



Department of Defense Energy Use, Strategies and Goals

GovEnergy 2007

August 2007



DoD Asset Management Strategy

- **Comprehensive Approach**
 - Defense Facilities 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)
 - Renewable/Alternative Technologies
 - Wind/Solar/Geothermal/Biomass/Hydrogen
 - Sustainable Design/Development Practices
 - Sustainable Infrastructure and Utilities Privatization
 - Awareness Programs
 - Coordinated Resource Development



DoD Real Property

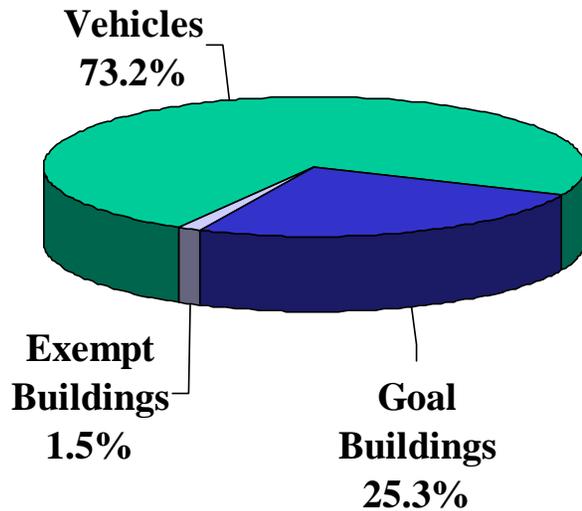
- 577,519 Facilities
 - 343,867 Buildings – 2.4 BSF
 - 184,784 Structures
 - 48,868 Linear Structures
- 32,408,261 acres of Land
- Plant Replacement Value (PRV) \$712.2 Billion
- 5,311 DoD Sites



FY06 DoD Energy Use

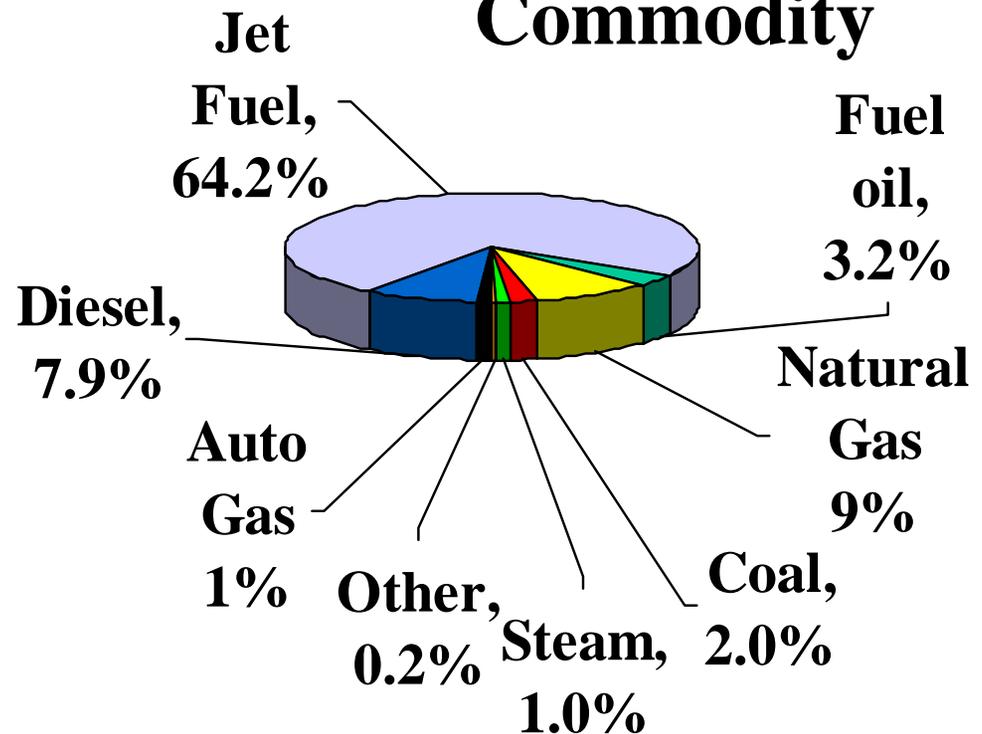
Total Site-delivered Energy (BTU)

