



FEMP FIRST THURSDAY **semin@RS 2.0**

What you need to know...online, live, and anytime.

Energy Savings Performance Contracts

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FEMP Expert: Schuyler Schell

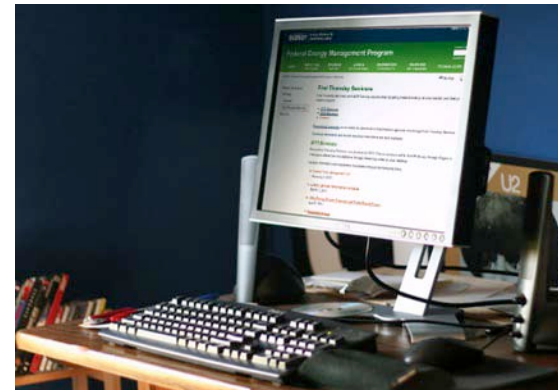
www.femp.energy.gov/training



Learner Objectives

**After completing this seminar,
the learner will be able to:**

1. Explain the purpose of an Energy Savings Performance Contract
2. Explain 3 benefits of using ESPCs
3. List 5 Energy Conservation Measures (ECMs) that could be considered for an ESPC
4. Discuss how FEMP supports agencies' ESPC projects
5. Consider how an ESPC could be beneficial to your site.



What Do These Energy Projects Have in Common?

- Project 1 – Reduced energy use by 44%, meeting EISA 30% goal six years early through a comprehensive project: steam plant decommissioning, lighting upgrades, photovoltaics, other.
- Project 2 – Reduced potable water consumption by 160 million gallons per year, and reduce host city's water consumption by 2%.

What Do These Energy Projects Have in Common?

- Project 3 – Installed four wind turbines that will generate 3,800-kW of electricity – (about 25% of peak power needed for base operations) saving 650,000 gallons of diesel fuel per year, and reducing air pollution by 26 tons of SO₂ and 15 tons of NO_x
- Project 4 – Installed efficient lighting, HVAC controls, new boilers, advanced metering, and ground source heat pumps at a variety of facilities across six states

What Do These Energy Projects Have in Common?

- They were all accomplished using a contracting vehicle that
 - empowers sites to move ahead immediately, without waiting for appropriations
 - pays for the project through guaranteed cost savings
 - allows projects to be led by the site, and supported by expert staff from DOE
- They were all ESPC projects!



What is an ESPC?

An **Energy Savings Performance Contract (ESPC)** allows Federal agencies to procure facility energy improvements:

- **with** no up-front capital cost and,
- **without** special appropriations from Congress.



What is an ESCO?

- An Energy Services Company (ESCO)
 - designs and constructs the energy project
 - obtains financing to cover costs
 - guarantees cost savings to cover payments over contract term
- The Agency:
 - Negotiates and awards task order
 - Pays for the project over time from savings generated from improvement



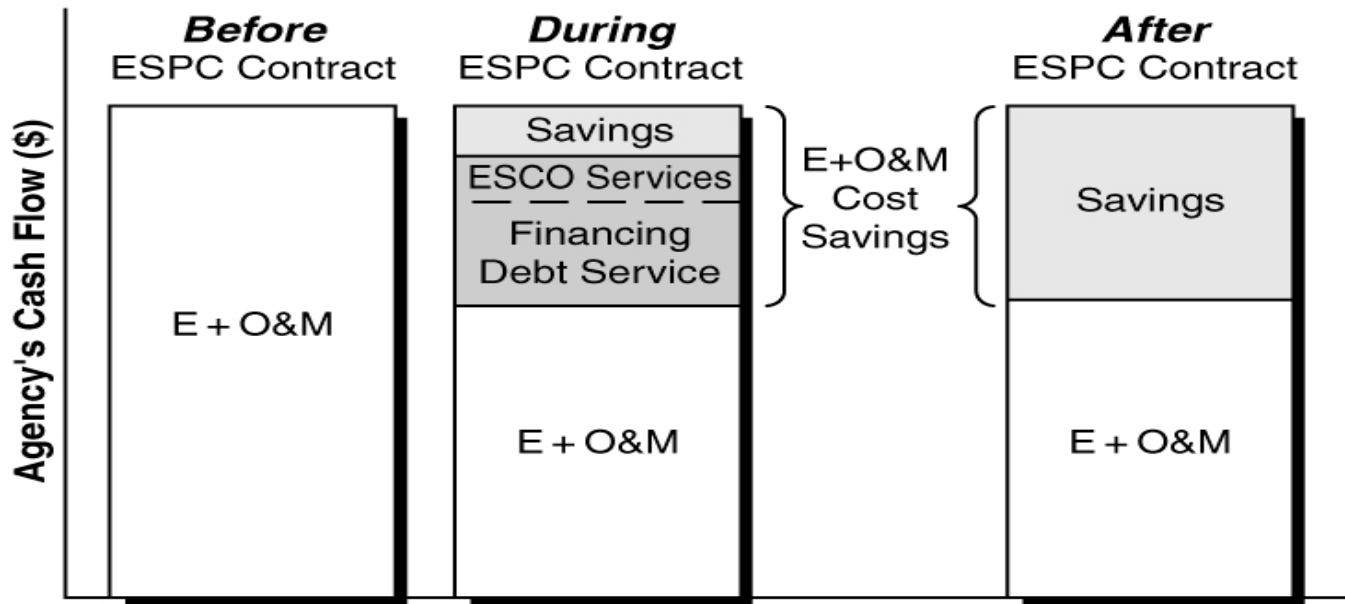
The Difference Between Federal ESPCs and Conventional Design/Build Process

