



# Department of Defense Facilities Energy Use, Strategies and Goals

## Program Overview

**NAESCO**

**March 3, 2009**



# DoD Asset Management Strategy

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- **Comprehensive Approach**
  - Defense Infrastructure Strategic Plan
  - Infrastructure Investment Management Strategy
- **Tools**
  - Conservation and Demand Reduction
    - Facility Energy Audits – Metering/Benchmarking
    - Energy Conservation Investment Program (ECIP)
    - Energy Savings Performance Contracts (ESPCs),
    - Utility Energy Services Contracts (UESCs)
    - Enhanced Use Lease (EUL) / Power Purchase Agreements (PPA)
  - Renewable/Alternative Technologies
    - Wind/Solar/Geothermal/Biomass/Ocean/Hydrogen
  - Sustainable Design/Development Practices (High Performance bldgs)
  - Sustainable Infrastructure and Utilities Privatization
  - Awareness Programs
  - Coordinated Resource Development

# OSD Energy Policy

## Initiatives Actions

Utility Privatization

- Issue guidance
- Demonstrate benefits
- High % of success
- Technology (better data)
- Right people involved

Embrace Sustainable Design

- LCC Analysis
- W B Design Guide

Enhance recognition

- Showcase facilities
- Awards
- Training

Implement meter policy

- Benchmarking
- Accuracy in accounting/billing
- Energy Star Buildings

Implement appropriate Distributive Energy Resources

Pursue energy funding

- Congressional appropriations
- Private sector investments

Increase efficiency products use

- Energy Star
- Alternative fuels

Promote renewable energy

- Purchases
- Self-generated

## Strategies

Utility Privatization

- Align efforts
- Ensure proficiency
- Execute efficiently and effectively

Transition from utility privatization to utility mgmt.

Implement conservation measures and reduce cost

Achieve/increase energy awareness

Improve Energy Efficiency

- Development
- Investment

Expand use of renewable energy

## Goals

Complete utility privatization

Bring all systems to C2 level

Meter energy consumption at all facilities

Sound stewardship/management of systems

Reduce energy consumption

Reduce greenhouse gases

Increase use and production of renewable energy

## Grand Challenges

Modernize infrastructure

Increase utility and energy conservation and demand reduction

Improve energy flexibility

## Mission

Ensure that the DoD utility infrastructure is secure, safe, reliable and efficient, that energy and Water commodities are procured effectively and efficiently, and that the components maximize energy and water conservation efforts.

## Vision

100 % reliability of utility services to the Warfighter



# DoD Real Property (2008)

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- 545,714 Facilities
  - 316,238 Buildings
  - 181,591 Structures
  - 47,885 Linear Structures
- 29.8 million acres of Land
- 536 Installations
  - 5,429 DoD Sites

Data source: Base Structure Report (BSR) FY 2008

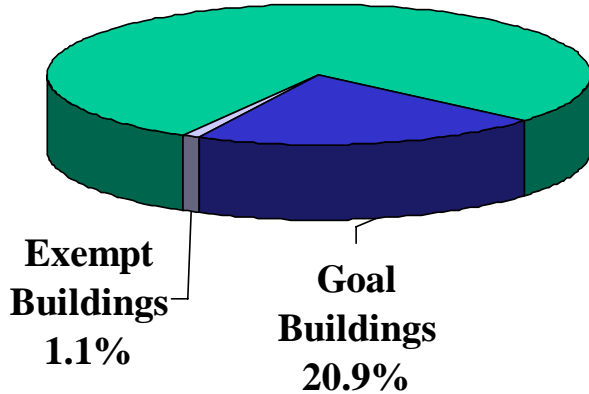


# FY08 DoD Energy Use

Total Site-delivered Energy (BTU)

