U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

Utility Energy Service Contracts (UESCs) FUPWG Overview – Part 1

Jeff Gingrich, NREL

May 5, 2021

FEMP Federal Energy Management Program

Speaker Introductions

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Deb Vásquez and Jeff Gingrich work for NREL, FEMP's lead laboratory for UESC and federal utility partnerships support. They provide technical support, UESC workshop instruction, and project execution assistance to Federal acquisition teams.

Agenda

- **What is a UESC?**
  - Contract Overview
  - Eligible Utilities and Implementation Models
  - Energy Conservation Measures
- **Contracting Options**
- **Resources and Support**

What is a UESC?

A UESC is a limited-source contract between a federal agency and serving utility for energy management services, including:

- Energy efficiency improvements
- Water efficiency improvements
- Demand reduction services
- Distributed Energy Resources (DER), including renewable energy, storage and combined heat and power

- **Authorized and encouraged by 42 U.S.C. § 8256 and 10 U.S.C. § 2913**
  - "[Agencies] may accept any financial incentive, goods, or services generally available from any such utility…"*
  - "[Agencies are] encouraged to enter into negotiations with electric, water, and gas utilities to design cost-effective demand management and conservation incentive programs to address the unique needs of facilities utilized by such agency."**

* 42 U.S.C. § 8256(c)(4); ** 42 U.S.C. § 8256(c)(3)

Key Features of the Contract

- 25-year maximum task order term
- Intended that savings exceed payments over the life of contract
- Funded through any combination of agency funds or financing
- Multiple sites served by the same utility can be included in a single task order
- No project size restrictions
- Contracts are firm-fixed-price

Why Do Federal Agencies Choose UESCs?

UESCs enable agencies to leverage financing to meet energy- and water-related goals and requirements, including:

- Statutory requirements and executive orders
- Agency-specific energy program priorities
- Site requirements and facility needs
- Opportunities identified by facility and energy audits

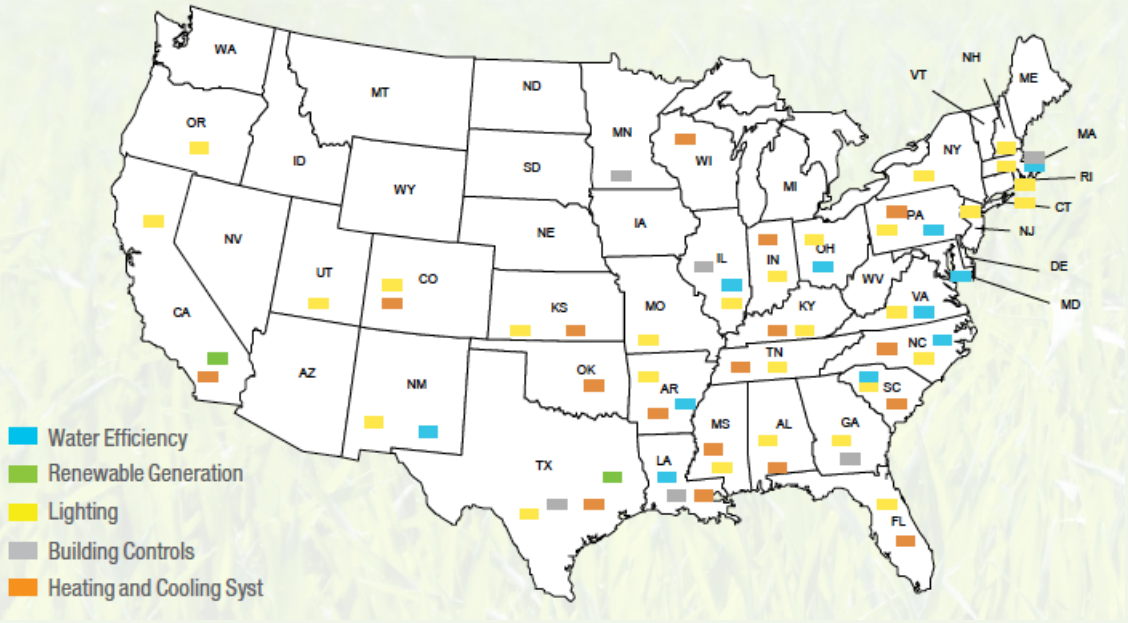
Federal Energy Management Laws and Requirements

www.energy.gov/eere/femp/federal-energy-management-laws-and-requirements

Federal Alternatively Financed Projects

- **Infrastructure:** $14.2+ billion in investment since 1998 addresses a portion of the backlog in federal buildings and maintenance needs
- **Jobs & Economic Impact**; 113,500 jobs (job-years)

Manufacturing Facilities Supporting the Performance Contract Industry



Trades typically supported through UESC investment:

- HVAC technicians
- Electricians
- Plumbers
- Construction labor
- Construction management
- Manufacturing labor
- Engineers
- Project managers

Source: Nat'l Assoc. of Manufacturers, Improving Federal Energy Savings Through Performance Contracting

Eligible Utilities

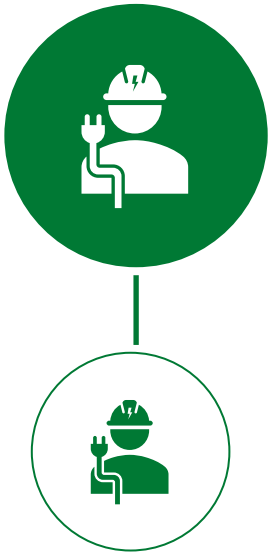
Eligible utilities are serving local distribution utilities.