- Financing - maximum contract terms – 25 years
- Cost savings guaranteed to exceed payments
- Performance of installed energy conservation measures (ECMs) guaranteed
- ESCO is often responsible for O&M
- Measurement and verification of savings is required



ESPCs Are Budget-Neutral

$E + O\&M = \text{energy and related O\&M}$



ORNL 99-06432A/abh

ESPCs Authorized and Encouraged by Law and Executive Order

- National Energy Conservation Policy Act, Title VIII Shared Energy Savings (1986)
- Energy Policy Act (EPact 1992)
- DoD Authorization Act 2004
- Energy Policy Act 2005
- DOE Rule on ESPC – 10 CFR 436
- Federal Acquisition Regulation
- Executive Order 13423
- National Defense Authorization Act of 2011



DOE-FEMP ESPCs

- **Indefinite-delivery, indefinite-quantity (IDIQ)** contracts awarded competitively to ESCOs by FEMP to streamline the process
- Agencies negotiate and award task orders under these IDIQs



DOE-FEMP ESPCs

- Can be used for federally owned agency facilities anywhere in the world
- FEMP provides free training, resources, and support
- Agency must engage a qualified Project Facilitator (this is a good thing)



Energy Conservation Measures (ECMs) In all Technology Categories

- Boiler and chiller plants
- Energy management control systems
- Building envelope
- HVAC
- Chilled/hot water and steam distribution
- Lighting
- Electric motors and drives
- Refrigeration
- Distributed generation



Energy Conservation Measures (ECMs) in All Technology Categories

- Renewable energy
- Energy/utility distribution
- Water and sewer
- Electrical peak shaving/load shifting
- Rate adjustments
- Energy-related process improvements
- Commissioning
- Advanced metering
- Appliance/plug load reductions



