

Charting a Course to Energy Independence

Providence, RI
August 9-12, 2009

UESC Process

Karen Thomas
National Renewable
Energy Laboratory

August 11, 2009





UESC Process & Timeline

Defined

Utility – a regulated, franchised electricity or natural gas utility

Energy – used to cool buildings, power lights, and run computers

Services – energy and water efficiency and renewable energy

Contracts – an energy services contract between a federal agency and its utility provider for an assessment, implementation, and possibly financing of potential energy and water savings opportunities

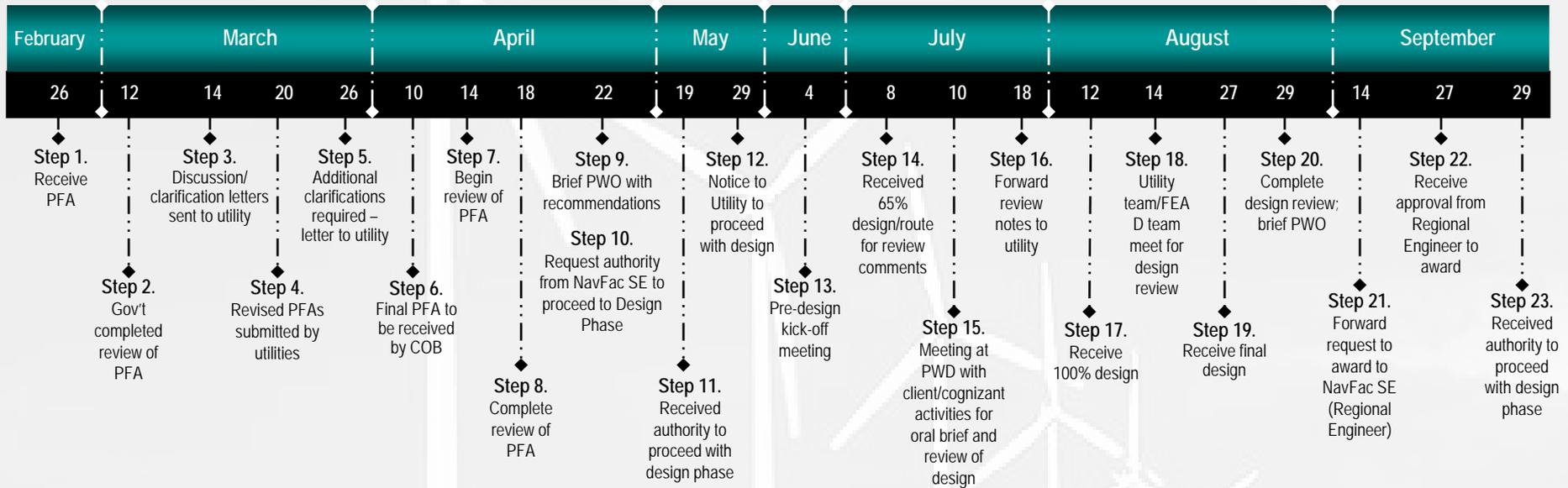
UESC Timeline

10 – 24 month cycle
(signature delays not included)



Timeline may vary depending on review time, experience and project characteristics

UESC Timeline





Pre-work

Introduction: 1 to 3 months

Action	Resources
Understand the Process	UESC Training – FEMP or other organization www.eere.energy.gov/femp
Gain Concurrence and Management & Staff Support	Internal Briefings
Identify energy & water-related site needs	<ul style="list-style-type: none">▪ Agency staff: EM, REM, O&M, engineering, planning▪ Site information: O&M records, facility 10-yr plan, previous assessments
Clarify expectations	Existing energy management plans, O&M backlog



Step 1: Concept /Idea

Introduction: 1 to 3 months

Action

Resources

Agency: Estimate energy savings potential

- . roughly 10%-30% of electric bill
- . natural gas & water can add significant savings

- Utility bills (2-3 years)
- Equipment name plates & operation schedules
- Utility funds source & payment records

Agency: Begin scoping energy project

- . Prioritize sites by energy intensity (BTU/SF)

- Agency energy plans, policy & guidance
- Guidance, training & tools at www.eere.energy.gov/femp

Agency: Solicit agency input for prioritized sites

- . Identify site needs & constraints, planned construction, site champion
- . Designate “team” & “site management advocate”

