

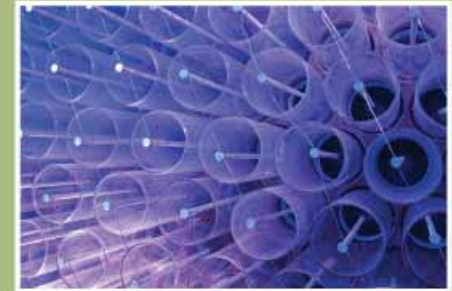


**LONG ISLAND
AMERICAN WATER**

Electrical Cost Savings as a Result of Pumping Equipment Rehabilitation

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Sample Test Case

- **Pump Information**

- Original Pump Design: 1400 GPM @ 95 PSI
 - ◆ 2 MGD Pump Capacity with 125 HP Motor
 - ◆ Pump Design Efficiency = 82%
 - ◆ Motor Design Efficiency = 90%
 - ◆ Pump Runs for 6000 Hours/Year

- **Objective**

- Conduct field testing to determine condition of existing pump and demonstrate cost savings after repairs as a result of electrical demand reduction.



Annual Operating Cost Calculation

- **Field Test Results**

- Pump only produces 1247 GPM @ required 95 PSI
- Uses 592,800 KWH/Yr. (Field measured 98.8 KW x 6000 Hrs.)
- Actual Pump Eff. Calculated to be 74.8% vs. 82%
- **Annual cost to run the pump in current condition = \$95,000/Yr.**
(\$0.16 KW x 592,800 KW/Yr.) = \$95,000



Upgrade Analysis

- **New Pump (83% Eff.) and New Motor (94% Eff.)**
 - Operational hours reduced from 6000 Hrs. to 5344 Hrs.
 - KWH consumption reduced from 592,800 KWH/Yr. to 478,716 KWH/Yr.
 - Revised annual operating cost reduced to \$76,000 vs. \$95,000 original cost
 - **Upgrade results in \$18,400/Yr. operating cost savings**



Summary

- **Justification for Capital Expenditures**
 - Additional operating cost over next 5 years = \$92,000
 - Cost for labor and materials for new pump and motor = \$28,000
 - Payback period for repair and upgrade = 1.5 years
 - **Total savings over next 5 years = \$64,000**



Additional Opportunities

- **In Conjunction with Pump and Motor Upgrades**
 - Well Rehabilitation
 - Rebate Programs
 - DSIC
 - Solar
 - Load Curtailment Program



Load Curtailment Programs

- **Facilities Identified and Enrolled in Program**
 - Company given minimum 8 hours notice to switch to standby power (on-site generators)
 - Participants receive \$0.41/KWH
- **Sample:**
 - 2 wells, each with 125 HP motors, load shed 8 hrs.
 - Electrical cost savings = 1433 KWH x \$.16/KWH = \$230
 - Fuel cost = 22 GPH x \$1.69 gal. = \$35
 - Net savings = \$195 + \$.41/KWH x 1433 KWH
 - **Total savings to shed 8 hours = \$782**