



The National Academies Sustainability Linkages in the Federal Government



Department of Defense Perspective on Sustainability Linkages

Mr. Richard G. Kidd IV
Deputy Assistant Secretary of the Army
Energy and Sustainability

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Overview



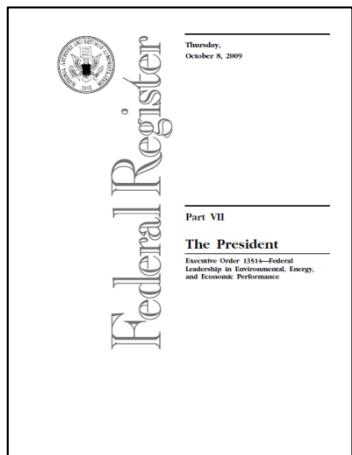
- DoD sustainability implementation & reporting
- Army energy in perspective
- Army energy program
- Vehicles – diversifying the fleet
- Basing – contingency sites & Net Zero installations
- Energy Initiatives Task Force



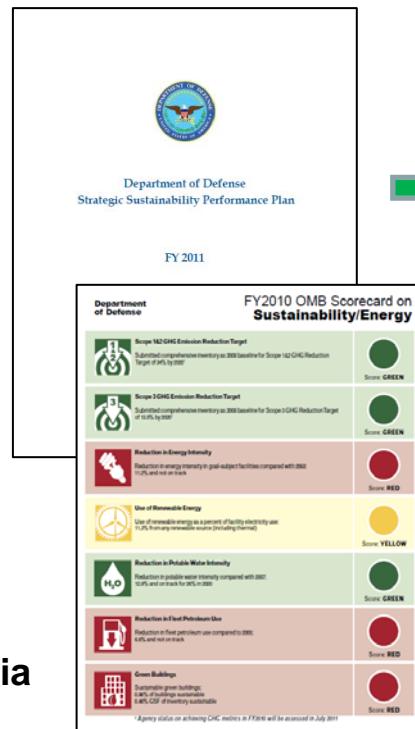
DoD Implementation & Reporting



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

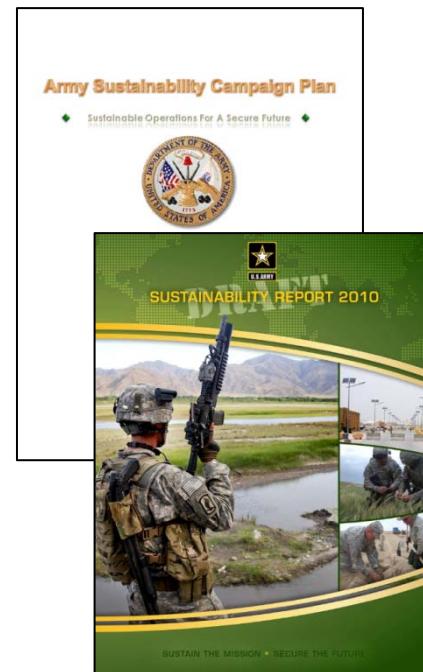


OSD prepares & issues the DoD SSPP (applicable to Army, Air Force, Navy, etc.)



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

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

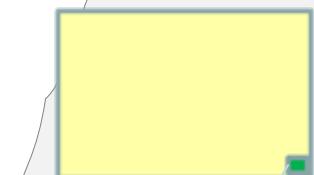


The Army also publically reports progress using GRI-based format

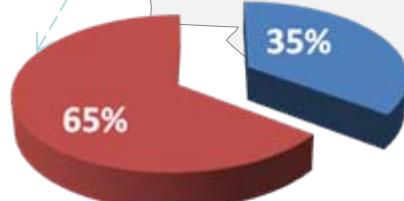


Army Energy in Perspective – 2010

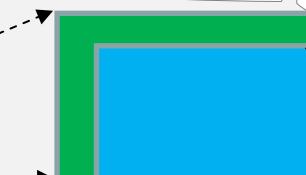
United States



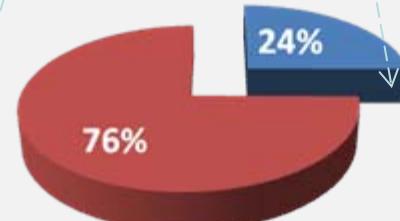
Federal Gov 1%



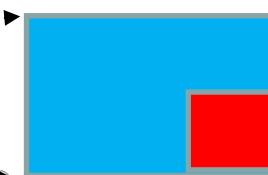
Federal Government



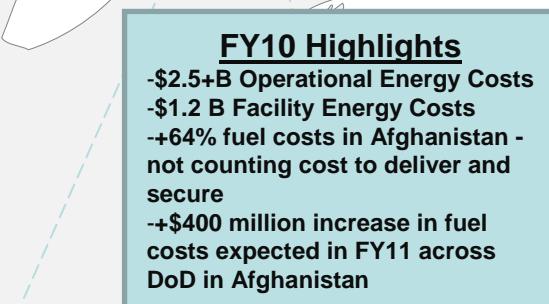
DoD 80%



Department of Defense



Army 23%



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

U.S. = 98,079 Trillion Btu

Fed Gov = 1,096 Trillion Btu(FY09)

Btu

DoD = 819 Trillion Btu

U.S. Army = 189 Trillion

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)



Army Power & Energy



- 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



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

Army Non-Tactical Vehicle Fleet

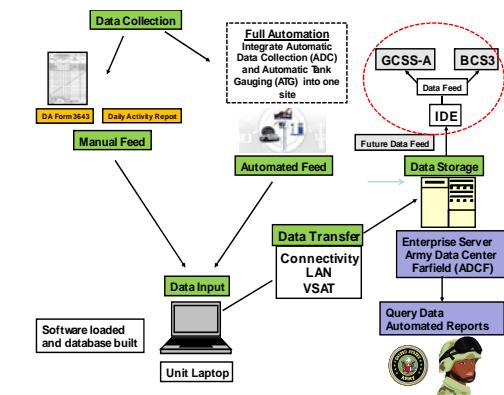
- 80,670 non-tactical vehicles (NTVs)
- 40% of fleet (31,913 NTVs) alternative fuel/hybrid electric vehicles
- 927 low speed electric vehicles



Low Speed Electric Vehicles



Vehicle connected microgrid to provide assured power



System Name = TFMD (Tactical Fuels Manager Defense)



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



▪ Improved Efficiency

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



Advanced Mobile Medium Power Sources (AMMPS)

▪ Integrate Renewable Energy

- Solar
- Waste to Energy



Solar Water Heating



Tent Insulation



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



Fort Carson, CO

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



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

More information:

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



Questions?