- Agency staff: EM, REM, O&M, engineering, planning
- Site information: O&M records, facility 10-year plan, previous assessments



Step 1: Concurrence

Introduction: 1 to 3 months

Action	Resources
<p>Agency Team: Define project objectives</p> <ul style="list-style-type: none">. Draft audit expectations. Gather site plans and data for audit	<p>Agency Energy Plans describe structure</p> <ul style="list-style-type: none">▪ Installation Energy Team▪ Energy Council▪ Energy Management Team
<p>Agency Team: Develop presentation</p> <ul style="list-style-type: none">. Agency prioritized site list. Site project objectives. Designated Team & Site Management Advocate	<ul style="list-style-type: none">▪ Scoping results▪ Agency Energy Plan▪ Agency EM▪ FEMP
<p>Agency Team: Gain management concurrence</p> <ul style="list-style-type: none">. Present project objectives to working level & command level management	<ul style="list-style-type: none">▪ Agency Energy Manager▪ FEMP staff and/or project facilitator



Step 2: Consider Options

Introduction: 1 to 3 months

Contract Vehicle

Considerations

Agency Appropriations

- Federal agencies can include energy and water efficiency in all repair/replacement, new construction, and renovation projects
- Renewable energy projects can be paid by appropriations or accomplished using other contracting vehicles
- UESC may be funded from appropriated dollars alone

UESC

- Serving utilities can provide financed energy and water efficiency and renewable energy projects to federal customers on a sole source basis
- May be 100% financed or through combination of appropriations and financing



Step 2: Consider Options

Introduction: 1 to 3 months

Contract Vehicle	Considerations
Agency Appropriations	<ul style="list-style-type: none">▪ Generally, least cost option, no finance charges▪ Project capital cost size and scope depends on available appropriations▪ Utility may offer no/low cost assessment, incentives, etc▪ Agency contracts for design and construction▪ Efficiency and renewable energy measures can be included in any construction effort



Consider Options

Introduction: 1 to 3 months

Contract Vehicle

Step 2: Considerations

UESC

- Serving utility provides assessment, feasibility study, design, construction, and post-installation support
- Projects can be financed or paid from appropriations
- Project capital cost size is not limited (\$10,000 - \$80 million and up)
- Project technologies are related to energy and water efficiency and renewable energy
- Multi-site projects are limited to the utility's service territory
- FEMP provides project support through out the process
- FEMP supports utilities new to the process
- Utility profit margins are set by public utility commissions



Step 2: Internal Approval to Proceed to Audit

Energy Service Agreement: 2-6 months
Preliminary Study/Audit: 3-6 months

Action

Resources & Documentation

Agency and Utility: Master Agreement (aka Energy Service Agreement) – may be optional

- UESC Model Agreement
- GSA Energy Service Agreement Model

Agency: Energy Manager requests approval to proceed to audit

Agency specific

Agency: Management/Commander approval to proceed

Agency specific

Agency: issues internal notice to proceed w/audit

- Internal notice to proceed
- letter for project file



Step 3: Arrange Preliminary Audit

Preliminary Study/Audit: 3-6 months

Action	Resources & Documentation
Agency & Utility: Develop statement of work for audit <ul style="list-style-type: none">· Audit expectations	<ul style="list-style-type: none">▪ Project objectives▪ Sample SOW▪ Audit SOW
Agency & Utility: Negotiate cost of audit <ul style="list-style-type: none">· Often no-cost· Expect costs for master plan phased type project	<ul style="list-style-type: none">▪ Sample audit
Agency: Issue task order for audit	<ul style="list-style-type: none">▪ Sample Audit Task Order▪ Final Audit TO w/ SOW (signed)
Agency & Utility: Schedule audit & kick-off meeting	



Step 3: Conduct & Review Preliminary Audit

Preliminary Study/Audit: 3-6 months

Action

Resources & Documentation

Utility: perform audit

- Agency staff support

Utility: deliver audit report (Feb 26)

· on-site meeting often helpful

- Audit report

Agency: Review audit results (Mar 12)