- Maintain the infrastructure (pipes, poles, and wires) for the distribution of electricity, natural gas and water in a specific geographic area
- Are subject to regulatory oversight from a governing authority such as a public utility commission
- Provide service under federal, state or local regulated authority for all customers in the service area
- Includes investor-owned, municipal, federal and rural coops

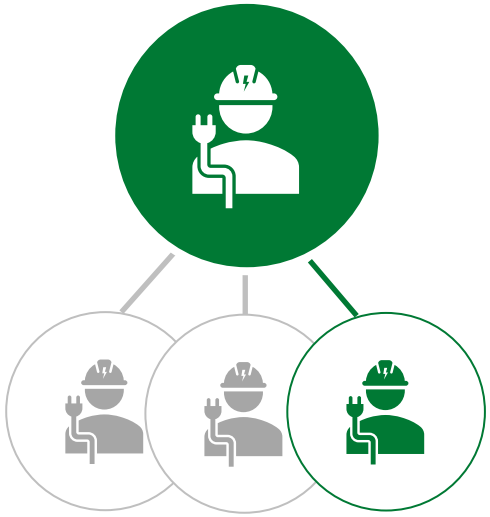
When sites have multiple serving utilities, **FAR 16.505(b)** requires agencies to provide fair opportunity to all eligible utilities.

UESC Implementation Models

Utility Self-Performs



Utility with Single ESCO Partner



Utility with Multiple ESCO Partners
(one ESCO per project)

Important Note

Utility is always the prime contractor—even when an ESCO is involved.

UESC Project Team

Agency

Contracting Officer/Specialist

Facility Energy Manager
Facility O&M Staff
Engineering

Budgeting
Accounting

Agency Attorney
Regional or Facility Attorney

Management Advocates
O&M Manager
Facility Manager
Base Commander

FEMP

UESC Program Lead

Subject Matter Experts

Technology Subject Matter Experts

Federal Project Executives

FEMP Project Facilitators

Utility

Project Manager
(may use ESCO)

Federal Account Rep

Engineering
(may use ESCO)

Contracting

Legal Counsel

Executive Staff

ESCO
(if subcontracted by Utility)

Energy Conservation Measures (ECMs)

ECM Criteria

- Produce measurable energy or water reductions or demand reduction
- Be directly related to the use of energy or water, or demand reduction
- Preponderance of work (measured in dollars) must be for items one and two above, and
- Be a direct or indirect improvement to real property

Example ECMs*

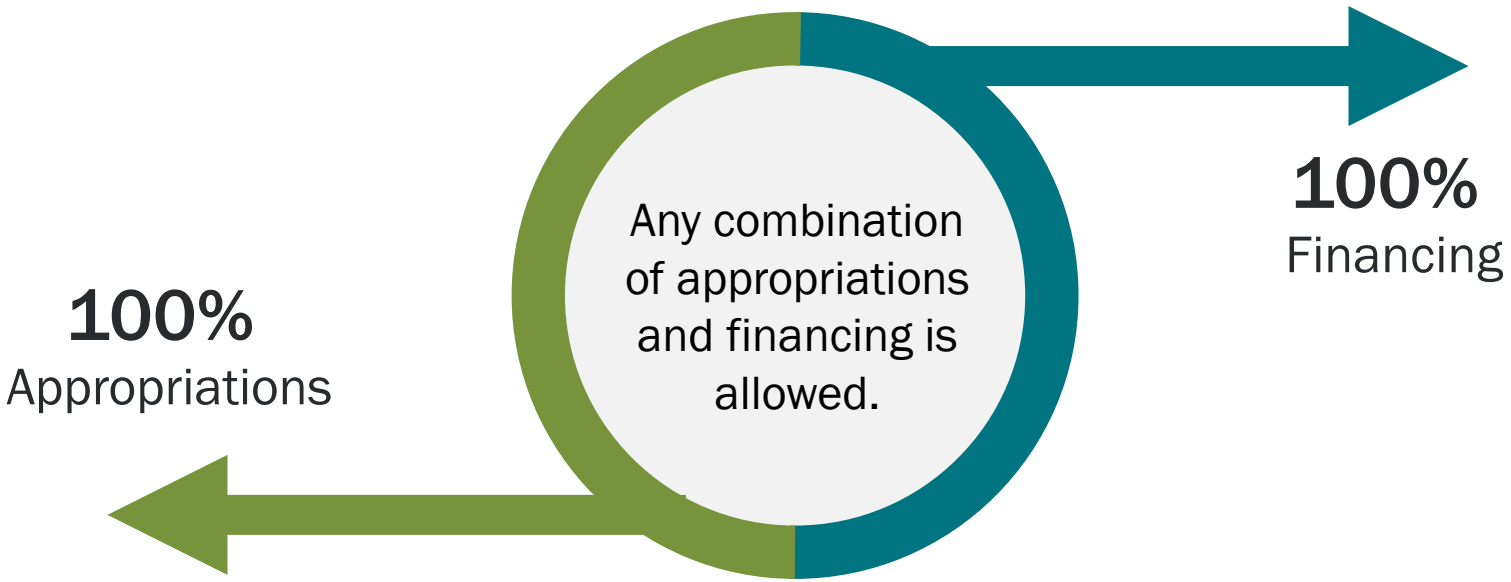
- Energy management control systems upgrades
- Boiler, chiller retrofits
- Construction of new cogeneration facilities
- Lighting and lighting control improvements
- New HVAC design and construction
- Commissioning activities
- Renewable energy systems

The term “energy conservation measure” is defined by 42 U.S.C. § 8259 (4)

