Extending Operational Reach

Program Executive Office
PEO CS&CSS
First to the Field... Last to Leave
Combat Support & Combat Service Support

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Integration

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U.S. ARMY

Modifying TWVs for Operational Reach and Lethality

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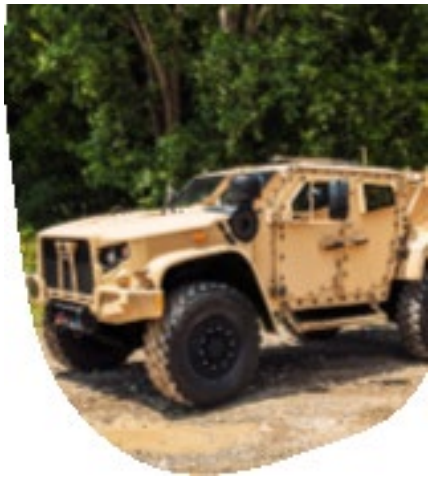


SILENT MOBILITY

SILENT WATCH

IMPROVED AUTOMOTIVE PERFORMANCE

EXTENDED OPERATIONAL REACH

FUEL DEMAND REDUCTION

LOWER EXPOSURE OF FUEL DELIVERY PLATFORMS & PERSONNEL

POWER EXPORT CAPABILITY

Supports multi-domain operations in a contested environment

How to Achieve These Benefits?

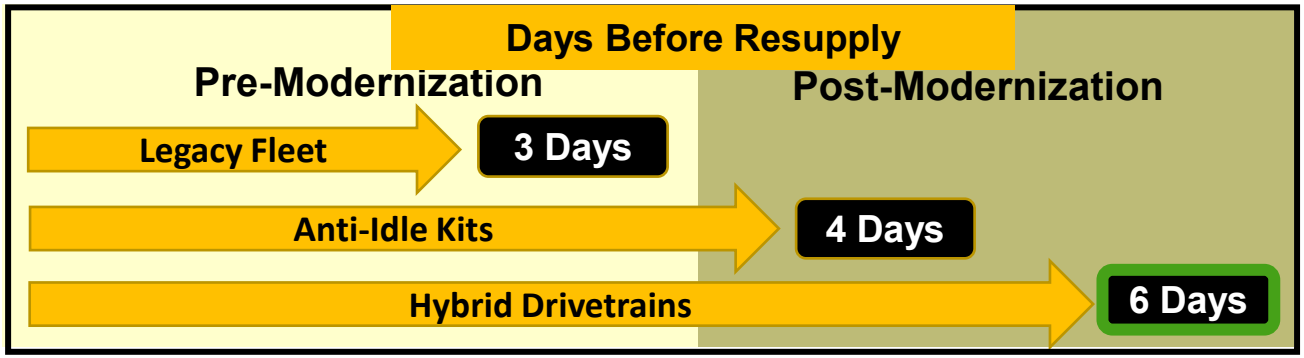
Anti-Idle Systems	Vehicle Integrated Power Kit (VIPK)	Hybrid Propulsion
• >20% fuel savings • 50% reduced engine run time	• 110 kW available (600 VDC) • Exportable Power	• 40% fuel savings • Enhanced performance

Demonstrated

Demonstrated

- **Mission Capability**
  - Increases power availability
  - Supports emerging and future weapon systems (power)
  - Connects to Tactical Microgrid
  - Extends range and mission duration
  - Reduces thermal and acoustic signatures
- **Reduces Logistics Burden**
  - Reduces fuel resupply requirements
  - Reduces/improves maintenance
  - Decreases wet stacking
- **Improved Transportability of Systems**
  - Reduces number of generators in specific situations
  - Reduces ship and aircraft space requirements

Improved Combat Capability



Anti-Idle

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With the engine off, the Anti-Idle system is designed to use Lithium-Ion batteries to operate HVAC and onboard comms/accessories.

