

Federal Energy Management Program

Program Overview and ESPC

“Greening the Government”

Philadelphia, PA

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Origin of FEMP

Energy Policy Act of 1992

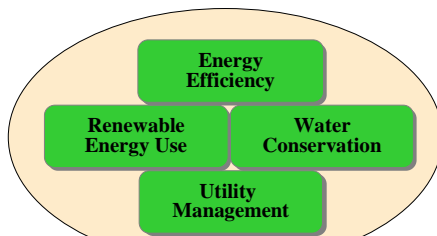
- Coordinate Agency Energy Reporting
- Support Agencies in efforts to achieve energy goals
- Introduced the Energy Savings Performance Contracting concept



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FEMP Mission

FEMP works to reduce the cost of Government by advancing energy efficiency and water conservation, promoting the use of renewable energy, and managing utility costs.



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Key Drivers

- Energy Security
- Climate Change
- Air Emissions
- Electric Utility Restructuring
- Economic Competitiveness
- Energy Reduction Goals
- O&M Costs
- Utility Costs
- Facility Infrastructure Improvements



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Federal Government as Consumer

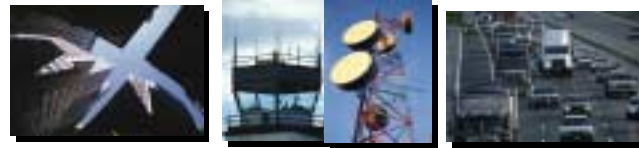
- \$200B annually on products and services
- \$8B on Federal energy bill
- 500,000 buildings
- Consumes 2% of nation's electricity

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Federal End-Use Sectors

- Buildings & Facilities
- Vehicles & Equipment
- Energy Intensive Operations



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Legislative Authorities

- Energy Policy and Conservation Act (1975)
- DOE Organization Act (1977)
- National Energy Conservation Policy Act (1978)
- Federal Energy Management Improvement Act (1988)
- Executive Order 12759 (1991)
- Energy Policy Act (1992)
- Executive Order 12902 (1994)
- Executive Order 13123 (1999)

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Federal Efficiency Goals

- Energy Conservation:
 - Reduce energy use by 35% by 2010 using 1985 baseline
- Renewable Energy:
 - 2 1/2 % of all Federal power supplied by Renewables by 2005
- Water Conservation:
 - Abide by Best Practices Methodologies

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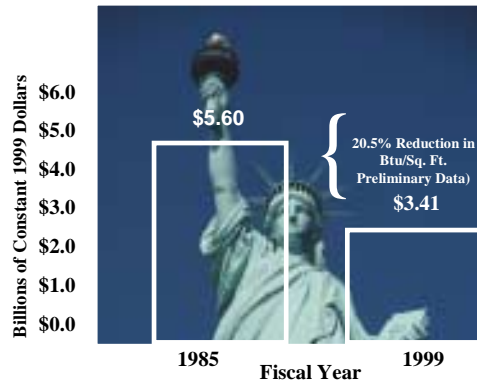


Progress

- Preliminary FY 1999 data indicates that the Federal government achieved the FY 2000 goal one year early.

- In real dollars, FY 1999 energy costs for Federal buildings were almost \$2.2 billion less than in 1985.

- As of FY 1998, the Federal government reduced petroleum use in Federal facilities by 64% relative to 1985.

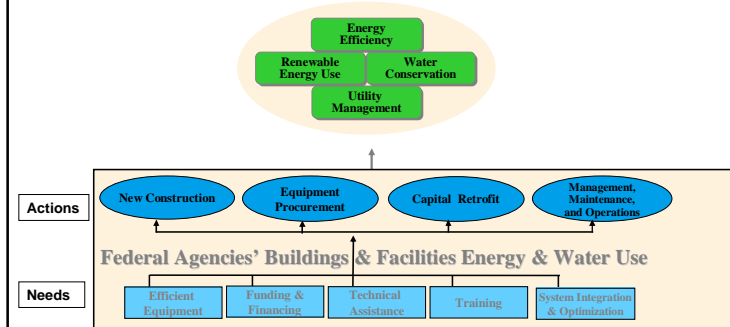


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FEMP Program Drivers

Agency Needs for Efficient Management of Energy & Water



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Major Activities

- Technical Assistance
- Project Financing
- Coordination, Reporting, Awareness



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FEMP Technical Assistance

Program Areas

- Design Assistance
- Sustainability
- Renewable Energy Program
- Water Conservation
- Energy Efficient Federal Procurement