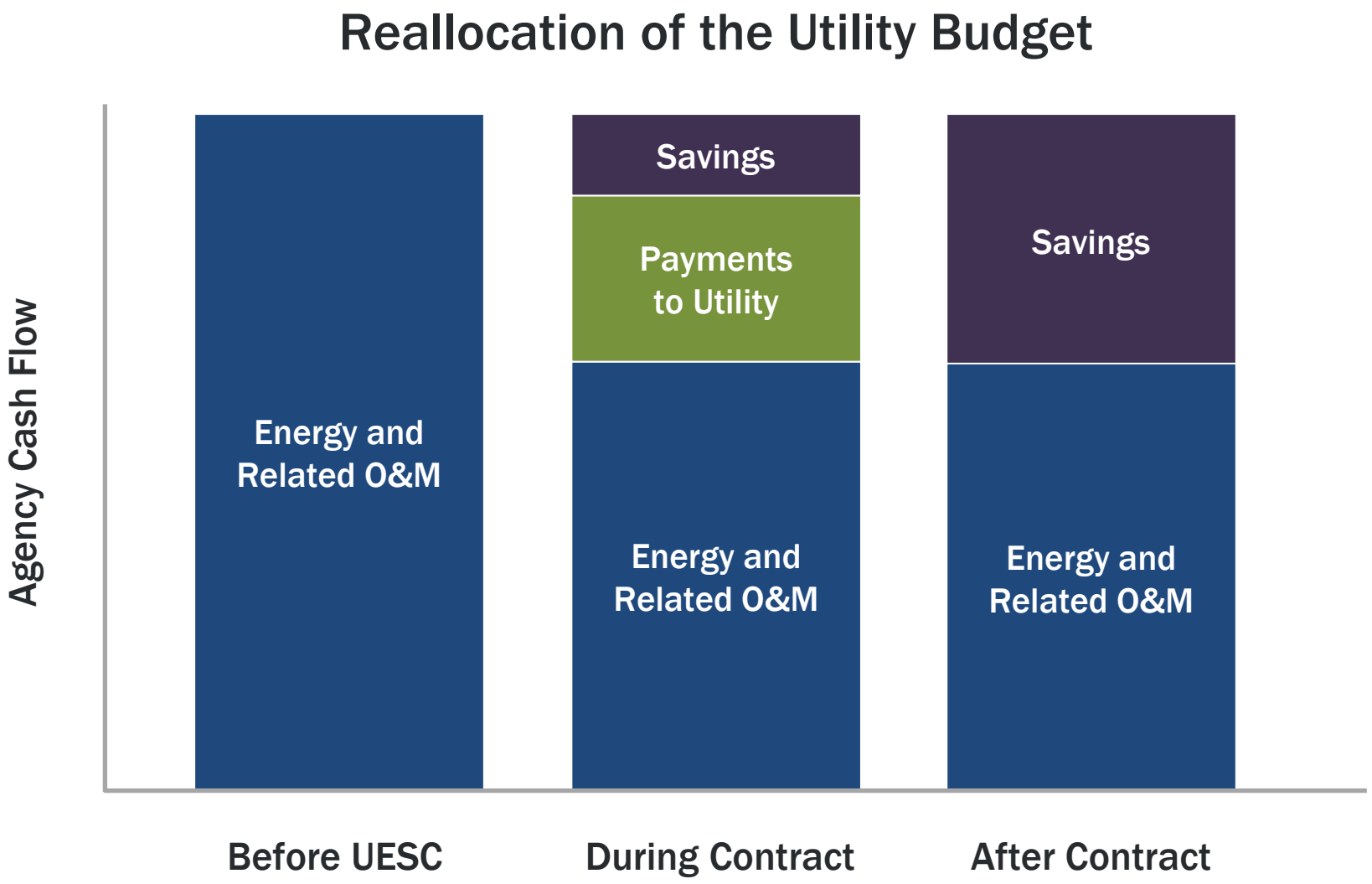
**Not an exhaustive list*

UESC Funding

42 U.S.C. § 8253(f)(10)(B) specifically authorizes federal agencies to use "any combination" of appropriated funds and private financing.

