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Energy Project Planning

Mike Holda - Lawrence Berkeley National Lab (LBNL)

Objective

- Identify energy project planning activities that will help set the stage for a successful project
- Project examples
- Lessons Learned

Why do an energy project?

- Meet energy reduction and environmental goals
- Improve occupant comfort and facility performance
- Infrastructure modernization, reduce maintenance headaches
- Increase value, competitiveness of facilities to support new programs, products, services, users
- If financed, it frees up \$ for other investments/Support mission
- Increased reliability, capacity, functionality
- Leveraging maintenance efforts or other projects
- Avoid cost of delay and inaction
- If financed, the only available source of funds



Energy Project Funding Options

- Direct appropriations- ARRA, ESIP, O&M funds, Capital Improvement funds, other
- Energy Savings Performance Contracts(ESPCs)
- Utility Energy Services Contracts (UESCs)
- Power Purchase Agreements (PPAs)
- Enhanced Use Lease (EUL)
- Financial incentives/Rebates
- Or a combination of the above



Comparing financed project options

	PPA	DOE ESPCs	UTILITY CONTRACTS
AUTHORIZATION	Possible Authorities: FAR Part 41 – Utility Services (10 year authority)	EPAct 42 USC 8287; 10 CFR 436	EPAct, 42 USC 8256; 10 USC 2913; 10 USC 2866; 48 CFR 41; 48 CFR 16
COMPETITION	Competitive process.	Competitive, Fair Opportunity to IDIQ contract holders	Exempt from CICA, sole source to utility; utility competitively selects subcontractors
CONTRACTING PARTY	Contract is with developer. Other agreements for RECs, excess power.	Contract with Energy Services Company (ESCO)	Contract with utility
PERFORMANCE	Contractor only gets paid if project generates electricity (or therms)	Guaranteed performance required	Guaranteed performance negotiable
TERM	Varies (10 years with FAR Part 41, up to 30 years with DOD 2922A)	25-years maximum	Up to 25 years allowed, varies by agency
PAYMENTS	Invoice	Invoice	Utility bill or invoice
QUALIFIED	Use of qualified contractors list not required	Multiple contractors selected list required	Use of qualified contractors list not required
MEASUREMENT & VERIFICATION	Not required. See performance.	M&V and annual energy audit required	M&V and annual energy audit negotiable
OPERATION & MAINTENANCE	O&M required.	O&M typically included	O&M negotiable
CONTRACT COORDINATION	DESC, WAPA or agency	Agency coordinates contract through DOE or lead agency	Agency coordinates contract
CONTRACTOR RELATIONSHIP	Typically no existing relationship with developer. Site may have relationship with agent and/or utility.	Typically no existing relationship is in place with ESCO	Relationship with utility usually well established
TIME & RESOURCE REQUIREMENTS	New process, will get simpler with time.	Pre-qualified contractors to select from.	Reduced time and resources needed for selection process (close scrutiny proposal evaluation required)

Typical Energy Project Development Phases

1. Planning
2. Preliminary Assessment
3. Conceptual Design/Investment Grade Audit
4. Design
5. Construction- includes commissioning
6. Performance- Operations and Maintenance

Recommend having a kick-off meeting with project team at the beginning of each phase to help insure team is starting on the right foot headed in the same direction.

Develop Energy Project Plan



- Identify acquisition team members
- Determine the appropriate funding/financing approach for the project
- Identify required agency resources
- Educate staff and develop agency support for project and financing mechanism
- Needs Assessment- what is the motivation for the project?

Acquisition Team

- **Everyone who could help or hinder (or be affected by) project should be invited**
 - Contracting officer & site technical representative
 - Facility manager and facility maintenance staff
 - Energy, design, and construction engineers
 - Energy project manager
 - Procurement and legal staff
 - Budget/comptroller representative
 - Union reps, labor relations
 - Agency customers and tenants
 - Environment, health and safety
 - Security representative



Acquisition Team

- Contracting Officer typically chairs the acquisition team
- Other key stakeholders participate
- If financed project, encourage members to attend ESPC, UESC and PPA webinars and/or workshops
- DOE Project Facilitator, Federal Finance Specialist and DOE GFO can provide recommendations and guidance for financed projects

