



**MARINE CORPS SYSTEMS COMMAND**  
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# **USMC Intelligent Power Management Efforts**

## **MGYST Gerald Volpp**

**Joint Service Power Expo**  
**August 26, 2015**



- EPS Overview
- Background
- Microgrid and Advanced Power Distribution Concepts
- Current Efforts
- Future Opportunities
- Conclusions



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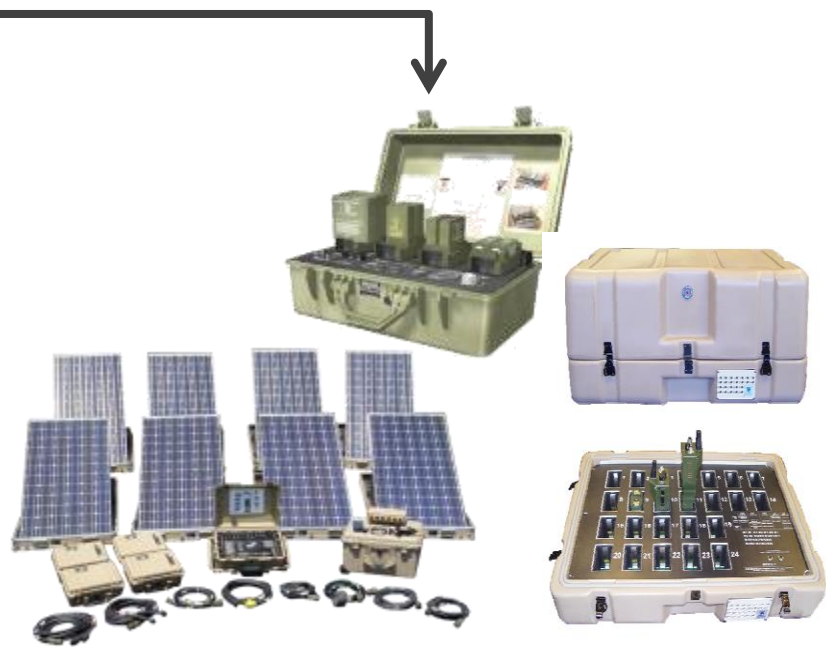
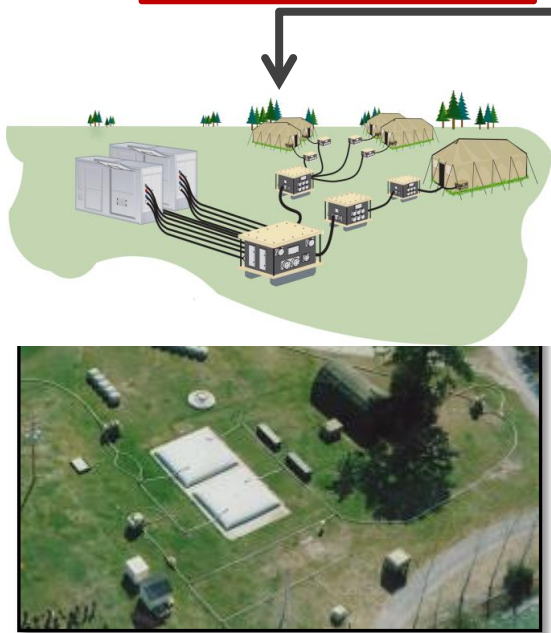
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## EPS Program Office



