OSD Operational Energy Update:

The DoD Operational Energy Office

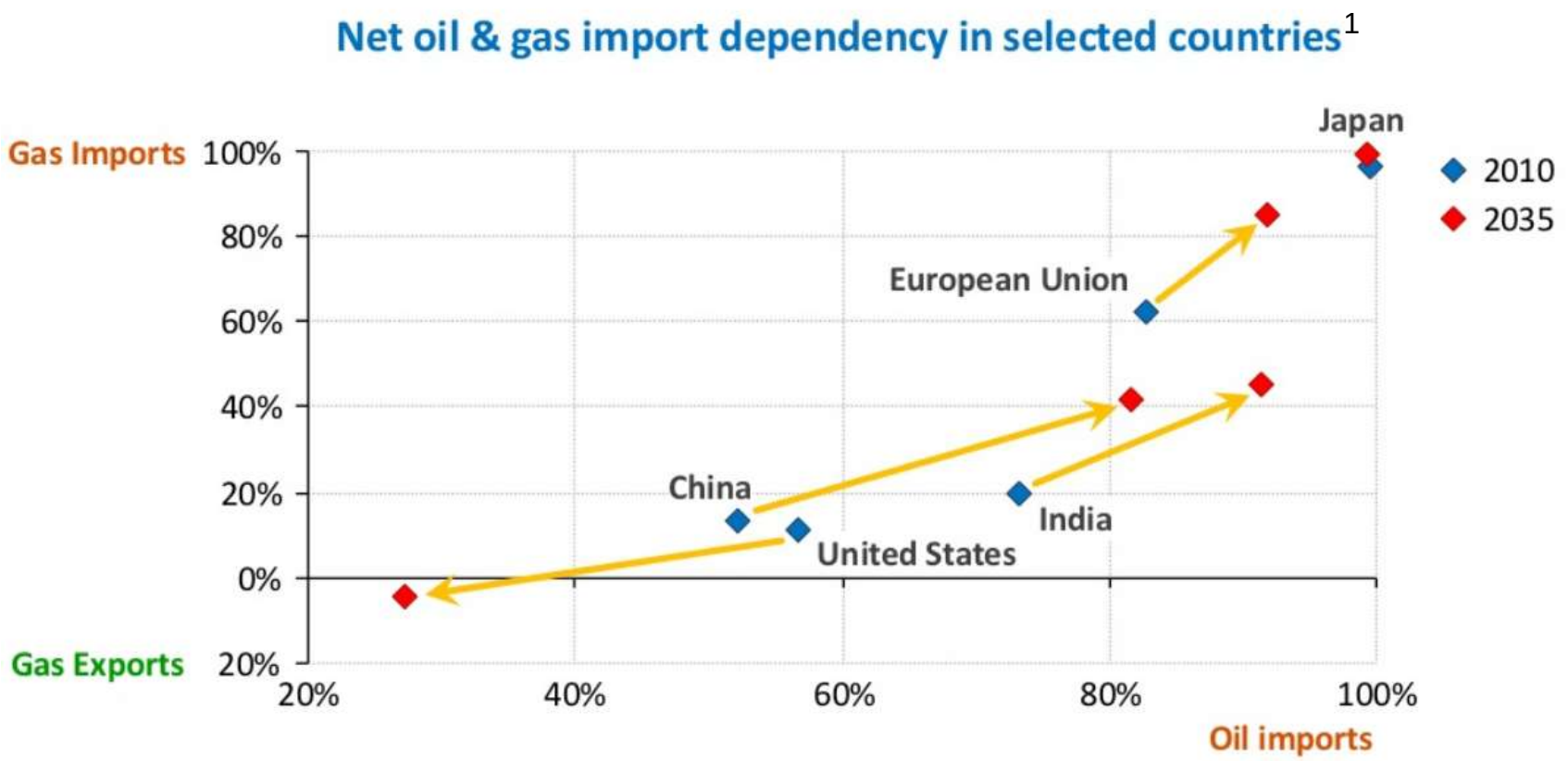
Troy Warshel

Deputy Director of Operations

Energy Conservation…

… at 200 Gallons per minute

The Context: Global Energy Supply and Demand



While dependence on imported oil & gas rises in many countries, the United States swims against the tide

