



OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS & ENVIRONMENT)



U.S. ARMY

ARMY ENERGY SECURITY

SURETY SUPPLY SUFFICIENCY SURVIVABILITY SUSTAINABILITY



GovEnergy

Department of Defense Energy Update
17 August 2010

Shawn P. Walsh

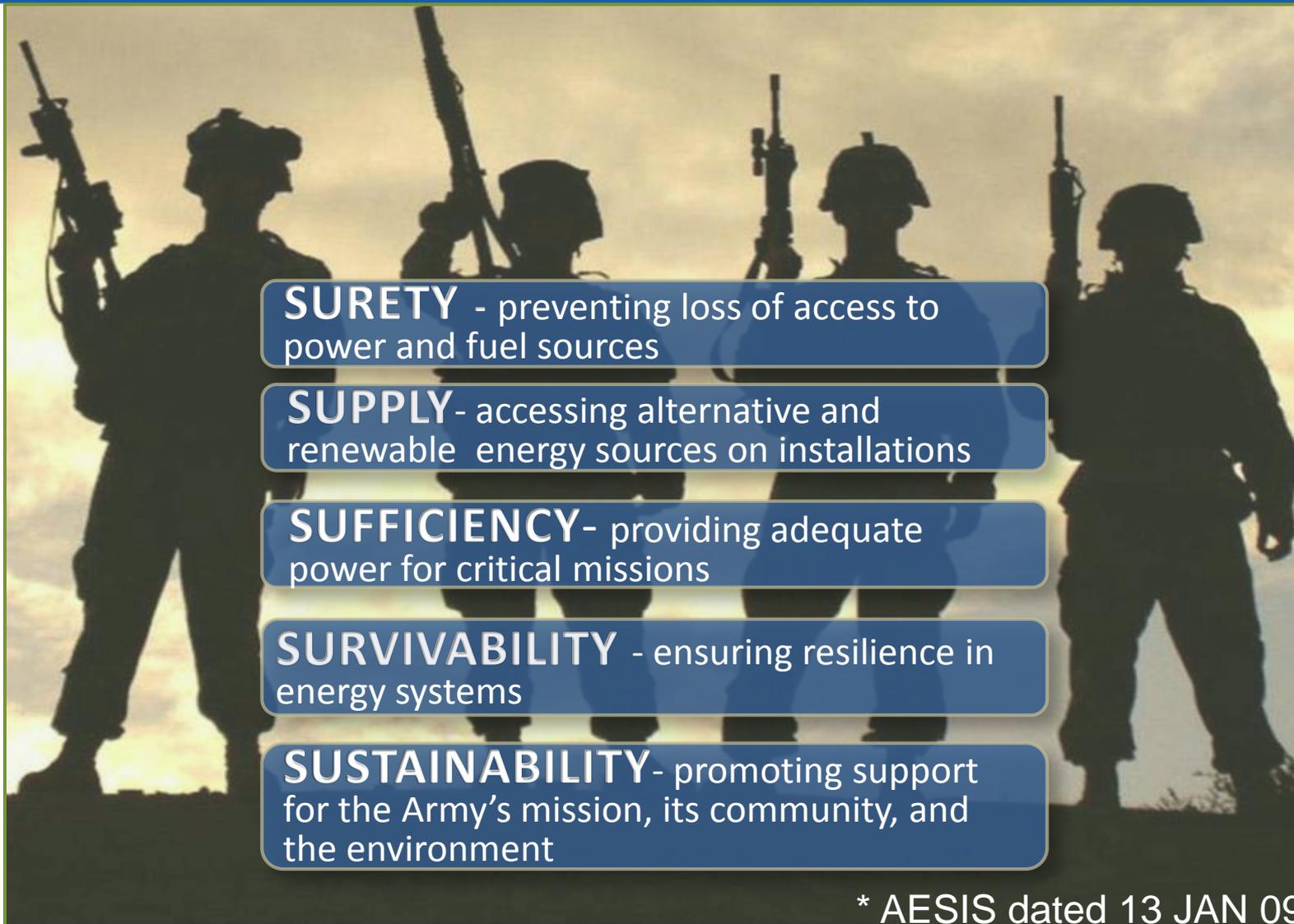
Director, Army Energy Policy
Office of the Assistant Secretary of the Army for
Installation & Environment