Mobile Power  
Water and Fuels

Advanced Power Team





### DOD Standard Generators



### USMC Unique Generators



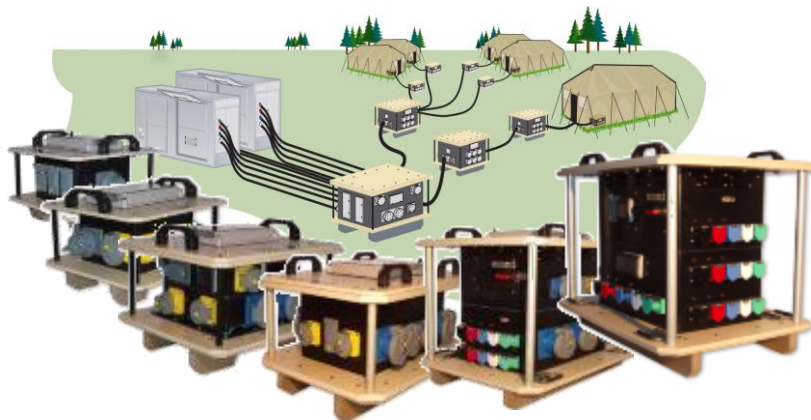
### Tools / Customer Support



### Integrated Trailer ECU - Generator



### Power Distribution



### Floodlight Sets

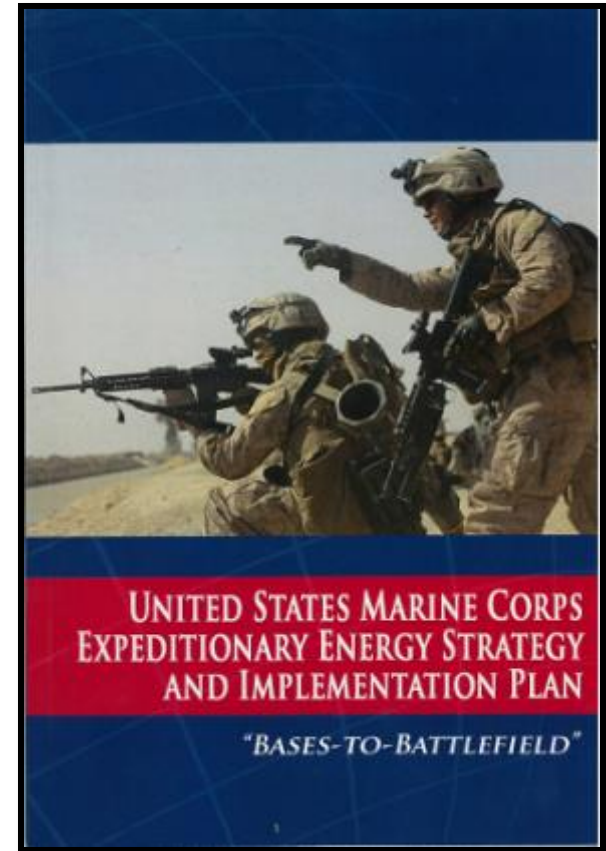




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## Why is Power/Energy Important?