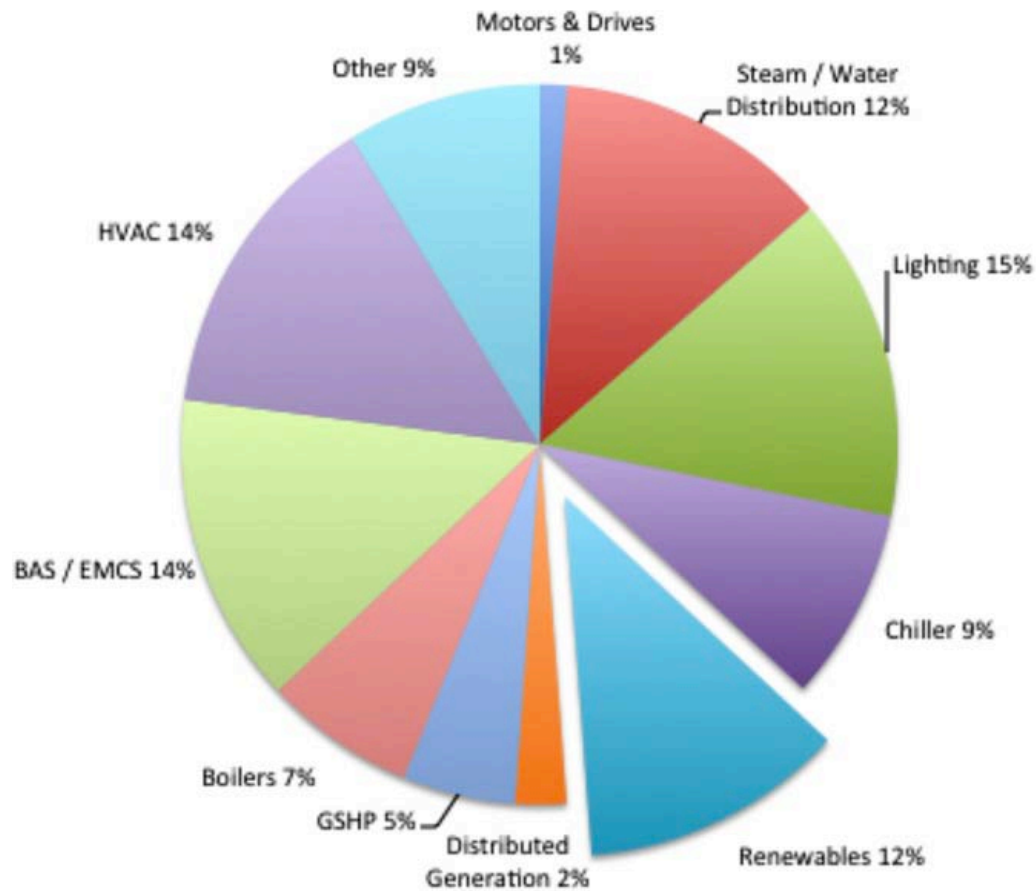
Emerging Technologies and Renewables

FEMP encourages use of renewable and advanced energy technologies.

- The Renewable Energy Screening Tool
- The Emerging Technology (ET) Matrix



Renewable Projects Increasing



Why Do Agencies Use ESPCs?

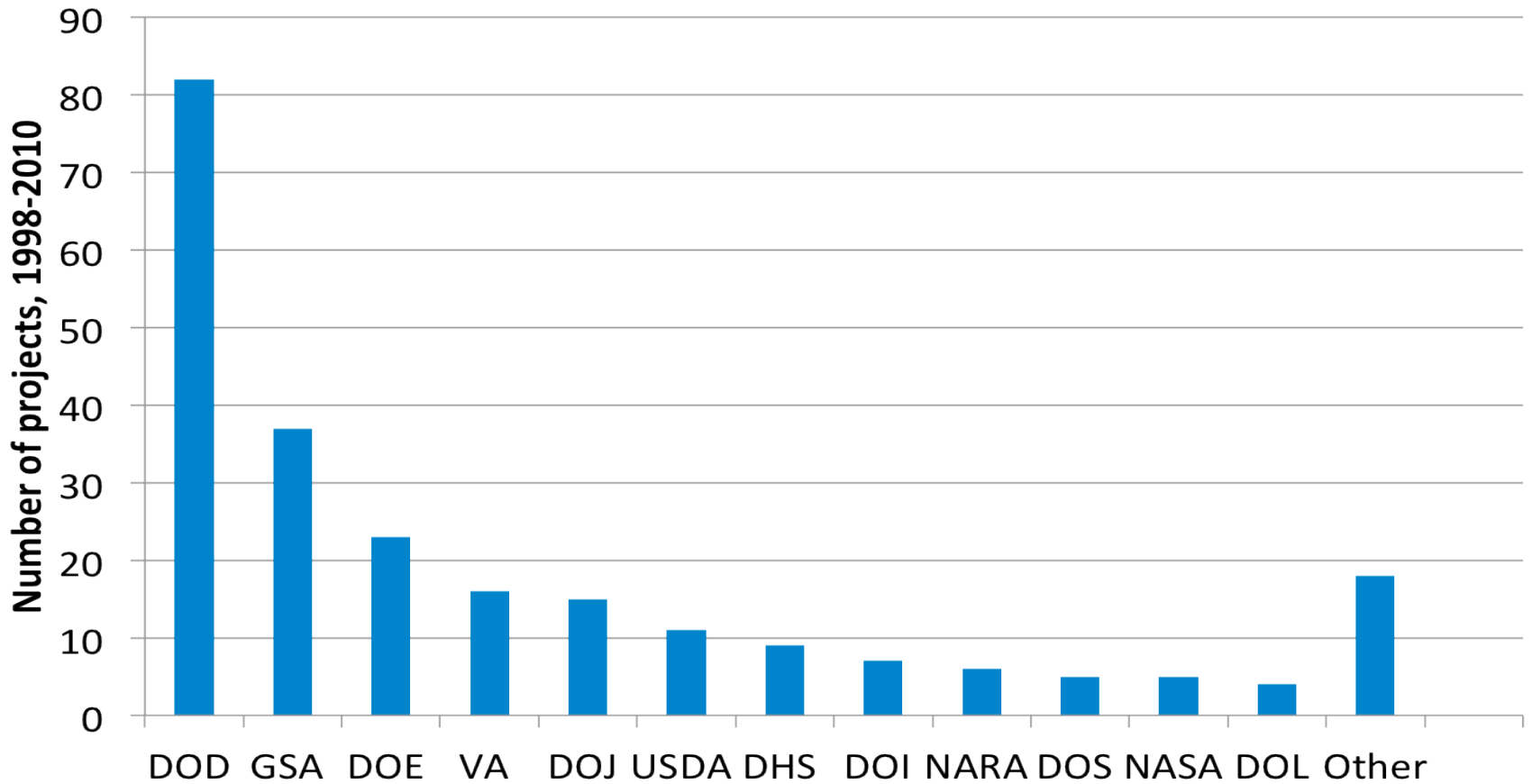
- Improve infrastructure and facilities without appropriations
- Bundle longer and shorter payback for Energy Conservation Measures
- Have Operations and Maintenance included as part of package
- 16 ESCOs to choose from
- Take advantage of ESCO (and FEMP) expertise

Because they deliver guaranteed improvements, savings, and performance!