[1] IEA World Energy Outlook 2012

Dynamic energy markets have geopolitical, fiscal, and strategic implications

The Context: Strategic Environment

Current Conflicts

Homeland Defense

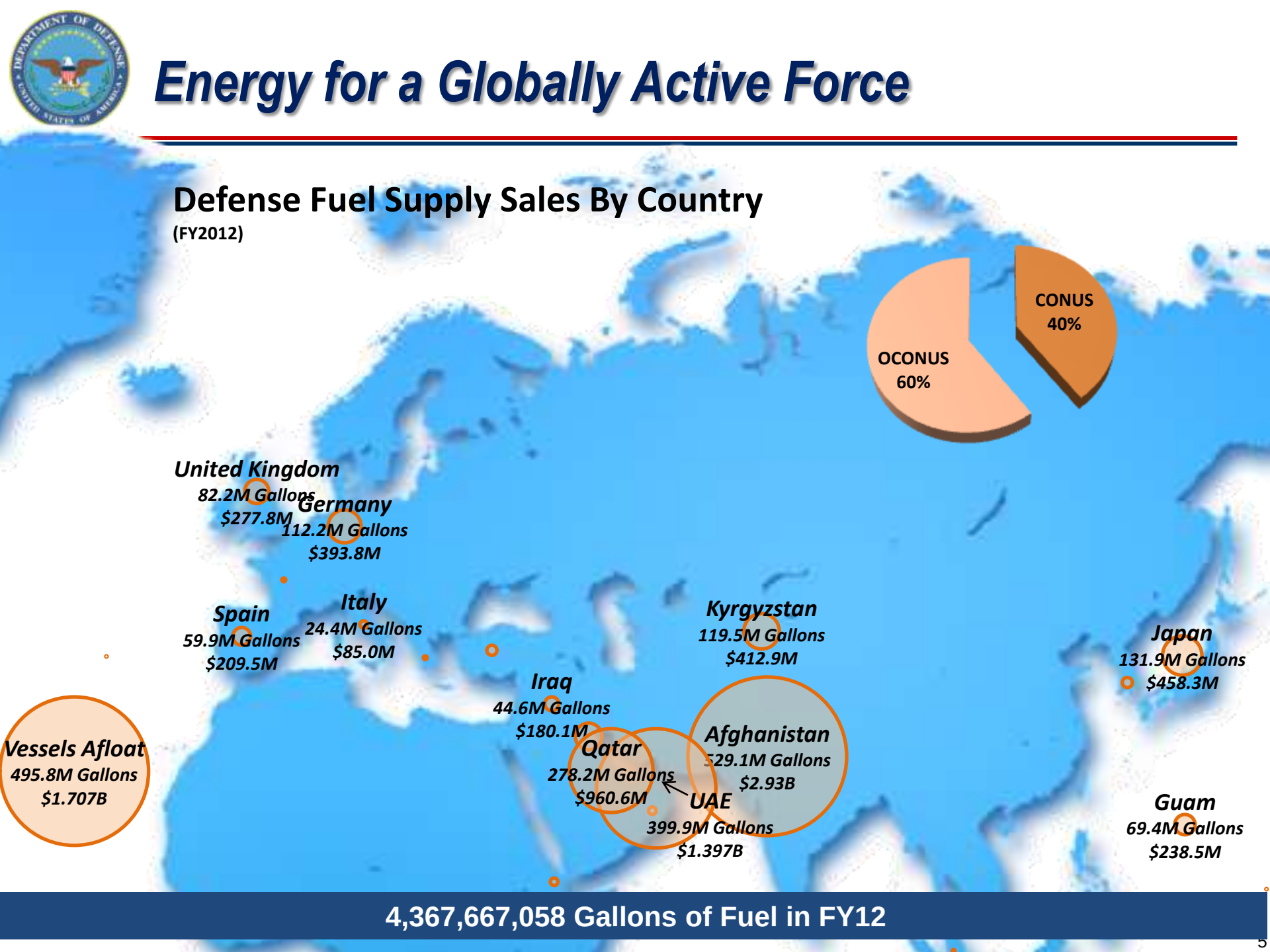
WMD Proliferation

Cyber Threats

Humanitarian Assistance

Rising Powers

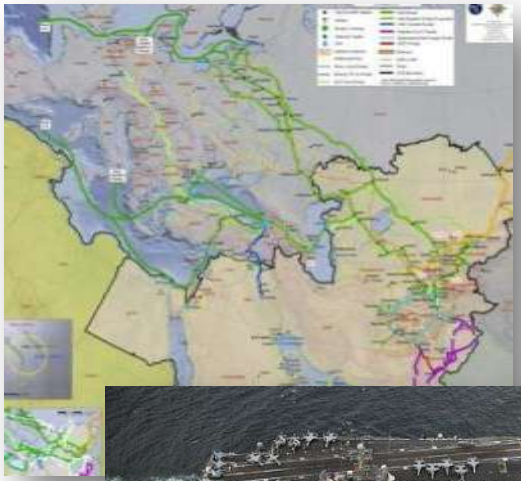
Energy for a Globally Active Force



4,367,667,058 Gallons of Fuel in FY12

Defense Energy Challenges

Distribution Networks



Distributed Operations

Logistics Convoys

Replenishment at Sea

Power Projection

Logistics and sustainment likely to face challenges of distance, geography, and direct attack