Army Energy Security Implementation Strategy*

– Energy Security Definition –



SURETY - preventing loss of access to power and fuel sources

SUPPLY- accessing alternative and renewable energy sources on installations

SUFFICIENCY- providing adequate power for critical missions

SURVIVABILITY - ensuring resilience in energy systems

SUSTAINABILITY- promoting support for the Army's mission, its community, and the environment

* AESIS dated 13 JAN 09

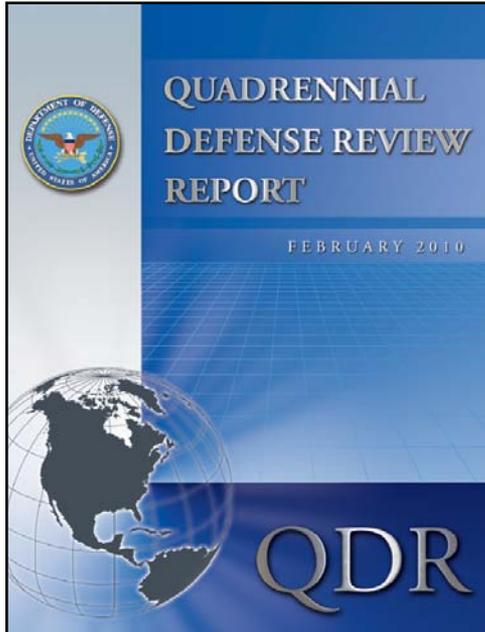


Quadrennial Defense Review

FEB 2010



QDR energy security discussion is consistent with Army approach and priorities



Energy Security – *“assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet operational needs”* – pg 87

- DoD will
 - promote investments in energy efficiency
 - ensure that critical installations are adequately prepared for prolonged outages caused by natural disasters, accidents, or attacks
- Balance energy production and transmission to preserve test and training ranges and operating areas needed to maintain readiness

“Energy efficiency *can serve as a force multiplier, because it increases the range and endurance of forces in the field and can reduce the number of combat forces diverted to protect energy supply lines...”* – pg 87

- DoD will fully implement the energy efficiency KPP and fully burdened cost of fuel

Focused on four specific issues where reform is imperative:

- security assistance
- defense acquisition
- defense industrial base
- **energy security**
and climate change



The Premier Energy Training Workshop and Trade Show for Federal Agencies

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Workshop > Technical Program by Track > Legislation, Policy, & Leadership > session_legislation_04

Department of Defense Energy Update

August 17, 2010 8:30 AM - 10:00 AM

Intent: Learn about DOD's plans and processes for energy and water management.

Description: In this session DOD organizations will report on their efforts to comply with energy mandates, discussing the components of their energy plans and their efforts in following them. Successes and lessons learned will be shared.

Presenters:

- [Brad Hancock](#)
- [Catherine Fairlie](#)
- [Joseph Sikes](#)
- [Shawn Walsh](#)



Track:

- [Legislation, Policy, and Leadership](#)