Application



Nation's single largest energy user
(Used 1.2% of total U.S. energy & 74% of Federal energy in 2005)

Commodity



\$13.55B

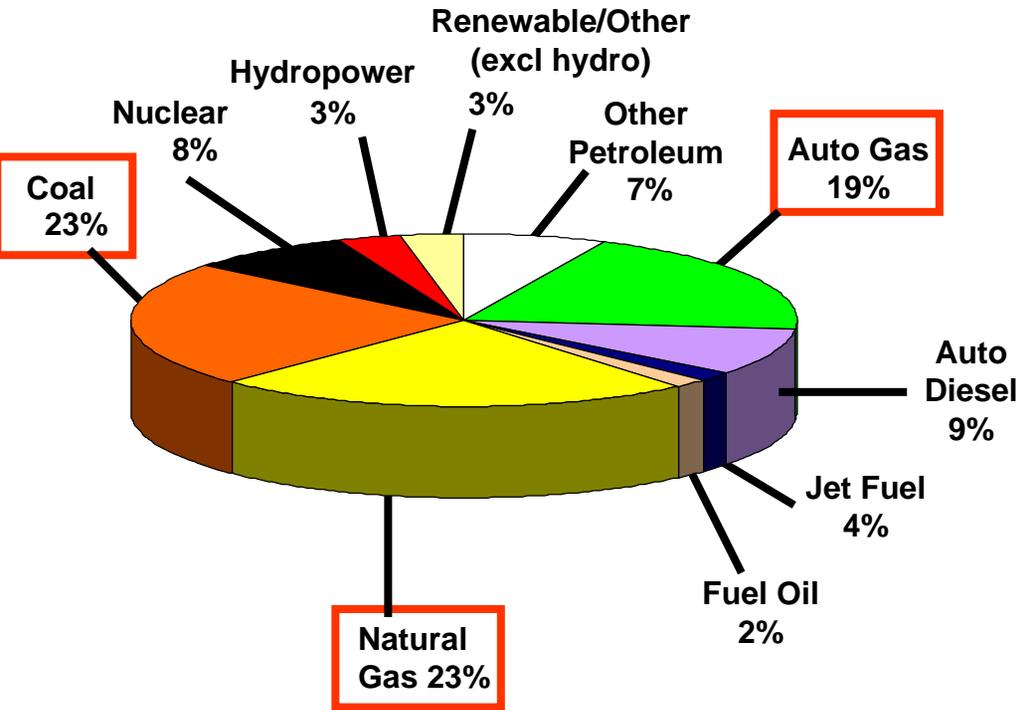
832 Trillion BTU



Energy Consumption

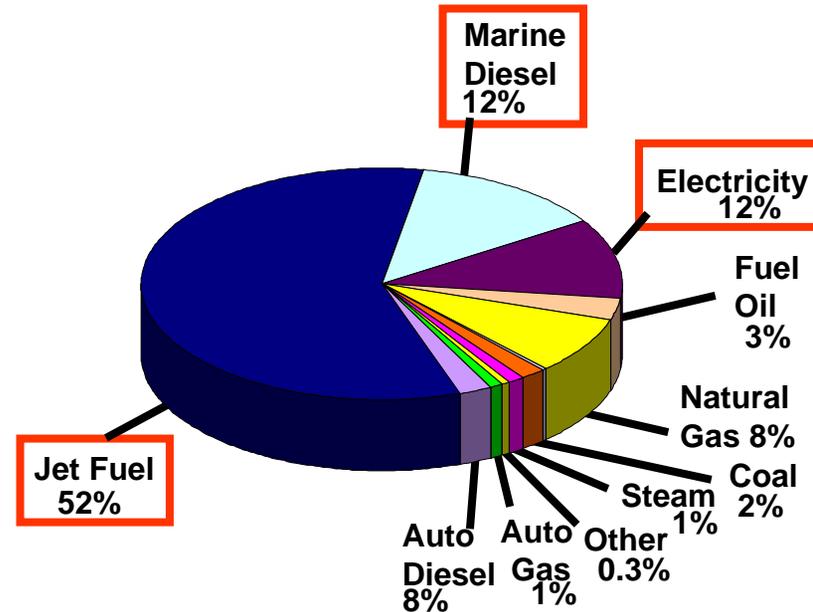
- DoD Compared to Rest of US -

US Energy Consumption by Type



DoD Energy Consumption by Type

Represents 1.2% of US consumption



Source: EIA 2005 consumption data

Source: DoD Annual Energy Report for FY06

DoD/DOE working on different challenges



Energy Policy Act of 2005

- Effective on August 8, 2005
- Federal Facilities Provisions
 - Energy Reduction Goals - 20% by FY 2015
 - Energy Efficient Buildings - 30% better than ASHRAE standards
 - Renewable Energy – Purchase 3% in 2007 -2009, 5% in 2010 – 2012, 7.5% in 2013 and beyond
 - Energy Efficient Products - Energy Star or FEMP designated products Wind Farms and Energy Corridors



Executive Order 13423

- Strengthen Federal Environmental, Energy and Transportation Management
- Signed on January 24, 2007
- Federal Facilities Provisions
 - Energy Reduction Goals - 3% per year or 30% by FY 2015, up from 2% / 20%
 - Links reduced greenhouse gas emissions to this goal
 - Renewable Energy – at least half of required RE from sources placed in service after Jan 1, 1999
 - Implement RE generation projects on agency property for agency use to the extent feasible
 - Water consumption intensity reduction 2% annual or 16% by FY 2015 - beginning FY 2008
 - New construction and major renovation follow 2006 MOU
 - Designed for Energy Star targets and 30% better than ASHRAE 90.1-2004.
 - Renovations 20% better than 2003 baseline
 - Install building level meters in all construction and major renovation
 - 20% less potable water use than baseline after meeting EPA Act 1992 requirements
 - 50% reduction in outdoor water use from conventional means
 - Achieve minimum 2% daylight factor in 75% of space for visual critical tasks
 - 15% of existing inventory incorporate above guidelines by end of FY 2015
- Revokes EO 13123