**Getting Fuel and Water to the “Tactical Edge” is Expensive in Human and Capital Costs**



## 2011

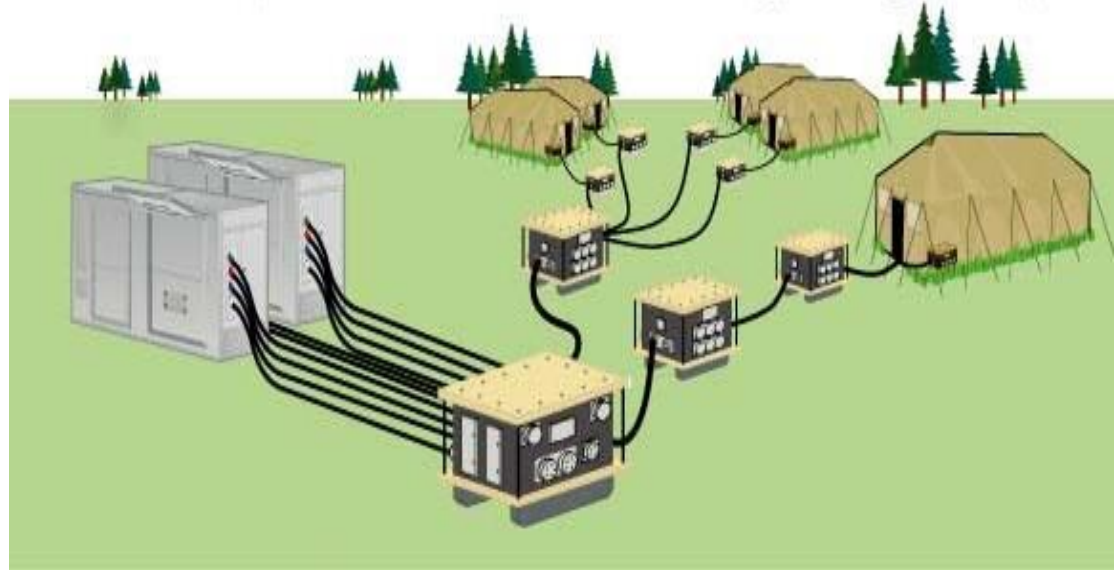


## 2013 >>>



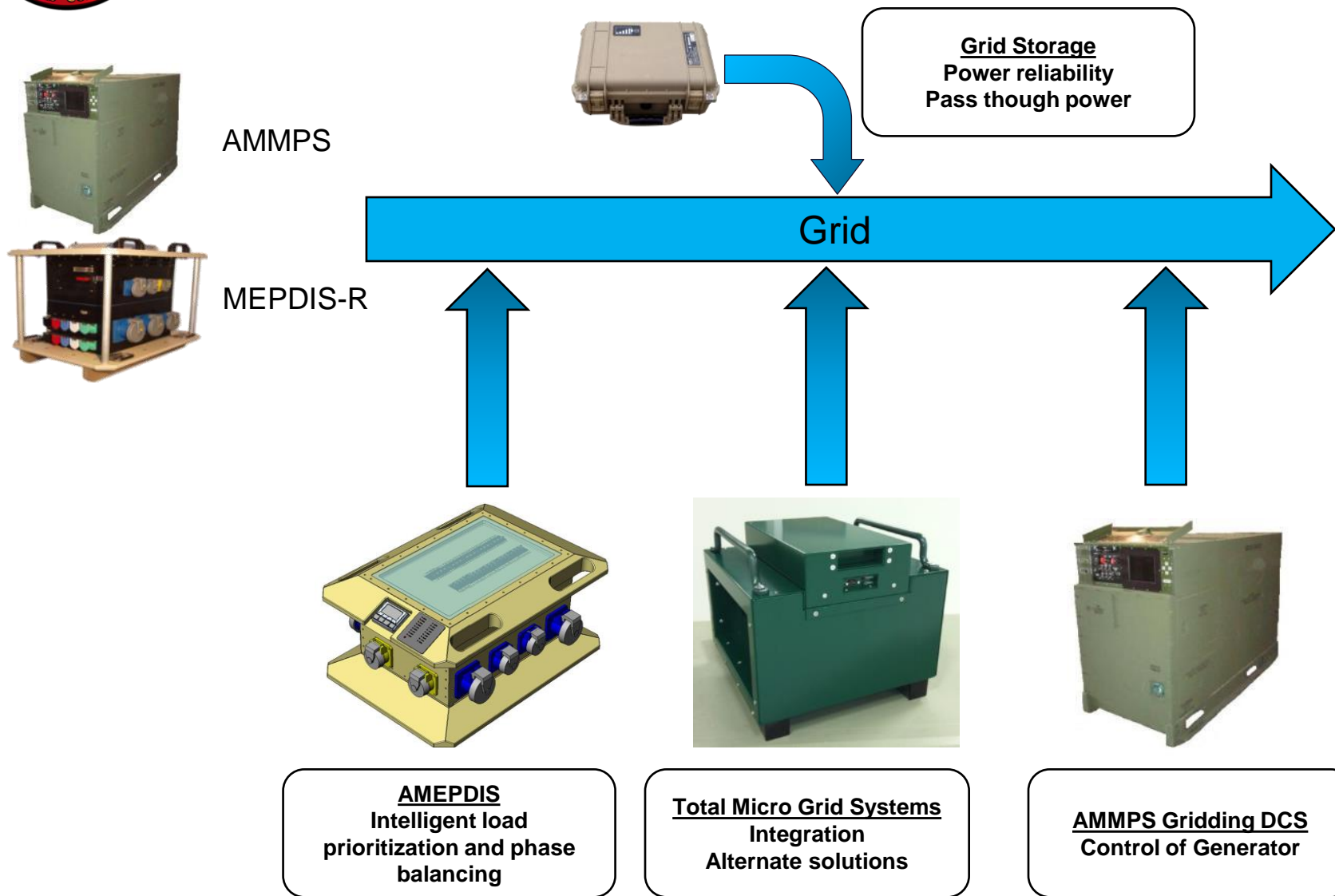
# USMC MEPDIS-R

*(Mobile Electric Power Distribution System Replacement)*



MEPDIS-R is a commercial based power distribution system specifically designed by LEX MPS (Military Power Systems) for the United States Marine Corps.

MEPDIS-R is more robust, more easily supportable and less costly than other legacy systems.



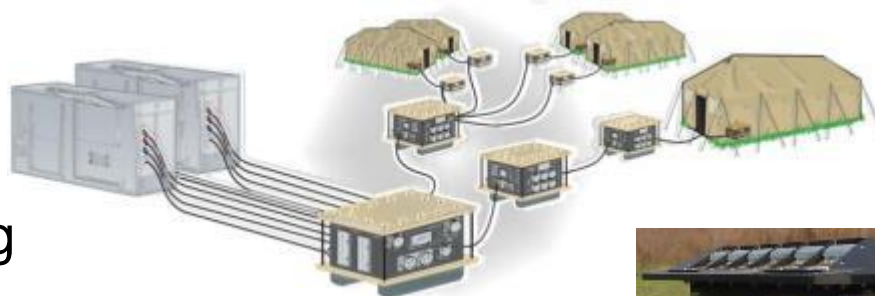




**A-MEPDIS incorporate advances in electrical power distribution and control to improve safety, reliability and energy efficiency over the current MEPDIS-R system alone.**