Defense Energy Opportunities - Demand

- Centralized power generation
- Energy-efficient shelters, lighting, and heating/air conditioning
- Fielding of advanced power distribution

- Hybrid electric drives in LHDs, LHAs, and DDGs
- Better hull and propeller coatings and stern flaps

- Improved routing and flight profiles
- Optimized cargo loading and center of gravity
- Engine wash / less drag

Defense Energy Opportunities - Supply

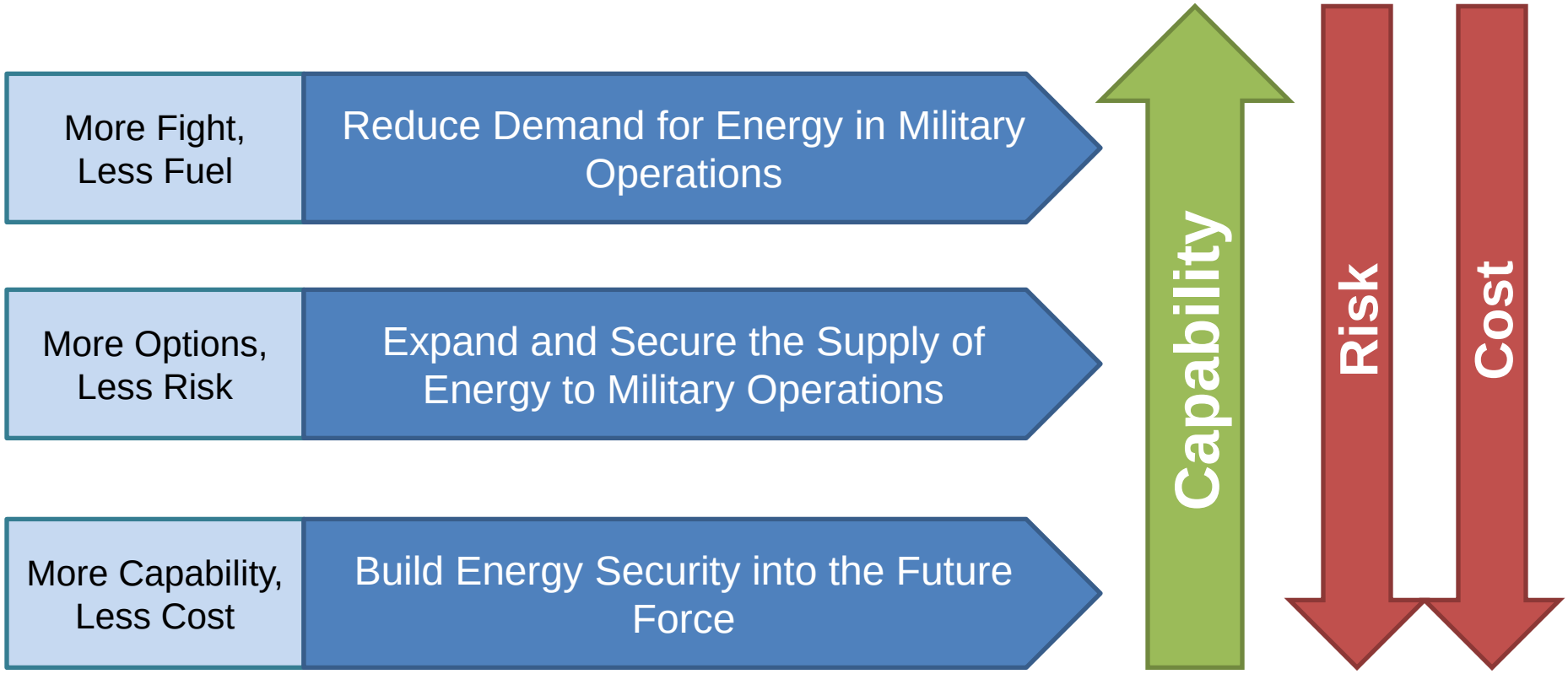
- Hybrid solar power generation
- Solar battery chargers
- Wearable solar technologies for mobile power generation
- Lightweight, efficient, universal batteries