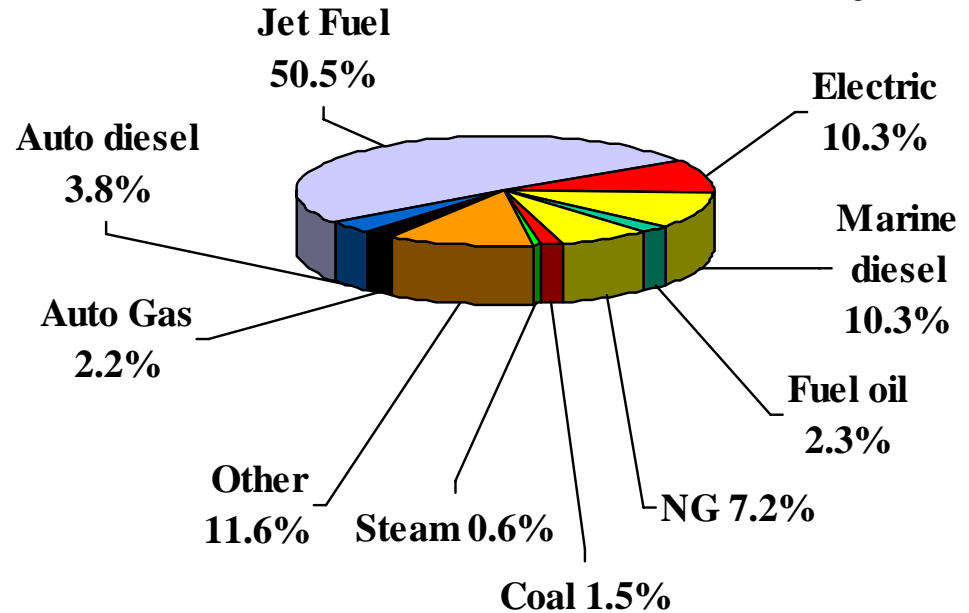
## Application

Non-Facilities  
78.0%



***Nation's single largest energy user***  
*(Used 0.8% of total U.S. & 78.6% of Federal energy in FY 2006)*

## Commodity



**\$20.0B**

**989 Trillion BTU**



# FY 2008 Metrics and Performance (Facilities)

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- Facility energy goals (EPAct 2005 and EO 13423 combined)
  - Reduce goal facility consumption 3% per year -  
**10.7%** : 9% for 2008: Goal continues to 30% in 2015
  - Purchase/generate 2.5% renewable energy -  
**2.9%** : 3% for 2008: Goal continues to 7.5% in 2013
  - Water intensity reduction 2% per year –  
**2.9%** : 2% for 2008; Goal continues to 16% in 2015  
Set baseline in 2007 of 59.8 gallons / GSF
  - Percentage of electricity metered by (100% by 2012) -  
45.8% standard, 13.8% advanced, 59.6% total
  - Percentage of new designs 30% better than ASHRAE –  
**93%** of FY 2010 MILCON program
  - Produce or procure 25% renewable energy by 2025  
**9.8%** on track to exceed goal



# Energy Independence and Security Act (EISA) of 2007

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- Codifies the EO 13423 3% annual energy reduction or 30% by 2015 (431)
- An energy manager must be designated for “appropriate” Federal facilities covering at least 75% of an agency’s energy use (432)
- Energy and water evaluations for 25% of facilities annually and all appropriate facilities on 4 year cycle (432)
- Energy and water conservation measures be entered and annually updated in a “to be created” web based tracking tool (432)
- Metering data entered into a web based benchmarking database (432)
- OMB to issue scorecards (432)
- Reduce the use of fossil fuels in new and renovated building by 55% in 2010 increasing to 100% in 2030 (433)
- DoE to identified a federal green building certification system (433)
- Large capital investments must be the most energy efficient design that is life cycle cost effective. Process in place by July 08 (434)
- Adds Natural Gas and Steam metering requirements by Oct 2016 (434)



# EISA 2007 (continued)

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- Removes ESPC Congressional pre-notification requirement (511)
- No agency limits of less than 25 years or max obligation on ESPC (513)
- Permanently reauthorizes ESPC (514)
- Adds cogeneration and heat recovery, and water conservation as “energy savings” for ESPC. Does not specify renewable energy (515)
- Allows sale of excess renewable energy (515)
- Allows all savings to be retained on site. (No method for doing this) (516)
- 30% of hot water in new and renovated federal buildings from solar (523)
- Requires annual submittal to OMB covering: compliance, status of efficiency implementation and GHG reductions, and savings (527)
- Several appliance energy efficiency and procurement standards
- Joint DoE/DoD study of energy and cost savings in non-building applications (518)



