Department of the Navy

Mission Critical, Mission Possible

AMERICA'S NAVY

Marines

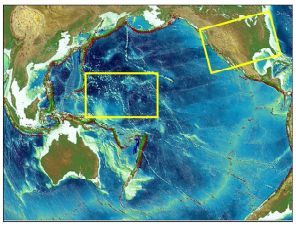
Past is Prologue

CULTURE CHANGE

"Good ideas are not adopted automatically. They must be driven into practice with courageous impatience."

5 Nov 1981
Admiral Hyman Rickover
Naval Reactors

Navy's Challenge - Distance



Energy's Advantage

Energy can provide:

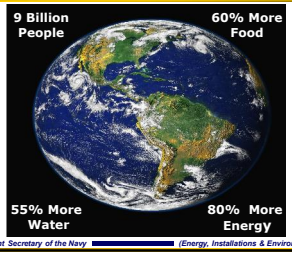
- *Combat advantage*
- *Strategic advantage*
- *Force Protection advantage*

Leadership's Role

Navy's Behavior Initiatives

Share your idea at: energywarrior@navy.mil

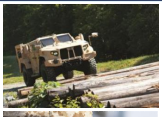
Our Challenge - 2050



United States Marine Corps Expeditionary Energy Program

The Marine Corps is America's Expeditionary Force in Readiness

- *Marines are better protected, more effective, and more lethal in combat than ever before*
- *Energy Orientation*
  - *45% more energy intensive than 2001*
  - *Tens of thousands of trucks, tanks, and other combat systems*
- *Energy in combat is:*
  - *Operational reach*
  - *The ability to close on more targets*
  - *A target itself*
- *Behavior impacts energy more than our systems do*
  - *How we fight the force*
  - *How we operate our systems*



180,000+ Marines performing combat missions and training are the real energy consumers.

Expeditionary Energy – Today and for the Future

Challenge

Battlefield Energy Demands Continue to Grow

Opportunity

Power Systems
- Hybrid power - 30% reduction
- Smart micro-grid - 50% reduction

Maneuver Systems
- Commercial technology - 85 miles further

Energy Information
- Consumption monitoring - 25% further

Meeting Today's Demands

Goal

By 2025, Marines will maneuver from the sea and sustain C4I/life support in place; the only liquid fuel needed will be for mobility systems

How

Industry and Academia
- Leveraging partnerships to develop energy solutions

Shaping the Force – Current & Future Force Capabilities

Lesson – Technology Itself Will Not Solve the Problem – It Can Help

Solutions Development E2O Energy Behavior Framing

Creating Energy Information from the Institutional to the Tactical Level

	Technology	Concept	Unit	Individual
Current	• Industry • R&D • Military Systems Performance • Water/Fuel Nexus • Autonomous Controls • More Power	• Modeling & Sim (M&S) • Energy Wargame • Experimentation • All Wargames • Campaign M&S • Studies	• Exercises (ITX, LSE, etc.) • Performance Modelling • Energy C2 (I MEF) • M&S (III MEF) • RW/TR Study • BEyOnD	• Exercises (ITX, LSE) • Training & Ed • Specialty Schools
Future				

This can either cost more lives and billions of dollars or..... we can get after behavior

Getting after Behavior @ Integrated Training Exercises

Going from using fuel to – Treating fuel like ammo

Eliminate Waste >>>>>>>> Reduce Excess >>>>>>>> Enable Success in Combat

- Metered trucks, generators, and other combat systems
  - ~64% vehicle engine idling time; if we reduced idle time by 1/2 each vehicle would go ~85 miles further before resupply
- Civilian behavior study team from Naval Post Graduate School
  - Individual and Unit; Situation; System
  - Goal: a 50% ↘ in fuel

Studies and Experiment Results

- 1st MEB command post **55%-86%** more efficient
- CLB-7 demonstrated a **22%** increase in vehicle fuel efficiency by changing Tactics, Training, and Procedures (TTPs) based on feedback
- TTPs Matter: Two different Infantry Battalions
  - One Battalion drove **190 miles further** on the same fuel

Energy Information: An Essential Part of the Learning Process at All Levels

Getting after Behavior – Empowering Marines with Energy Information

Priority #1: Commanders Control Their Energy Consumption

- *Marines need information in order to learn and adapt*
- *Data and studies guide the information we provide – not about tanks and trucks but about Marines*
- *Feedback loops and messaging inform behavior and institutional change*
- *Messaging matters – energy information must be tailored to be relevant*

Link: Washington Post (Jan16) - "The next energy revolution won't be in wind or solar. It will be in our brains."

Getting Marines to Care – It's Not About Energy

Behavior Change: Feedback at All Levels in the Marine Corps

Marine Corps Audience	Energy Messaging: *Operational energy is all about…*	Providing Energy Information (Feedback)
Fleet Marines	Combat Power	Metering & Monitoring
Company Platoon	More Operation Between Resupply *More Tooth, Less Tail*	Consumption Report , Comparative Assessment
Battalion Squadron	Tactical Effectiveness	Energy Impact Report, Comparative Assessment
Expeditionary Force	Operational Reach	Operational Plan Risk Assessment
Institution	Ready Force Today, More Capable Force in the Future	Wargaming

Changing Marines Energy Ethos Starts on the Battlefield – Energy is Combat Power

Our Footprint

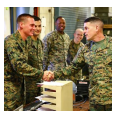
26,320 Buildings[1]
2x Starbucks

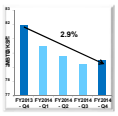
131,248,000 Sq. Ft.[2]
6x National Mall

11.30 million MBTUs[2]
⅓ Las Vegas in one year

Behavior Approach

Engagement Champions Metrics

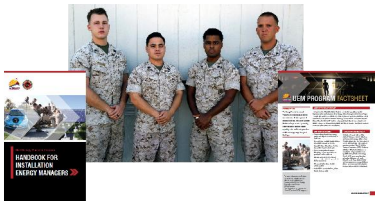




Engagement

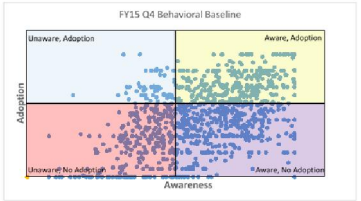
Messaging in Practice

Champions



Assistant Secretary of the Navy (Energy, Installations & Environment)

Metrics

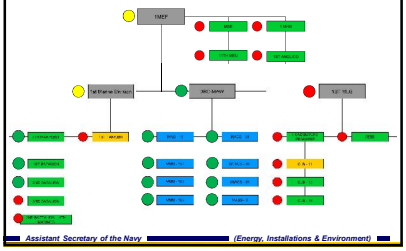


Assistant Secretary of the Navy (Energy, Installations & Environment)

Measure of Effectiveness

Assistant Secretary of the Navy (Energy, Installations & Environment)

Measure of Performance



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