Industry & Agriculture Sector

Production Efficiency Program

90x90 Industrial O&M

2010 Final Results

EnergyTrust of Oregon

O&M – Successful Program Strategy

Large PE goals in 2010 and lack of capital for projects dictated pursuit of other opportunities

- Historically most PE savings (>70%) come from Custom track projects with 12 -24 month lead time
- Analysis of pipeline in early 2010 identified need for fast cycle projects to reach stretch goal

The 90x90 Custom O&M special incentive offer motivated participants to implement quickly while allowing for very low cost acquisition costs

EnergyTrust of Oregon

Industrial O&M Opportunities

- Reduce leaks
- Minimize loading
- Change set-points
- Automate operations
- Consolidate process steps
- Repair defective equipment
- Reduce pressure differentials
- Turn off power when not in use
- Switch to most efficient part-load option
- Minimize simultaneous heating & cooling

EnergyTrust of Oregon

Industrial - Custom O&M
90x90 Special Offer
2010 RESULTS

Project Costs:
$574,119

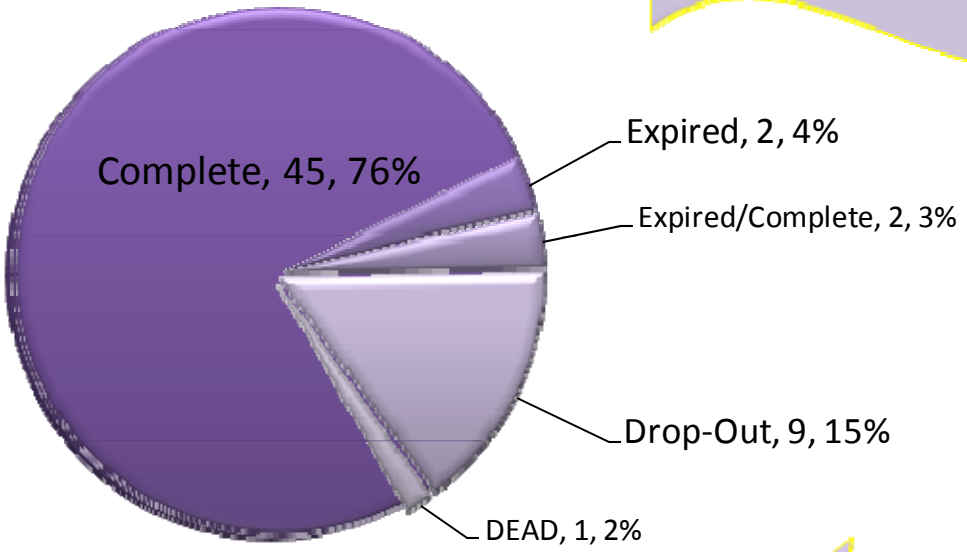
Avg. Cost per site:
$12,215

Avg. Project Cost covered by Incentives:
78%

Total Study Costs:
$229,559

Avg. Cost per site: $4990

Aquisition Cost per kWh
w/o study = **2.1 cents**
with study = **3.2 cents**



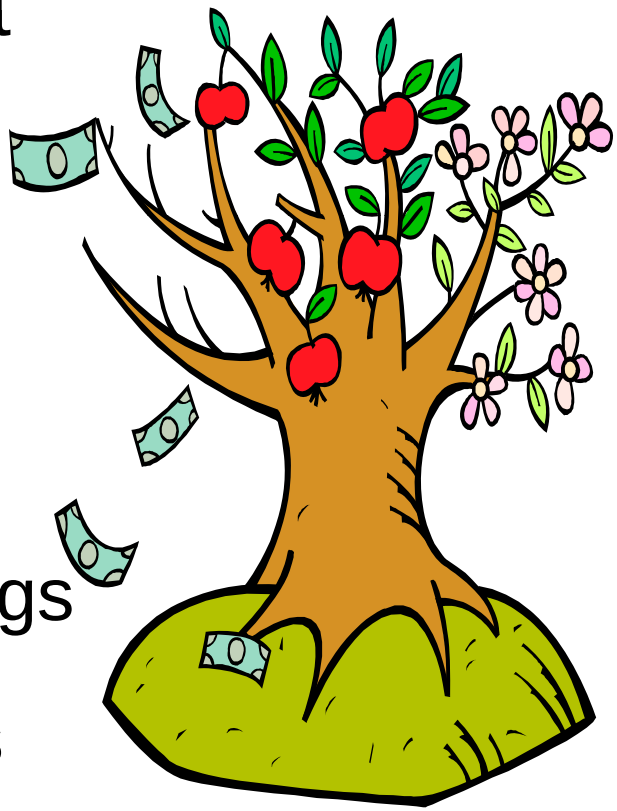
kWh Savings = **20,933,890**
Avg. kWh per site = **455,085**
(per year)