# NDAA 2008 (HR 4986)

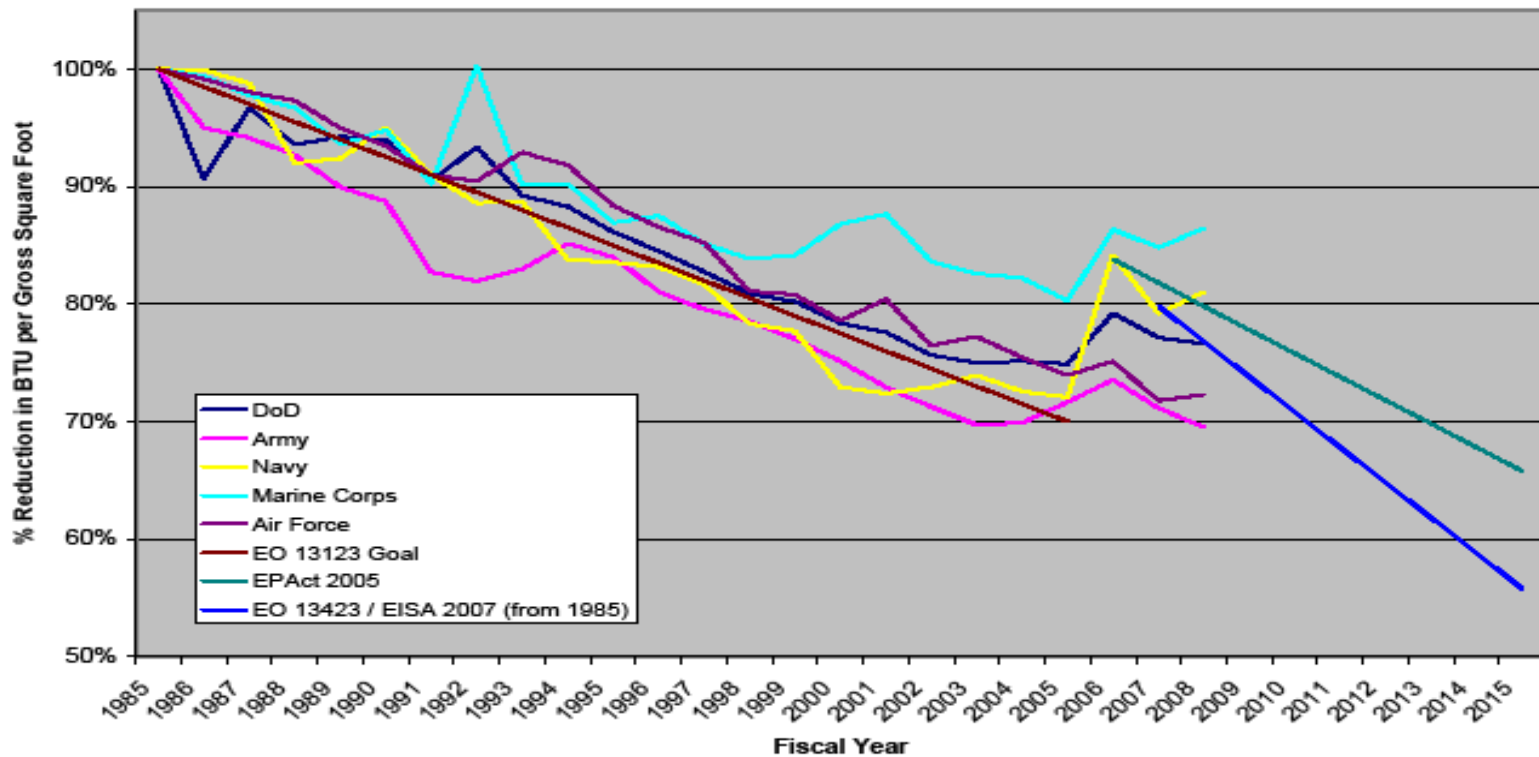
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- Allows contracts for renewable energy up to 10 years (828)
- \$70 M for FY 2008 ECIP.
- **Removes ESPC Congressional notification requirement (was \$7 M for DoD) (2861)**
- Redefines Alternative Fueled Vehicle for EPA Act 2005 (2862)
  - Hybrid, Fuel cell, and Lean Burn technology
  - Others that demonstrated to achieve significant petroleum reduction
- Requires the use of energy efficient lighting in all new construction and significantly altered buildings, and in the normal course of maintenance 1 year from date of enactment. Energy Star bulbs meet requirement. Secretary may waive requirement (2863)
- Requires renewable energy report by May 2008.
- Requires water conservation report by April 2008.



