U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND – GROUND VEHICLE SYSTEMS CENTER

ARMY ELECTRIFICIATION

Dean Zeal McGrew
Branch Chief, Powertrain Electrification
Combat Capabilities Development
Command Ground Vehicle Systems Center

18 NOV 2021
ELECTRIFICATION BENEFITS

1. Onboard power for energy based capabilities, such as directed energy weapons, jammers, electrified armor, etc.

2. Silent Mobility/Silent Watch

3. **Extend Operations** between resupply due to anti-idling, auxiliary system electrification, hybridization, microgrids, and host nation power.

4. Improved Mobility (and Survivability) due to improved acceleration and burst speed.

5. Reduced maintenance/sustainment costs
APPROACHES TO ELECTRIFIED PLATFORMS

Electrification
- Anti-idle with highly electrified components

Mild Hybrid
- High voltage energy storage and clutch for electronically assisted mobility

Full-Hybrid
- Electrified drive train powered by a combustion engine or fuel cell.

All-Electric
- Electrified drive train powered by energy storage system, possibly with a range extension system.

3-5 Mile Silent Mobility,
- 35% Fuel Reduction, 4x Silent Watch, 40% improved sprint, 18x power

3-5 Miles Silent Mobility,
- 35% Fuel Reduction, 40% improved sprint, 2x Silent Watch, 10x power

No Silent Mobility,
- 20% Fuel Reduction, 2x Silent Watch, 3x-10x Power Generation, Export/Import Power

Full Time Silent Mobility,
- 50% Fuel Reduction, All Silent Watch, 200x peak power, 95% Thermal Signature Reduction