- Unmanned Vehicles

- Advanced Fuels
- Fuel Cells

The DoD Operational Energy Strategy

- **GOAL: to assure that U.S. armed forces will have the energy they require for 21st century military missions**



Afghanistan

- Bagram Energy Study
- Operation Dynamo I-III







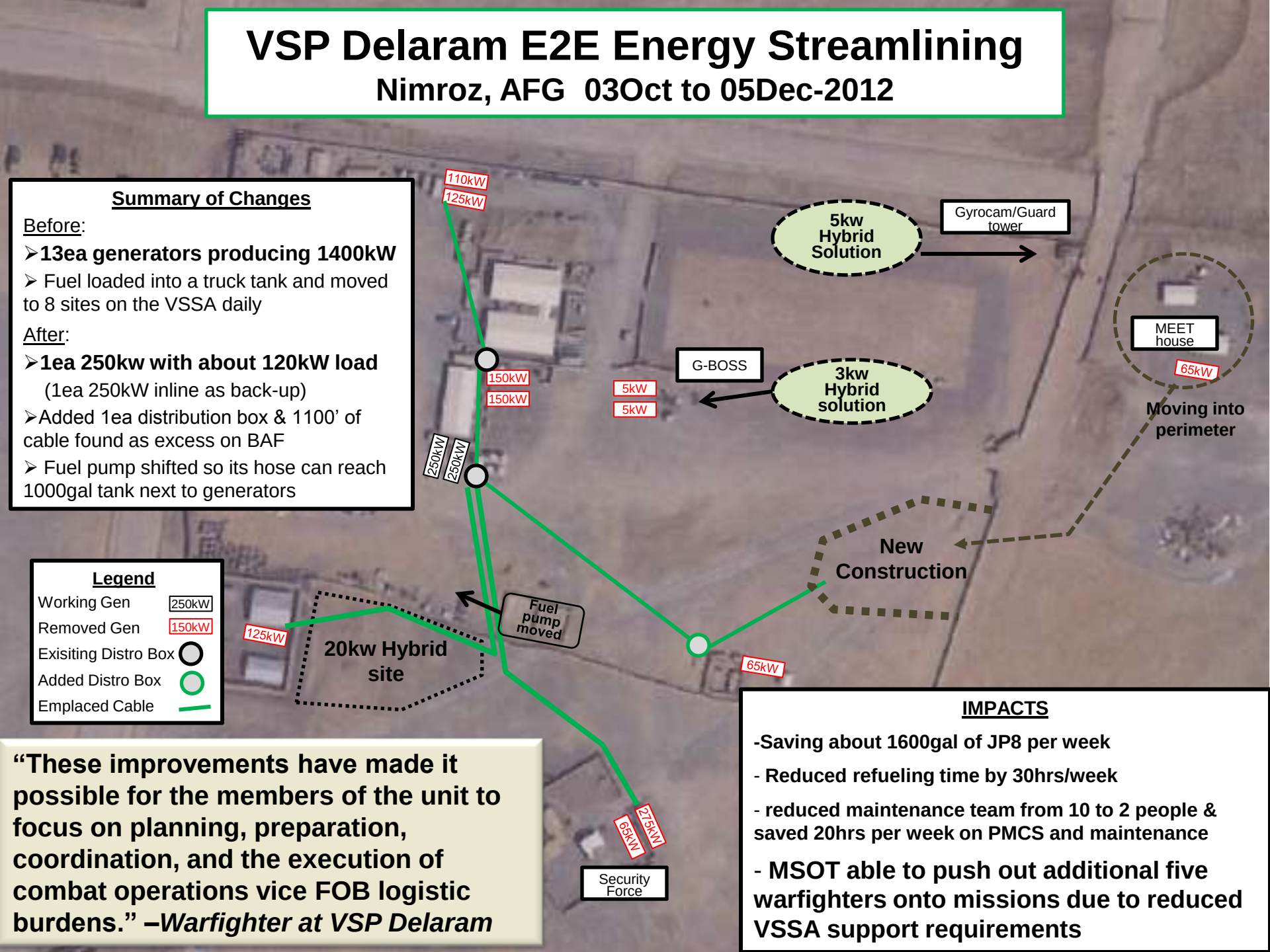




Smart Energy Decisions

VSP Delaram E2E Energy Streamlining

Nimroz, AFG 03Oct to 05Dec-2012



Summary of Changes

Before:

- **13ea generators producing 1400kW**
- Fuel loaded into a truck tank and moved to 8 sites on the VSSA daily

After:

- **1ea 250kw with about 120kW load** (1ea 250kW inline as back-up)
- Added 1ea distribution box & 1100' of cable found as excess on BAF
- Fuel pump shifted so its hose can reach 1000gal tank next to generators

Legend

Working Gen	250kW
Removed Gen	150kW
Exisiting Distro Box	
Added Distro Box	
Emplaced Cable	

IMPACTS

- **Saving about 1600gal of JP8 per week**
- **Reduced refueling time by 30hrs/week**
- **reduced maintenance team from 10 to 2 people & saved 20hrs per week on PMCS and maintenance**
- **MSOT able to push out additional five warfighters onto missions due to reduced VSSA support requirements**

"These improvements have made it possible for the members of the unit to focus on planning, preparation, coordination, and the execution of combat operations vice FOB logistic burdens." –*Warfighter at VSP Delaram*