- Record comments

Agency: Discuss results & comments

- Record final comments to be transmitted



Step 3: Decision to Proceed to Feasibility Study

Preliminary Study/Audit: 3 -6 months

Action	Resources & Documentation
Agency: Provide audit comments including acceptable ECMs to utility	<ul style="list-style-type: none">▪ Written comments
Agency & Utility: Comment & resolutions meeting	<ul style="list-style-type: none">▪ Written comments▪ Reconciliation notes▪ Agency form or format as required
Utility: Submit revisions to agency as final deliverable for task order	<ul style="list-style-type: none">▪ Utility written response
Agency: Log project information into agency project database	<ul style="list-style-type: none">▪ Agency specific database▪ DOE web-based database (EISA '07)
Agency: Go / No-go decision	<ul style="list-style-type: none">▪ Pay invoice or roll cost into next phase



Step 3: Approval to Proceed with Feasibility Study

Timeline: 3 -6 months

Action	Resources & Documentation
Agency: Notify authorizing officials of desire to proceed with feasibility study	<ul style="list-style-type: none">▪ Letter for file
Agency: Develop feasibility study SOW	<ul style="list-style-type: none">▪ Audit Report, agency comments &▪ utility reconciliation response
Agency & Utility: Negotiate cost of feasibility study	<ul style="list-style-type: none">▪ Government feasibility cost▪ estimate
Agency: Draft TO requesting feasibility study	<ul style="list-style-type: none">▪ Sample Feasibility Task Order▪ Include “pay or roll” language in TO
Agency: Obtain authorizing officials approval	<ul style="list-style-type: none">▪ Internal notice to proceed<ul style="list-style-type: none">· Letter for file



Step 4: Arrange & Conduct Feasibility Study

Feasibility Study: 3 -6 months

Action

Resources & Documentation

Agency: Issue task order for feasibility study

- Audit results
- Utility/Agency comment resolution
- Agency cost estimate

Utility: Perform feasibility study

- Agency staff

Utility: Provide feasibility study report

- Feasibility report

Utility: Provide on-site presentation of results



Step 4: Review Feasibility Study

Feasibility Study: 3 -6 months

Action

Resources & Documentation

Agency: Review feasibility study
· Internal review meeting

- Written comments
- Acceptable ECM list

Agency & Utility: Comment & resolutions meeting with utility

- Agency form to record comments and resolutions

Utility: Provide revised report as final deliverable for task order

- Revised feasibility report
- Final ECM list

Agency: Update project information in project database

- Agency database
- DOE database (EISA '07)



Step 4: Decision to Proceed to Construction

Feasibility Study: 3 -6 months

Action

Resources & Documentation

Agency: *Go / No-go decision*

- Pay if not proceeding to implementation
- Pay or roll costs into next phase if going forward to construction

- Team discussion notes
- Letter for file

Agency: Notify authorizing official of desire to move forward to construction

Agency: Obtain authorizing official's approval to proceed to construction

- Internal notification to proceed



Step 5: Approval to Proceed to Construction

Timeline: 3 -6 months

Action

Resources & Documentation

Agency & Utility: Finalize SOW for construction

- Finalize construction plans
- Finalize construction schedule

- Feasibility study

Agency: Draft TO for construction

- Final SOW
- Government estimate

Agency & Utility: Negotiate final costs for construction and financing

Agency: Obtain authorizing official's approval to proceed

- Internal notification to proceed



Step 5: Arrange Construction

Timeline: 1-2 months

Action	Resources & Documentation
Utility: Provide final construction documents	<ul style="list-style-type: none">▪ Construction plans & specifications<ul style="list-style-type: none">· Construction schedule· Equipment cut sheets· Commissioning plan· Performance assurance plan· Training plan· Warranties
Agency: Issue task order for construction	
Agency: Notify tenants of construction	<ul style="list-style-type: none">▪ Construction schedule
Agency: Designate COTR and on-site staff for construction monitoring	<ul style="list-style-type: none">▪ Construction documents



Step 5: Construction & Commissioning

Action	Resources & Documentation
Utility: Construct per design & performance requirements	<ul style="list-style-type: none">▪ Construction documents
Agency: Monitor construction	<ul style="list-style-type: none">▪ Construction documents
Utility: notify COTR when ECM is completed and schedule commissioning of individual ECMs	<ul style="list-style-type: none">▪ Commissioning plan
Agency: witness ECM commissioning	<ul style="list-style-type: none">▪ Commissioning plan
Utility: notify COTR when all ECMs are complete and schedule system commissioning	<ul style="list-style-type: none">▪ Construction schedule
Utility: commission all involved / impacted systems	<ul style="list-style-type: none">▪ Commissioning plan
Agency: witness system commissioning	<ul style="list-style-type: none">▪ Commissioning plan
Utility: provide commissioning results report	<ul style="list-style-type: none">▪ Commissioning report