### AMEPDIS Objectives

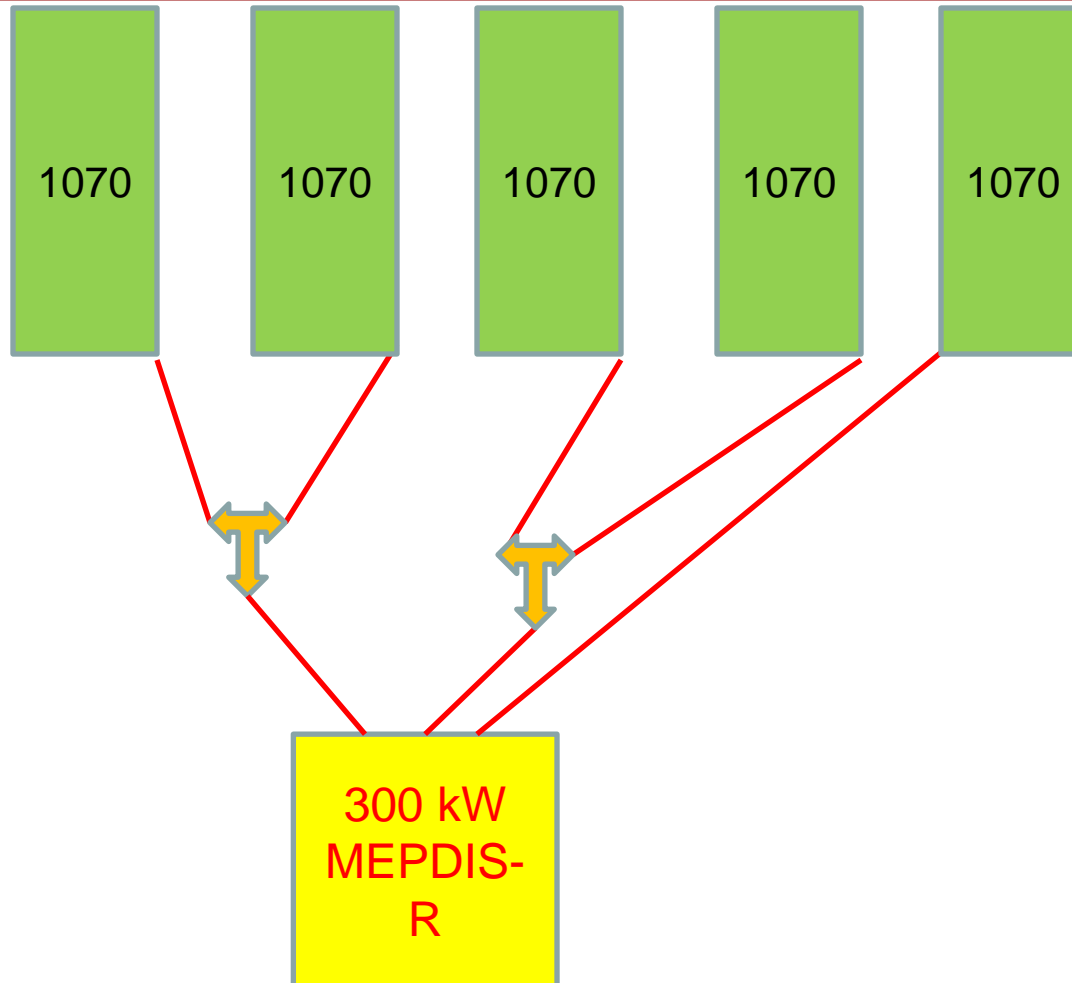
- Phase balancing
- Load prioritization and shedding
- User feedback
- Man portability
- Remote monitoring
- Modularity
- Advanced Safeties
  - Remote operated breakers
  - Automatic ground sensing
  - Fault monitoring and isolation





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## AMMPS MICRO GRID



## RIFs and SBIR

- Looking at combining generator control, and intelligent power management into one integrated solution.
- Data over power lines
- Alternate generator control methods
- Alternate phase balancing and load shedding methods.
- Microgrid testbed solutions





- Evaluating energy storage for microgrids
  - MCSC approach is to leverage battery technology efforts of others (govt and industry)
  - Technical and operational understanding of energy storage application with hybrid power systems < 10 kW is fairly well understood
  - For application > 10 kW additional technical and operational analyses is required
- Objectives of Grid Storage
  - Switchover power
  - Increase grid reliability
  - Increase grid efficiency
  - Modular with hybrid systems
  - Possible short silent watch



- *Development of Marine Corps Operational and Organization Concepts*
- *Joint DoD Working group to update MIL-STD-705*
- *Joint development of DoD microgrid interface standards*
- *Performing microgrid demonstrations and training through Marine Corps to inform need*



Marine Corps trains the 1141 (Electrician) MOS to operate, maintain and plan with Power Distribution at three different levels:

- Basic (E-1- E-3): Install, operate, and maintain.
- Advanced(E-4 – E-6): Battalion level planning and execution.
- Utilities Chief’s Course (E-7): MEF level planning and execution.