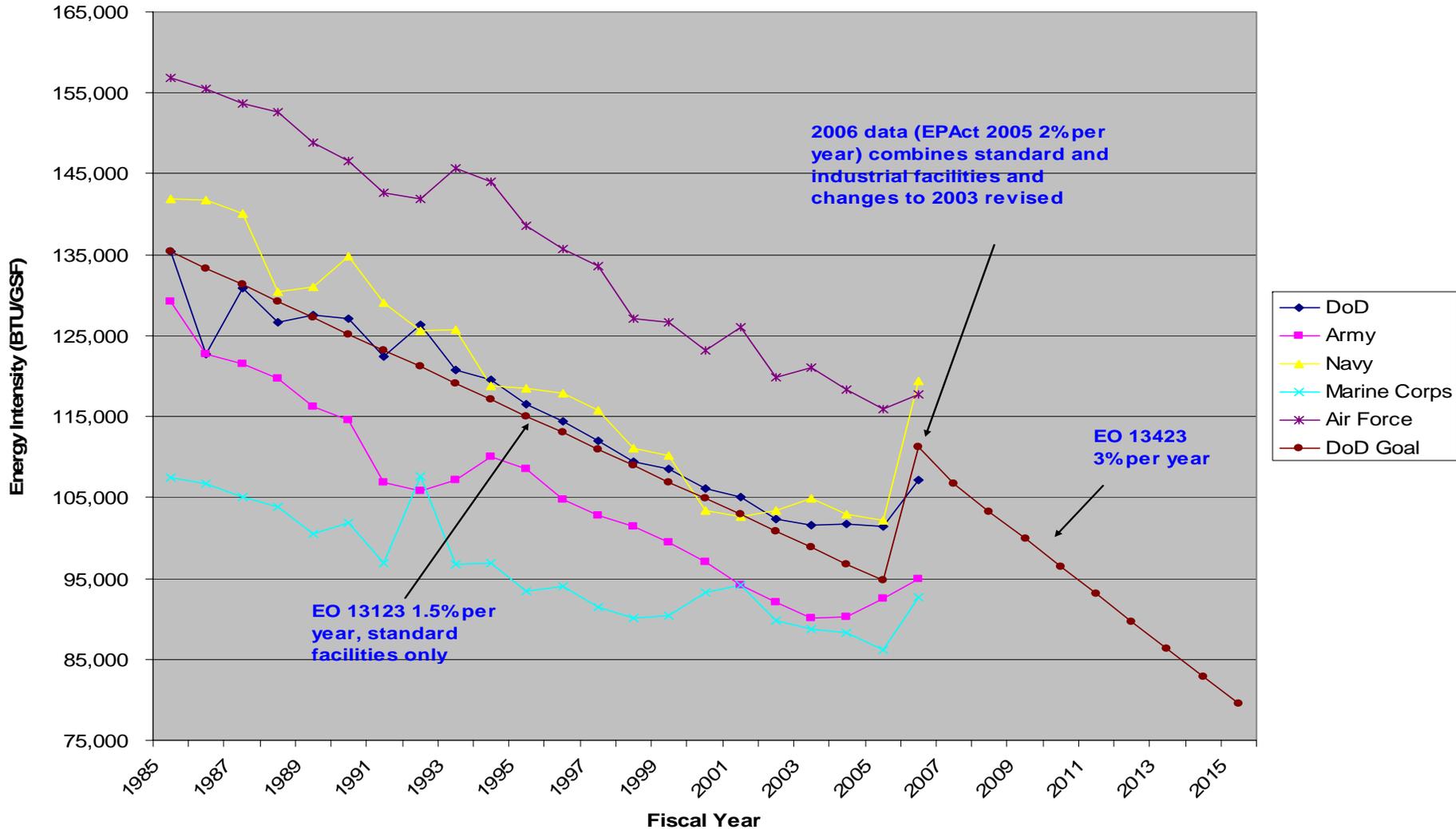
Current Metrics and Performance (Facilities)

- **Facility energy goals (EPAct 1992 and EO 13123)**
 - **Reduce standard building consumption by 35% by 2010 – 28.3% (2005), goal was 30%**
 - **Reduce industrial facility consumption by 25% in 2010 - 21.6% (2005), goal was 20%**
- **Facility energy goals (EPAct 2005)**
 - **Reduce goal facility consumption by 2% - 5.5% (2006) : Goal continues to 20% in 2015**
 - **Purchase/generate 2.5% renewable energy - 9.5 (2006) : Goal continues to 7.5% in 2013**
 - **Conduct energy audits in 10% of facilities annually - 13.3% (2006)**



