Federal Energy Management Program

Introduction to Utility Energy Service Contracts
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UESC Presentation Agenda

- Basics
- Authorizing Legislation
- Contracting Overview
- UESC Process
- UESC Resources
UESC Basics
What is a Utility Energy Service Contract (UESC)?

- A UESC is a contracting vehicle that allows utilities to provide to their Federal customers:
  - Comprehensive energy and water efficiency improvements
  - Demand-reduction services
What is a UESC?

• The Utility:
  – fronts the capital costs
  – assesses the opportunities
  – designs and implements the accepted energy conservation measures (ECMs)

• The Agency repays the Utility:
  – from appropriations either at acceptance
  or over time if financing is used
Benefits of UESCs

• Meet agency and legislated goals
• Use energy more wisely
• Reduce operating costs
Increasing Investment in UESCs

- **Total Capital Investment**
- **Private Sector Investment**
- **Federal Sector Investment**

Million dollars from Jan-93 to Jan-11:
- Jan-93: $0
- Jan-95: $500
- Jan-97: $1,000
- Jan-99: $1,500
- Jan-01: $2,000
- Jan-03: $2,500
- Jan-05: $3,000
- Jan-07: $3,500
- Jan-09: $4,000
- Jan-11: $4,500
In addition to two successful EUL projects, NASA has implemented seven UESC projects since 1998 at the following facilities:

- Kennedy Space Center
- Langley Research Center
- Ames Research Center

Total UESC investment at NASA to date: $50.9 million

NASA implemented the following ECMs across multiple facilities:

- Load Control
- Lighting
- Compressed air
- HVAC
- Steam Plant Retrofit
- Chilled Water Plant Optimization
- Chiller Replacement
- Photovoltaic System
- Water Conservation
Using UESCs to Meet Federal Mandates — 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)
What You Can Do with a UESC

• Energy efficiency
  – Reduce energy demand
  – Install high-efficiency equipment
  – Install control systems
  – Re-commission energy systems

• Water Efficiency
  – Reduce water demand
  – Install water efficiency measures
  – Install controls
What You Can Do with a UESC

• Renewable energy
  – Implement on-site renewable energy generation
  – Install solar parking structures
  – Install large-scale wind
  – Install co-gen systems
UESC
Authorizing Legislation
UESC Authorizing Legislation

- EPAct 1992 – 42 USC 8256
- DoD 10 USC 2913 and 2866
Codified as 42 USC 8256; P.L. 102-486

- Section 546(c) Utility Incentive Programs: Agencies
- Are authorized and encouraged to participate in utility programs generally available to customers
- May accept utility financial incentives, goods, and services generally available to customers
- Are encouraged to enter into negotiations with utilities to design cost effective programs to address unique needs of facilities used by the agency
10 USC 2913 Contracts and Utilities

- Title 10: Armed Forces; Chapter 173; Subchapter 1; Section 546 (c) Utility Incentive Programs
- Encourages participation in gas or electric utility programs for the management of energy demand or for energy conservation
- Agencies may accept financial incentives, goods and services generally available from the utility
- Allows direct negotiation with energy savings contractors selected competitively and approved by the utility
10 USC 2866 Water Conservation Authority

- Water Cost Savings Realized –
- Half of the savings shall be used for water conservation activities as designated by DoD
- Half of the savings to be used at the installation at which the savings were realized
UESC
Contracting Mechanisms
GSA Area Wide Contracts (AWC)

A UESC is not a utility service

Utility Service

FAR Part 41

Electric Transmission

Electricity

Natural Gas Transportation

Natural Gas

Steam

Water

Electric Distribution
Acquiring Energy Management Services under an AWC

Utility Energy Management Service

42 USC 8256
10 USC 2913

Audit
Demand-Side Management
Rebates / Incentives
Comprehensive Projects w/ Financing Option
Where an AWC Exists

- **Master Agreement (Contract Terms & Conditions)**
  - **Task Order**
  - **Agency**
    - **Areawide Contract**
      - **Utility**
      - **GSA**
Energy Management Services Authorization (EMSA)

- Nature of service
- Estimated project cost, capital cost, percent of cost financed
- Rebate amount
- Simple payback
- Accounting and appropriations data
- Energy conservation measures
- Signed by Agency and Utility
Where an AWC Does Not Exist

- Agency
- Utility

Separate Contract/Master Agreement (Contract Terms & Conditions)

UESC Task Order
Typical UESC Offering

**Technical**
- Audits
- Feasibility Studies
- Engineering & Design
- Construction & Installation
- Performance Guarantees
- Training
- O&M Services
- Project Management

