



# **The National Academies Sustainability Linkages in the Federal Government**

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## **Department of Defense Perspective on Sustainability Linkages**

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# Overview



- **DoD sustainability implementation & reporting**
- **Army energy in perspective**
- **Army energy program**
- **Vehicles – diversifying the fleet**
- **Basing – contingency sites & Net Zero installations**
- **Energy Initiatives Task Force**



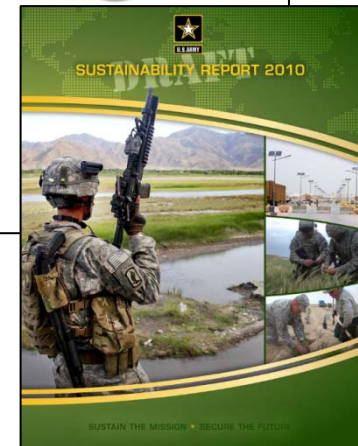
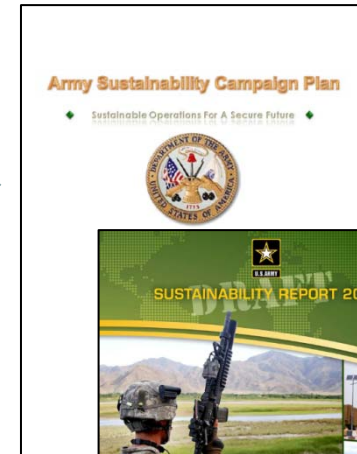
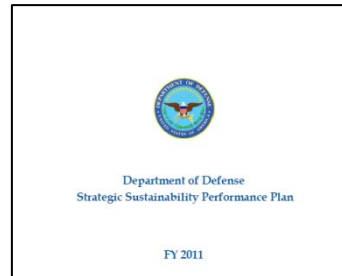
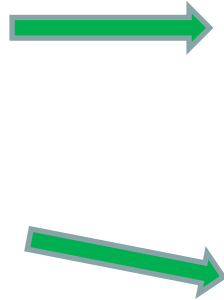
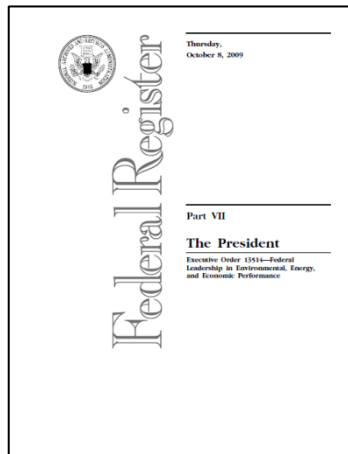
# DoD Implementation & Reporting



EO 13514: Federal agencies must prepare an annual Strategic Sustainability Performance Plan (SSPP)

OSD prepares & issues the DoD SSPP (applicable to Army, Air Force, Navy, etc.)

The Army implements the DoD SSPP via the Army Sustainability Campaign Plan



Federal agencies publically report EO 13514 / SSPP implementation via the OMB Scorecard for Energy & Sustainability

Department of Defense FY2010 OMB Scorecard on Sustainability/Energy		
	Scope 1 GHG Emission Reduction Target To determine compliance inventory on 2005 baseline for Scope 1 GHG Reduction Target of 24% by 2007	Score GREEN
	Scope 2 GHG Emission Reduction Target To determine compliance inventory on 2005 baseline for Scope 2 GHG Reduction Target of 24% by 2007	Score GREEN
	Reduction in Energy Intensity Reduction in energy intensity to goal subject facilities compared with 2002 to 20% and not on track	Score RED
	Use of Renewable Energy Use of renewable energy as a percent of facility electricity use to 1% from any renewable source (excluding hydropower)	Score YELLOW
	Reduction in Potable Water Intensity Reduction in potable water intensity compared with 2002 to 4% and on track for 20% on 2005	Score GREEN
	Reduction in Fuel Petroleum Use Reduction in fuel petroleum use compared to 2005 40% and not on track	Score RED
	Green Buildings Sustainable green buildings: 100% of buildings sustainable (LEED, GreenSource, etc.)	Score RED