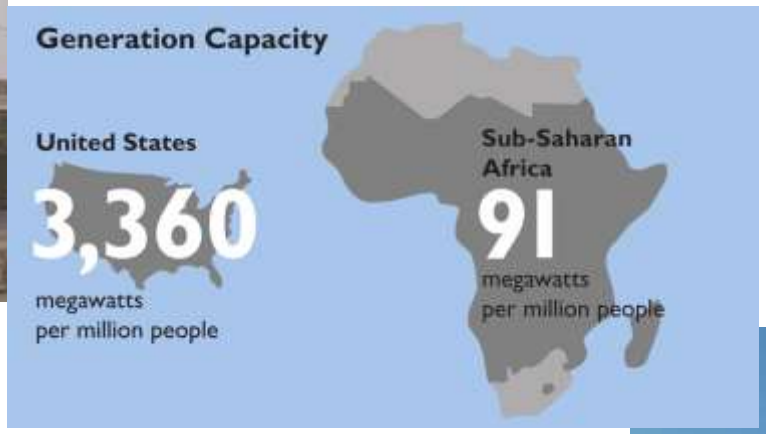
SOUTHCOM

- Soto Cano
- Marandura Radar Facility

UNITED STATES
SOUTHERN COMMAND

Africa

Rapid Equipping Force
UNITED STATES ARMY



USAID
FROM THE AMERICAN PEOPLE

PACOM

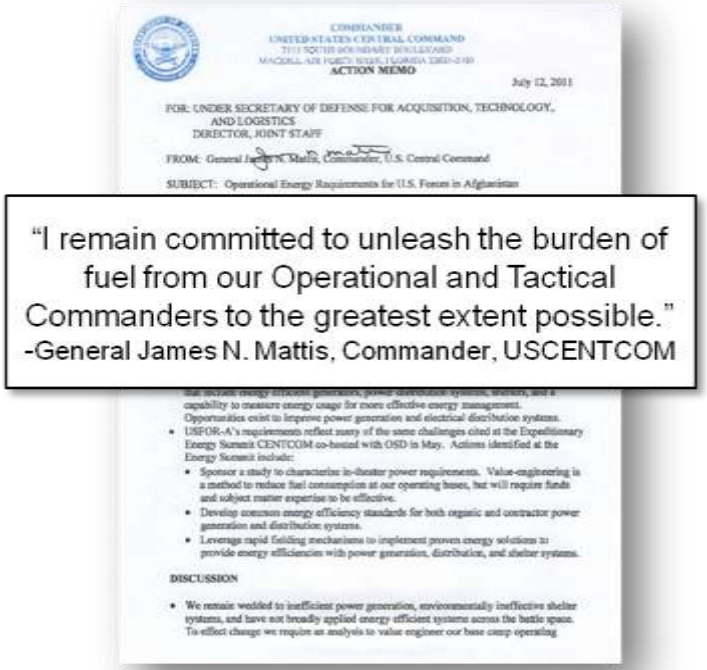
- OP Log feasibility study
- Phase 4/5 Study
- ERIMP
- OPDS/IPDS

Attitudes Can be Changed