RELATED LINKS

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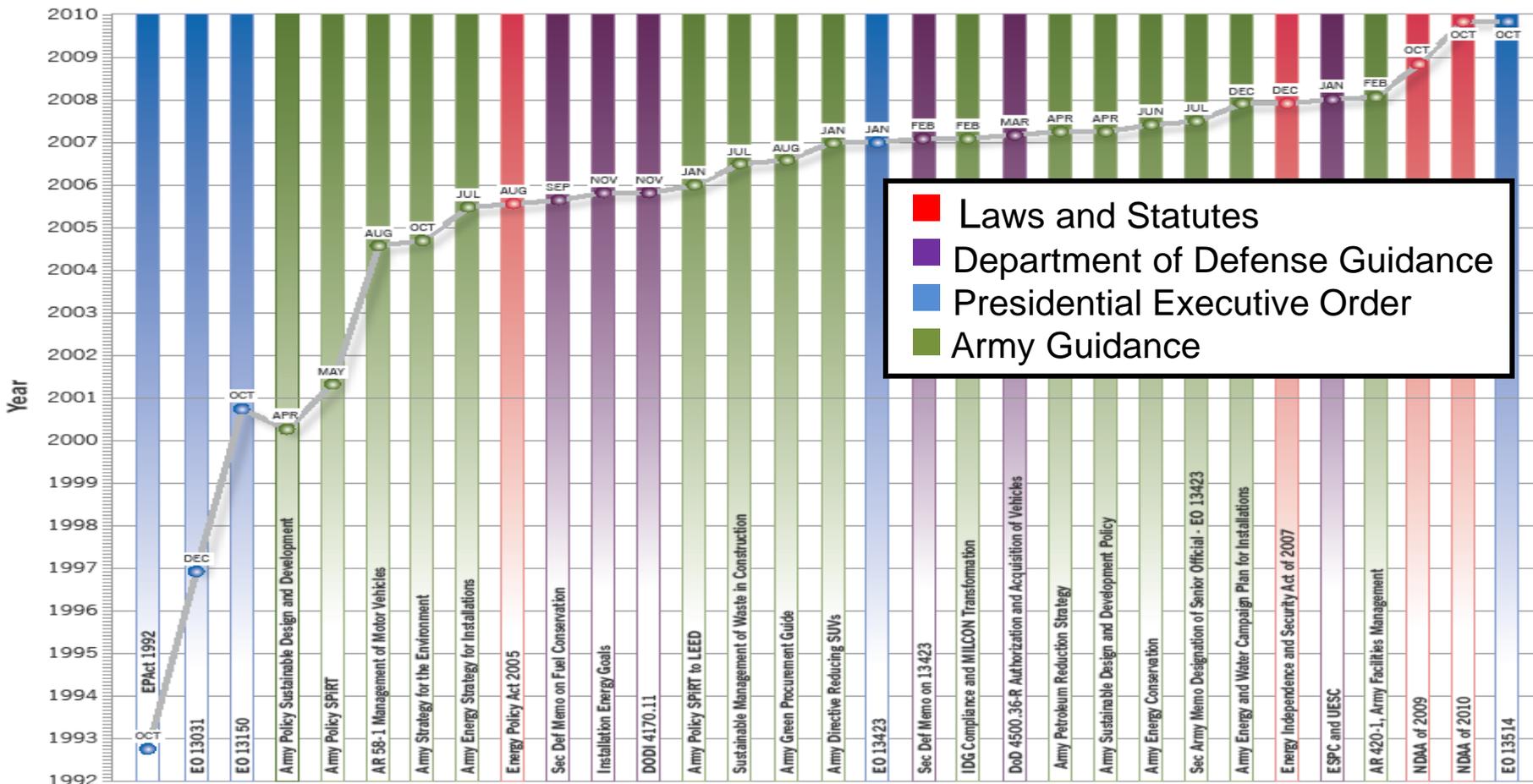


Key Energy Directives

- Challenge and Opportunity -



The Army has requirements for energy performance established by legislation, Presidential Executive Orders (EO), Office of the Secretary of Defense (OSD) mandates and Army policies.





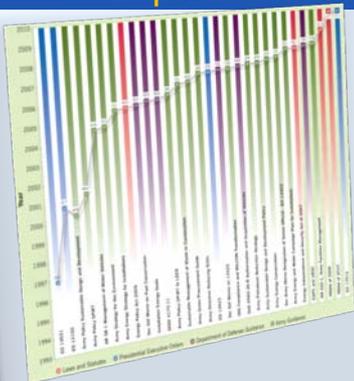
Army Energy Security Implementation Strategy

- 13 JAN 2009 -

http://www.asaie.army.mil/Public/Partnerships/doc/AESIS_13JAN09_Approved%204-03-09.pdf