The Army also publically reports progress using GRI-based format



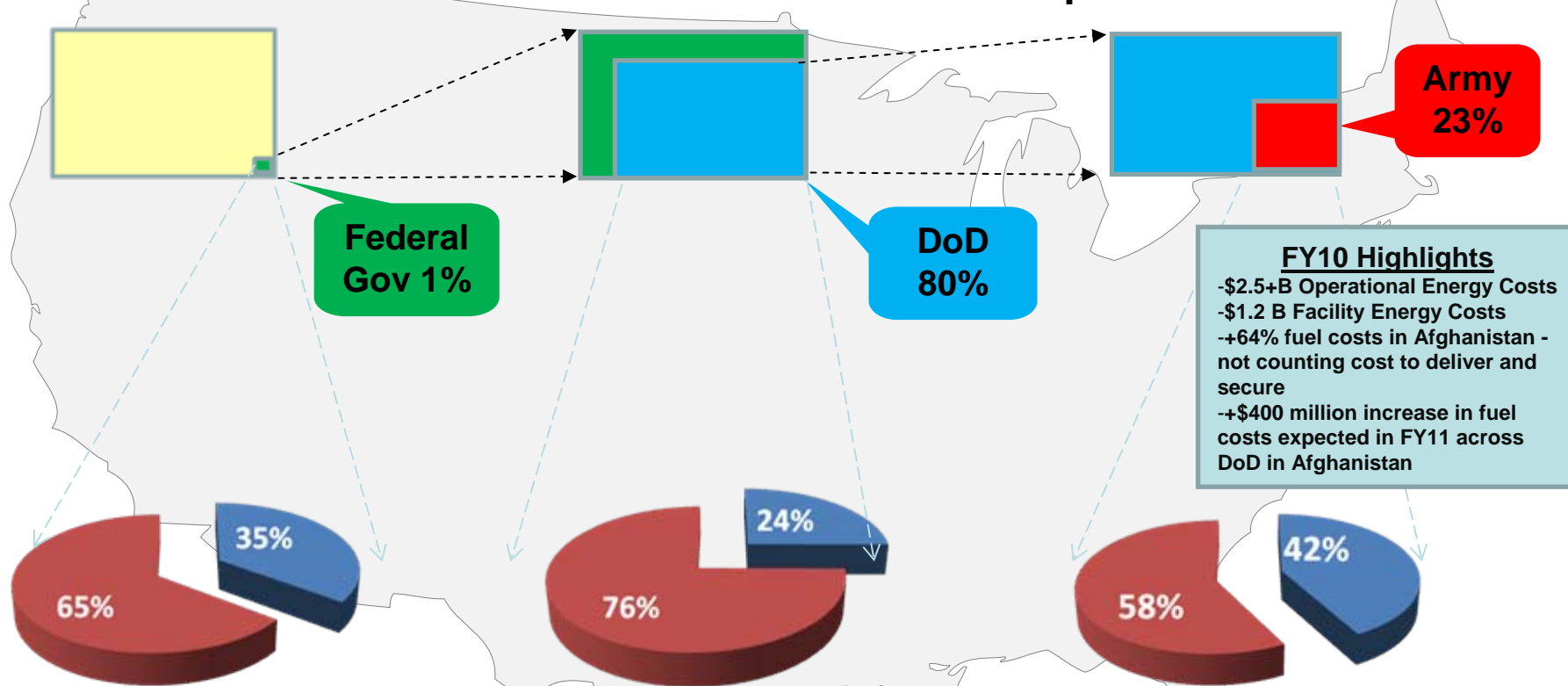
# Army Energy in Perspective – 2010



United States

Federal Government

Department of Defense



- Facilities
- Vehicles & Equipment (Tactical and Non-tactical)

