Briefing Topics

- Who we are
- Where we’ve been
- Where we’re going
- What we know
- Some things to think about
USMC Organizations involved in Research and Acquisition

- Assistant Secretary Of the Navy Research, Development & Acquisition
  - Chief of Naval Research
  - Program Executive Officer Land Systems
  - Office of Naval Research
  - Marine Corps Warfighting Lab

- Commandant of the Marine Corps
  - Assistant Commandant of the Marine Corps
    - Deputy Commandant Plans / Policy / Ops
    - Deputy Commandant Programs / Resources
    - Deputy Commandant Installations / Logistics
    - Deputy Commandant Aviation
    - Deputy Commandant Combat Development

- Commanding Officer Marine Corps Systems Command
  - Commanding Officer Marine Corps Operational Test & Evaluation Activity

- Deputy Commandant
  - Deputy Commandant
  - Deputy Commandant
  - Deputy Commandant
Power...*Pervasive & Enabling*

**Electric Warship**

**More Electric Aircraft**

**Space Systems**

**Less-than-Lethal Systems**

**Combat Vehicles & Weapons**

**Warfighter**

**Tactical Vehicles & Support Systems**

*Graph showing increasing power needs from 2000 to 20xx.*
Alternator Rating on USAF Fighter Aircraft

- F-16 Falcon
- F-15 Eagle
- F-22 Raptor
- F-35 Lightning II

Kilowatts

- Stability controls
- Telematics
- Collision avoidance systems
- Onstar Communication systems
- Navigation systems
- Steer by-wire
- Electronic braking
- Powertrain/body controllers & Sensors
Alternator Amperage Rating on HMMWV / MRAP at 28 VDC
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- Initial Fielding – 60 Amps
- OEF / OIF / Digitization / Networking kicking in
- First Generation Vehicles Wearing-Out
- Second Generation Vehicle Deliveries
Alternator Amperage Rating on HMMWV / MRAP at 28 VDC

- **Initial Fielding – 60 Amps**
- **Post Desert Storm – Start of Digitization**
- **OEF / OIF / Digitization / Networking kicking in**
- **First Generation Vehicles Wearing-Out**
- **Second Generation Vehicle Deliveries**

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**MRAP I**
- **RG-31**
- **COUGAR / JERRV**
- **MRAP II**
- **RG-31 Upgrade**

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- MRAP I
- MRAP II
- RG-31
- RG-31 Upgrade
- COUGAR / JERRV
What’s Consuming Power?
USMC JOLLER C-IED Experiment

MTVR Platform: $135,000
60 kW Tactical Generator: $40,000
Lightening Bolt: PRICELESS
Mine Rollers: $85,000
Current power plan for USMC MTVR and G/ATOR Radar
“Every Marine is a Rifleman”
“Every Marine is a Radio Operator”
Operations in Afghanistan, August 2008
Pre-OIF Rifle Company Radios

Co HQ (x3/Bn)

RFL Plt (x3/Co x9/Bn)

WPNS Plt (x3/Bn)

Mounted in M998A1

T/O  6 Officer/176 Enlisted

- VHF-V (VRC-88): 1
- VHF-M (PRC-119): 7
- UHF-M (PRC-113): 1

Radio Weights
- PRC-119 - 22.5 lbs
- PRC-113 - 16.7 lbs
* w/batteries
OEF-Era Rifle Company Radios

Co HQ (x3/Bn)

RFL Plt (x3/Co x9/Bn)

WPNS Plt (x3/Bn)

Mounted in M1123A2s

T/O 6 Officer/176 Enlisted

- MBR-V (VRC-103): 1
- MBR-M (PRC-117): 6
- HFMR (PRC-150): 5
- DVA (VRC-110): 2
- THHR (PRC-148/152): 35
- IISR (PRC-153): 176

*Corpsman IISR counted in H&S

Radio Weights

- PRC-150 - 15.7 lbs
- PRC-117 - 15.9 lbs
- PRC-152 - 2.4 lbs
- PRC-153 - 1 lbs

* w/batteries
What’s Unique about USMC Acquisition

“DOESN’T THE USMC JUST BUY ARMY STUFF?”