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FEMP Technical Assistance

Program Areas

- Distributed Energy Resources
- SAVEnergy
- ALERT Program
- New Technology Demonstration Program

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FEMP TA Team Core Capabilities

Service delivery expertise in:

- Assessing opportunities for EE,RE and water efficiency opportunities in buildings
- Computer simulation of energy use in buildings
- Life cycle costing
- Writing technical specifications
- Monitoring building energy use
- M & V and building commissioning
- Working with A/E teams
- Leading design charrettes, working groups, and workshops

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Design Assistance

- To assist Federal agencies implement projects by overcoming technical obstacles
- FEMP offers:
 - Opportunity Assessments
 - Feasibility Studies
 - Financing Strategies
 - Technical Specifications
 - Proposal reviews & support in negotiation
 - Design review
 - Acceptance testing

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Sustainability Program

Sustainability is a multi-disciplinary, multi-year project to:

- Improve energy and water efficiency
- Reduce waste
- Improve comfort and productivity

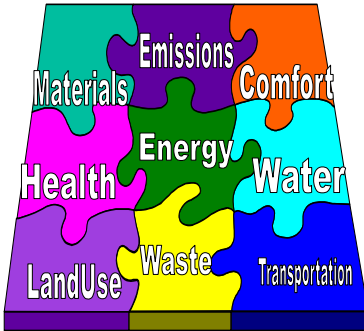
The goal is not sudden change but rather to set a course of continuous improvement towards sustainability

- FEMP sponsors Sustainability Workshops at Federal facilities
- Sustainability Working Group
- Developing a Business Case Model

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An Integrated Approach



- Whole-system perspective
- Look for and exploit interactions between activities
 - between disciplines
 - between projects
- Benefits of individual activities are evaluated based on impacts on the whole system

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Integration requires an inter-disciplinary team of decision makers

- Facility Management
 - Engineering, Budget, Procurement, Legal
- Agency Leadership
- Electric, Water and Gas Utilities
- Water and Air Quality Management District
- Solid Waste Management Districts
- Industrial Partners
- Technology Experts
- Surrounding Communities
 - chambers of commerce
 - neighborhood associations
- Financial Community
- Environmental Organizations



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The Charrette



- An intense effort to identify and address issues in a short time
- Listen to understand the needs and limitations
- Envision realistic and creative solutions
- Effectively record ideas as they go by
- Effectively express these ideas in a plan to serve as a vehicle to move the process forward

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The Charrette (continued)

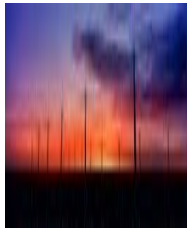
- Cooperative environment for decision makers
- Deliberately look for interactions
- Match resources to needs
- Results in a plan for continuous improvement toward sustainability
 - near-term actions
 - mid-term actions
 - long-term actions
- Deliberately look for "action moments" or windows of opportunity to affect resource use.



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Renewable Energy Program



- To assist federal agencies increase their use of renewable energy by:
 - increasing their purchase of cost effective renewable energy technologies or using low energy design practices,
 - Obtaining a portion of their electricity from renewable power sources,
 - Facilitate projects to encourage the use of RE on Federal lands

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Renewable Projects



Projects include renewable technologies that the agencies own:

- Low energy design in buildings
- Solar water heating and air heating
- Photovoltaics
- Wind
- Geothermal heat pumps or geothermal heating and cooling
- On-site biomass electricity and thermal generation

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Water Conservation Program

- Considers water conservation an integral part of a comprehensive energy management program
- Assist Federal agencies identify and implement water conservation measures in compliance with EPACT and E.O. 13123
 - Technical Assistance
 - Education and Outreach
 - Alternative Financing

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Energy Efficient Federal Procurement

- Federal Procurement Challenge
 - voluntary Federal program to use the buying power of the Federal Gov't to foster market for energy and water efficient products , signed by 22 agencies
- Energy Efficiency Recommendations
 - EPA direction to buy products in top 25% of efficiency range
 - Recommendations for dozens of products such as air conditioners, computers, photocopiers and water heaters (with EPA Energy Star Program).