Step 5: Construction & Performance Testing

Action	Resources & Documentation
Utility: Conduct performance testing	<ul style="list-style-type: none"> ▪ Performance assurance plan
Agency: COTR witness performance testing	<ul style="list-style-type: none"> ▪ Performance assurance plan
Utility: provide results of performance testing	<ul style="list-style-type: none"> ▪ TO contract ▪ Performance test results
Agency: review results of commissioning and performance testing · accept, conditionally accept, or deny acceptance	<ul style="list-style-type: none"> ▪ Performance test report ▪ Commissioning report ▪ Record acceptance results
Utility: notify CO of completion	
Agency & Utility: identify items to be completed for final acceptance	
Utility: notify COTR as items are completed	



Step 5: Construction & ECM acceptance

Action

Resources & Documentation

Agency: review results of commissioning and performance testing

· accept, conditionally accept, or deny acceptance of each ECM

- Performance test report
- Commissioning report
- Record acceptance results

Agency & Utility: identify items to be completed for final acceptance of ECM

- Written punch list for each ECM

Utility: notify COTR as items are completed

- Update written punch list



Step 6: ECM Training

Action

Resources & Documentation

Agency & Utility: Schedule training

- Training plan
- Construction schedule

Utility: provide training on all ECMs

- Training manuals
- Video recording of training sessions

- Training Plan



Step 7: Final Acceptance

Action

Resources & Documentation

Utility: request walk through for Final Acceptance

- Construction documents

Agency & Utility: schedule final walk through and acceptance meeting

- Turn over deliverables

Utility: provide final documentation at walk through and acceptance meeting

- Final – “as built”
 - Drawings & specifications
 - Commissioning plan
 - Performance assurance plan (*real property piece*)

Agency: CO approve final acceptance

- Certificate of Completion



Step 7: Invoicing & Payments

Action

Resources & Documentation

Agency: set up approval & payment process

Utility: provide invoices

- provide sample in advance

Agency: pay invoices

- utility invoice



Step 8: Post-Installation

Action

Resources & Documentation

Monitor

- Performance assurance plan; annual reporting of actual energy and cost savings

Maintain

- Implement maintenance plan to optimize efficiency; annual true-up

Approve invoices

- Invoices submitted by utility

Monthly or annual payments

Consider future projects



FEMP Can Provide Direct Project Assistance

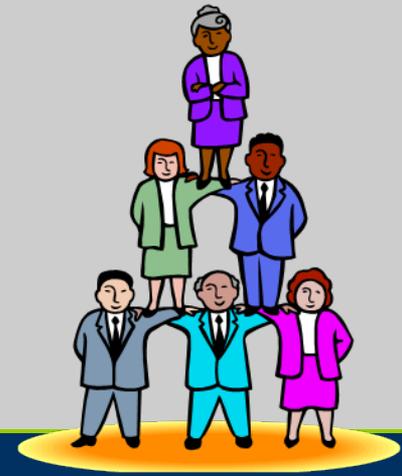
- **Technical & procurement assistance for energy and water projects -**
 - Build partnerships and facilitate relationships
 - Project facilitation
 - Measurement & Verification Support
 - RFP development
 - Contracting expertise
 - Technical Proposal review
 - Process improvement, barrier reduction
 - Building core competency
 - Finance Workshops



FEMP Project Facilitator Role

FEMP Project Facilitators

- ☒ Guide agency teams through the process of implementing a financed project
- ☒ Provide technical & procurement assistance at various levels of involvement:
 - ☒ Partnership Building
 - ☒ Advise and Consult
 - ☒ In-depth Support



Project Facilitation & Technical Assistance from National Laboratory Staff



UESC Process & Timeline

Conventional Wisdom

Urgency - Each step is dependent on the level of urgency and eagerness of the parties involved

Experience - Projects move most swiftly when the acquisition team is sufficiently informed and motivated

Specifics – Project complexity, size, dollar value are all factors that influence how quickly a project can move through the process

Champion – Essential to success



For More Information

NREL – FEMP
UESC Laboratory Lead

Karen Thomas

202.488.2223

karen.thomas@nrel.gov