Performance – facility energy reduction

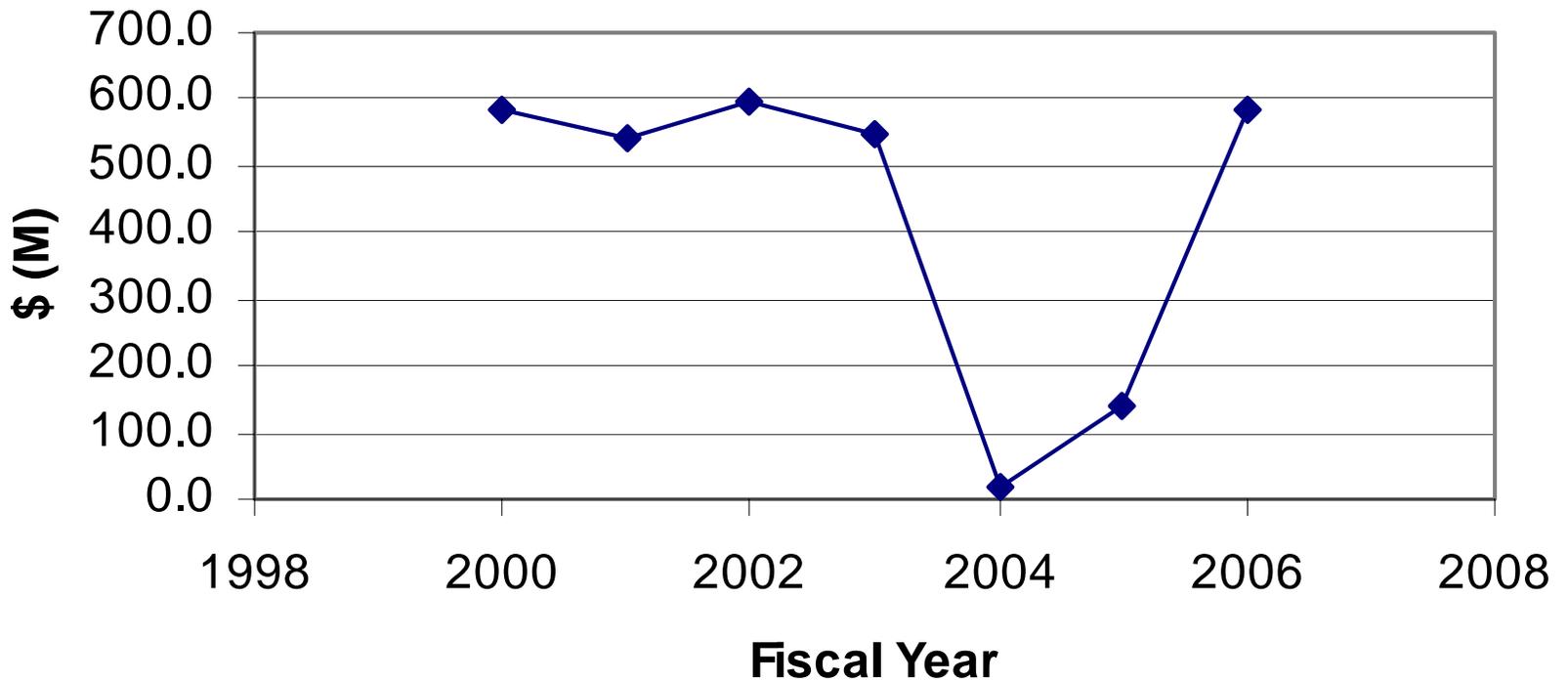
Service Comparison





Historical ESPC Awards

ESPC Contract Award Value for DoD





ESPC

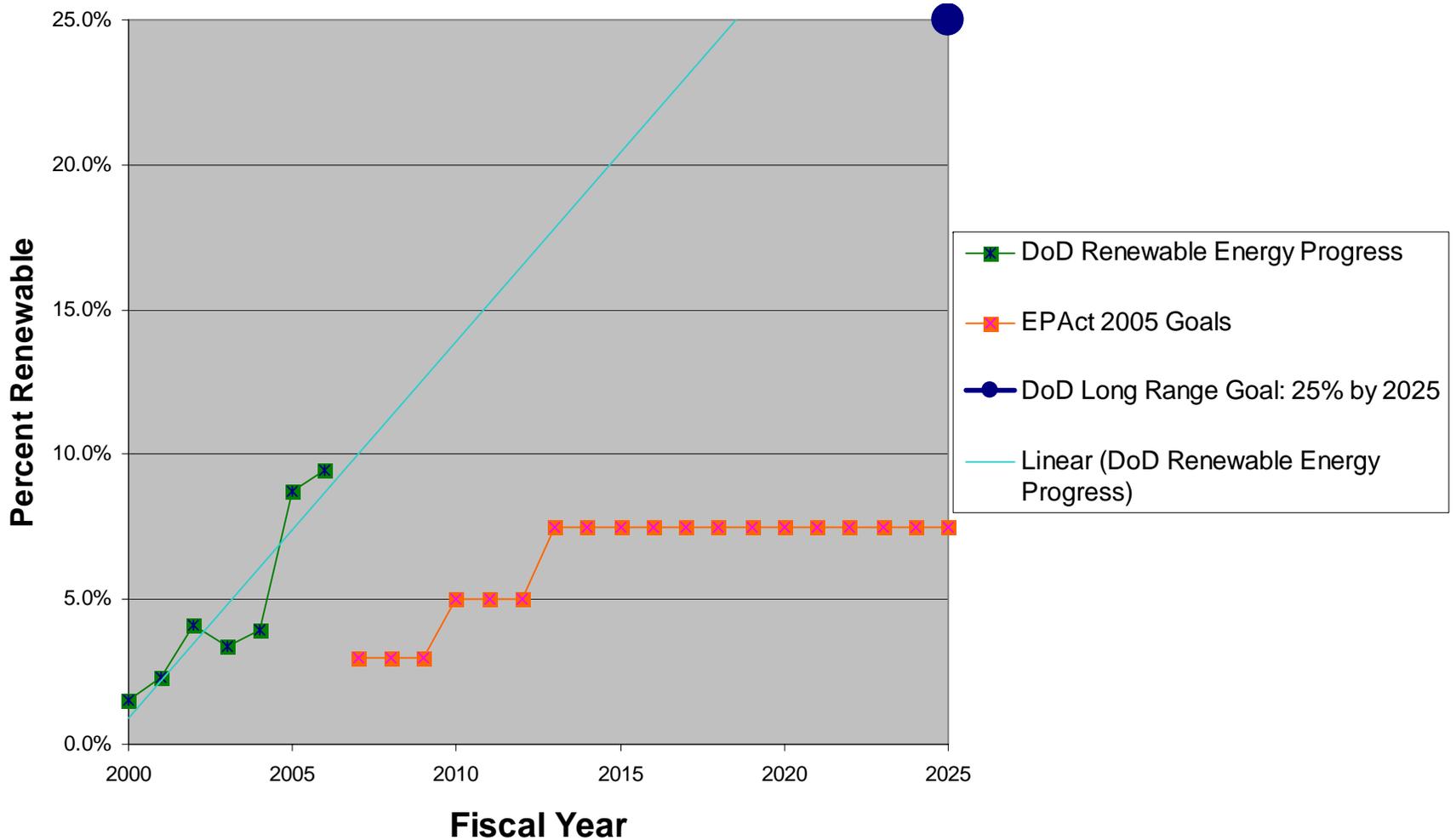
FY	2003	2004	2005	2006
# Contracts	34	5	15	18
\$M Awarded	549.9	16.2	140.9	588.4
Annual MMBtu	1,619,000	149,000	457,000	1,326,000
Annual % of DoD electrical consumption (2003 baseline)	1.6 %	0.15 %	0.45 %	1.3 %
Cumulative % of DoD electrical consumption	1.6 %	1.8 %	2.2 %	3.5 %

Cumulative ESPC accounts for 3.5 percent of the DoD 5.5 percent reduction from FY 2003 – FY 2006. (63.6 percent of the total reduction.) DoD could not have met the reduction requirement without the use of ESPC.