U.S. ARMY



Legislation

- EPA Act 2005
- EISA 2007
- NDAA

Executive Order

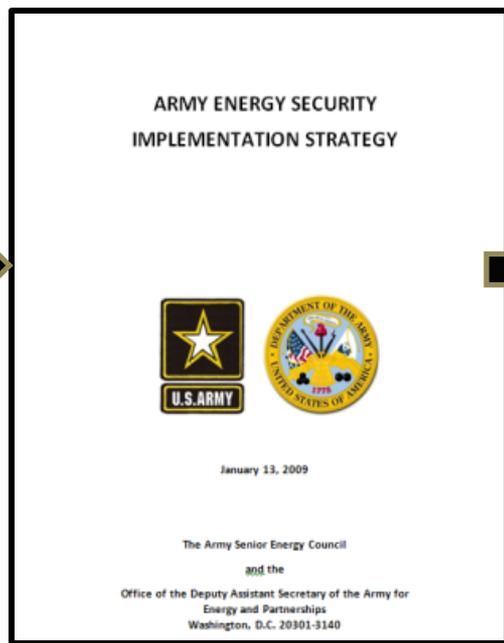
- EO 13423

OSD Policy

- DODI 4170.11, DOD Managers Handbook

Army Policy

- AR 420-1
- Army Energy & Water Campaign Plan



Currently 57 Metrics

Energy Security Goals (ESGs)

1. Reduce Energy Consumption
2. Increase Energy Efficiency Across Platforms and Facilities
3. Increase Use of Renewable / Alternative Energy
4. Assure Access to Sufficient Energy Supplies
5. Reduce Adverse Impacts on the Environment



Army Energy Security Implementation

Metric Examples

- Installations and Facilities-



Army Energy Security Implementation Strategy (AESIS)

- Energy Security Goals (ESGs): 5
- Energy Security Objectives: 23
- Energy Metrics: 57

ESG 1: Reduced Energy Consumption

- Objective 1.4 Execute modernization of Army facilities to reduce energy use.

Metric	Metric Statement	Metric Targets	Key Energy Mandates
1.4a	Develop methodologies to identify and implement energy reduction opportunities as identified by annual energy audits (conduct 25% of facilities per year) (Complete/Not complete)	Complete by end of FY13 (OPR- ACSIM)	EPACT 2005 (Sect 102) EISA (Sect 142, 432, 439) EO13423 (Sect 2(a)) EO13514 (2(g))

ESG 2: Increased Use of Renewable/Alternative Energy

- Objective 3.1 Substitute renewable resources for purchases of energy and fuel from fossil fuel sources where life cycle cost effective.

Metric	Metric Statement	Metric Targets	Key Energy Mandates
3.1a	% of electric and total energy from renewable sources	5% of electric use from renewable sources by the end of FY10 7.5% of electric use from renewable sources by the end of FY13 25% of total energy from renewable energy sources by FY25 50% of total energy from renewable energy sources by FY30	EPACT 2005 (203) EISA (806) EO13423 (2(b)) EO13514 (2(a)) OUSD Policy Memo (Nov 05)



Governance - Senior Energy Council (SEC)

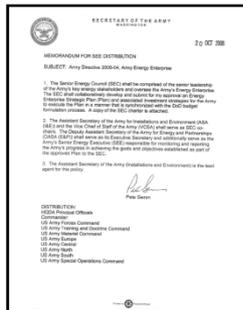


- The Army's Governance Structure to review, align and confirm the Army energy security posture
- Provides enterprise leadership, strategy and accountability

Army Directive 2008-04 Army Energy Enterprise

Formalizes:

- Senior Energy Executive
- Senior Energy Council
- Energy Enterprise Strategic Plan