Technical:

- 30-40% reduced engine run time (demonstrated)
- 30% average fuel savings in a LSCO setting
- Provides power to HVAC and onboard comms / accessories with the engine off
- Can provide Low Amp Exportable Power

Platform Benefits:

- Reduced fuel consumption allows for extended mission durations
- Increases Survivability by reducing audio & thermal signatures
- Reduces engine usage, increasing the time between scheduled and unscheduled services.
- Improved Arctic performance

Formation Benefits:

- Overall >30% fuel savings results in extended unit range and less demand on fuel distribution assets
- At scale (Division Level), in a LSCO environment, 30% reduction is ~ 60K Gallons.

Vehicle Integrated Power Kit (VIPK)

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Provides high voltage DC power both on the move and at the halt for applications such as missile defense, mobile command post, directed energy weapons, and vehicle-centric microgrids.

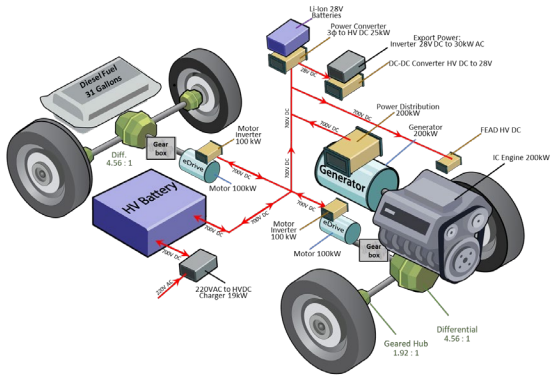
Technical
- 30kW power on the move; 120kW at the halt
- Fast forming microgrid compatible w/ E2S2 Universal Power Gateway
- Tactical Microgrid Standard (TMS) compliant

Platform Benefits:
- Enhances anti-idle, reduced fuel usage when stationary
- Enhanced speed of emplacement/displacement
- Opens pintles that tow generators
- Reduce engine run time (maintenance demand)
- Interoperability with other microgrids
- Enables displaced employment of energy-reliant systems

Formation Benefits:
- Extend operational range
- Extends maneuver from 3 to 4 days before resupply
- Enhance unit mobility/reduce strategic lift requirements
- Power solution reduces footprint at forward elements
- Power management flexibility during split operations

Hybrid Vehicle Propulsion

Provides high voltage DC power both on the move and at the halt for applications, onboard recharge capability and vehicle propulsion.



Benefits:

- Reduces noise/thermal signature; silent operations - overwatch & mobility
- Increases automotive performance (acceleration, speed on grade, braking)
- Reduces fuel usage, increasing mission duration/range
- Reduces fuel demand, reducing the exposure of fuel delivery trucks and storage systems to hostile activity
- Power for High Energy Demand Systems & High Voltage export capability
- Increases On-Board Power to Operate Mission Systems & HVAC (C-UAS, Directed Energy, etc.)
- TMS Compliant Bi-Directional Micro-Grid
- Optimizes diagnostics at the LRU level

Summary

- **Army is pursing technology insertions to TWVs for numerous mission benefits at Tactical, Operational and Strategic levels.**
- **Mission capability**
  - Increased power availability (on and off board)
  - Silent watch
  - Silent mobility
  - Support emerging and future weapon systems (power)
  - Increased automotive performance
- **Reduces logistics burden though:**
  - Decreased fuel demand
  - Reduced fuel resupply requirements
  - Reduced / Improved maintenance
- **Improved transportability of systems**
  - Reduce number of generators in specific situations (reduce ship and aircraft space requirements)

Small Business Innovation Research (SBIR)

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- **Designed to overcome challenges of small business working in Government research and development.**
- **Executed under ASA(ALT)**
  - Project Lead Integration supports the Transition Broker Teams (TBT)
- **TBTs focused on specific areas:**
  - Sensors, Immersive and Wearables, AI/ML, Energy, Contested Logistics and Sustainment
- **Topics are proposed from multiple sources across the Army, including Materiel Development, R&D and Requirements communities**
- **Topics released monthly**
- **Types of Proposals:**
  - Phase 1: 3-6 months, up to $250K
  - Phase 2: 18-24 months, up to $2M
  - Phase 3: Varies, funded by the agency, competition is during Phase 1 and 2

https://www.armysbir.army.mil/

QUESTIONS