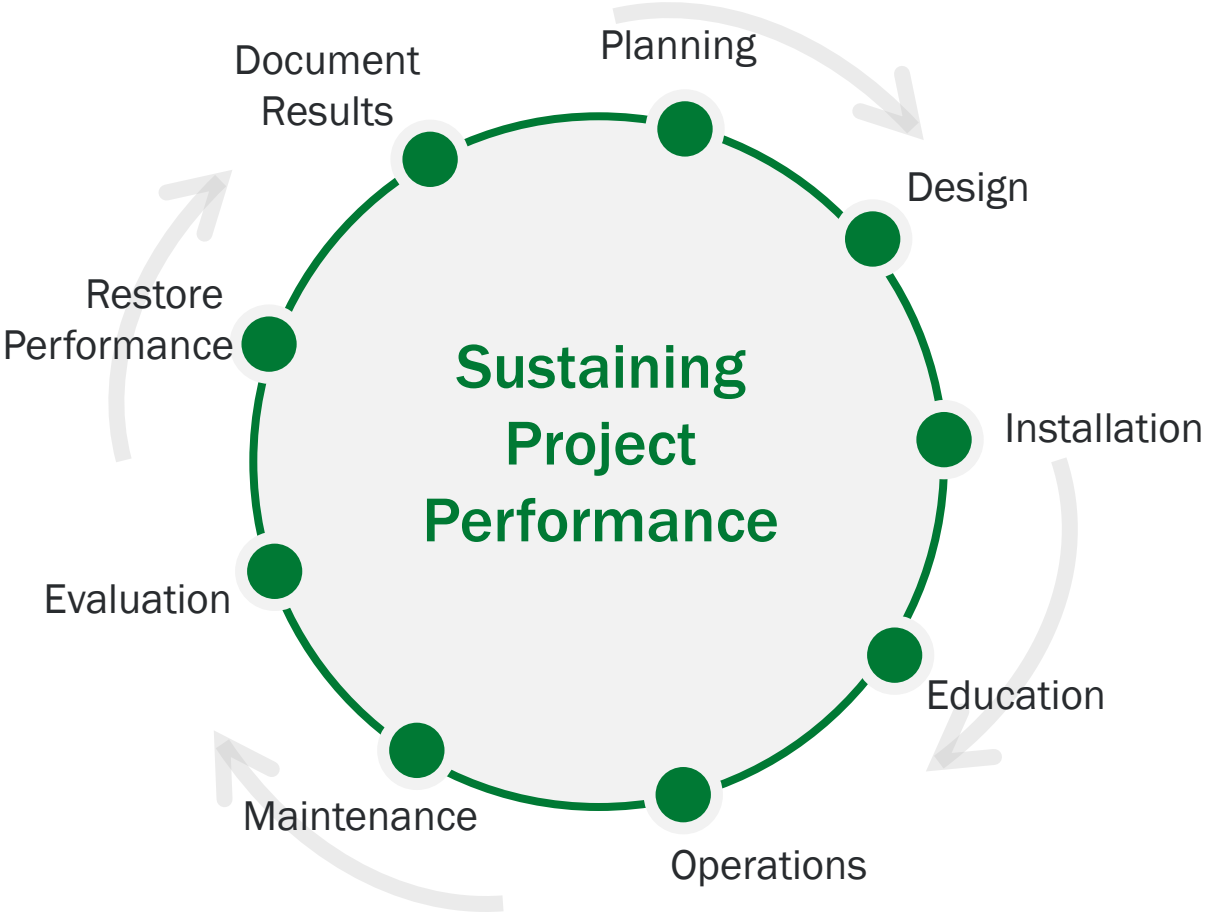


UESC Savings



Project Success = Sustained Performance

A successful energy project will prepare agency staff to sustain performance and achieve savings.



The Performance Assurance Plan

Performance assurance plans prepare agencies to sustain savings and meet federal performance requirements.

- Establishes performance metrics, requirements for commissioning (Cx), O&M, and ongoing Cx
- Must include requirements for resources and training to prepare agency staff to sustain ECM performance and demonstrate savings
- TO must describe and reference expectations and deliverables in the performance assurance plan

Federal Performance Requirements

42 U.S.C. § 8253(f)(5) Follow-up on Implemented Measures

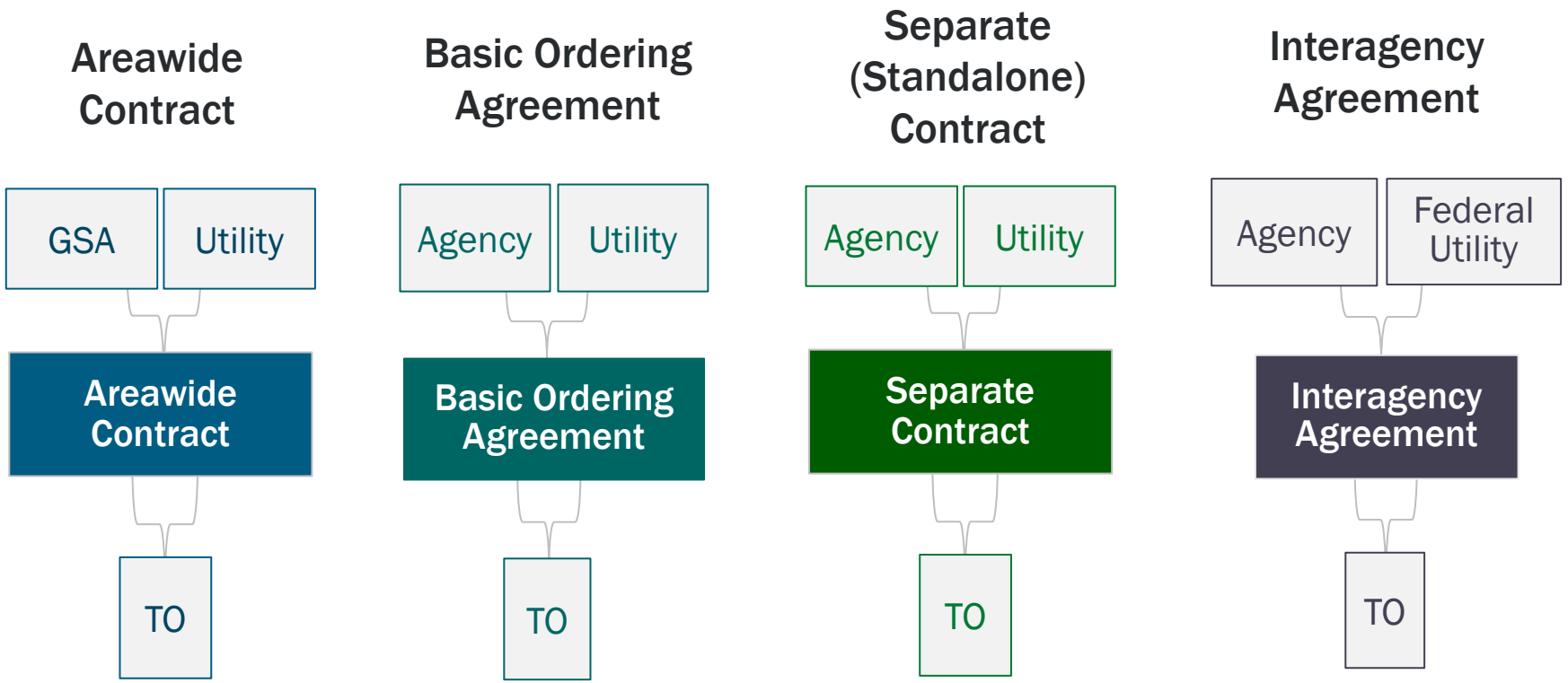
- Establishes requirements for Cx, O&M, and measurement and verification of performance and savings

OMB Memo 12-21 (Sep. 2012)

- Addresses issues for annual scoring of UESCs, including requirements for performance assurance or guarantees of savings, measurement and verification through Cx/RCx, and contractor competition.

