Naval Energy Forum

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Col Bob “Brutus” Charette
Director, Expeditionary Energy Office (E²O)
Exponential Growth in Technology
On the Battlefield

Vietnam

Today

380% Weight Increase
2,400% Cost Increase

AN / PRC - 148 or 152
Unique Batteries

AN / PRC-153
Unique Battery

Quiet Pro Headset
Unique Battery

Squad Digital Camera
Unique Battery

AN / PRC-117F
BA-5590 / BA-5590 / BB-2590 Batteries

Rugged Laptop
Unique Battery
Logistics Convoy Study
24 Mar 10 – 30 Jun 10

• 299 Fuel/Water Convoys (98 Days)

• 6 Marines WIA hauling Fuel/Water

• 1 Marine WIA per 50 Fuel/Water Convoys
Reducing Risk
Increasing Effectiveness

Ethos

Renewables
Efficiency

Today

Lethal
“More Tooth less Tail”

Austere
“Reduce Footprint”

Fast
“Lighten Load”
Mission

By 2025 we will deploy Marine Expeditionary Forces that can maneuver from the sea and sustain C4I and life support systems in place; the only liquid fuel needed will be for mobility systems which will be more energy efficient than systems are today.

E2W2 CBA/ICD

Three Pillars Required to Accomplish the Mission

Energy Strategy and Supporting Requirements Documents Written in Parallel to Achieve CMC’s Priority; ...to “Implement New Capabilities...”
Joint or Coalition Force, Interoperable Energy, Water & Waste Capabilities

Dispersed Maneuver Force
Improved, Fuel Efficient Vehicles Operating on Alternative Fuels

Minimized Aviation Resupply Missions
Fuel, Battery, & Water Resupply Convoys Minimized

Precision Air Delivery

More Efficient, Alternative Fuel-Capable Aircraft & Renewable-Powered UASs

Self-Sufficient FARP - Water & Energy Alternative Fuel

Dismounted Ops - Reduced Battery & Water Load & Resupply Renewable Energy, Water Purification

Self-Sufficient Bn FOB
Renewable Energy Powered COC & Life Support, Locally Sourced Water, Minimum Footprint Ashore

Afloat C2 & Logistics Support

Plan for Energy, Water, & Waste Efficiency

Common Operational Energy Picture
Monitor, Analyze, Manage
Expeditionary Energy Goals
“Starting Point”

25% Doctrine, Training, Organization, and Leadership = Behavior Change
“Spartan Ethos”

10-15% Increased Efficiency of Ground Vehicles and Equipment

5-10% Renewable / Alternative Energy

10% Increased Efficiency in Aviation

~50% Reduction by 2025

Starting Baseline
OEF 2010
(Will be adjusted as we gain greater insights into actual use across the MAGTF)

Baseline will be adjusted as we gain better insights into challenges and opportunities.
Today’s Deployed MAGTF

Today’s Deployed MAGTF

1 Gallon
JP-8

$7.68 / Gallon
18,980 Fuel Trucks / Year
$729M / Year

0.5% Improvement ~0.5M gals/yr.
95 Fuel Trucks or $3.6M

5% Improvement ~4.7M gals/yr.
949 Fuel Trucks or $36M

15% Improvement ~14M gals/yr.
2,847 Fuel Trucks or $109M

25% Improvement ~24M gals/yr.
4,745 Fuel Trucks or $182M

Small Improvements in Energy Efficiency…Big Impact!
“We Are Looking For A Few Good Technologies”

• Temp Independent Electronics
• Efficient Cooling / Heating of Personnel
• Energy Storage
• Energy Harvesting
  – Solar
  – Kinetic
  – Thermal
  – Waste
  – Etc…
• More Efficient Electronics / Vehicles / Equipment
• Vehicles as a Power Source
• New Leadership and Training

We don’t create markets, we protect our Nation!