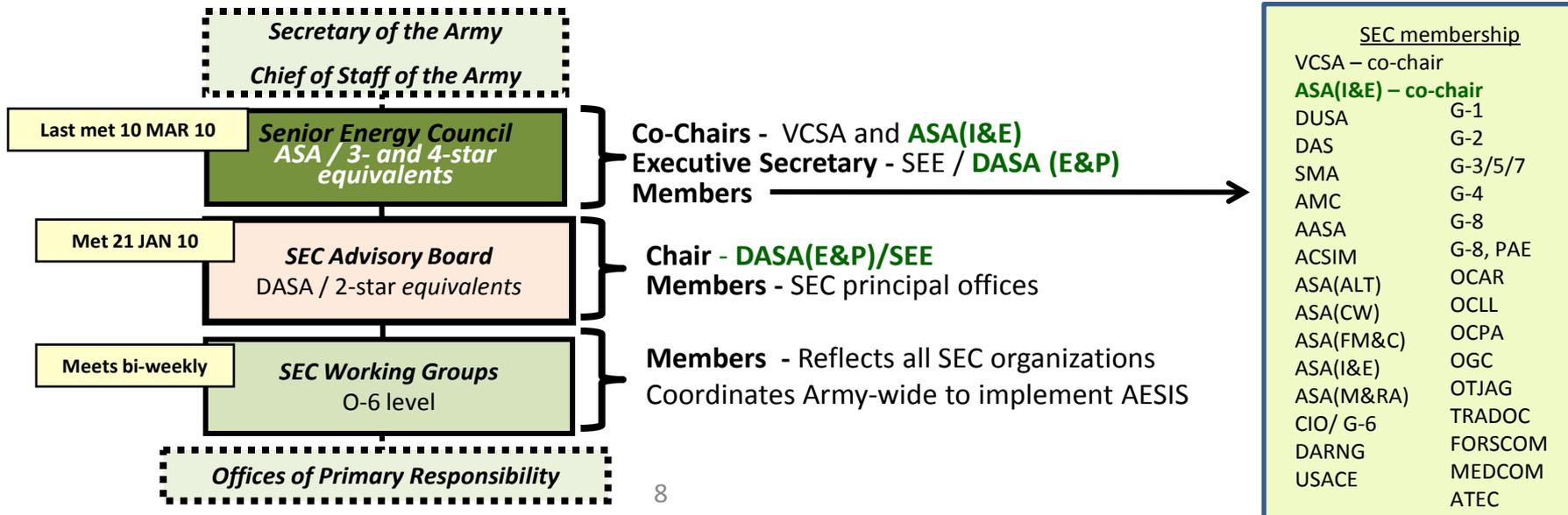


Senior Energy Council Charter (dated, 26 SEP 08)

All aspects of Army energy consumption and utilization:

- Installations
- Facilities
- Weapon Systems
- Sustainable Contingency Operations Base Camps

Army Energy Enterprise Governance Structure





Example Energy Security Projects



U.S. ARMY

Renewable Energy Project 2009 Summary

TOTAL PROJECTS – 66

363 Million Btu = Renewable Energy Generation
(23.8 GWH = Renewable Electricity)

- **BLACK:** Existing System
- **BLUE:** Planned Project
- **RED:** Development or Testing Project



Fort Drum, NY
(Solar Wall, ECIP)



Fort Carson, CO
(Solar PV Array, PPA)



Camp Williams, UT
(Wind Power, ECIP)



Fort Knox, KY
(Ground Source Heat Pumps, UESC / ECIP)



Fort Sill, OK
(Micro-grid Field Demonstration, ARRA)

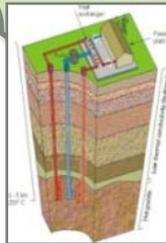
Fort Bragg, NC
(LEED Platinum Bldg ESTCP/ITTP)



Fort Jackson, SC
(Fuel Cells, RDT&E)



Fort Bliss, TX
(Geothermal Well Tests, ARRA)



Fort Irwin, CA
(Solar power, EUL)



Fort Huachuca, AZ
(Rooftop PV, ITTP)



FUNDING SOURCES:

- **EUL:** Enhanced Use Lease
- **ITTP:** Installation Technology Transition Program
- **ECIP:** Energy Conservation Investment Program
- **UESC:** Utility Energy Service Contract
- **ARRA:** American Recovery and Reinvestment Act of 2009
- **PPA:** Power Purchase Agreement



Hawthorne Army Depot, NV
(Geothermal Power, ECIP)



Examples of Major Army Energy Initiatives with Potential for Partnering in the Next 6 years



- **"Net Zero Energy"** through implementation of on-site renewable energy generation, reduced energy consumption and improved energy efficiency.
 - **By end of FY12, five installations designated to become "Net Zero Energy" by FY21.**
 - **Twenty-five installations designated by end of FY14 to become "Net Zero Energy" by FY31.**

- **Hawthorne Army Depot, NV will be energy secure, capable to operate off the commercial power grid, with base-load energy produced from geothermal sources 24/7.**

- **Field "smart grid" technologies for non-traditional installations (forward operating base camps).**

Smart-grid capabilities will increase the energy security of operational forces with more efficient use of traditional power Generators and the capability to capture and distribute energy from the sun and wind.