**U.S. = 98,079 Trillion Btu**

**DoD = 819 Trillion Btu**

**Fed Gov = 1,096 Trillion Btu (FY09) U.S. Army = 189 Trillion**

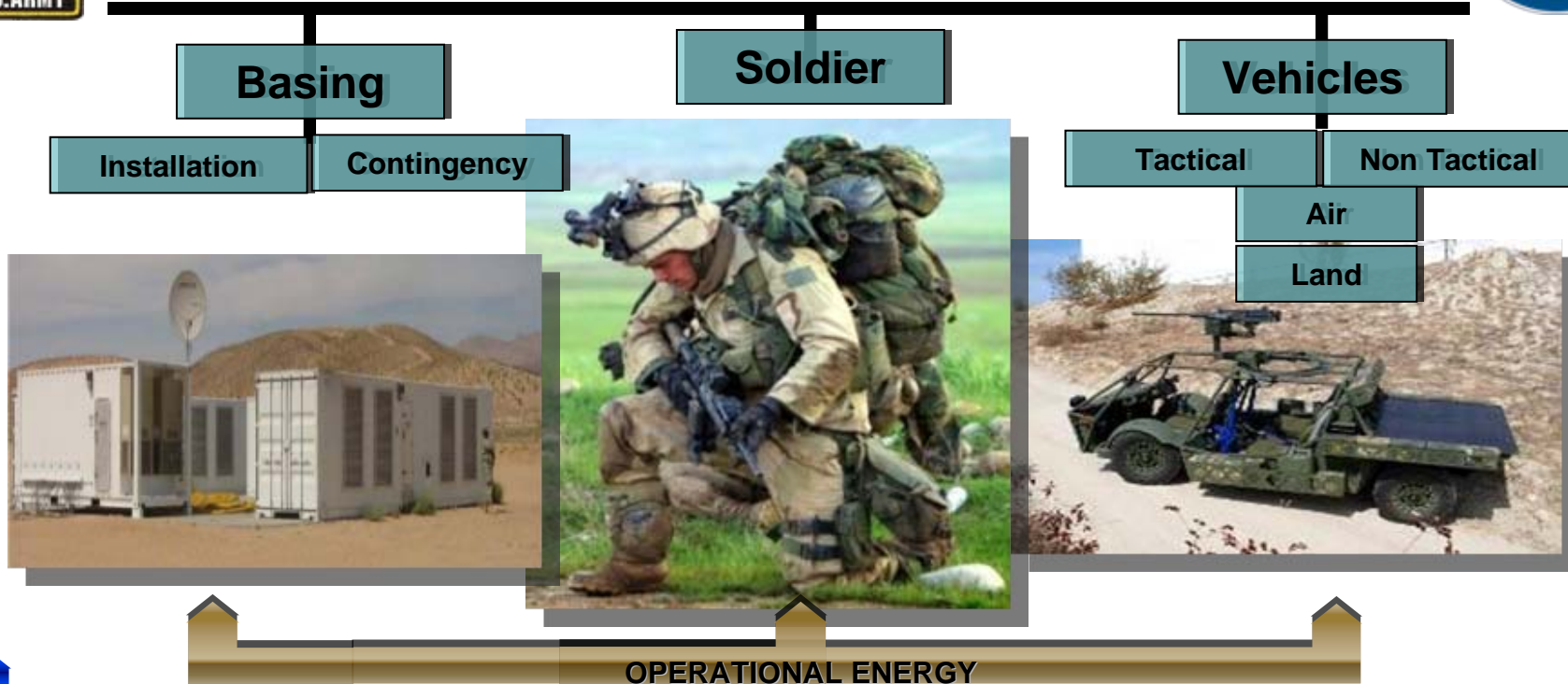
**Btu**

Sources: Energy Information Agency, 2010 Monthly Energy Review; Agency Annual Energy Management Data Reports submitted to DOE's Federal Energy Management Program (Preliminary FY 2010)

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



# Army Power & Energy



OPERATIONAL ENERGY

NET ZERO STRATEGY

"Grand Challenges"

- Give Soldiers & leaders capability to manage energy status, resources, & performance
- Significantly reduce energy footprint
- Provide flexibility & resiliency by developing alternatives & adaptable capabilities

Power and Energy Strategy White Paper, Army Capabilities Integration Center/Research, Development and Engineering Command /Deputy Chief of Staff, G-4, US Army, 1 April 2010

*Assistant Secretary of the Army (Installations, Energy & Environment)*



# Army Energy Program



- **Change the Culture: Every Soldier a Power Manager**
  - Senior Energy & Sustainability Council (SESC) / Senior Energy Executive (SEE)
  - Energy & Sustainability must be a consideration in all Army activities
  - System-wide approach for designing base camps to capture efficiencies
- **Drive Efficiency across the Enterprise**
  - Technology/policies will reduce energy footprint
  - Leverage public/private financing to accelerate efficiency projects
  - Implement technologies to significantly reduce energy footprint in the field
- **Build Resilience through Renewable / Alternative Energy**
  - Diversify sources of energy to allow for continued operations during energy disruptions
  - Attract private investment to develop large-scale renewable energy projects
  - Provide flexibility & resiliency by developing alternatives & adaptable capabilities
- **Science & Technology**
  - Army's future efforts depend on Science & Technology investments







# Vehicles – Diversifying the Fleet

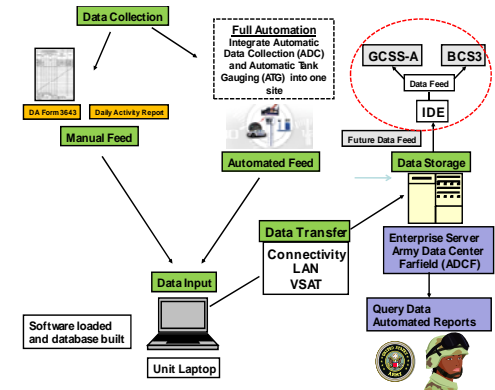


## Vehicle Power Initiatives

- TARDEC – DOE Partnership
- Tactical Fuels Manager Defense
- Improved Turbine Engine Program
- Vehicle-to Grid (SPIDERS)
- Smart-Charging Micro Grids
- Low Speed Electric Vehicles
- Hybrid Electric Vehicles
- Alternative Fuel Vehicles