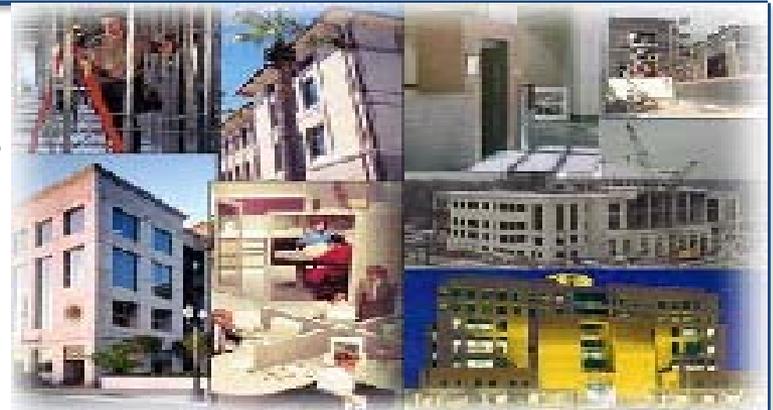


Agency Effort Required

- Level of effort varies by project type, size and funding mechanism
 - Factors include:
 - project complexity and size
 - acquisition teams experience with the funding mechanism
 - agency approval process
- Biggest responsibilities is typically with energy/facility manager and contracting office
 - Other acquisition team members are engaged as needed, when needed



Acquisition Team Roles



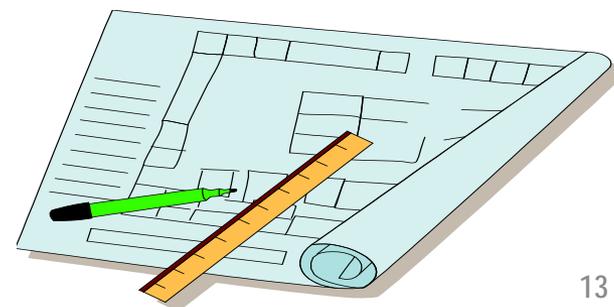
- Develop acquisition plan
- Manage and guide site's efforts
- Identify key steps in the project approval process and who has authority to approve the project
- Build management and site support for project
- Educate team and other staff about the project and acquisition process
- Ensure that decision makers have all the information they need and obtain necessary management approvals
- Develop project requirements and contractor selection criteria

Roles and Responsibilities

- Technical/Engineer/Facility Manager
 - Establishes the Technical Requirements
 - Usually “project champion”
 - Responsible for meeting mandated energy reduction goals
 - Typically engages Federal Financed Specialist (FFS) to begin discussions/planning if financed project
 - Participate on acquisition team and works with CO in contractor selection process

Key Issues to Address

- Project goals and objectives
- Desired scope, i.e., which buildings/facilities
- Desired and required ECMs
- Demolition, new construction
- Needs and desires of facility occupants
- Condition of existing equipment
- Project technical and financial requirements/parameters
- Funding/financing approach



Key Issues to Consider



- Building environmental and performance requirements
- Single or multi-site
- Individual ECM or bundled project
- Long term plans for the site-
 - additional capacity
 - change in utilization
- Codes, regulations, hazards, other considerations
- O&M services, R&R responsibilities, O&M savings



Key Issues to Address

- Preferred M&V approaches
- Any constraints on term, total investment or payback
- Coordination with current or pending construction projects
- Unique to facility issues/characteristics
- New technologies
- Renewables
- Energy and escalation rates



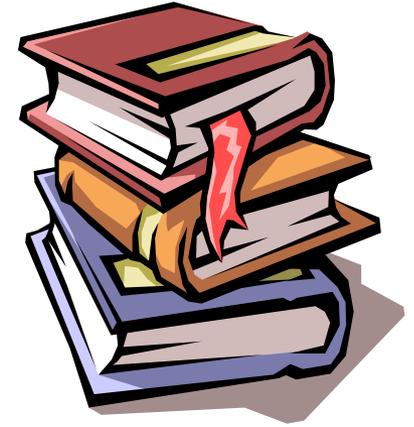
Lessons Learned

- Engage high-level management support critical early and often
- Designate energy-efficiency champion for project
- Assign Agency project manager- may or may not be project champion
- Recognize energy and financed projects can have a long development cycle
 - Go as fast as you can
 - People change
 - Risk tolerance changes
 - Develop and manage to a schedule
 - Schedule slips delays savings realization and can incur interest expense



Lessons Learned

- Educate project team and stakeholders
- Manage scope, schedule and budget
- Develop project development and implementation schedule- include key tasks and milestones
- Avoid scope creep
- Identify what needs to be reviewed, by whom and for how long
- Communication, communication, communication



Lessons Learned

Plan for Project Transitions between phases:

- Planning
- Preliminary Assessment
- Conceptual Design/Investment Grade Audit
- Design
- Construction
- Operations and Maintenance