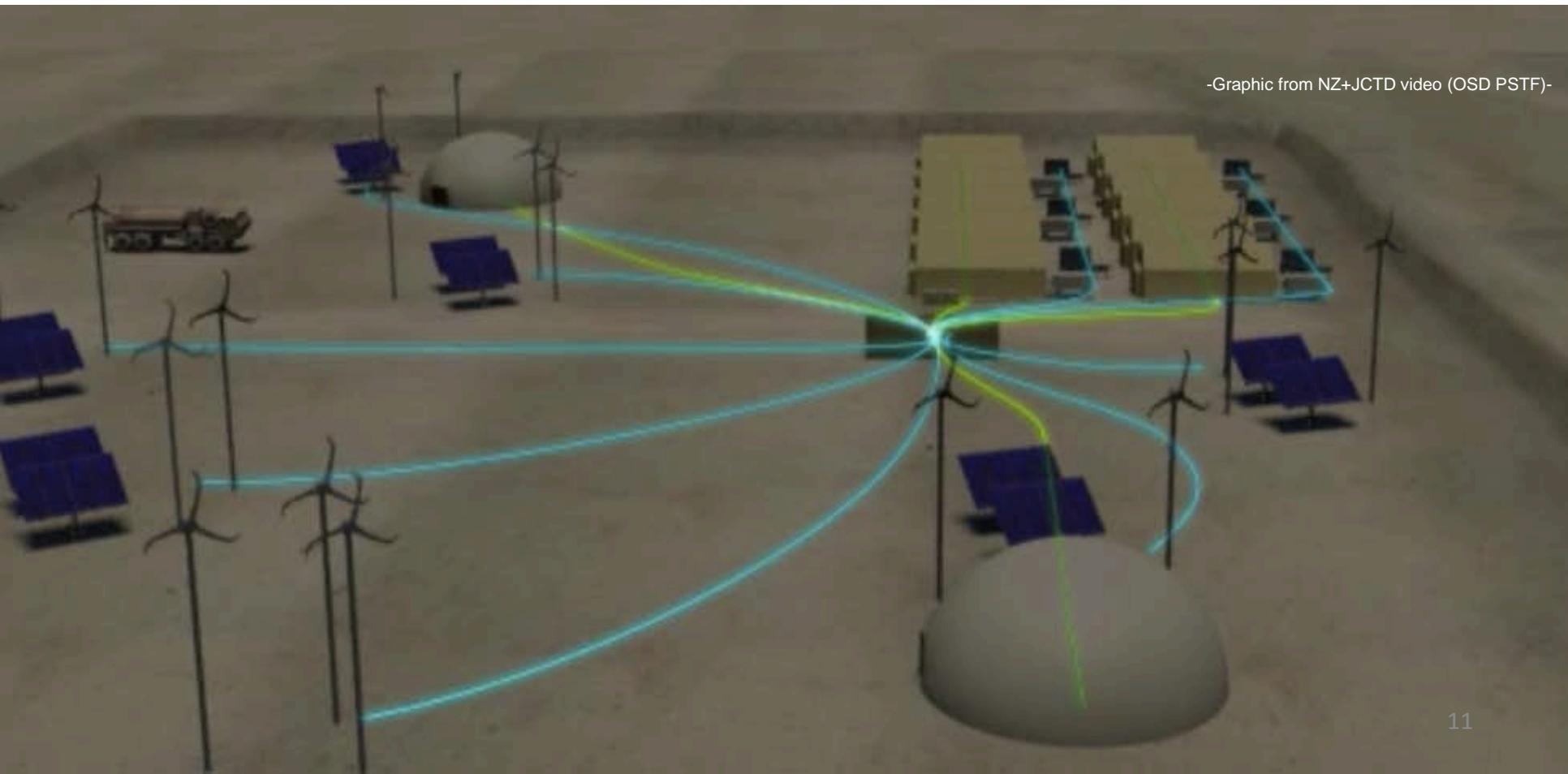




Operational Energy

FY09 NDAA Definition:

“[T]he energy required for training, moving, and sustaining military forces and weapons platforms for military operations. The term includes energy used by tactical power systems and generators and weapons platforms.”



