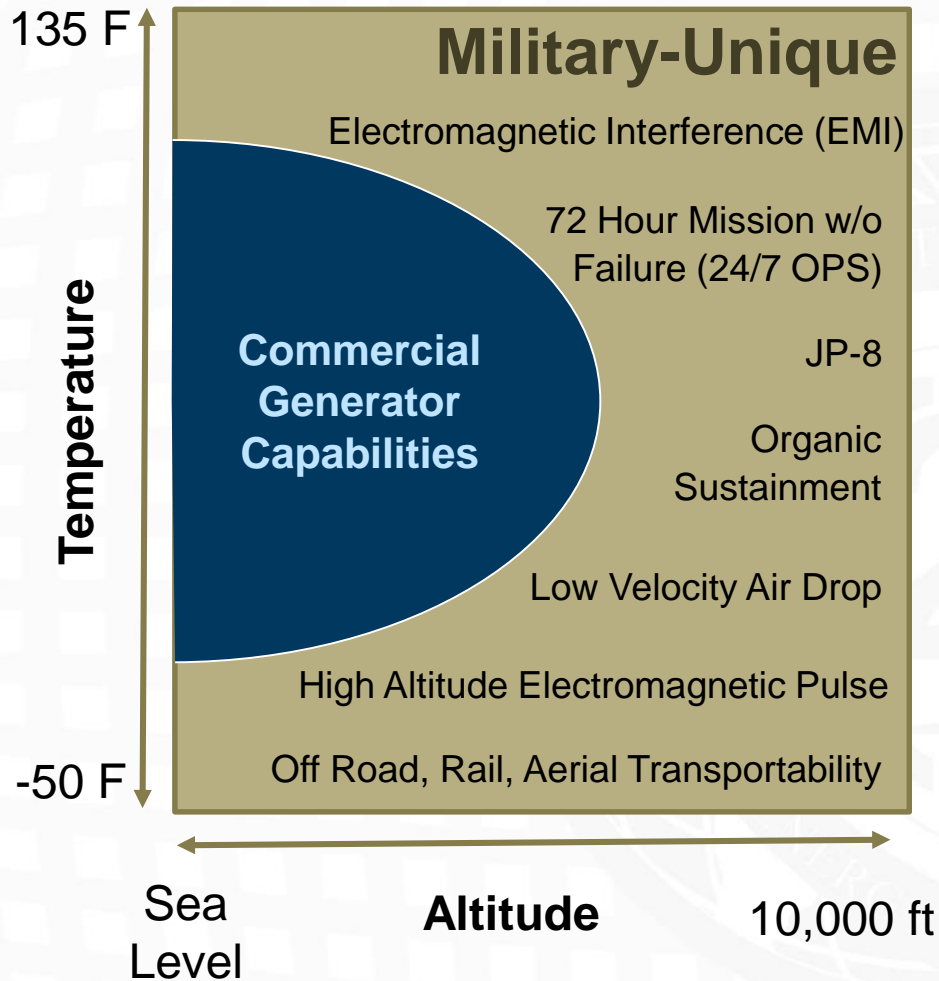


2010-Present
3rd Generation Sets
 Advanced Medium
 Mobile Power
 Sources (AMMPS)
 (5kW-60kW)