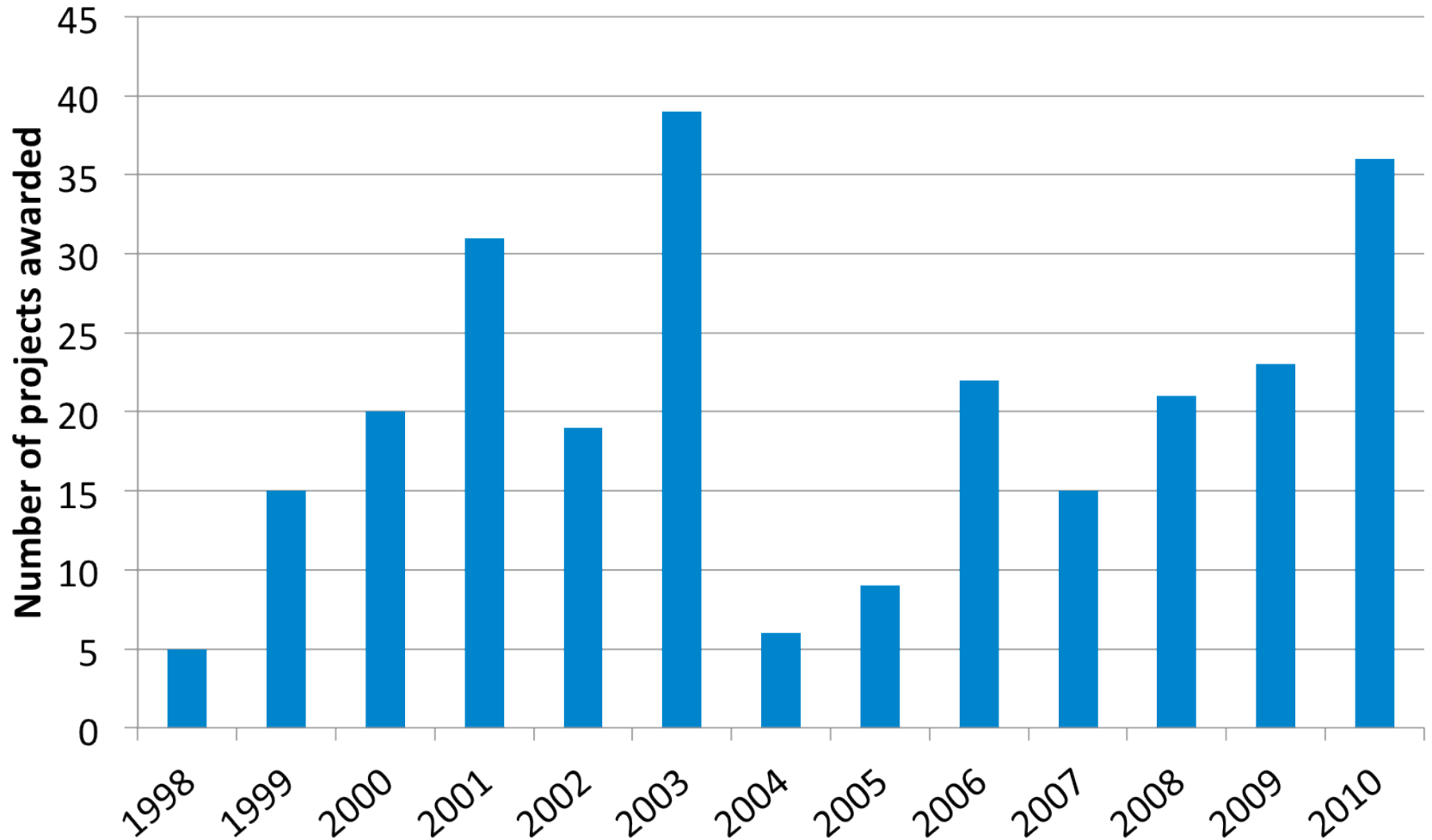
Meet Federal Goals — EO 13423 and EISA 2007

- Reduce federal facility energy use per square foot by 3% per year, 2006 – 2015, relative to 2003 (or 30% by end of 2015)
- Increase use of renewable energy to
 - not less than 5% of electricity use in 2010 – 2012
 - not less than 7.5% in 2013 and thereafter
 - at least half from new sources each year
 - implement renewables on agency property for agency use as feasible
- Reduce water use by 2% per year, 2008 – 2015 (or 16% by end of 2015)