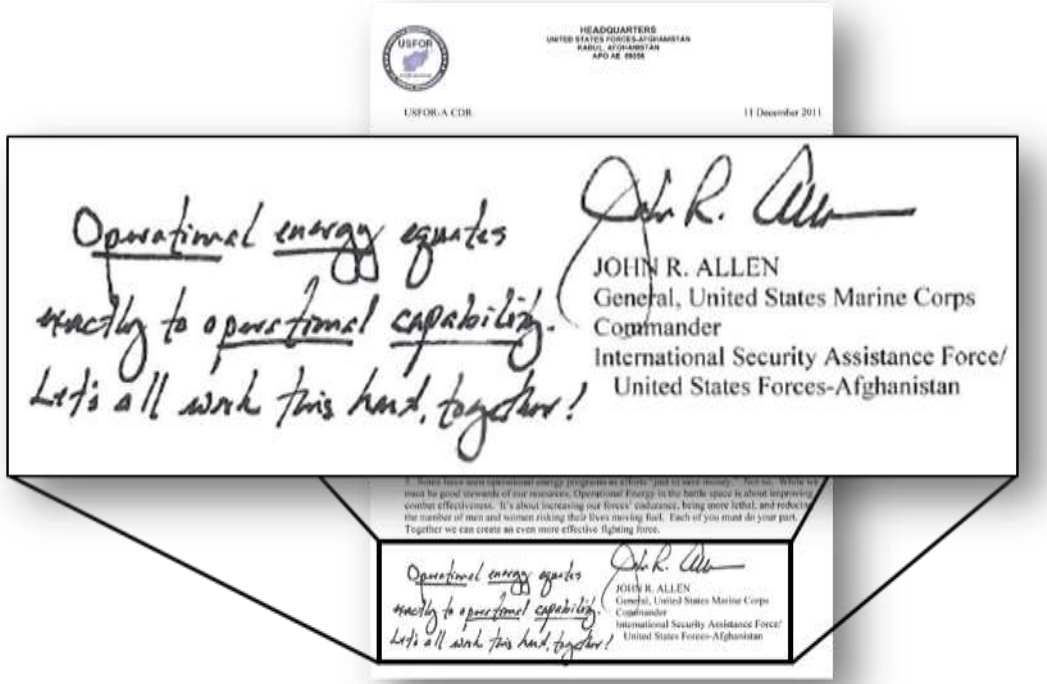
If I had asked what they wanted, they would have said faster horses.

-Henry Ford

"Operational Energy" = "Operational Capability"



Gen James Mattis
12 July 2011



Gen John R. Allen
11 December 2011

Leadership stands behind capability improvements through operational energy

http://energy.defense.gov