Contracting Overview

UESC Contracting Options



TO = Task Order

FAR Part 41.204 GSA Areawide Contracts
FAR Part 41.205 Separate Contract
FAR Part 16.703 Basic Ordering Agreement
FAR Part 41.206 Interagency Agreements

Areawide Contract (AWC)

FAR Part 41 authorizes GSA to establish AWCs to be used by all federal agencies to procure utility service within the utility's franchised service territory.

- AWC is bilaterally signed by GSA and utility
- FAR requires agency use of AWC unless head contracting authority determines otherwise
- Agency places UESC TOs under the AWC using the Authorization for Energy Management Services
- Article 18 defines terms and conditions for UESCs
  - Agencies may supplement the AWC with agency-specific terms and conditions via a Master Agreement
- Visit the GSA Website to view and download AWCs

FAR Part 41.204 GSA Areawide Contracts

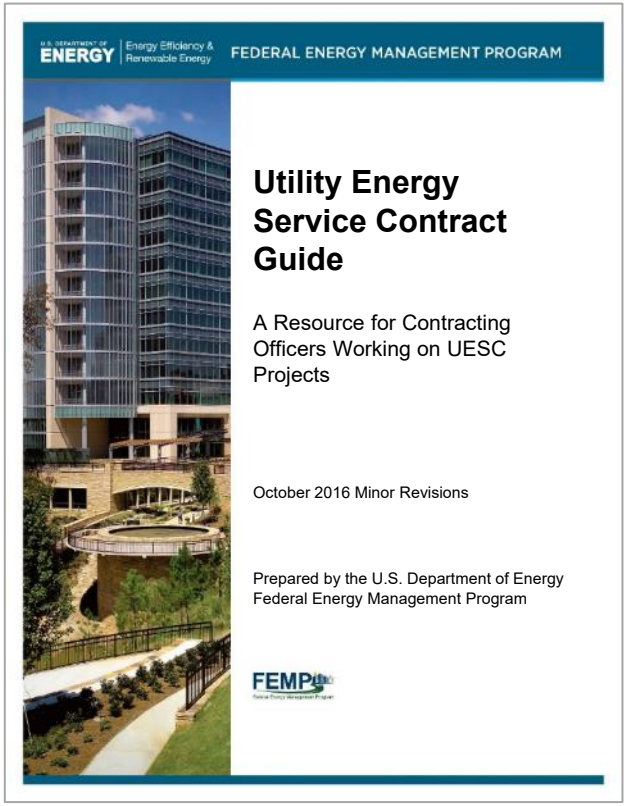
AWC Exhibit A: Electric Service Examples

The Authorization for Electric Service may be used to respond to the requests and requirements of the agency (regardless of whether savings are realized).

- EV Infrastructure
- Advanced Meters
- Solar Arrays
- Conversion of overhead lines/cables to underground
- Utilities hardening
- Emergency & back-up generation
- Customer-owned substation and distribution system upgrades
- Distribution system mapping
- Osmose pole inspections/replacements
- Emergency restoration/repairs
- Redundant/alternate feeder
- Infrared scan
- Line extensions
- Lightning protection