**PM E2S2 is DoD's Lead
 Standardization Activity for Power**

**Near peer conflict battlefield failures (WWII)
 exposed need for standard power**

MILITARY POWER REQUIREMENTS



AN/TYP-2 Radar



Terrestrial Network



Soldier Power



Patriot



Light Weight Counter Mortar Radar



Gray Eagle



Land Based Phalanx Weapon System

STANDARD Power Systems Must SUSTAIN Full Range of Military Operations



EVOLUTION OF TACTICAL ELECTRIC POWER

OPERATION IRAQI FREEDOM / ENDURING FREEDOM

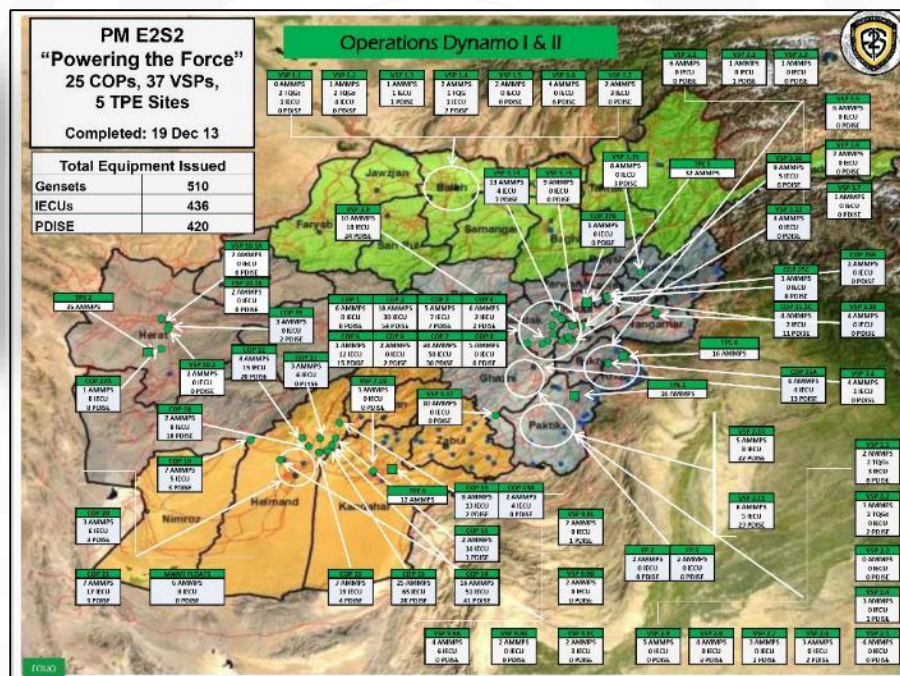
- Trends: Spot Power; No Distribution; No Right Sizing



SPOT POWER



NON MIL-STANDARD POWER



TRAINING ASSISTANCE TEAM - OIF



COP GENERATORS (BEFORE)

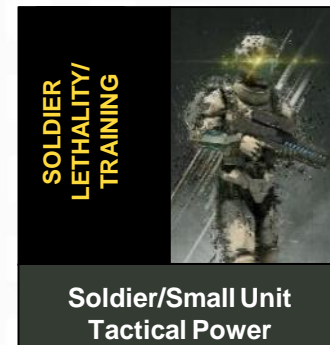
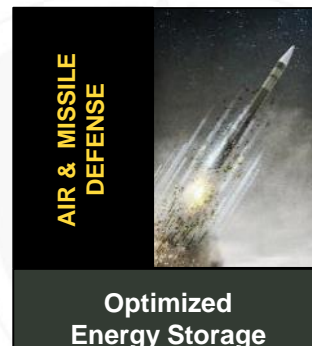
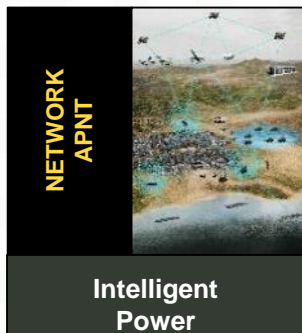
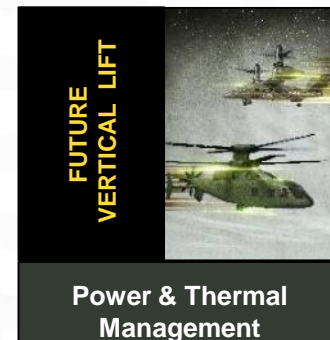
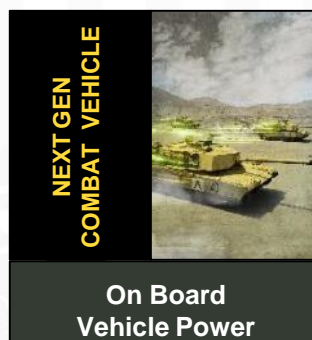
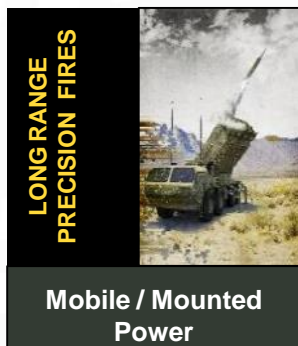


