



An Energy Efficiency Workshop & Exposition

Palm Springs, California

*Appropriations and Private Financing:
A Look Back*

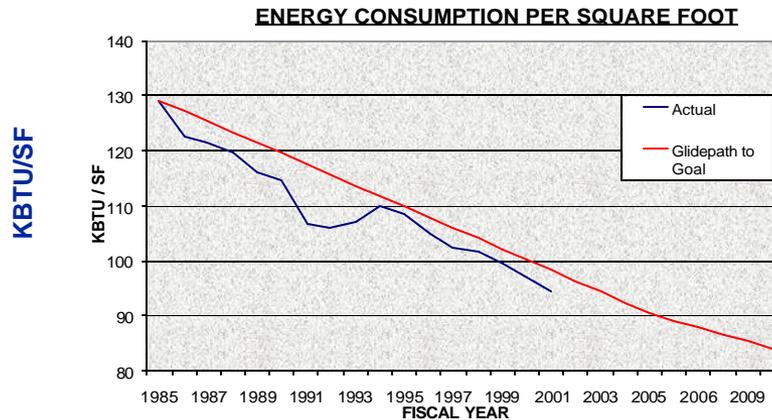
Bruce Murphy
Army Energy Program



Energy Goals & Current Status

Army has a Successful Energy Program

- **ARMY GOAL:** Reduce facility energy usage by 35% by 2010 from 1985 baseline
- Thru FY 01 - Army at 27 % of goal > \$ 2.8 B total cost avoidance
- New Jun 1999 Executive Order: "Greening the Government Through Efficient Energy Mgmt"
 - Reduce Greenhouse gas emissions 30% by 2010 from 1990 baseline
 - Increase use of Renewable Energy
 - More efficient design & use of "Energy Star" products
 - Expand Private Sector financing & Energy Savings Performance Contracts





Funding Strategies – What’s working for the Army!

- Mandated 35% reduction goal - Army estimated it required \$825 M through FY10.
- Utilizing three funding streams:
 - Energy Conservation Investment Program (ECIP) – \$88.2 M
 - Energy Savings Performance Contracts (ESPC) - \$384 M
 - Central Heating Plant Modernization Program - \$300 M

Total – Funding through 2001 – 772.2 M



Energy Conservation Investment Program

- ❑ **ECIP provides MILCON funds for energy conservation projects over \$500K.**
- ❑ **Goal of ECIP is to improve energy efficiency on military installations while reducing both energy and non-energy costs and improve mission support capability.**
 - **Typical projects: Infrared Heating systems, boiler/chiller upgrades, geothermal heat pumps, distribution system upgrades, lighting upgrades, HVAC controls, EMCS, and photovoltaic power systems**



Energy Conservation Investment Program

□ **Army ECIP history of funding:**

- | | |
|-----------------------|---------------------|
| ➤ 1991 – 3.6M | 1997 – 10.5M |
| ➤ 1992 – 9.7M | 1998 – 9.6M |
| ➤ 1993 – 5.2M | 1999 – 7.4M |
| ➤ 1994 – 7.8M | 2000 – 0.0M |
| ➤ 1995 – 11.6M | 2001 – 5.2M |
| ➤ 1996 – 10.9M | |

TOTAL – FY1991 – 2001 ---\$81.5M



Energy Conservation Investment Program

- FY 03 – 07 ECIP program submissions
- DoD budgeting \$50M /year for FY03-07
- Army share for FY03-07 – Expected to be \$10-12M
- Initial submissions for FY03
 - Approved 1391
 - Economic analysis of project



ECIP Strategies

ECIP funds must improve energy efficiency of existing facilities or for constructing new, high efficiency energy systems.

ECIP projects do not compete for resources with MCA or OMA

Projects are prioritized based on Savings to Investment Ratio (SIR)

- Pros -
 - Good for large projects with high \$ savings
 - Keep savings generated by the project
 - May be a source of funding for renewable or high risk projects
- Cons -
 - Long lead time to develop and execute projects
 - Projects compete Army-wide and funds are limited
 - Funding may be delayed or deferred to next fiscal year



Energy Savings Performance Contracting

- Almost half of the energy funding the Army estimates it needs comes from alternative financing.
- So why are ESPC's popular?
 - Congress tells us to use industry expertise & resources
 - Army installations are not staffed to perform the audits and design the systems needed to save energy and water resources.
 - 41 installations, 80 task orders and \$384 million in contractor investments
 - Contributed 2.7% towards reduction in energy use
 - Private industry can accomplish quicker than Army
 - Contractor must guarantee the proposed savings
 - Shares risk between government and contractor



ESPC Programs

- **ESPC Contracting Resources**
 - Army has 18 area-wide contracts covering 50 states, DC and Puerto Rico (awarded 1997, Huntsville CEHNC)
 - Potential capital investment - \$1.1 Billion
 - MEDCOM has awarded ESPCs for use at MEDCOM installations and Medical Facilities
 - DESC awarded \$67 M ESPC at MDW
 - Regional and Technology Specific ESPC thru DOE/FEMP

Use of ESPC & Utility Programs to leverage resources



Central Heating Plant Modernization Program

Upgrade Central Heating Plants & Distribution Systems at major U.S. Army Installations.

- Modernize 43 plants/ 17 installations.
- Replaced boilers, upgraded plants & distribution systems, modernized equipment, controls, decentralized heating systems.
- Provides long term savings over the 25 year life of the system.
- Reduces environmental emissions; improves efficiency, reliability and safety

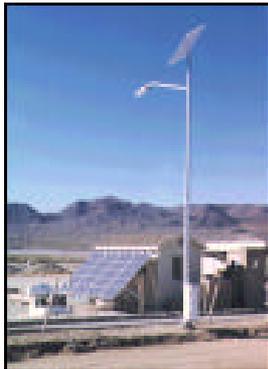




Distributed Energy Generation

Photovoltaic

- New Technology
- 32% Efficient
- Double current ratings



June 2-5, 2002

Wind Power

- Costs are Decreasing
- Purchase "Green Power" where available.
- Be a catalyst for change



www.energy2002.ee.doe.gov

Fuel Cells

- Central Heating Plants - 11 Sites
- Hospital Utility Plants - 7 Sites
- Pools/Fitness Centers - 3 sites



11



Renewable Technologies

Photovoltaic Applications



Grid Connected Array



Mobile Power Unit



Communications



Lighting



Summary

- A successful, decentralized program that empowers installation energy managers.
 - **Army 27.06% below it's 1985 baseline**
- Expand partnerships - ESPC and UESC - with industry to implement latest technologies and management techniques at Army installations.
- Make some focused Army investments in renewable and new technologies – Yuma PG & Fort Huachuca.
- Invest in people, training and recognition.

Less energy use = reduced emissions



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<http://www.hqda.army.mil/acsimweb/fd/policy/energycur.htm>

Army Energy Website:

<http://www.lia.army.mil/energy/index.htm>