Energy Savings and Carbon Footprint Reduction via Pump Stations and Blowers Optimization and Automation

Goals of Optimization Service

Provide recommendations for the most energy efficient start/stop schedule for each pump/blower with and without variable frequency drives (VFD)

Provide recommendations for the most energy efficient correlation between pump/blower station flow and speed of each pump/blower equipped with VFD

Provide algorithms for pump/blower automation based on optimization recommendations and reliability rules

Help design engineers select the most energy efficient combination of pumps and blowers for the entire range of flows

Help evaluate cost-efficiency of VFD

Ekster and Associates

Dr.Alex Ekster, a recipient of WEF Philip Morgan medal and numerous research awards, wrote dozens of papers and authored several WEF manual of practices describing **significant improvements in process performance and reduced consumption of energy and chemicals** that he achieved all over the world by optimizing and automating WWTP processes. His experience includes 20 years of consulting and 10 years of day-to-day support of operation at the San Jose/Santa Clara WPCP.

Recently, using California Energy Commission financial support, Ekster and Associates Inc. has captured this expertise in software that can be integrated with any SCADA system.

Results

Optimization of start/stop schedule at just one pump station saved more than $50,000 in energy bills (30% reduction) and considerably reduced carbon footprint of that facility

How it works

Inputs for optimization

• Range of pump/blower station flow

• Range of pressure

• Cost of electricity

• Cost of peak demand charges

• Daily maximum number of pump/blower starts

• Electricity usage for each operating pump/blower (if available)

Methods utilized

• Multivariate non-linear correlations

• Non-linear GRG optimization algorithm

• Genetic optimization algorithm

For more information please call Ekster and Associates at (510)657-7066 or e-mail at info@srtcontrol.com