Micro-reactors for Army Applications

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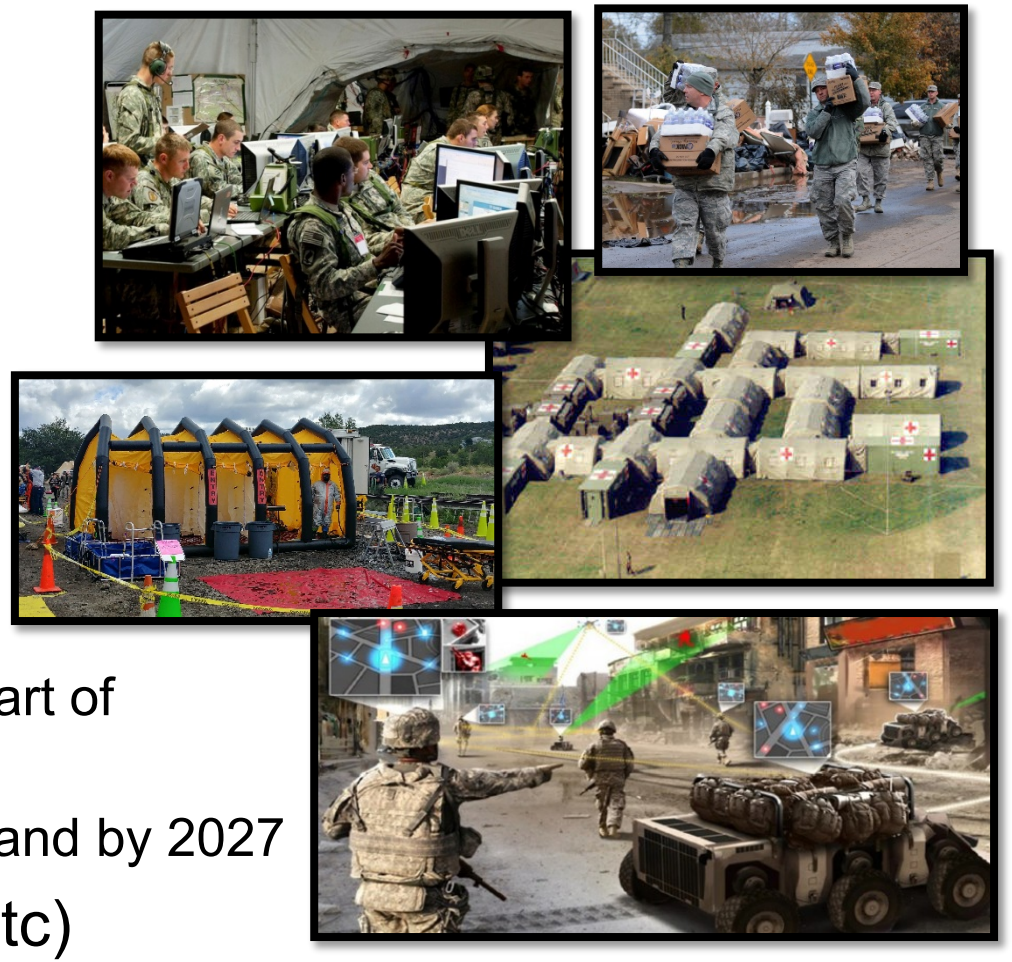
Energy Needs

- Who: U.S. Army
- What: Requires energy
- When: On-demand
- Where:
  - Back-up for Installations
  - Disaster Area Relief
  - Austere Environments
- Why:
  - Advancing technology is part of modernization
  - 37% increase energy demand by 2027
- How: ? (nuclear, solar, etc)



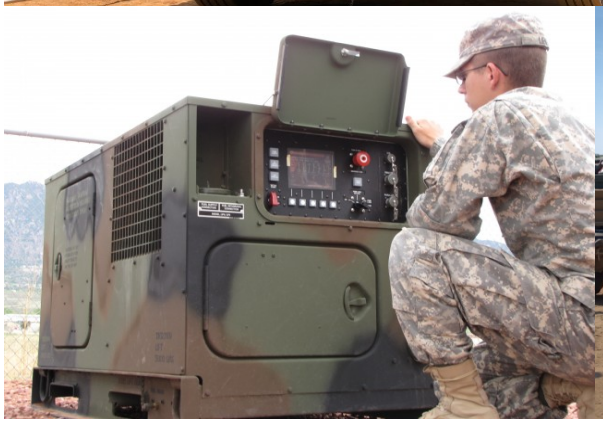
Electrical energy enables Army combat power

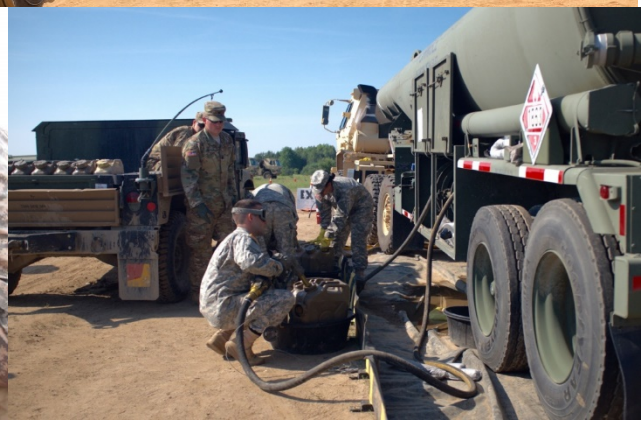
Energy Logistics Are Critical

Army G-3/5/7

- Fuel accounts for ~ 40% of land transport missions
- Fuel averages $400/gallon in Afghanistan
- In austere locations fuel can reach $1000/gallon
- Afghanistan:
  - For one year 88 million gallons
  - Requiring 897 fuel convoys
- Iraq:
  - For one year: 500 million gallons
  - Requiring 5133 fuel convoys

Between Oct 2001 and Dec 2010, 52% of OIF and OEF casualties occurred from hostile attacks during land transport missions.





"Relieve the dependence of deployed forces on vulnerable fuel supply chains" ***Commanding General, 1st Marine Division in OIF***

Army Energy Needs

- Current
  - Generators
  - Petroleum fuel
  - 30% of military operational fuel in Afghanistan today goes to generating electricity (~107M gallons/year)
- Future
  - ~357M gallons/year for energy generation, in future support areas
  - Resilient and reliable power for remote areas
  - Installations with energy requirement that exceed local infrastructure
  - Remote installations where with a high-cost of energy

Military Requirements

- Stationary and mobile options
- Minimize manpower
- Minimal maintenance
- Safe
- Secure
- Operationally reliable
- Environmentally compliant

Questions