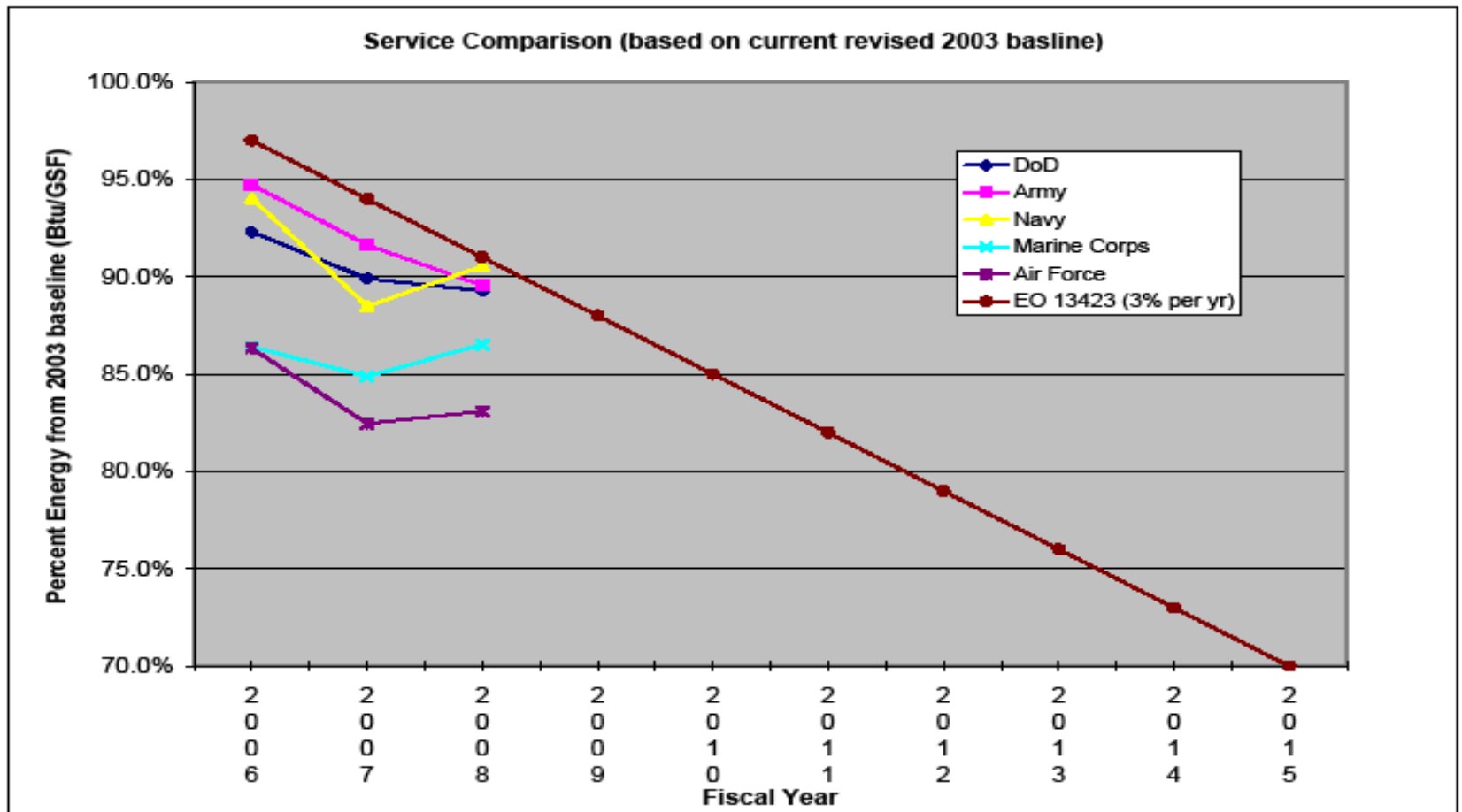
# Performance – facility energy reduction