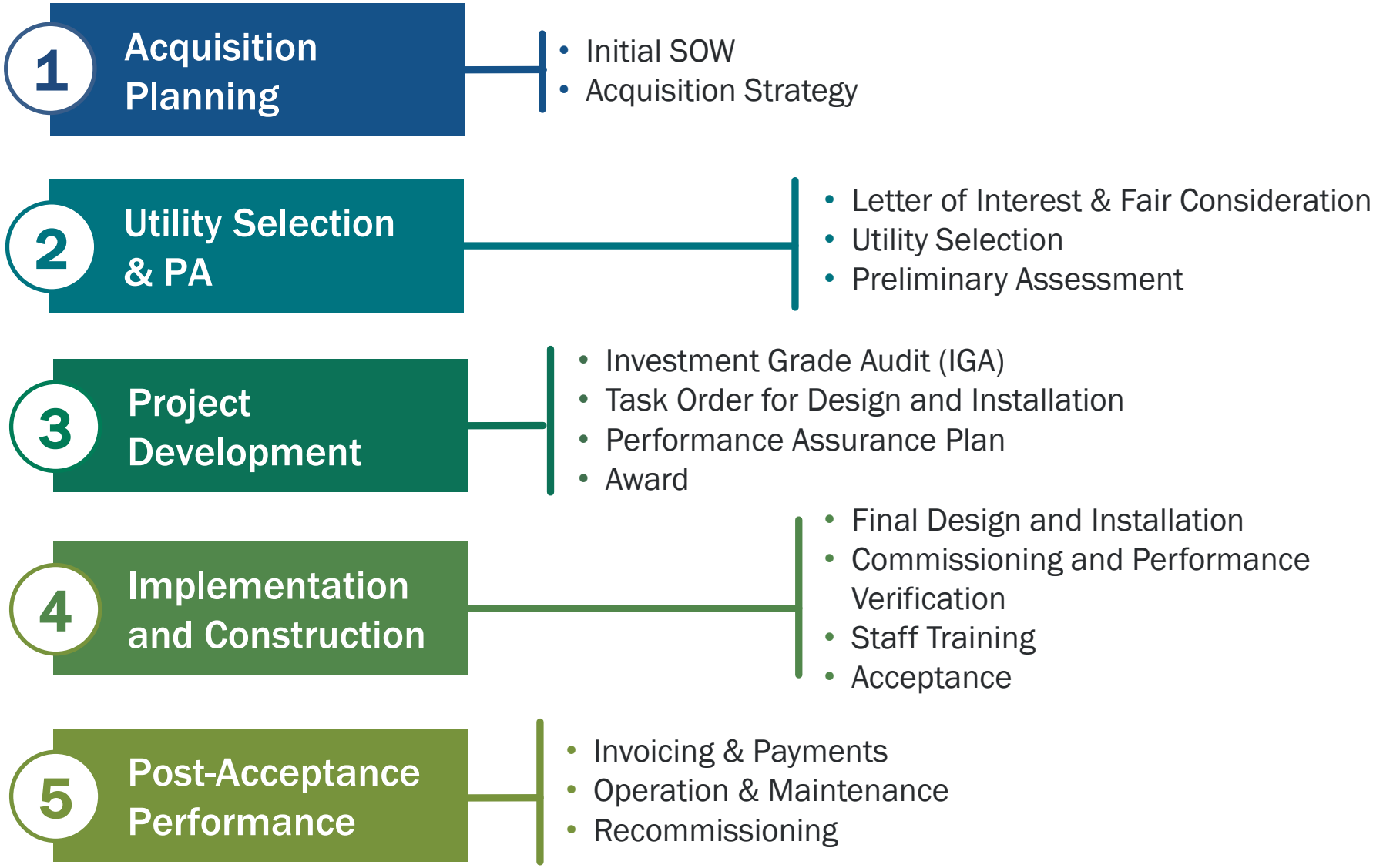
Resource: UESC Guide

- Available online
- For Contracting Officers and others working on UESC projects
- Guidance, samples, and templates
  - Acquisition planning
  - Utility selection
  - Preliminary Assessment
  - Investment Grade Audit
  - Performance assurance



Download the UESC Contract Guide

UESC Implementation Process



Advantages of UESCs for Agencies

- Pursuit of mutually beneficial goals with your utility, such as resilience, reliability, power quality, demand reduction, etc.
- Ability to invest resulting savings in other infrastructure improvements or mission objectives
- Appropriate for a wide range of projects and facilities, including leased space
- Governing body ensures oversight of utility program offering
- Opportunity to take advantage of utility expertise

Resources and Support

Upcoming Events

Event	Date and Time (Eastern)
Financing For UESCs (Webinar)	May 18, 2021 | 2:00 PM – 3:30 PM
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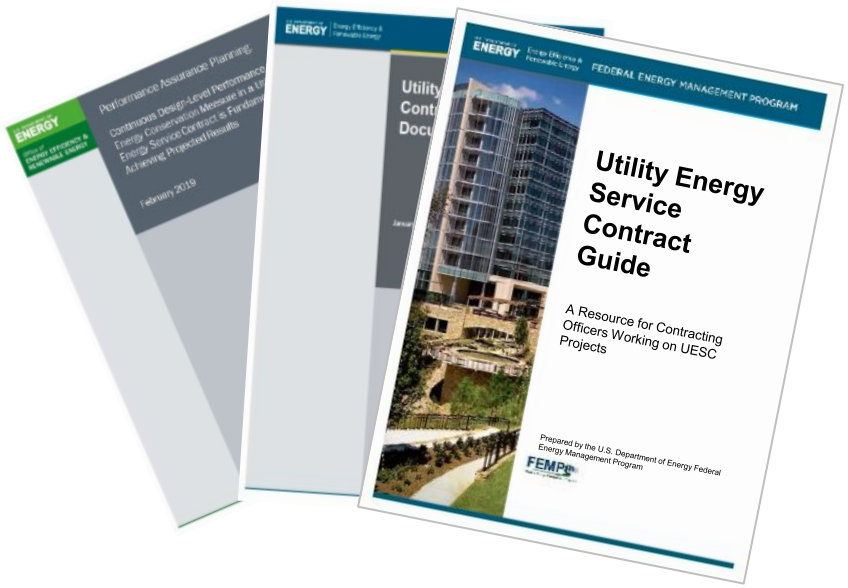
FEMP Resources

- Enabling Documents
- UESC Contract Guide
- Performance Planning for UESCs
- UESC Report Template



View all resources on the FEMP website!

https://www.energy.gov/eere/femp/resources-implementing-utility-energy-service-contracts

New FEMP Web Resources

FEMP Support for UESCs

- Project guidance and discussions with Federal Project Executives (FPEs)
- Technical assistance provided by DOE National Labs (by request and as available)
- Tailored training for agencies and utilities
- Strategic Partnership Meetings