-Graphic from NZ+JCTD video (OSD PSTF)-

CEDAR II TPT
3.5 million

OIF-1 Inland Petroleum Distribution System (2003)

CEDAR TPT
3.5 million

VIPER (USMC)
1.2 million

167 miles (>Fort Worth, TX to Abilene, TX)
(+51 miles of parallel pipe)

BPW TPT
4.4 million

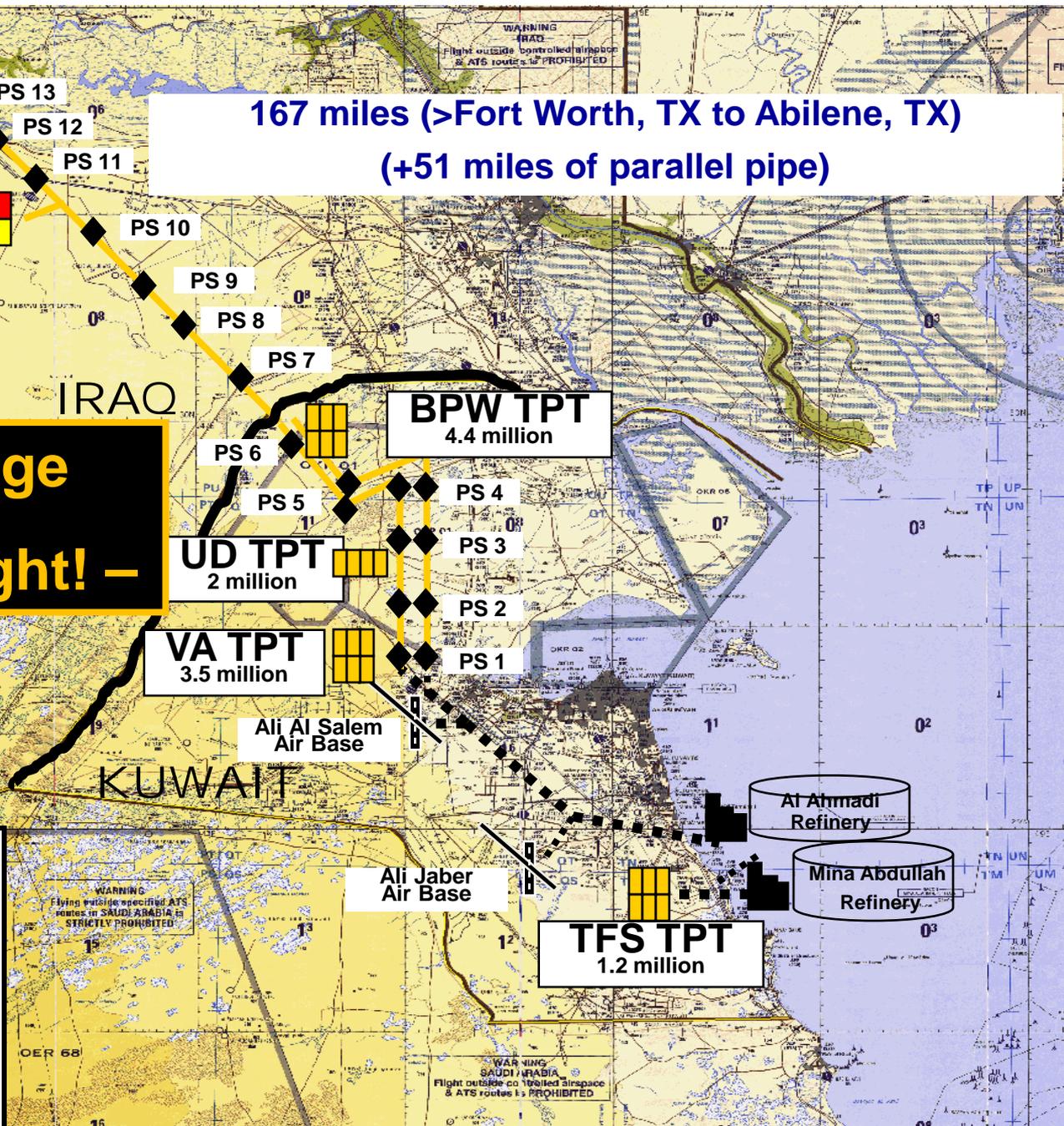
UD TPT
2 million

VA TPT
3.5 million

TFS TPT
1.2 million

Today's Challenge
- No Fuel - No Fight! -

-  ARMY TPT
-  PUMP STATION
-  USAF FUELS TERMINAL
-  COMMERCIAL PIPELINE
-  IPDS PIPELINE



IRAQ
KUWAIT

~10 km

Breach Point West
Tactical Petroleum Terminal
OIF 1 - 2003
30 - 210,000 bags

1 km

IPDS Pipeline
entering terminal

900 m

1,350 - 20 ft containers
IPDS equipment in Kuwait and Iraq
(many, many trucks!)



