

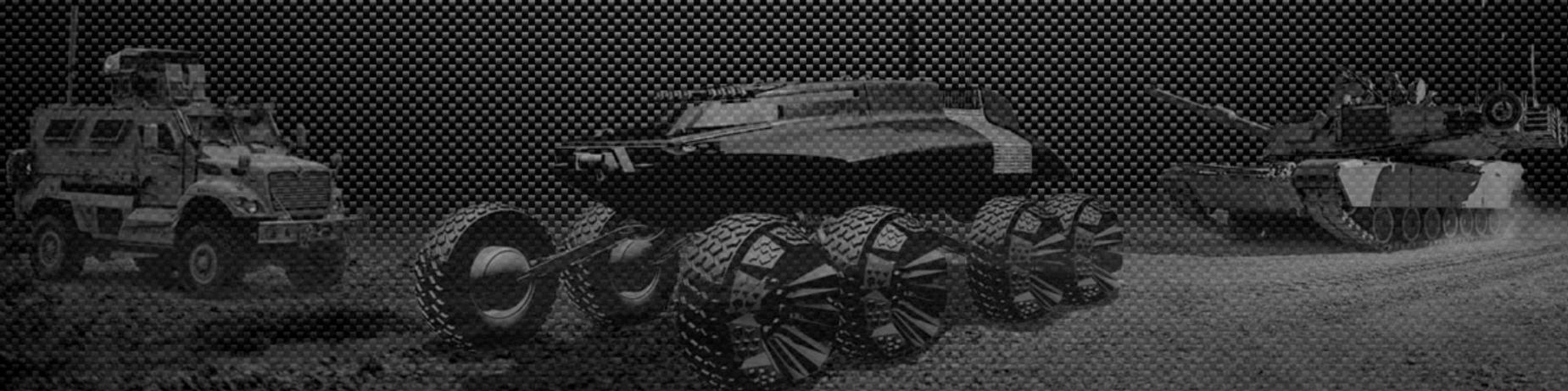


U.S. ARMY TANK AUTOMOTIVE RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

Annual Merit Review Inter-Agency Activities Panel Session

14 June 2018

Dr. Paul Rogers
Director, TARDEC



Shaping the Defense Ground System Landscape



MISSION:
Develop, integrate & sustain the right technology solutions for all manned & unmanned Department of Defense ground systems & combat support systems to improve current force effectiveness & provide superior capabilities for the future force.

VISION:
Be the first choice of technology & engineering expertise for ground vehicle systems & support equipment - today & tomorrow.



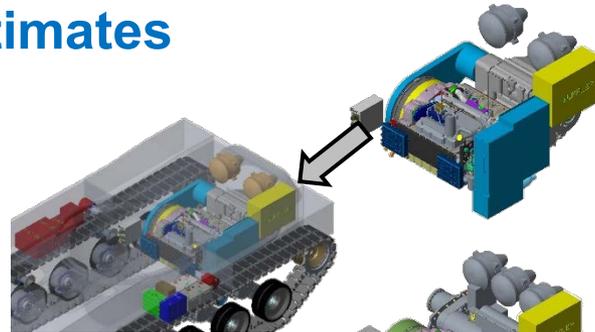
JAMES SCOTT 4/2018

Future Electric Tank Study

Propulsion Weight & Volume Estimates

- Future Tank 2A **Parallel Diesel Hybrid**

Feasible for a mid 20's demonstration



262 ft³
+210 lbs

- Future Tank 2B **Series Diesel Hybrid**

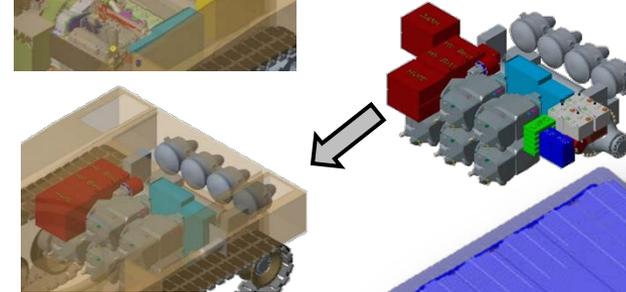
Feasible for a mid 20's demonstration



267 ft³
+530 lbs

- Future Tank 2C **Series Fuel Cell Hybrid**

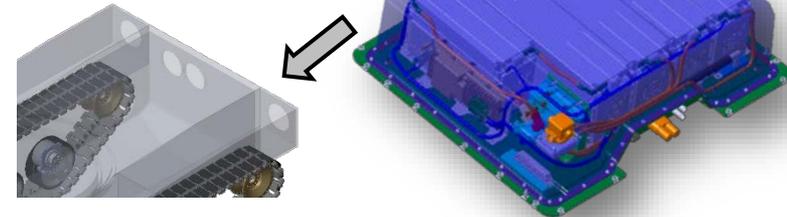
Feasible for a late 20's demonstration



350 ft³
+125 lbs

- Future Tank 2D **All Electric**

Not Feasible for 2020's demonstration



850 ft³
+28,000 lbs

Propulsion volume estimates for ~48T combat system with fuel for 300 mile range.

- Baseline volume is 225ft³.
- Baseline weight is 15,000 lbs.
- Does not include armor for external hydrogen fuel tanks



Public-Private Partnership Between TARDEC and GM to Assess Operational Value of Fielding Fuel Cell Powertrains

Payoff:

- Reduced Logistics Burden*
 - *More Efficient*
 - *Hydrogen Reformation*
- Improved Signature Management*
 - *Acoustic and Thermal*
- Exportable Power*
- Water Generation*

Current Activities/Capabilities:

- ZH2 Fuel Cell All Electric Vehicle*
- Ground Systems Power and Energy Lab*

- Vehicle Electrification Forum
- H2 Workshop 2 scheduled to convene at TARDEC in mid-Sep 2018
- JP-8 Fuel Cell Power Project
- Exploring opportunities to build and operate hydrogen fueling stations with the State of Michigan and MEDC.
- Series Fuel Cell Hybrid Tank Concept