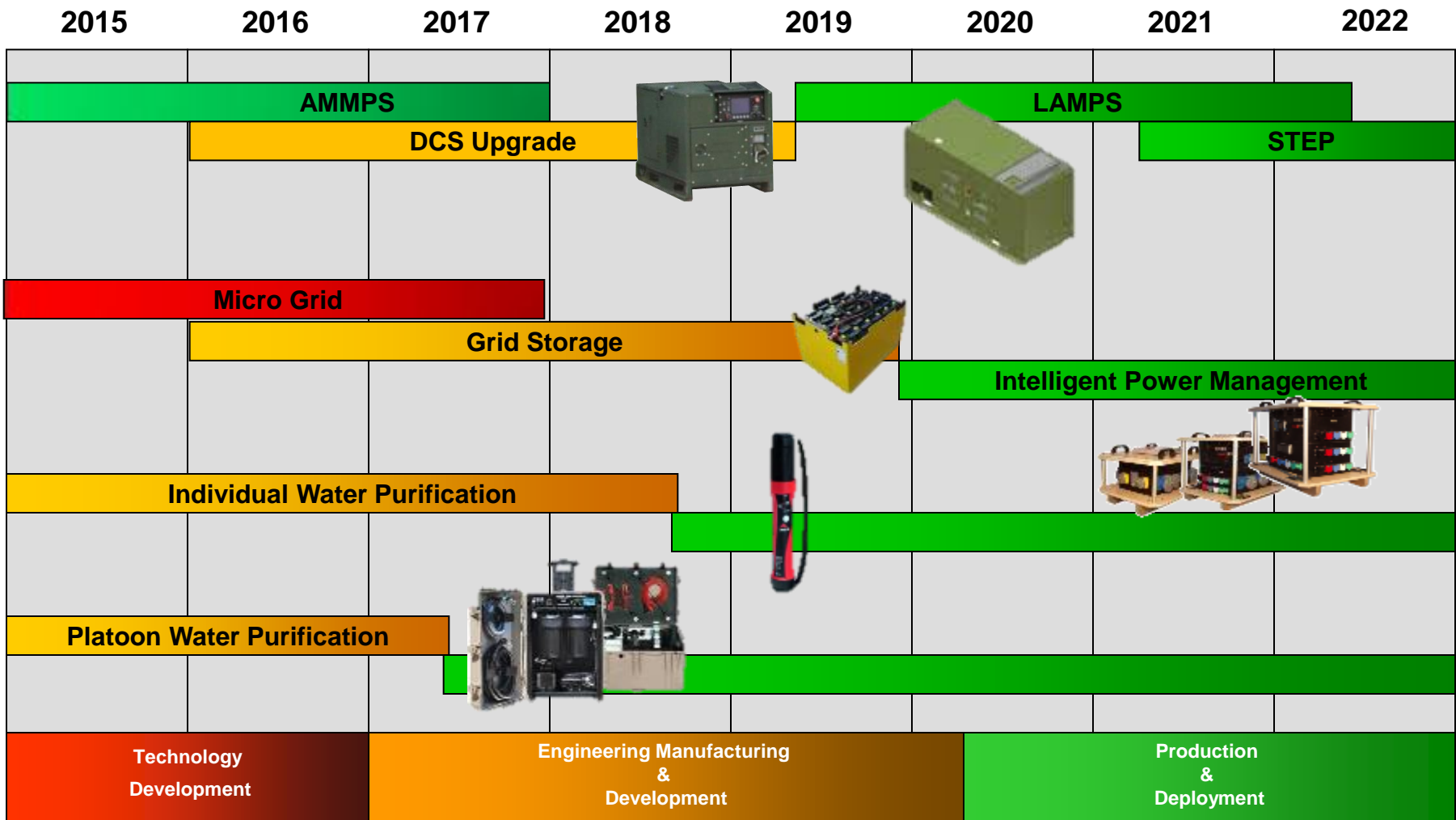
An Advanced microgrid is only as good as the user using it.  
Training and structure provides the USMC with advanced power operators



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## Mobile Electric Power and Water Key Initiatives



AMMPS – Advanced Medium Mobile Power Sources  
 LAMPS – Large Advanced Mobile Power Sources

STEP – Small Tactical Electrical Power



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Further Information

**Email questions to:**  
**PM\_EPS@usmc.mil**

**Find more programmatic information:**

**<http://www.marcorsyscom.marines.mil/ProgramOffices/EPHome.aspx>**

**[www.onr.navy.mil](http://www.onr.navy.mil)**

**<http://www.hqmc.marines.mil/e2o/E2OHome.aspx>**

**Current / Future Solicitations:**

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**Any questions about on-going solicitations:**

**Must contact the listed Contracting Officer in the solicitation**





# QUESTIONS