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SAVEnergy Audit Program

- SAVEnergy Facility Energy Audits
 - 20 firms and labs perform audits
 - screens for energy efficiency, renewable energy and water conservation opportunities
 - FEMP audits approx. 16 Million s.f./yr
- SAVEnergy Action Plans provided to agency include:
 - no cost O&M changes
 - Energy Conservation Measures
 - financing recommendations

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FEMP O&M Program

- Goal: Improved federal energy efficiency through better operations and maintenance of facilities.

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Proven Benefits of Improved O&M

- Energy Savings/Dollar Savings
- Improved thermal comfort
- Better indoor air quality
- Enhanced system function
- Increased worker productivity
- Better measurement and control
- Higher system reliability
- Increased ability to predict vs. react

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FY03 Program Development

- Tools
 - O&M Audit program
 - Develop M&V/follow up
 - Contracting
- Training
 - O&M, Commissioning, Metering, Best Practices, Reliability Centered Maintenance, etc.
- Marketing
 - Full track at Energy 03
- Tech Assistance
- REM Training and support

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Strategic Energy Management Plans

- Strategic Energy Management Plans are developed to outline strategies for achieving goals for energy and water efficiency and renewable energy
 - FEMP can assist by facilitating an Agency Energy Management Plan workshop
 - Developing a draft Plan and helping to finalize and institutionalize the Plan
 - Completed for Commerce and developing for GSA

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FEMP \$\$\$ for Technical Assistance

- FEMP issues an annual "Call for Projects" (DER, RE, Design Assistance)
- FEMP selects a funds projects best meeting predetermined criteria
- Watch the FEMP web site for more information: www.eere.doe.gov/femp

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Laboratories for the 21st Century

- Sponsored by EPA and DOE
 - Voluntary initiative dedicated to improving laboratory energy and water efficiency, encouraging the use of renewable energy sources, and promoting environmental stewardship in U.S. laboratories
 - Focus on comprehensive, "whole building" approach to reduce costs and improve laboratory performance

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Project Financing

- ESPC and Super ESPC
- Utility Partnerships
- Agency Appropriations

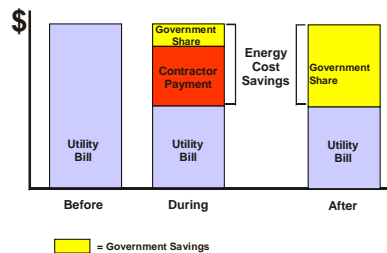


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Performance Contracting: A Key Tool

- Maximize use of alternative financing
 - Energy Savings Performance Contracts (ESPCs)
 - Utility financing
- No upfront costs other than technical and contracting support
- Agencies pay back investment through energy savings
- ~\$9B in contracting authority now available



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Energy Savings Performance Contracts

Energy Savings Performance Contracting (ESPC) is a contracting method whereby the contractor incurs the cost of implementing energy savings measures and is paid from a share of any energy and energy-related savings directly resulting from implementation of such measures during the term of the contract.



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FEMP Super ESPC

- Covers all Federal facilities in a geographic region
- Standardizes general terms and conditions
- Multiple award IDIQs to cadre of ESCOs
- Projects executed by agency Delivery Orders issued against the IDIQ
- Allows for revision of IDIQ terms by agency in Delivery Orders