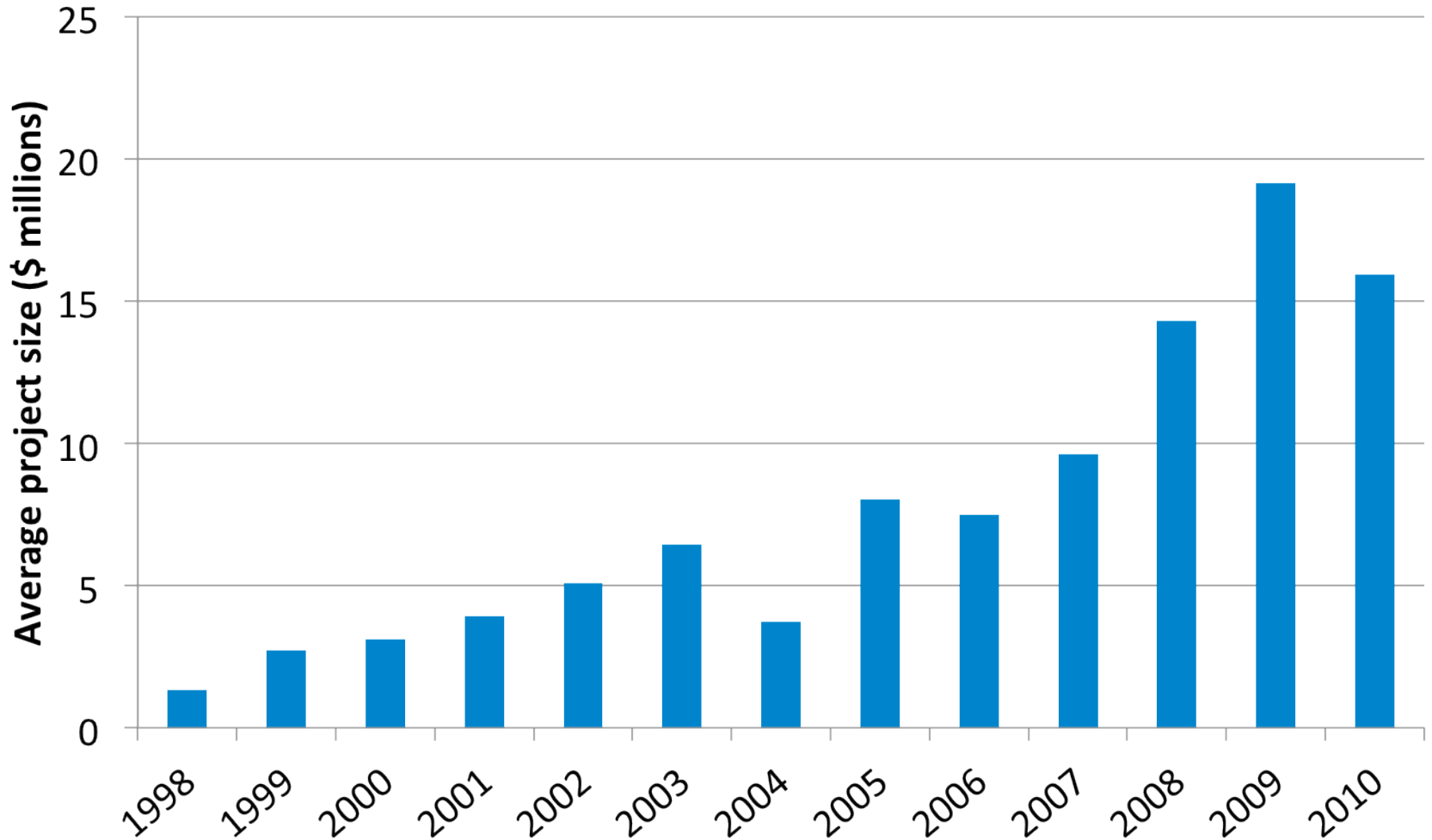
Being used by Many Federal Agencies



Increasing Number of ESPCs Each Year



Size of Projects Awarded Increasing

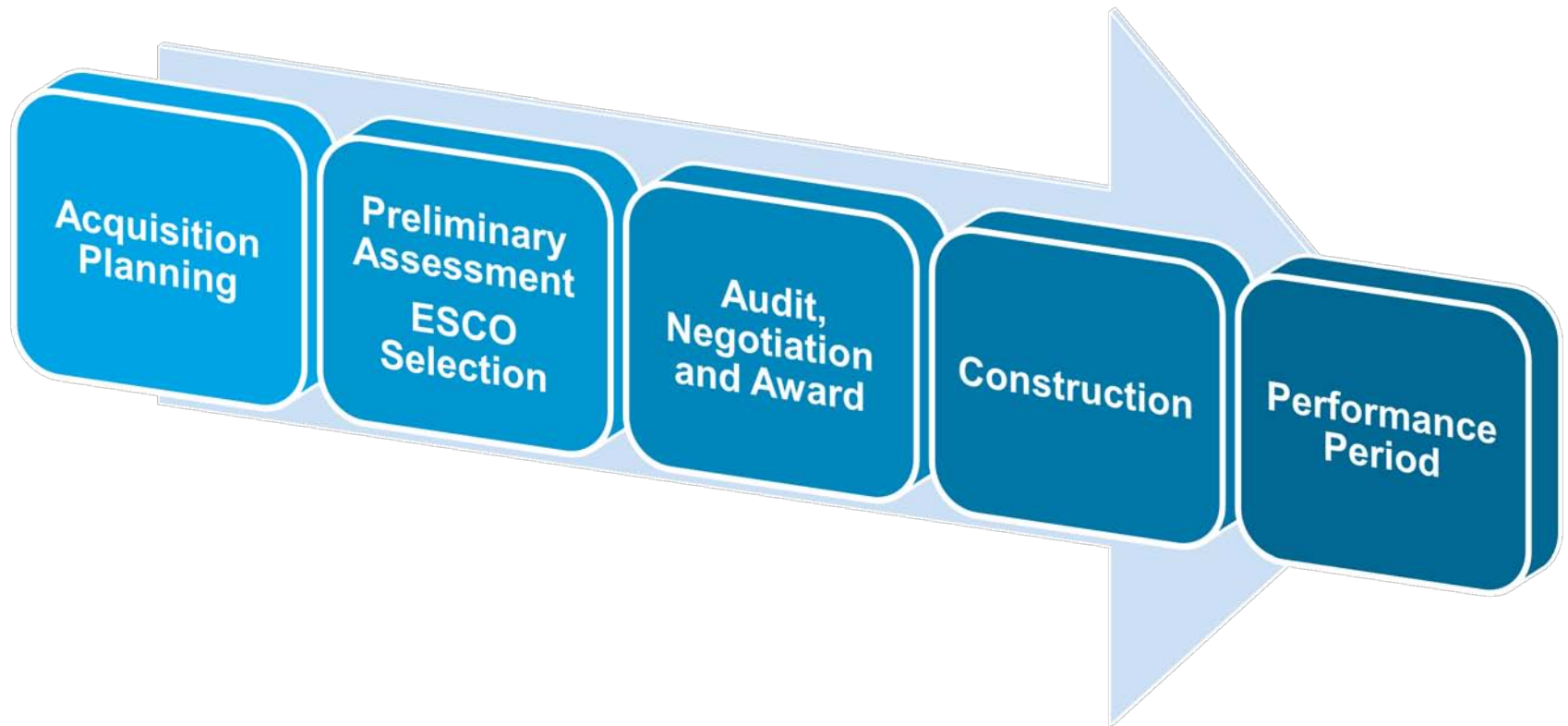


FEMP ESPC Results

- 250 FEMP ESPC projects have been awarded by 25 agencies
- Total project investment: \$2.5 billion
- Total savings: \$6.5 billion
- Energy savings: 300 million MBtu (~8000 Btu per dollar invested)
- M&V reports for FY2010 reported that 108% of guaranteed cost savings were delivered



ESPC Process Phases



Phase 1: Acquisition Planning



- Federal Financing Specialist
- Assemble agency/site acquisition team
- Consider project motivations and site needs

Phase 2: ESCO Selection and Preliminary Assessment



- Review Preliminary Assessment
- Review ESCO qualifications
- Select a winner
- Issue Notice of Intent to Award

Good News!!
The National Defense
Authorization Act of 2011
simplifies the ESCO Selection Process

Phase 3: Audit, Negotiation, and Award



Agency specifies requirements in

Task Order RFP



Investment Grade Audit



Final Proposal



Final Negotiations



Task Order Award

Phase 4: Construction

Review of Design and Construction
Package



Construction



Inspections



Commissioning



Acceptance of Completed Project



Phase 5: Performance Period



- Operations and Maintenance per Task Order
- Measurement and Verification
- Invoice and Payments
- Closeout

Success Story: Bureau of Prisons Victorville

- Installed a 750 kW wind turbine, 66 kW PV array and HVAC/controls upgrades using ESPC
- Total equipment installed price \$5.4 million
- Initial payment-from-saving of \$2.2 million
- ESCO arranged financing for remaining \$3.8 million
- Awarded 9/2003



Bureau of Prisons Victorville

- Annual Savings
- 2.6 million kWh electrical energy
- 3800 kW peak demand
- 13,000 Mbtu of fuel oil
- \$430,000 (year 1)
- 19 year performance period
- Positive ESPC experience led agency to award another ESPC at the same facility in 2009



Success Story: Harold Washington SSA Center, Chicago

\$2 million project in 2006 included:

- Rooftop solar electric system
- Energy efficient lighting fixtures and controls
- Retrocommissioning and energy management control system upgrades
- HVAC improvements
- Water conservation measures



Harold Washington SSA Center, cont.