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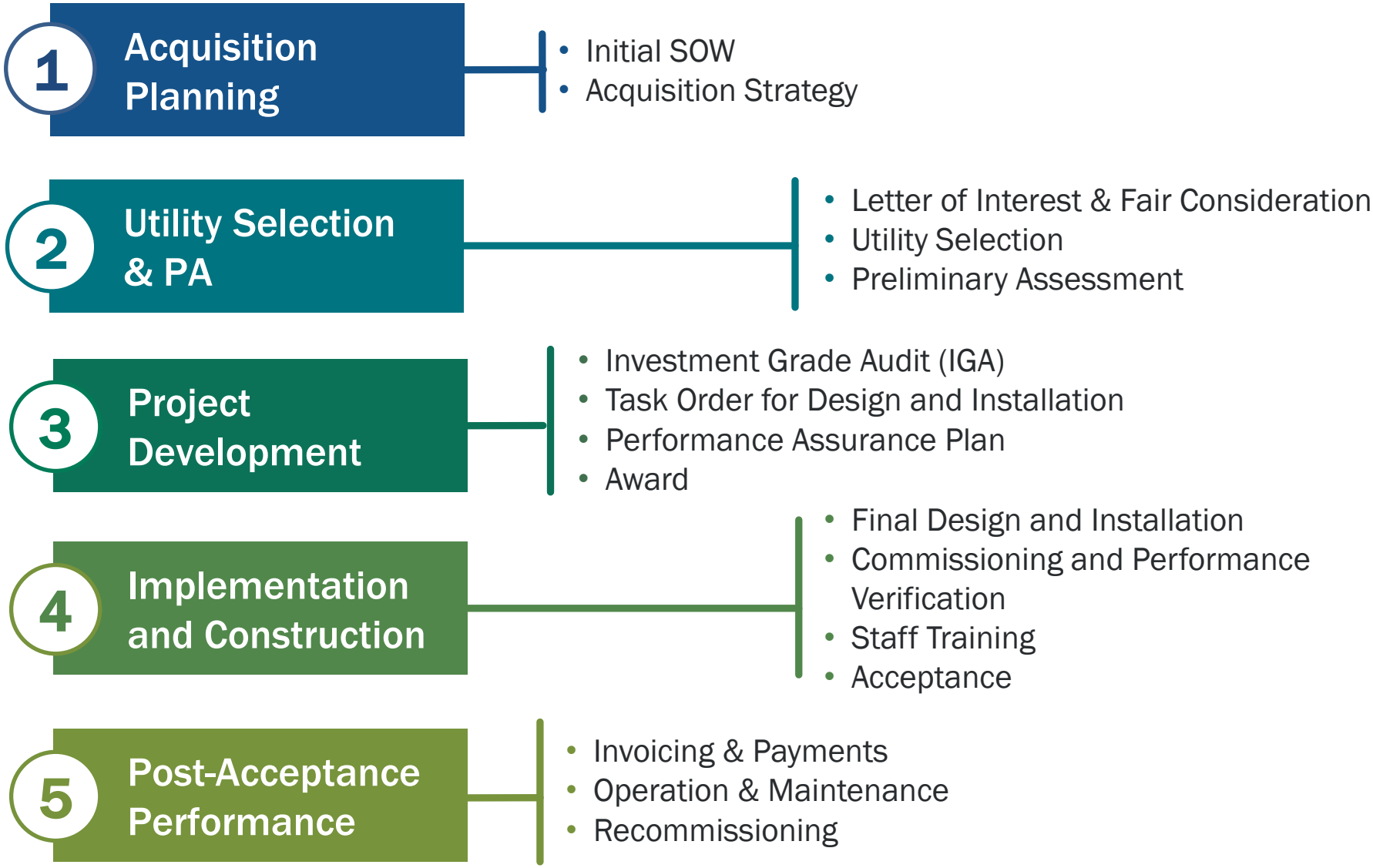
Agenda

UESC Implementation Process Overview

1. Acquisition Planning
2. Utility Selection & Preliminary Assessment
3. Project Development
4. Implementation and Construction
5. Post-Acceptance Performance

UESC Implementation Process



Phase 1: Acquisition Planning

Phase 1 Tasks:

- Agency develops initial scope of work
- Agency defines acquisition plan and funding strategy
- Agency drafts J&A (if required)
- Agency addresses key planning considerations
  - Performance assurance strategy
  - Resilience opportunities
  - Cybersecurity requirements
  - Utility rate impacts

Acquisition Planning Defined

Acquisition Planning	Utility Selection & PA	Project Development	Implementation & Construction	Post-Acceptance Performance
1	2	3	4	5

Effort to develop a strategic plan to manage, coordinate, and integrate the efforts of responsible personnel to meet an agency need on schedule and at a reasonable cost.

Ensures that the acquisition:

- Reflects program mission
- Follows statutory requirements, regulations, and agency-specific policies and practices
- Considers technical, business, management, and other influences
- Includes resource planning and milestones

Agency determination to use UESC contracting method.

Project Scope

The initial project scope may be influenced by:

- Agency energy program priorities and site requirements
- A prioritized list of energy projects
- Existing energy audits

And driven by:

- A list of unfunded infrastructure improvements

Mandates | Agency Goals | Facility Needs | Agency Identified ECMs | Utility Costs, Incentives

Utility Selection & Preliminary Assessment

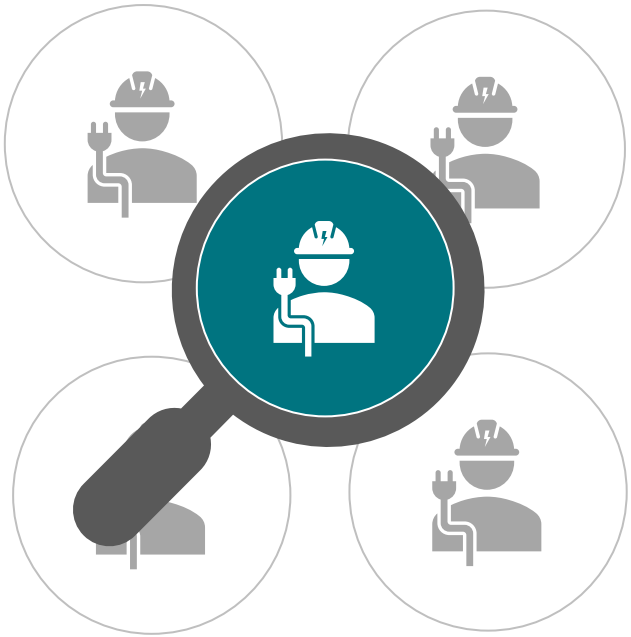
Phase 2 Tasks:

- Agency identifies and notifies eligible serving utilities of the UESC opportunity
- Agency provides eligible utilities a fair opportunity to be considered
- Agency selects utility
- Utility conducts the preliminary assessment
- Agency evaluates PA results and makes go/no go decision

Utility Selection

When agency sites have multiple serving utilities providing water, natural gas distribution, and electricity distribution, agencies should:

