



Implementing the Project

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Establish Agency Goals and Objectives

Using HUD energy incentives to bring additional dollars by:

- Reducing energy consumption
- Reducing energy costs





Establish Agency Goals and Objectives (cont.)

Reducing Energy Consumption

- Create awareness within your organization
- Gain management support of program
- Increase resident awareness about revised utility allowances
- Train operating staff in efficient operations and maintenance
- Involve residents in conservation program
- Install energy-efficient equipment under Energy Services Agreement





Energy Services Agreement

- Ensure that properties have long-term viability
- Integrate with agency modernization and/or redevelopment plan
- Utilize comprehensive approach to maximize benefits
- Involve operational staff in planning and development of maintenance plan





Lessons Learned

Keep the project as simple as possible

- The project will affect many areas of your agency (operations, finance, modernization, etc.). Everyone must understand the project generally and their responsibilities specifically

Seek a team consensus and establish contacts in affected areas

- Buy-in by all parties is essential

Contract term determines which properties to include

- Agency liable for savings in the event the property is demolished prior to expiration of contract term





Lessons Learned (cont.)

Determine the probable survivability of conservation measures prior to installation

- Conservation measures subject to routine vandalism may cost the agency much more in replacement costs over the contract term

Be realistic: Understand the ability of the agency to operate and maintain equipment over the term of the contract

- If conservation measures require special maintenance or operation, be prepared to see this equipment bypassed/disabled by field staff





Lessons Learned (cont.)

Make sure that regional and national offices are aware of what you are proposing to do, and that any necessary waivers and approvals are obtained in advance

- After-the-fact waivers and approvals may be difficult, if not impossible, to get

Take advantage of bank-qualified, tax-exempt financing if you are a public agency

- Lower interest costs mean more money for your agency





Lessons Learned (cont.)

Involve your ESCO in the internal processes within your agency

- Will need to know the rules, too; don't let them get ahead of the process

It is up to the Agency to determine what is in its best interests; actively pursue those interests

- Check with local sources to see if you can obtain better project financing





Strategies for Keeping Projects on Schedule

- Shorten the internal decision-making chain to enable more rapid review and approvals
- Design quality control feedback systems to spot field installation problems quickly and correct them
- Give your PHA project manager adequate time and authority to move the project forward
- Get a good handle on managing utility data and property status data
- Use high-quality subcontractors
- “Clerk of the Works”
- Clearly defined responsibilities and timelines





Obtaining Required HUD Approvals

- File your requests as early as possible
- Keep your area and national offices fully up to date
- Seek specific written guidance on any additional data required for approvals
- Follow up correspondence with phone and face-to-face meetings
- Require your ESCO to provide you with compliance reporting assistance
- Incorporate all of HUD's standard construction project requirements into the Agreement, bidding documents, etc.





How to Manage Performance Over the Long Term

- Hold PHA staff accountable for their performance
- Provide training and project orientation for new PHA staff
- Continue resident education throughout project and after
- Require adequate documentation to minimize confusion and delay as well as help orient new staff
- Coordinate with other construction projects as early as possible to avoid conflicts in projects
- Allocate maintenance tasks based on cost and capability
- Monitor and review project performance regularly





Sample TOC for O&M Manuals

1. Controls
 - a) Sequence of operation, including seasonal changeover routines and all appropriate start-up and shut-down procedures
 - b) Control drawings and schematics, including location of key components (i.e., sensors, valves, actuators, etc.)
 - c) EMS/BAS
 - i) Points List, including name abbreviation, description, etc.
 - ii) Documentation of trend logging routines (established for key equipment)
 - iii) List of all controls hardware, including quantity, model number, and a brief description





Sample TOC for O&M Manuals (Cont.)

2. HVAC

a. Cooling

- i) Operational sequence and set points, seasonal changeover routines
- ii) Spare parts list
- iii) Special tools list
- iv) Certified equipment drawings (not catalog cut sheets)
- v) Certified engineering documents from the manufacturer stating capacity, size, operational curves, options used, and options available
- vi) Start-up and shut-down procedures





Sample TOC for O&M Manuals (Cont.)

- vii) Installation manuals
- viii) Preventive maintenance schedules, including procedures and frequencies
- ix) List of materials needed (i.e., filters, belts, etc.)
- b) Heating
 - i) Operational sequence and set points, seasonal changeover routines
 - ii) Spare parts list
 - iii) Special tools list
 - iv) Certified equipment drawings (not catalog cut sheets)





Sample TOC for O&M Manuals (Cont.)

- v) Certified engineering documents from the manufacturer stating capacity, size, operational curves, options used, and options available
- vi) Start-up and shut-down procedures
- vii) Installation manuals
- viii) Preventive maintenance schedules, including procedures and frequencies
- ix) List of materials needed (i.e., filters, belts, etc.)

3. Air Handling

- i) Operational sequence and set points, seasonal changeover routines
- ii) Spare parts list





Sample TOC for O&M Manuals (Cont.)

- iii) Special tools list
- iv) Certified equipment drawings (not catalog cut sheets)
- v) Certified engineering documents from the manufacturer stating capacity, size, operational curves, options used, and options available
- vi) Start-up and shut-down procedures
- vii) Installation manuals
- viii) Preventive maintenance schedules, including procedures and frequencies
- ix) List of materials needed (i.e., filters, belts, etc.)





Sample TOC for O&M Manuals (Cont.)

4. Pumping

- i) Operational sequence and set points, seasonal changeover routines
- ii) Spare parts list
- iii) Special tools list
- iv) Certified equipment drawings (not catalog cut sheets)
- v) Certified engineering documents from the manufacturer stating capacity, size, operational curves, options used, and options available
- vi) Start-up and shut-down procedures





Sample TOC for O&M Manuals (Cont.)

- vii) Installation manuals
 - viii) Preventive maintenance schedules, including procedures and frequencies
 - ix) List of materials needed (i.e., filters, belts, etc.)
5. All as-built drawings
 6. Approved change orders
 7. Test and balance report
 8. Safety procedures and special equipment/clothing required
 9. Manufacturers Safety Data Sheets (MSDS) for all required materials (i.e., oils, cleaners, grease, refrigerant, or other chemically contained items)





Sample TOC for O&M Manuals (Cont).

10. A thorough and complete description of the functionality of the HVAC system. How it interfaces with other systems and parts of the facility.
11. What to do in case of emergencies (terrorism, power failure, refrigerant leaks, or other catastrophe)
12. Also included in this manual as well as placed in their respective mechanical rooms:
 - a) Control valve list and function
 - b) Duct and air distribution layout
 - c) Piping isometric drawings, including cv, gpm, pressures, temperatures, cfm (SA, RA, OA) OA requirements, all air and water temperature (discharge, and return)
 - d) Equipment configuration and set points





Maintaining Effective Communication

- Oral agreements about project scope changes are *not* a good way to avoid disputes
- Keep written records of customer correspondence approving agreed to changes
- When in doubt, fully describe the proposed change and request a written approval (i.e., you can draft it for them if necessary)
- When your contract relies on a separate document by reference, be sure that document clearly defines significant issues