- Annual energy consumption reduced by 4 million kWh/yr (20% of use)
- Saves 2 million gallons/yr of water
- ESCO performs O&M on installed equipment for 10-year project life



Success Story: GSA White Oak Facility

- Initial \$25 million project awarded in 2002 to install
 - 5,800 kW cogeneration system
 - 26 kW PV system
 - Lighting upgrades
 - Various HVAC upgrades



GSA White Oak Facility, cont.

- Year-1 savings of \$2.6 million increasing to \$6.5 million by year 20
- GSA awarded a series of additional ESPCs worth in excess of \$200 million to expand cogeneration plant and make other site improvements



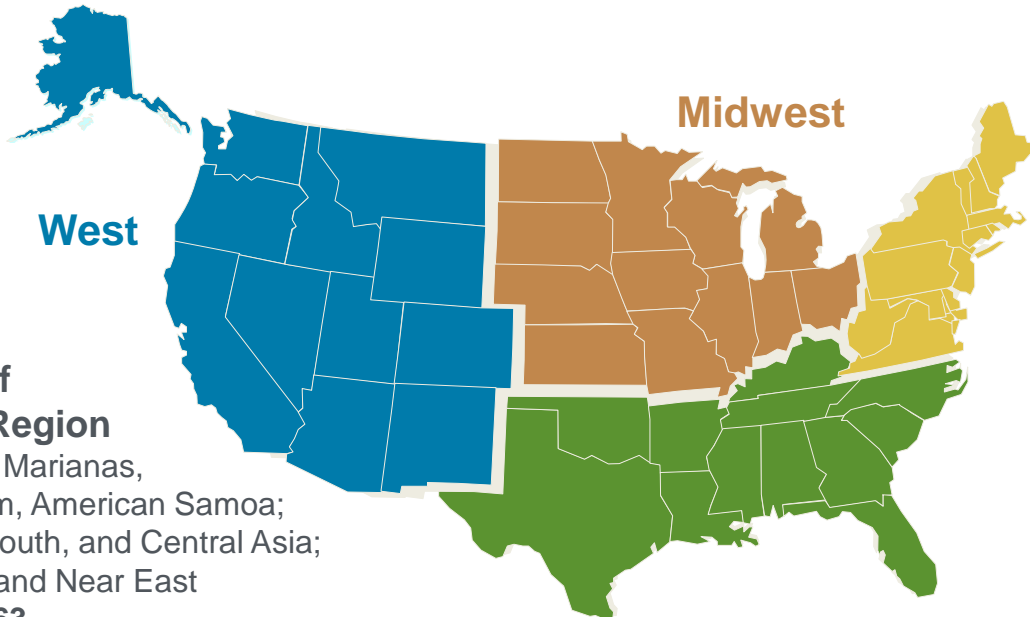
FEMP Resources: FEMP Federal Financing Specialists



- Explain performance contracting to agencies
- Determine if an ESPC is a good option for a particular project
- Help form an agency acquisition team

***Also National Laboratory experts
on FEMP ESPC teams***

Gordon Drawer, Midwest Region plus Africa and New Independent States
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West

Midwest

Northeast

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FEMP Resources: Project Facilitators



- Guide agencies through ESPC project development and implementation.
Consult concerning:
 - Contracting and financing
 - Technology and engineering issues
 - Measurement and verification
- Review cost and technical proposals
- Draft agency task order request for proposal

FEMP Support During the Performance Period



- Changes happen over long contract terms
- FEMP provides support to keep projects on track and keep up with personnel changes
 - Bi-annual calls
 - Site visits every few years
 - Provide updated FEMP guidance, training for new personnel

FEMP Resources for ESPCs – Website Tools

<http://www1.eere.energy.gov/femp/financing/espcs.html>

- Assistance and Contacts
- Resources
- Laws and Regulations
- ESCOs
- Awarded Contracts
- Case Studies
- Training

The screenshot displays the website for the Federal Energy Management Program (FEMP) under the U.S. Department of Energy. The page is titled "Energy Savings Performance Contracts" and is part of the "FINANCING MECHANISMS" section. The navigation bar includes links for HOME, ABOUT THE PROGRAM, PROGRAM AREAS, LAWS & REGULATIONS, INFORMATION RESOURCES, FINANCING MECHANISMS (highlighted), TECHNOLOGIES, SERVICES, and NEWS & EVENTS. A search bar is located in the top right corner.

