ENERGY DESIGN REVIEW FOR A NEW WATER TREATMENT FACILITY

Background

An energy analysis was performed on the planned construction of a new arsenic removal water treatment facility to be located in California's San Joaquin Valley. This energy analysis is based on the major equipment that will be utilized in the arsenic removal treatment plant, including various types of pumps. The capacity of the treatment plant is expected to be 18 million gallons per day.

Potential Energy Savings

The energy efficiency measures recommended could save an estimated 1,008,778 kWh of electrical energy per year and reduce the facility's demand by approximately 116 kW. Based on an assumed average cost of electricity of $0.11/kWh, this translates into an annual electrical cost savings of $110,966 per year. The total incremental cost of the measures recommended in this project was estimated to be $334,054.

The utility offers incentives for these energy efficiency measures, based on the energy consumption of installed equipment and construction relative to a baseline design. The incentive for all of the recommended measures in this project was estimated to be $100,877, but there is an incentive cap of $75,000. The total incremental cost after the incentives is estimated to be $259,054, resulting in an average simple payback period of 2.3 years.

SUMMARY OF ENERGY EFFICIENCY MEASURE SAVINGS AND INCENTIVES

Energy Efficiency Measure	**Energy Savings** (kWh/yr)	**Demand Reduction** (kW)	**Energy Cost Savings** ($/yr)	**Incremental Cost** ($)	**Potential Incentive for Measures** ($)	**Payback Period with Incentive** (yrs)
1. Premium Efficiency Motors	60,824 kWh/yr	7.54 kW	$6,691/yr	$18,131	$6,082	1.8
2. High Efficiency Pumps	219,653 kWh/yr	25.29 kW	$24,162/yr	$45,500	$21,965	1.0
3. Control the Pumping Flow with Variable Frequency Drives	728,301 kWh/yr	83.14 kW	$80,113/yr	$270,423	$72,830	2.5
Totals	**1,008,778 kWh/yr**	**115.97 kW**	**$110,966/ yr**	**$334,054**	**$75,000***	**2.3**

* Utility incentives are capped at $75,000.