"Unleashing warfighters from the tether of fuel
and reducing our installations' dependence on a
costly and potentially fragile power grid will not
simply enhance the environment, it **will**
significantly improve our mission effectiveness."

Dr. Dorothy Robyn, Ph.D.
Deputy Under Secretary of Defense
Installations & Environment



CHALLENGE: Liquid Fuels + Generators = Energy on today's battlefield



Army Energy Security Implementation

Metric Example

- Operational Energy -



Army Energy Security Implementation Strategy (AESIS)

– Operational Army-Specific Energy Metrics: 16

ESG 1: Reduced Energy Consumption

- Objective 1.1 Institutionalize energy/fuel savings/conservation procedures across all levels.

Metric	Metric Statement	Metric Targets	Key Energy Mandates
1.1e	Implementation of fuel/energy consumption as a consideration in tactical planning	Complete by end of FY10 OPR- G-3	DOD Guidance (Feb 2007 Memo on EO13423) ASALT Energy Productivity Memo

ESG 2: Increased Energy Efficiency Across Platforms and Facilities

- Objective 2.4 Establish a comprehensive mid to long-term plan for DOTMLPF (Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities) changes and introduction of alternative and energy efficient tactical platforms.

Metric	Metric Statement	Metric Targets	Key Energy Mandates
2.4a	Develop the strategy and implementation plans to identify tactical fuel and energy requirements for the future modular force (Complete/Not Complete)	Complete by end of FY10 OPR- TRADOC	NDA 2009 (331, 332) NDA 2010 (332) DOD Guidance (Feb 2007 Memo on EO13423)



Operational Energy Possibilities

Enhance Operational Success by Lightning Soldier Loads & Reducing the Log Tail

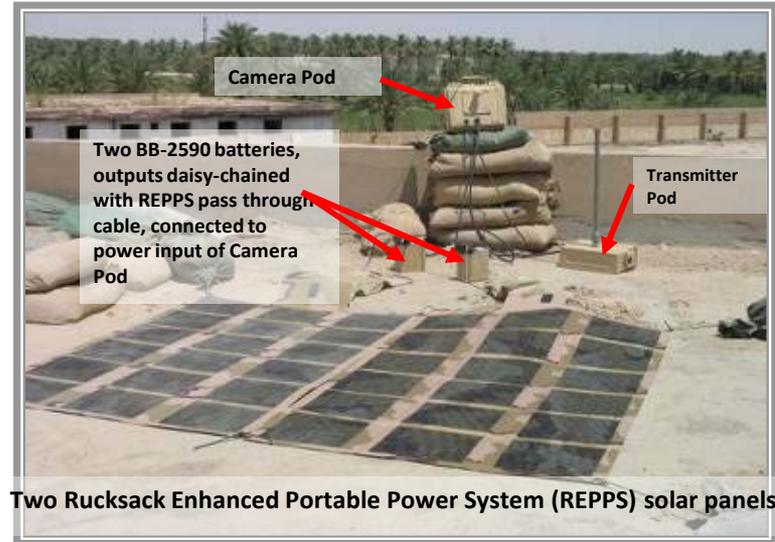


The Challenge:

- Fuel logistics, management and protection are key for contingency operations success

Key Energy Opportunities

- Tactical Grid Management
- Distributed Generation
- Renewable/Alternative Power
- Lightweight, Flexible, Structural, or Integrated Solar
- Alternative Fuels
- Standardized Deployable Kits
- High Efficiency Systems
- Leveraging Local Opportunities





Energy Security – *“assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet operational needs”* (QDR)

Our Soldiers Deserve Nothing Less!