**Financial**
- Rebates
- Project Financing
UESC Process
UESC Process

**Preparation**
3-7 months
- Pre-work
- Site Needs
- Funding
- Training
- Initial Contract Document

**Project Development to Award**
3-5 months
- Identify ECMs
- Proposal
- Final Contract Documents

**Construction and Post Construction**
6 months to several years
- Construction and Performance
- Post Construction
Preparation Phase: Agency Acquisition Team

- Membership
- Roles and responsibilities
- Contracting
- Legal
- Technical
- Energy Champion
Agency Team is needed to:

- Move a UESC project forward correctly and efficiently
- Bring together the people with knowledge, experience, and responsibility
- Gain support for the effort early in the process
- Involve those who will be affected by the project
Agency Team Should Consist of:

- At least, a Contracting Officer and Technical Representative for the Agency
- Ideally, everyone who will help, hinder, or be affected by the project
Project Development: Preliminary Audit

- Broad assessment of the potential for energy and water efficiency measures
- Based on a review of existing facility use and conditions
- Examination of energy- and water-consuming equipment and control systems
Preliminary Audit

• Assessment of existing facility
  – Campus or single building?
  – Office or laboratory?
  – 8 hours/day or 24 hours/day?
  – Circa 1950 or 2005?
• Analysis of
  – Energy- and water-consuming equipment, systems, and controls
  – Utility data for electricity, natural gas, steam, water, etc.
Preliminary Audit – Best Practices

- Negotiate cost of audit with the utility
- Include description of facilities/systems to be studied
- Include any agency-specific requirements
- Sign a Task Order for the audit
  - Indicate the negotiated cost
  - Attach Scope of Work for the audit
Project Development: Feasibility Study

• An “investment-grade” analysis of the site’s conditions and potential efficiency improvements
  – Details the technical and economic viability of proposed ECMs
  – Complies with the Task Order statement of work
  – Provides sufficient information for a decision to go forward
Feasibility Study

- Establishes the basis for the project design and finalizes the baseline
- Detailed assessment of existing facility use and conditions
- Detailed analysis of
  - Energy- and water-consuming equipment, systems, and controls
  - Utility data for electricity, natural gas, steam, water, etc.
Feasibility Study – Best Practices

• Negotiate cost of the Feasibility Study with the utility
• Sign a Task Order for the Feasibility Study
  – Indicate the negotiated cost
  – Attach Scope of Work for the study
Project Development: Performance Assurance

• Minimum level of performance assurance planning recommended for UESC by FEMP:
  – Start-up performance verification
  – Performance verification at the end of the warranty period
  – O&M training at construction and periodically during the contract period
  – Periodic inspections and performance verification
  – Assessment and resolution of performance discrepancies
  – [link](http://www1.eere.energy.gov/femp/pdfs/41898.pdf)
Project Development: Performance Assurance

- Agree on the baseline
- Clarify performance objectives
- Consider interactions between measures
- Specify verification method for each measure
- Identify financial and staff impacts and requirements
- Indicate reporting format & schedule
Project Development: Commissioning

• Commissioning objectives
  – Support effective O&M with training, documentation, and maintenance strategies
  – Identify O&M procedures that improve energy efficiency
  – Optimize equipment and control systems

• Develop “design and operating intent” early in the process (Feasibility Study kick-off meeting)

• http://www1.eere.energy.gov/femp/pdfs/commissioning_fed_facilities.pdf
Commissioning

• Review design with a focus on commissioning and maintenance

• Develop Commissioning Plan
  – Include specific actions for commissioning during construction, acceptance, and post-acceptance
UESC Resources
FEMP UESC Website

- Types of contracts
- Laws and regulations
- Financing mechanisms
- Technology resources
- Case studies
- Training opportunities
UESC Enabling Documents

- Legislation and Executive Actions
- Legal Opinions
- Agency Guidance
- Sample Documents

Getting Started – Partnering Avenues

• Federal Utility Partnership Working Group (FUPWG)
  – Establishes partnerships and facilitates communications among Federal agencies and utilities
  – Develops strategies to streamline sound projects
  – Next meeting on October 25 – 26, 2011, Philadelphia

• Strategic Partnering Meetings
  – FEMP supports Federal–Utility Strategic Partnering Meetings to enhance partnerships and to launch utility incentive programs, including UESC
DOE FEMP Sponsored Project Support

Education

- UESC Workshops
- UESC Overview
- Web Training

GovEnergy 2011

- A River of Energy Solutions
- August 7 – 10, Cincinnati, Ohio
DOE FEMP Sponsored Project Support

• Direct Project Support
  – Guide agency teams through the UESC process
  – Help with development of contract documents and provide document templates
  – Technical review of audits, feasibility studies, and proposals
  – In-depth technical support
  – Build partnerships and facilitate relationships
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