1947 National Security Act

- Provide Fleet Marine Forces with combined arms and supporting air components for service with the United States Fleet in the seizures or defense of advanced naval bases and for the conduct of such land operations as may be essential to the execution of a Naval campaign.

- Develop, in coordination with the Army, Navy and Air Force, the doctrine, tactics, techniques, and equipment employed by landing forces in amphibious operations.

- Develop in coordination with the Army, Navy and Air Force the doctrine, procedures and equipment for airborne operations.

Bottom Line: USMC does procure unique equipment for its unique missions
WHAT WE DO TODAY
WHAT WE WILL DO TOMORROW
Implications to Power & Energy

- **Space** and **Weight** are at a premium due to lift restrictions
  - Air
  - Sea
- Efficiency and adaptability of energy use for deployed forces
- Unique transportation requirements
  - All equipment must be capable of deploying via ship or air
  - Equipment must survive coming through surf
  - Electromagnetic interference from shipboard systems
  - Special restrictions for shipboard stowage / transport
  - Supply / resupply is from the mother-ship / Pre-Positioned Forces
Mobile Electric Power

DOD Standard Generators

USMC Unique Generators

Tools / Customer Support

Integrated Trailer
ECU - Generator

Power Distribution

Floodlight Sets
Advanced Power Sources

Radio Power Adaptors

Power Supplies

Renewable Energy

On-Board Power

Battery Management / Sustainment Systems
Battery Management & Sustainment

Battery Chargers (Comm-Elec)

- Vehicle Mounted Charger (with adaptors)
- Suitcase Portable Charger (with adaptors)
- CHRISTIE Charger

Battery Chargers / Tools (Ground Equipment)

Computer Based Training

Naval Lithium Battery Safety Program

Military Batteries
USMC On-Board Vehicle Power

DC-AC Power Inverters
1.8 / 2.5 kW

OBVP - Medium
20-30 kW HMMWV

Auxiliary Power Units

OBVP - Small
400 Amps @ 28 VDC (HMMWV)

OBVP - Large
120 kW (MTVR)
Renewable Energy Systems

- **Internal**: < 10 W
- **Carried**: 10 - 100 W
- **Portable**: 100 - 1000 W
- **Generator**: 1 – 10 kW
- **Stationary**: > 10 kW

**Projects**

- **SPACES Project**
- **GREEN Project**
- **DREAM Project**
Future Program Initiatives

- On-Board Vehicle Power (2009)
- Advanced Battery Technology (2010)
- Family of Battery Chargers (2011)
  - Vehicle Mounted Battery Charger (now)
- Family of Radio Power Adaptors Reset (2011)
- Family of Power Supplies (2012)
- Family of Environmental Control Units (2013)
- Field Refrigeration Systems (2013)
- Floodlight Set Rebuy (2013)
USMC Power Considerations

- Acquisition in accordance with Department of Defense policies for requirements validation / acquisition management / DOD MEPGS

- USMC has unique requirements over and above other services

- Many of the power solutions are adapted from commercial sector, but ruggedized for the military environment

- Equipment requirements continue to grow, but manpower to support has not kept up.

- Troop rotation is perpetual. Training/retraining is paramount. Ease of equipment use vitally important.
Closing Comments USMC Acquisition

- We compete 99% of our programs
  - For programs that may go sole-source to a vendor, most likely they were competed in the initial phase
- Market research dictates whether programs are small business set aside, or Full and Open competition
  - Don’t ignore Sources Sought Notices or Requests for Information
- If we see that an item is commercially available, we will request / require a loaned article as part of proposal submission to support our source selection
- Order of precedence when we procure:
  - Federally mandated suppliers (Lighthouse for the Blind, Federal Prisons)
  - Federal Supply Schedule
  - Small / disadvantaged businesses
  - Small business
  - Open sources
  - Limited sources
- For all solicitations and notices, keep an eye on FEDBIZOPPS
Questions