Total Incentives = **$448,447**
Avg. Incentive = **$9541**

Savings & Costs do NOT include Dead, Drop-Out, or Expired projects

Major Lessons Learned

Chopping down the myth that "all the low hanging fruit has been picked"



- 45 total projects
- 21M kWh total savings
- <$575K total project costs
- $12.2K average project cost
- 455,000 kWh average savings

- Average Payback = 0.45 yrs before Incentives!

EnergyTrust of Oregon

Major Lessons Learned

Another Myth Buster: “If the payback is less than 1 year, companies will implement projects without incentives”

- Even with incentives of up to 90% of project costs, less than 80% of eligible projects were completed (including 2 after bonus expired)
- Feedback from some participants specifically noted that they would NOT have pursued their project without encouragement from Energy Trust and the bonus incentive

EnergyTrust of Oregon

Major Lessons Learned

In some cases, implementation can take place concurrently with a technical analysis study; Eight O&M projects in 2010 were successfully completed using the following approach:

1. PDC estimates potential energy savings based on solid historical energy use
2. Incentive offer is generated using $ cap based on conservative energy savings estimate
3. ATAC performs baseline analysis
4. ATAC provides direct guidance to customer during implementation
5. ATAC measures actual energy savings

EnergyTrust of Oregon

Barriers to O&M Implementation

- Technical complexity
  - Participants are not energy efficiency experts thus rely on external resources to provide direction
  - Diagnosis of energy waste requires energy usage data collection, baseline analysis, and energy efficiency engineering capability
- Behavior
  - Customers have to focus on core competencies therefore energy efficiency is rarely a priority
  - “If it isn't broke, don’t fix it” operational mind set

EnergyTrust of Oregon

Persistence Strategies

- Compressed Air O&M
  - Permanent installation of Flow Meters
  - Training & Usage of Ultra Sonic Leak Detector
  - Changes to operation and maintenance procedures to identify, tag, and repair leaks
- Other O&M
  - Signage that clearly notes correct set-points
  - Permanent programming of set-points when possible
  - Changes to operation and maintenance procedures

EnergyTrust of Oregon

Original Date:
Revision Period:
Prepared By: Tom Moore
Approved by:
Revision No.

STANDARD OPERATING PROCEDURE

Air leak detection

Objective

To establish a safe working environment and understand the proper lockout/Tagout procedures for the

Introduction

The steps in this procedure will ensure the safe and proper way to Lock Out and Tag out

Safety

Standard PPE required:
Hard Hat
Safety Glasses
Hearing Protection
Gloves
Leather Boots covering ankle
Goggles required if grinding

Procedure

Normal Standard Lock Out procedure will be as follows

1. **Compressor # 2 and # 3 will be shut down on nights and weekends when possible**
2. **Air leak detection will be completed by plant personnel every quarter Reports will be completed and turned into maintenance superintendent by the last day of the working day of the quarter.**
3. **Completed reports will be kept on file in the maintenance office**
4. **All leaks identified will be fixed before the end of quarter**
5. **Air dryer will be run in the demand mode when at all possible**
6.
7.
8.
9.
10. **Momentary Stops are not a lock out and will not be used as such**

Revisions

Date:
Author:
Change Initiated by:
Others Affected:
Specific Revisions:

EnergyTrust of Oregon

Example Projects

- Paper Products Operation (Self Direct)
  - Agitator Timer Controls – reduced runtime by 50%
  - 1,722,397 kWh/yr electric savings
  - $300 project cost = $135 incentive (45%)
  - Extreme case - company not aware of opportunity
- Mechanical Components Manufacturing
  - Chilled Water Set Point Changes
  - 697,673 kWh/yr electric savings
  - $16,372 project cost = $14,735 incentive (90%)
  - Typical case – system works, why change it

EnergyTrust of Oregon

O&M success in 2010 = do it again

2011 Potential: 15~25 million kWh/yr

New for 2011 – Natural Gas O&M, unknown potential

- Offer will be available from March 1st to June 30th
- Implementation must be complete by September 30th

NOTES:
1. Offer date is the date that the Energy Trust Industrial Technical Manager signs the offer form
2. Measure implementations that exceed the 90 day deadline will still receive the standard Custom O&M incentive

EnergyTrust of Oregon