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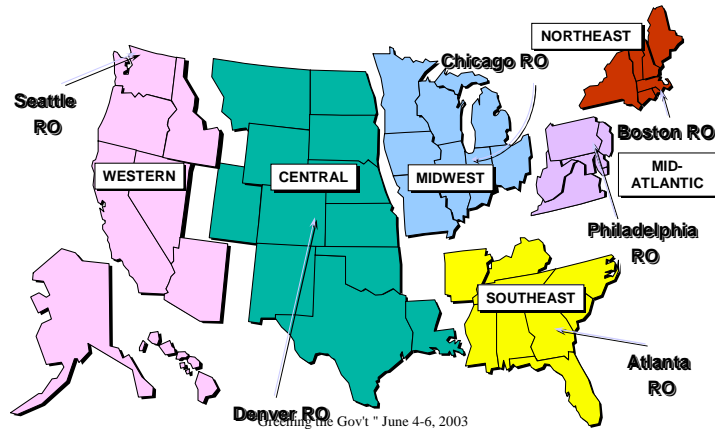
The Two Types of Super ESPC

- Regional (by DOE Region - six)
- Technology Specific (International)
 - Photovoltaics
 - Geothermal Heat Pumps
 - Parabolic Troughs (Solar Water Heating)
 - Biomass and Alternate Methane Fuels



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DOE Super ESPC Regions



Benefits of ESPC Contracting

- Experienced ESCO contractors
- Maintain high degree of control over project
- Integrated approach to project development
- Avoid appropriation delays, ceilings, priorities
- Performance guarantees
- Annual audit report to verify results

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ESPC Example: Lessons Learned

- Site-specific ESPC process can be long and complicated – Super ESPC is much more streamlined
- Partnering with the ESCO resulted in issues being addressed and problems corrected
- ESCO credit rating, M&V approach, and level of risk-sharing affect interest rate and contract term

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Super ESPC Training

- Washington, DC – July 22-23, 2003

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Utility Energy Service Contracts (UESC)

Specific contracts that allow utilities to provide agencies with comprehensive energy and water efficiency improvements and demand reduction services. Utilities front the capital costs and are paid out of savings.



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Benefits of Utility Contracting

- Flexibility in project scope and size; smaller projects feasible
- Your utility may have unique expertise and knowledge of your facility
- Non-competitive procurement (due to established source authority) reduces time and resources
- One-stop shopping for a turnkey project
- Relationship with known entity
- Payment through the utility bill
- Pay through energy savings



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Utility Financing Workshop

- UESC Workshops
 - Chicago, IL – September 16 & 17, 2003
 - No Charge to Federal Agencies

Federal Utility Partnership Working Group

- Next meeting location/date TBD



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Green Power Program

- Track and monitor renewable power programs offered by utilities
- Support Renewable power procurement efforts by Agencies
- Develop aggregated Federal renewable purchases when applicable



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FEMP Role in ESPC/UESC Project Assistance

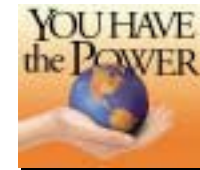
- One-stop shop: Project facilitators, agency technical & procurement assistance for energy and water projects
 - Project facilitation
 - RFP development
 - Technical Proposal review
 - National M&V team
 - Contracting expertise
- Reimbursable assistance available through Inter-Agency Agreement (IAA)

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Coordination, Reporting, and Awareness

- *FEMP Focus*
- You Have the Power Campaign
- Annual Report to Congress
- FEMP Annual Awards



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FEMP Training Program

- FEMP offers classroom and distance learning:
 - Renewable energy technologies
 - Sustainable Low-energy design
 - Buying energy efficient products
 - Lighting design
 - Operations and Maintenance management
 - Water resource management
 - Life-cycle costing
 - ESPC's and Utility Financing Options



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FEMP Resources

- **FEMP Web Site:** www.eere.doe.gov/femp
- **FEMP Help Desk:** 800-363-3732
- *FEMP Focus* Newsletter
- **FEMP HQ Office**
- **DOE Regional Office FEMP Team - six**
- **DOE National Laboratory Liaisons**
 - NREL, ORNL, LBNL, PNNL, NETL



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ENERGY 2003

- “Real World Real Solutions”
- Energy Management Workshop & Expo
- Lake Buena Vista, FL – Wyndham Resort
- August 17 – 20, 2003
- www.energy2003.ee.doe.gov



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