Smart Management for Small Water Systems

Developing an Implementation Plan for Your Energy Management Projects

EFCN environmental finance center network

American Water Works Association

UNC ENVIRONMENTAL FINANCE CENTER

This program is made possible under a cooperative agreement with EPA.

Energy Management Program - Basic Steps

- Step 1. Establish Organizational Commitment
- Step 2. Develop a Baseline of Energy Use
- Step 3. Evaluate the System and Collect Data
- Step 4. Identify Energy Efficiency Opportunities
- Step 5. Prioritize Opportunities for Implementation
- Step 6. Develop an Implementation Plan
- Step 7. Provide for Progress Tracking and Reporting

Source: NYSERDA

Developing an Implementation Plan

"A goal without a plan is just a wish."

- Antoine de Saint-Exupéry

Developing an Implementation Plan

- Step 1: Define objective(s) & target(s)
- Step 2: Identify tasks
- Step 3: Identify changes to SOPs, process control
- Step 4: Determine timeframe, resource allocation

Step 1: Define Objectives and Targets

- Objective: WHY do you want to complete these projects?
- Target: Measureable result you are aiming for
  - Figure out what steps needed to get there
  - Determine the success of project

Potential Energy Objectives

- Reduce energy cost
- Reduce petroleum consumption
- Reduce peak energy demand
- Reduce greenhouse gas emissions
- Improve reliability
- Increase use of renewable fuels

Factors to Consider in Setting Objectives and Targets

- Controllability
- Trackability / measureability
- Cost to track / measure
- Communicating progress
- Linkages to your energy policy

Example: Let there be light!

Replacing high-pressure sodium lights with LEDs

- Possible objectives?
- Related targets?

Step 2: Identify Tasks

- Individual steps to implement your project
- Mini-goals or achievements toward overall objective

Step 3a: Identify Changes to SOPs

- Any change to your facility will require changes to your day-to-day operations
- Changes may affect:
  - Operator duties
  - Equipment maintenance
  - Treatment process
  - Emergency response

Step 3b: Identify Changes to Process Control

- Any change to your facility will require changes to how you respond to unexpected problems
- Things to consider:
  - If your facility uses automation, will it require reprogramming?
  - What training do your operators need to address problems with any new equipment?

Back to Our Example: Let there be light!

- How will this change regular operations?
- How will this change how you respond to problems?

Step 4: Determine Timeframe, Resource Allocation

For each task:

- **Staff** – Who is responsible for completing that task?
- **Timeline** – How long until the task is completed?
- **Estimated Time** – How many hours / days will the responsible staff member spend on the task?
- **Estimated Costs** – If the task requires equipment purchase, how much will it cost?

Back to Our Example: Let there be light!

Let's look at the task of purchasing new LED lamps:

- **Staff –**
- **Timeline –**
- **Estimated Time –**
- **Estimated Costs –**

Case Study: City of Hutchinson, KS Water and Wastewater Utilities

Target: Replace existing large capacity vertical turbine pump and motor at Well #21 with lower capacity submersible pump

Task	Deliverable	Staff	Timeline	Est. time	Est. cost
Develop project scope	Document	WTC	By June 1, 2012	1 hr	
Obtain approval from Public Works Director for project concept	Document / Email	WTC Public Works	By June 8, 2012	2 hrs	
Issue RFP for equipment and installation	RFP	WTC	By June 18, 2012	3 hrs	
Review RFP response	Document	WTC Public Works	By July 10, 2012	3 hrs	
Obtain approval from Public Works Director for project to proceed	Document	WTC Public Works	By July 12, 2012	2 hrs	
Obtain PO number	Document	WTC Purchasing	By July 19 2012	2 hrs	
Enlist contractor	Signed contract	WTC Contractor	By July 29, 2012	2 hrs	
Install equipment	Pump / motor removal and replacement, pump test, SCADA modifications	WTC Contractor	By October 2, 2012		$15,000

Case Study: Your System

Objective:

Target:

Task	Deliverable	Staff	Timeline	Est. time	Est. cost

Developing a Plan for Your Prioritized Project(s)

Now is the time for you to develop an implementation plan for your prioritized energy management project(s).