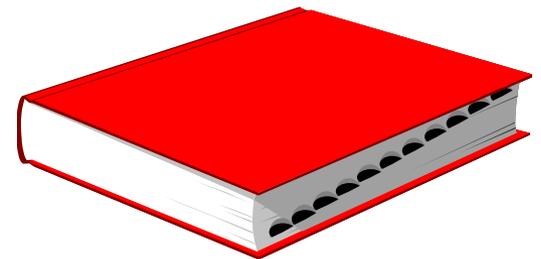
Lessons Learned

- Needs assessment-
 - what are managements priorities
 - what are their problem areas
 - make sure you address the problems/priorities, otherwise you're an annoyance
- Maintain complete project documentation during all stages of the project development, implementation and performance
 - It 's likely your project will be reviewed/audited
 - Aides new players joining the team
- Take a graded approach
 - prioritize activities based on importance/value



Lessons Learned

- Use subject matter experts to educate stakeholders
 - technical, finance, process
- Address measurement and verification (M&V) issues early (baseline)
- Identify potential risks- manage and mitigate
- Do your due diligence – read every word



Lessons Learned

- Emphasize near-term benefits and long-term value
- User buy-in and coordination with ongoing operations is critical
- FEMP can provide assistance for financed and direct funded energy projects
- Each project is different



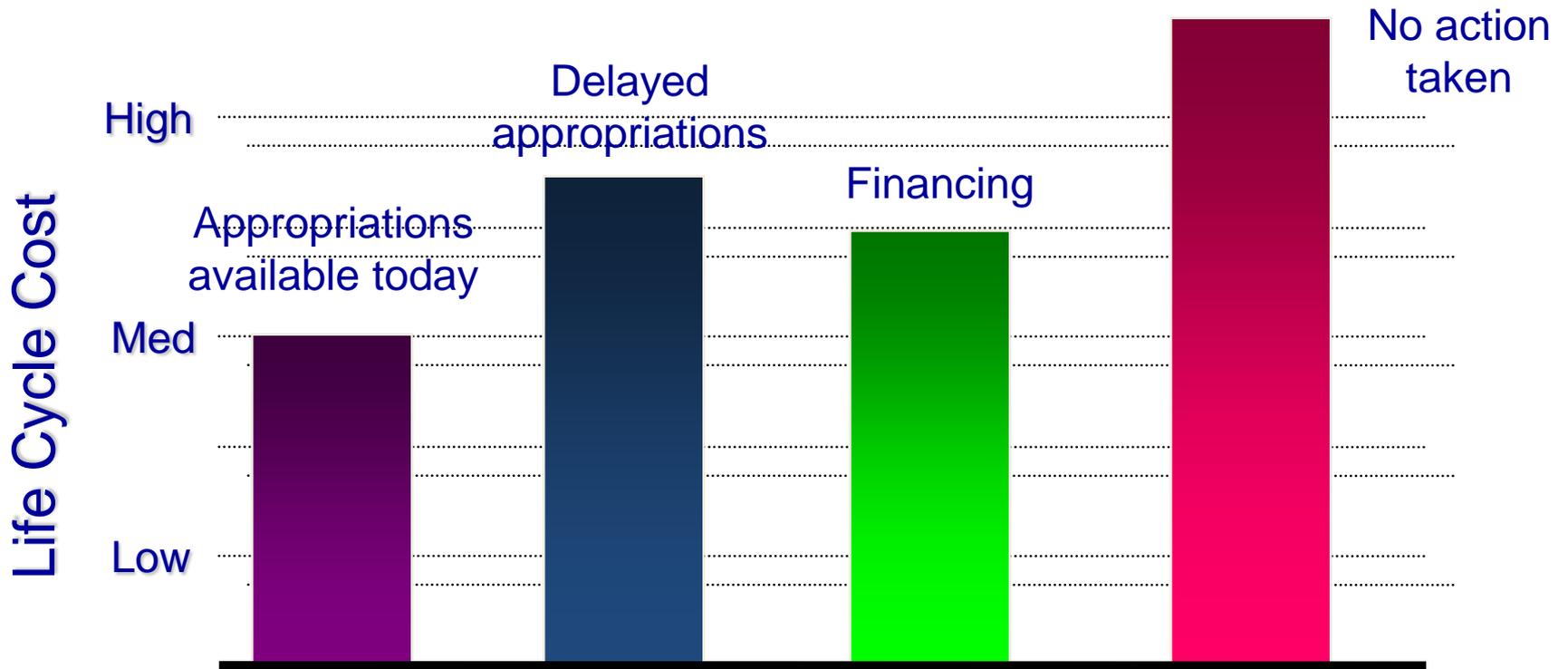
Lessons Learned

Mother nature can upset the best project plan

- Super Typhoon- Navy Guam
- Flood- GSA/SSA Hagel Bldg
- Wild fires- USFS Region 1 and LANL
- Tornado- Ft. Leonard Wood
- Tsunami- USCG PR



The Cost of Delaying a Project



Any delay in project implementation results in loss of life-cycle savings

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Questions?