The main content area features a sidebar on the left with a menu for "Energy Savings Performance Contracts" including links for Assistance & Contacts, Resources, Laws & Regulations, Energy Service Companies, Awarded Contracts, Case Studies, Training, Utility Energy Service Contracts, Power Purchase Agreements, Energy Incentive Programs, Alternative Financing, Project Facilitation, and Recovery Act.

The main text area is titled "Energy Savings Performance Contracts" and contains the following information:

- Energy Savings Performance Contracts (ESPCs)** allow Federal agencies to accomplish energy savings projects without up-front capital costs and without special Congressional appropriations.
- An ESPC is a partnership between a Federal agency and an energy service company (ESCO). The ESCO conducts a comprehensive energy audit for the Federal facility and identifies improvements to save energy. In consultation with the Federal agency, the ESCO designs and constructs a project that meets the agency's needs and arranges the necessary financing. The ESCO guarantees that the improvements will generate energy cost savings sufficient to pay for the project over the term of the contract. After the contract ends, all additional cost savings accrue to the agency. Contract terms up to 25 years are allowed.
- ESPC Quick Facts:** More than 550 ESPC projects worth \$3.6 billion were awarded to 25 Federal agencies and organizations in 49 states and D.C. as of March 2010. These projects saved an estimated:
 - 30.2 trillion Btu annually; equivalent to the energy consumed by 318,300 households or a city with a population of 318,000.
 - \$11 billion in energy costs (\$0.6 billion goes to fund energy efficiency projects and \$1.4 billion is reduced Federal Government spending.)

The page also includes a "Department of Energy ESPCs" section, a "NEWS" section with recent articles like "Department of Energy Plans Power Purchase Agreement Request for Information" and "Western and FEMP Offer Assistance with Renewable Energy Certificates", and a "FEATURES" section with "DOE Enhances Management of ESPCs".

Sign Up for FEMP ESPC Training

- Next Comprehensive ESPC Workshop -
Chicago, June 7 – 9, 2011
- On-demand Web training
 - Intro to ESPC
 - Financing and Pricing Evaluation for ESPCs
 - ESPC Contracting and Negotiations

http://www1.eere.energy.gov/femp/financing/espcs_training.html

Summary



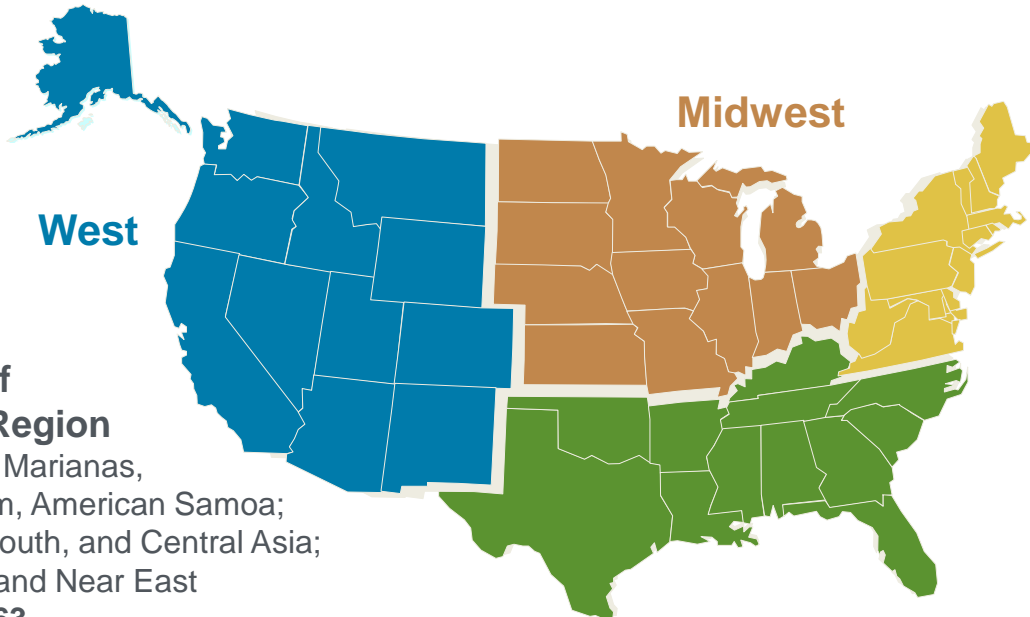
- **ESPCs are a valuable tool for improving government facilities and meeting Federal energy goals!**
- Flexible contract allows each project to address site- and agency-specific priorities
- 250 projects by 25 different Federal agencies over 12 years
- Process is well established
- A wealth of support and resources available from FEMP

Next Steps



- Explore your options
- Contact a Federal Financing Specialist to discuss your potential projects

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FEMP Resources

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