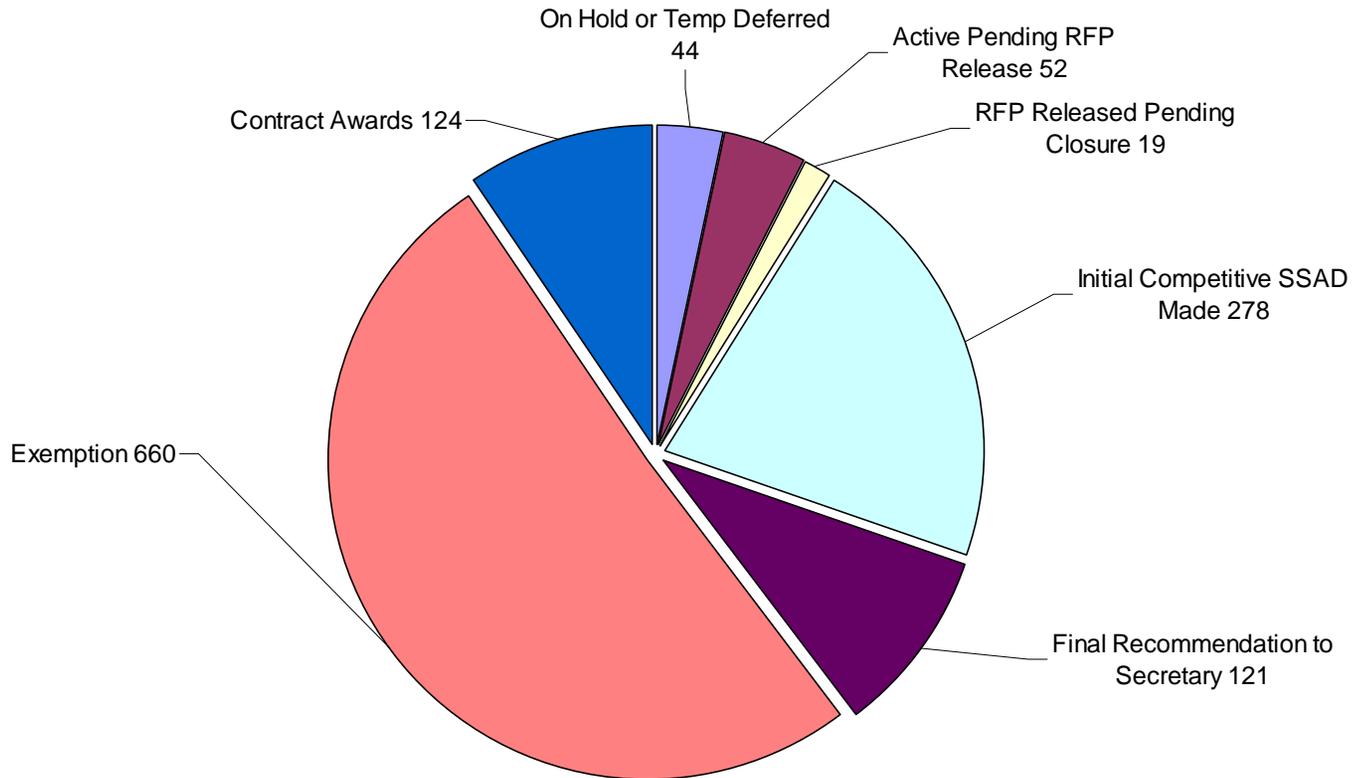
DoD Renewable Energy Progress

DoD Renewable Energy Progress





Utilities Privatization snapshot





Current OSD Focus

- **Metering and Commercial Benchmarks**
- **Strategic Investment Plan**
 - Priorities for funding matched with best opportunities
 - ECIP Increased to \$120M by FY 2013
- **Increased use of ESPC Contracts**
- **Increased implementation of renewable roadmap**
 - FY 07 and FY 08 ECIP: \$43.7M renewable projects (34)
 - FY 07 ECIP: \$3.3M hydrogen projects (3)
- **Complete utilities privatization program**
- **Comprehensive approach**
 - Mobility/transportation energy
 - Sustainable Design Templates
- **Coordinated Resource Development on DoD lands**



Challenges – New Construction

- Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding
- LEED Certification
- 30% Better than ASHRAE
- Green Procurement
- Energy Star
- High Performance Buildings



Challenges – Existing Inventory

- Prioritizing and Categorizing
- Technologies
- Funding
- Authorities
- Size
- LEED Certification
- High Performance Buildings



Vision / Way Ahead

- Reduced Energy / Environmental Footprint
- Energy Independence and Flexibility
- Innovation / Incentives / Teamwork
- Continued Structure
- Seek Out Best Practices / Technologies
- Seek Out Funding Solutions
- Lead by Example