Improved Turbine Engine Program



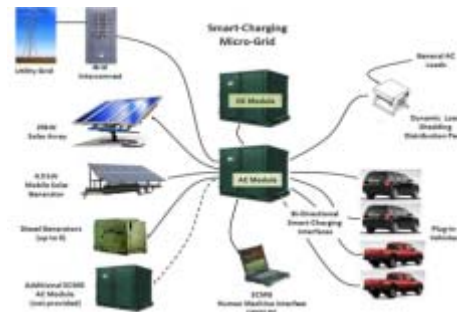
System Name = TFMD (Tactical Fuels Manager Defense)

## Army Non-Tactical Vehicle Fleet

- 80,670 non-tactical vehicles (NTVs)
- 40% of fleet (31,913 NTVs) alternative fuel/hybrid electric vehicles
- 927 low speed electric vehicles



Low Speed Electric Vehicles



Vehicle connected microgrid to provide assured power



Fort Dix Soldiers & Civilians turn in a fossil fuel vehicle for a hybrid vehicle from GSA representatives



# Basing – Contingency Sites



## Integrated Base Camp Design Results in 30-60% Savings

### ■ Energy Awareness on Consumption & Efficiencies

- Energy-informed decision making – **Culture Change**
- Improved energy measurement & tracking – **Tactical Fuels Manager Defense**
- Improved energy distribution and grid power management – **Minigrids**
- Systems Integration Lab at Fort Devens, MA

>20%



**Smart and Green  
Energy for Base  
Camps (SAGE)**

### ■ Improved Efficiency

- Energy efficient generators
- Shower water reuse systems
- Energy Efficient Shelters

20-30%



**Advanced Mobile Medium Power Sources  
(AMMPS)**

### ■ Integrate Renewable Energy

- Solar
- Waste to Energy

10-15%



**Solar Water  
Heating**



**Tent Insulation**

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# Energy Initiatives (EI) Task Force



The Secretary of the Army announced the establishment of the EI Task Force on August 10, 2011 – stand up date of September 15, 2011

## **MISSION:**

Identify, prioritize & support the development & implementation of **large-scale, renewable & alternative energy projects** – focusing on **attracting private investments** & delivering the best value to the Army enterprise

## **SUMMARY:**

- Centrally manage funding & execution to better position Army to identify, prioritize, develop, & implement large-scale renewable & alternative energy projects that deliver the highest & best value to the Army
- Provide expertise to the Installations for development of viable & economically-beneficial RE opportunities with higher probability of private-sector investment
- Transparent / expedited process for large-scale RE project development & approval



Fort Carson, CO



Sea Girt, NJ



# Basing – Net Zero Installations



- A Net Zero **ENERGY** Installation is an installation that produces as much energy on site as it uses, over the course of a year
- A Net Zero **WATER** Installation limits the consumption of freshwater resources & returns water back to the same watershed so not to deplete the groundwater & surface water resources of that region in quantity or quality
- A Net Zero **WASTE** Installation is an installation that reduces, reuses, & recovers waste streams, converting them to resource values with zero solid waste to landfill
- A Net **ZERO INSTALLATION** is one which applies an integrated approach to management of energy, water, & waste to capture & commercialize the resource value and/or enhance the ecological productivity of land, water, & air

Energy	Water	Waste	Integrated
Fort Detrick, MD	Aberdeen Proving Ground, MD	Fort Detrick, MD	Fort Bliss, TX
Fort Hunter Liggett, CA	Camp Rilea, OR	Fort Hood, TX	Fort Carson, CO
Kwajalein Atoll, RMI	Fort Buchanan, PR	Fort Hunter Liggett, CA	<b>State-Wide</b>
Parks Reserve Forces TA, CA	Fort Riley, KS	Fort Polk, LA	OR ARNG
Sierra Army Depot, CA	JB Lewis-McChord, WA	JB Lewis-McChord, WA	
West Point, NY	Tobyhanna Army Depot, PA	USAG Grafenwoehr, Germany	

More information:

<http://www.asaie.army.mil/Public/IE/>



# Questions?