COP GENERATORS (AFTER)

"Right-Sized" power to match demand and reduce logistics burden



ARMY MODERNIZATION



AFC Power & Battery Integration Strategy - Cross Cutting Requirements -

Modular, Scalable, Standardized Power Generation



SCIENCE & TECHNOLOGY INITIATIVES

(TACTICAL ELECTRIC POWER)

CURRENT PORTFOLIO	PROGRAM MODERNIZATION INITIATIVES	TECHNOLOGY WATCH ITEMS
<p>Deployable Power Generation & Distribution System, (DPGDS)</p> <p>840kW</p>	<p>MEP810 (DPGDS) Recapitalization (840kW) (Start Fielding in 2020)</p>	<p>Mobile Nuclear Power Plant Concept 1-3 MW (Pele Project)</p>
<p>100kW/200kW Tactical Quiet Generator (TQG)</p>	<p>SCALABLE Smart Technology</p>	<p>400-500 kW Low Voltage Systems</p>
<p>Advanced Medium Mobile Power Systems (AMMPS)</p> <p>30kW 60kW 15kW 10kW 5kW</p>	<p>AMMPS Microgrid</p>	<p>(Universal) Smart Power Management</p>
<p>3kW Tactical Quiet Generator (2000)</p>	<p>MODULAR Small Power Systems</p>	<p>MODULAR and SCALABLE Grids ↔ Vehicles, AC ↔ DC</p>
<p>2kW Military Tactical Generator (1990)</p>	<p>Platoon Power Generator (500W – 1kW) (Start Fielding in 2021)</p>	<p>MODULAR Hybridization = Power + Storage + Smart Management</p>

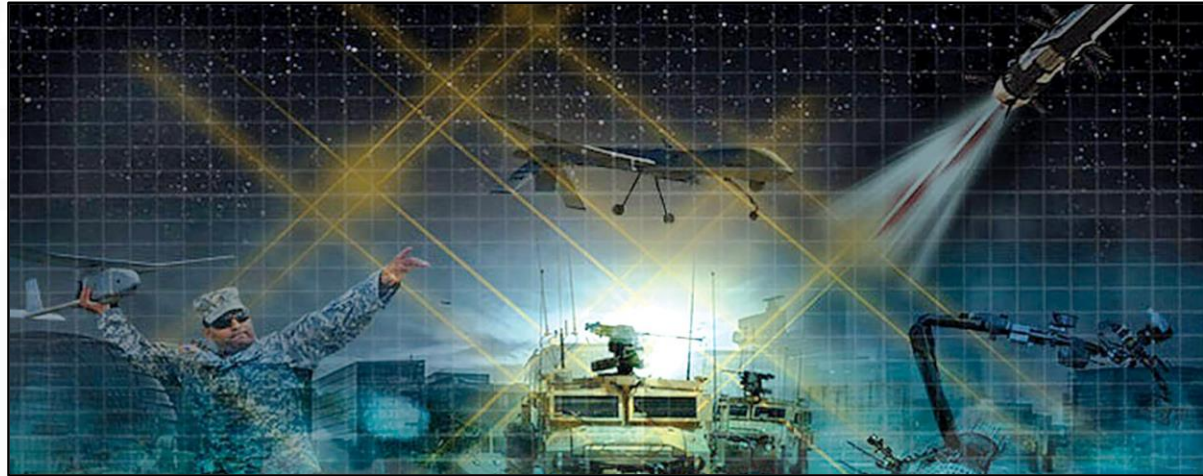
Focused on to Modular, Scalable, Standard Power Solutions

Hybrid Power Unit

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CONCLUSIONS



- Power is a **Key Enabler** of Army modernization priorities
- Striving to provide **Modular, Scalable, Standard** Army solutions for flexibility, optimization, readiness
- **AFC Power & Battery Integration Strategy** supports standardization of Army Power & Batteries
- Advanced tactical power will increase **Power Resilience** through system reliability, flexibility, and sustainability