**Facility Energy Reduction - Service Progress Comparison**  
(With renewable credits applied)





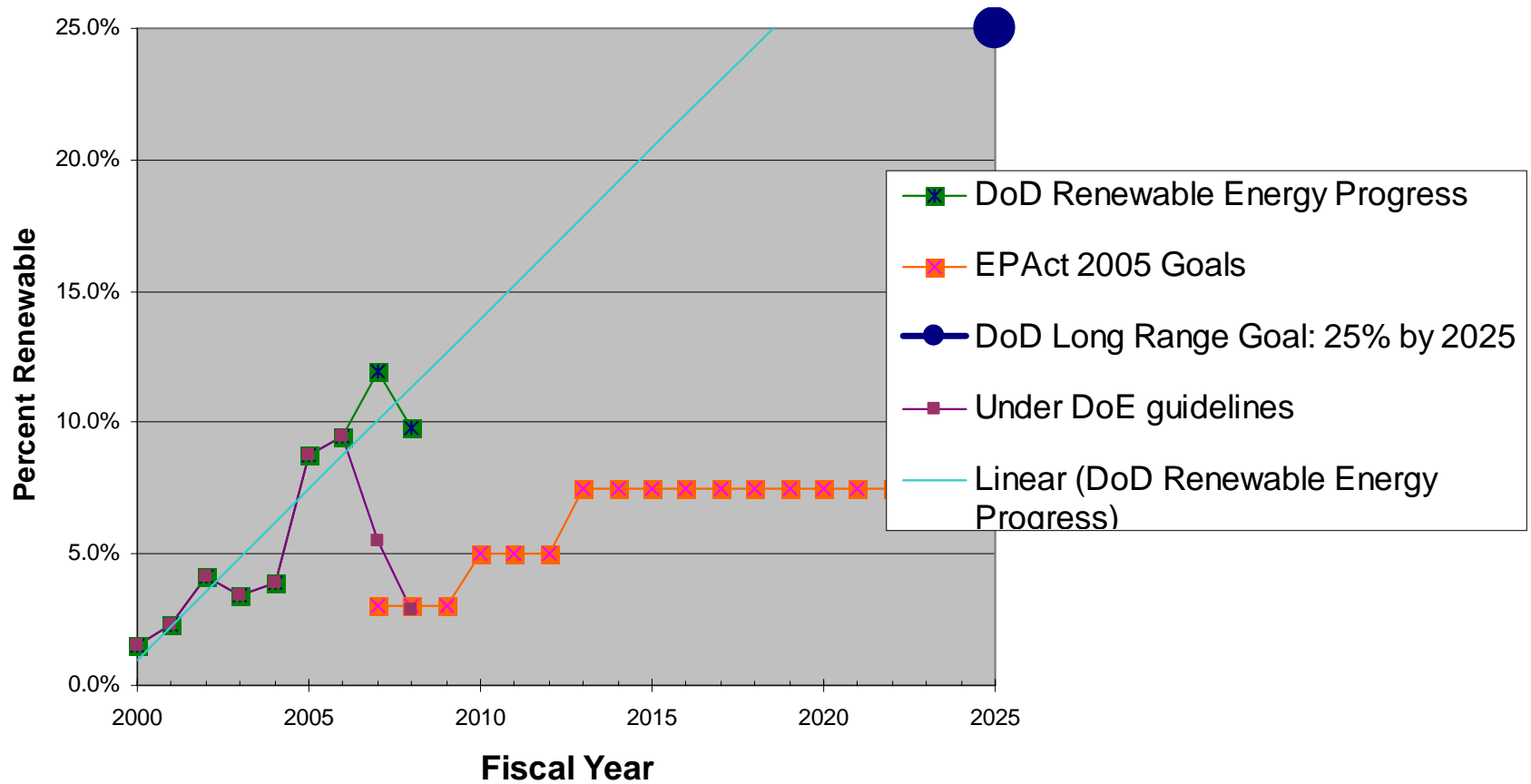
# DoD Facility Energy Intensity





# DoD Renewable Energy Progress

## DoD Renewable Energy Progress





# Current OSD Focus

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- **Metering and Commercial Benchmarks**
- **Strategic Investment Plan**
  - Priorities for funding matched with best opportunities
  - ECIP \$70M in FY 2008, increased to \$120M in FY 2013
- **Increase use of Alternative Financing Contracts**
  - ESPC, UESC, PPA, EUL, others
- **Increased implementation of renewable energy**
  - FY 2008 ECIP: \$28.2M renewable projects (23); FY 2009 \$41.8M (27)
- **Complete utilities privatization program**
- **Comprehensive approach**
  - Mobility/transportation energy
  - Sustainable Design Templates
- **Partnership with DoE on Net Zero, Financing, & Techval**



# Final thoughts

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Providence, RI  
August 9-12, 2009

- ODUSD Energy website:  
<http://www.acq.osd.mil/ie/energy/index.shtml>
- Questions
- Contact at:
  - [Brian.Lally@osd.mil](mailto:Brian.Lally@osd.mil) (703) 614-5574
  - [Brad.Hancock@osd.mil](mailto:Brad.Hancock@osd.mil) (703) 571-9074