- Identify all eligible utilities
- Survey the interest of each eligible utility in offering an incentive program such as UESC
- Provide interested utilities a fair opportunity to be considered
- Reference FAR Part 41 Acquisition of Utility Services



Preliminary Assessment (PA)

The PA is a high-level energy assessment to describe existing conditions and identify potential efficiency and renewable energy opportunities and includes:

- Summary of findings
- Recommendations for each ECM opportunity
- Rough estimate of the cost to implement the opportunities
- Reasonable ECM descriptions and projected energy savings
- Performance verification approach

Project Development

Phase 3 Tasks:

- Agency develops IGA statement of work and initiates the audit
- Utility conducts IGA and develops the performance assurance plan
- Agency reviews IGA/performance assurance plan and makes go/no go decision
- Agency drafts TO for implementation and construction and issues TO RFP
- Agency and utility finalize TO and negotiate firm-fixed-price
- Agency finalizes J&A (if applicable)
- Agency awards project and reports project information to FEMP/GSA

Investment Grade Audit

The IGA* is a detailed engineering analysis, design, and cost estimate of recommended infrastructure improvements and should address:

- ECM feasibility
- Energy savings calculations
- Rationale for ECM selection
- Costs to implement each ECM with detailed backup information
- Savings of each ECM with detailed supporting data

* May be referred to as a feasibility study (FS)

Evaluate monitoring-based commissioning (MBCx) as an ECM

Performance Assurance Plan

A performance assurance plan (PA Plan) is a project specific implementation plan for proving the performance and demonstrating the savings of installed ECM equipment and systems prior to acceptance and for the life of each ECM.

- Developed in parallel with project design:
  - Complete and accurate ECM baselines
  - Design with ECM-specific operational instructions and performance metrics
  - ECM specific Cx subplan describing specific procedures for measurement and verification of performance and demonstration of energy and water savings.
  - Operations, maintenance, and repair subplan
  - ECM training subplan (prepare agency staff for Cx, O&M, and continuous Cx)

Monitoring-Based Commissioning

Benefits of integrating MBCx in performance contracts

- Data from AMI meters can be tied into MBCx to track energy savings
- FDD rules are applied to HVAC ECMs for performance assurance
- Increased precision in HVAC M&V
- Allows for remote and automated M&V of a subset of ECMs
- Can reduce the amount of field work / M&V costs
- Utilize MBCx data to ensure agency staff operates equipment correctly
- Standardized MBCx rules across building portfolio for consistency
- Ensures optimal ECM performance over entire TO term

Including MBCx in the Performance Assurance Plan

- **MBCx enables you to more easily meet requirements for RCx and advanced metering**
- **Benefits both the contractor and the facility**
  - Includes integration of AMI and BAS data
  - Helps identify ‘re-tuning’, RCx, and other HVAC ECMs
  - Can enhance all M&V protocols (Option A, B, C, D)
  - Should reduce annual M&V cost / onsite ESCO work
  - Helps identify and prioritize O&M issues

Proposal and Task Order Development

- **Finalize IGA via iterative review process between agency and utility**
  - IGA will serve as technical scope referenced in the UESC task order
- **Issue a TO RFP and request a firm-fixed-price for ECM installation.**
- **Utility will submit a proposal, including:**
  - A letter showing the firm-fixed-price offer for final design and implementation
  - An updated design schedule
  - An updated installation schedule
  - A financing offer (selected from competitive quotes)

Proposal Review and Award

- **Price and Cost Evaluation - CO is responsible for a determination of fair and reasonable pricing**
  - Require open-book details, cost transparency, and demonstration of subcontract competition (at least 3 bids)
- **Ensure proposal and TO clearly incorporate Performance Assurance Plan**
  - Reference the plan and describe expectations and deliverables
- **Review financing bids**
  - Ensure financing offers are competed (at least three financiers)
- **Issue award and report project data**
  - GSA: energy@gsa.gov (FAR Part 41 requirement when using an AWC)
  - FEMP: Compliance Tracking System and eProject Builder

Implementation & Construction

Phase 4 Tasks:

- Utility finalizes design and performance assurance plan
- Utility installs ECMs and agency provides oversight
- Utility commissions ECMs and submits commissioning report
- Agency verifies ECM performance meets design specifications
- Agency accepts project

Installation Oversight

Government/Lab oversight is critical.

- Verify equipment delivered meets design specifications, e.g., quality, size, and efficiency
- Observe ECM installation
- Observe commissioning and proof of performance
- Develop punch list to capture items needed prior to acceptance

Cx and Performance Verification

- ECM training should be delivered prior to Cx to ensure staff understanding before observing the process
- Verify ECMs will deliver expected energy and cost savings
  - Confirm baseline data is consistent with agreed-upon baseline conditions
  - Compare actual measurements to key performance indicators (KPIs)
- Verify the interactions between ECMs are appropriate and performance is optimized
- Utility should document and deliver Cx results in a report and submit to the agency CO prior to acceptance
  - Agency review should verify compliance with the Cx plan and confirm installed ECMs have the potential to meet or exceed the expected annual cost savings

Post-Acceptance Performance

Phase 5 Tasks:

- Utility submits invoices and agency makes payments
- Agency and utility execute performance assurance plan:
  - Operations and maintenance
  - Repair and replacement
  - Monitoring-based commissioning or annual recommissioning
  - Performance verification, savings demonstration, and documentation
  - Staff retraining

Post-Acceptance Responsibilities

Options for implementing O&M and RCx services include:

- Agency/Lab implementation
- Utility implementation
- Third-party contract

Considerations

- PA Plan to describe what is to be done by ECM
- TO assigns PA Plan responsibilities by ECM
- Utility typically provides a one- to five-year wraparound warranty
- Agency may negotiate longer warranties, savings guarantees, and other performance services and assign the responsibilities in the UESC task order

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