



**GREATER LAWRENCE
SANITARY DISTRICT
ENERGY EFFICIENCY
PROGRAM**

SCOPE OF ENERGY AUDIT

- GLSD had a Comprehensive Energy Audit performed
- Audit Identified:
 - Energy Use and Cost Components
 - Develop Cost Effective Energy Savings Recommendations including:
 - GLSD Operational Measures
 - 5 Low Cost Operational Measures Identified
 - GLSD Energy Conservation Measures
 - 18 Conservation Measures Identified
 - GLSD Energy Supply Measures
 - 2 Supply Measures Identified

GLSD ENERGY EVALUATION AUDIT

ESTIMATED SAVINGS

- Electricity
 - kWh Savings ⁽¹⁾ : 4,537,062
 - kW Savings ⁽²⁾ : 550
 - Electric Cost Savings: \$ 636,963
- Natural Gas
 - MMBtu Saved: 28,150
 - Natural Gas Savings ⁽³⁾: \$ 349,624
- Reduced Emissions
 - Carbon Dioxide 2035 Tons
 - Methane 349 lbs.
 - Nitrous Oxides 73 lbs.

(1) Based on \$0.1343/kWh;

(2) Based on \$4.74/kW

(3) Based on \$12.42/MMBtu

GLSD ENERGY CONSERVATION CONSTRUCTION PROJECTS, PHASE 1

- Install 23 VFD's to replace Eddy Current Clutches
(ECC – Adjust speed using a magnetic clutch to transmit torque)
- Install 19 Premium Efficiency Motors
- WWTP Admin. Building EMS & HVAC Improvements
- Pump Station HVAC Improvements with installation of VFD, Premium Efficiency Motor and Control System Upgrade
- Install KW Meters to Track Energy Usage on Each System
- Fine Bubble Aeration System - Motorized Air Valve Upgrade
- New Energy Efficiency Steam Boilers w/Dual Fuel Burners (NG & DG)
- Lighting System Improvements
- Installation of Photovoltaic System

PHASE 1 PROJECT SUMMARY

FUNDING:

- Stimulus Funding Grant (ARRA Buy America)
 - Energy Savings Projects \$4,922,384
- Utility Incentives Grant:
 - Electric Utility Incentive: \$568,084
 - Gas Utility Incentive: \$125,000
- **Total Funding:** **\$5,615,468**

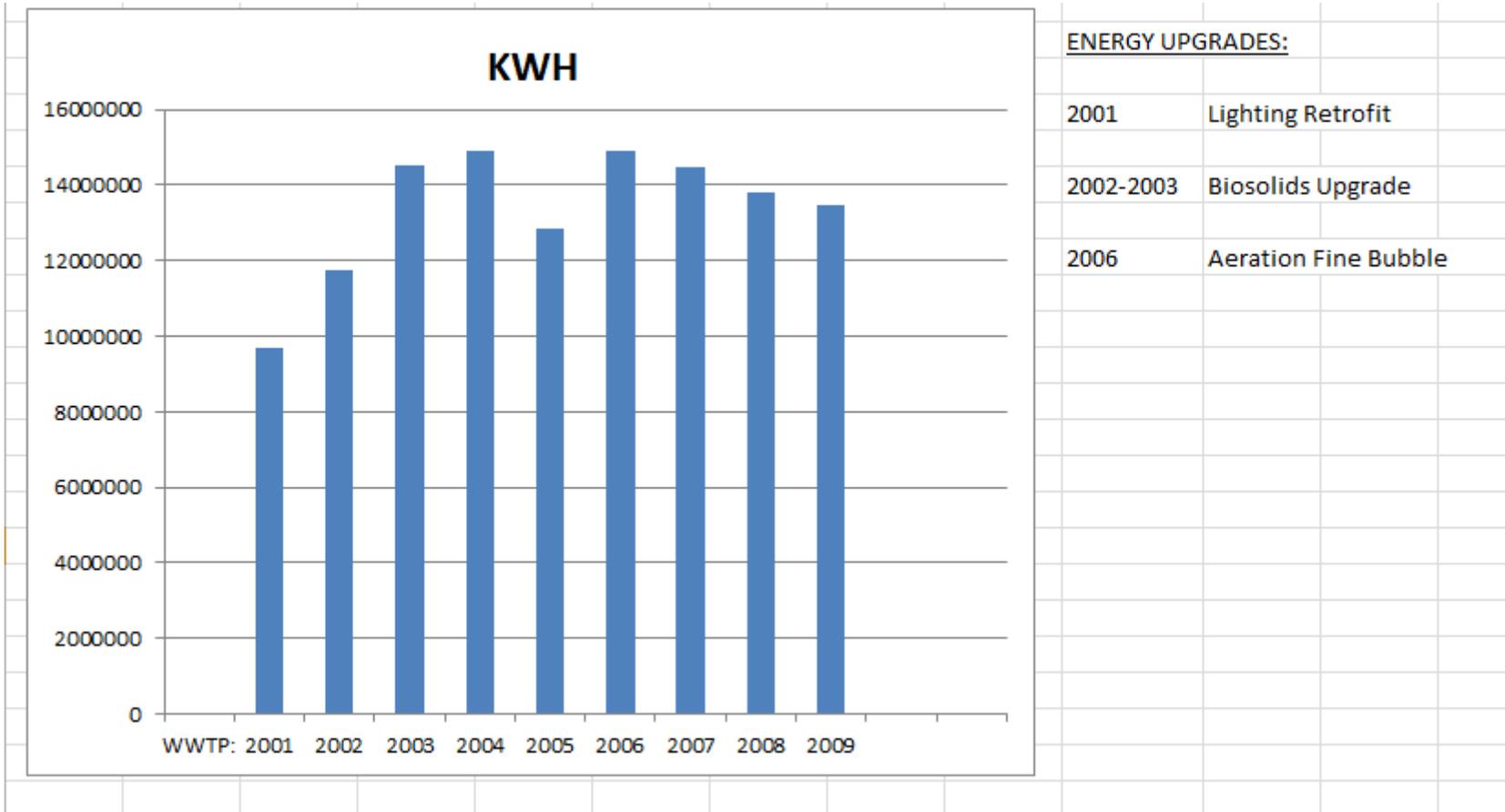
GLSD COSTS:

- Phase 1 Construction Cost: \$4,193,368
- GLSD Design Fees: \$ 460,121
- Admin. Costs, Building Permit Fees, etc. \$ 142,640
- Construction Eng. Services \$ 653,592
- Estimated Contingency Items Remaining \$ 120,000
- **Total GLSD Cost to Date:** **\$5,569,721**

- **GLSD Share of Cost** **\$ 0**

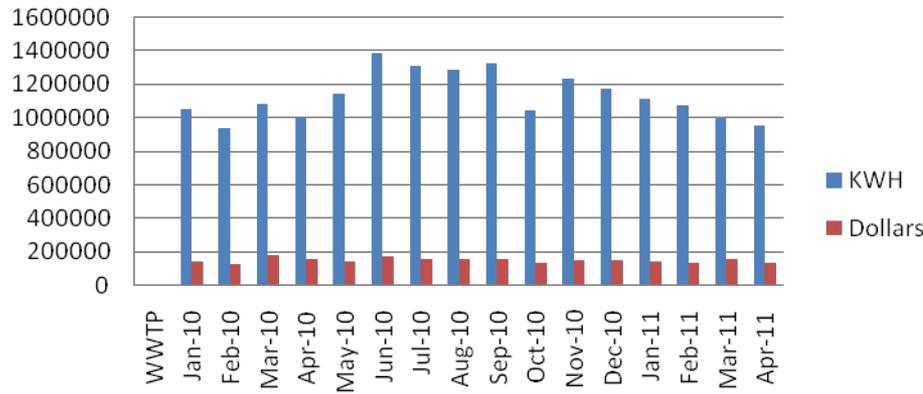
- Average Simple Payback (with no Stimulus or Utility Grants) 2.9 Years
- Average Simple Payback (with no Stimulus Grant) 1.2 Years

GLSD HISTORICAL ENERGY USE



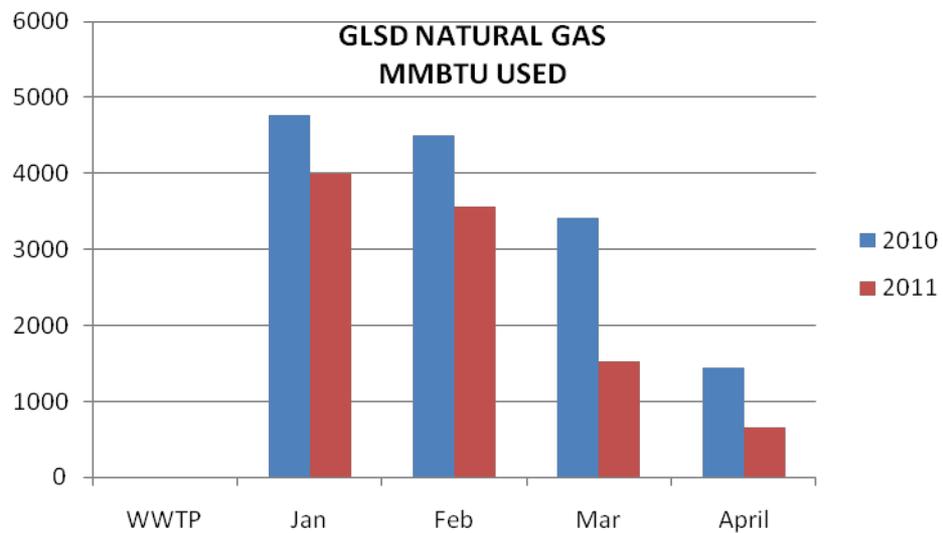
GREATER LAWRENCE SANITARY DISTRICT

WWTP ELECTRICAL POWER USAGE



ENERGY UPGRADES:

- Oct-10 Energy Efficiency Project Complete
Lighting System Upgrade Complete
- Mar-11 Photovoltaic System On-Line





Close

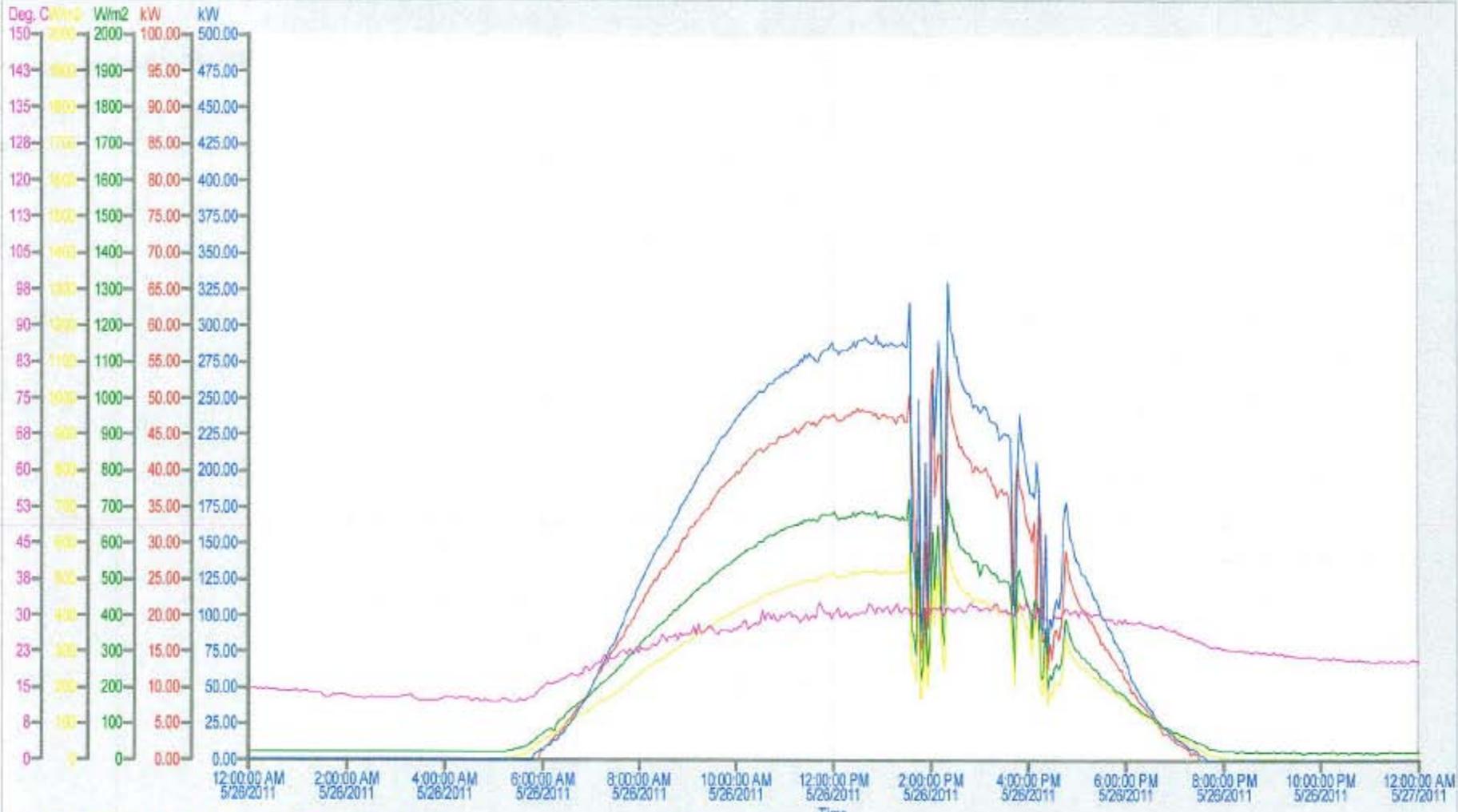
Login

Solar Arrays 24-Hour

Alarm Enables and Setpoints

Alarms

10:36:41 AM
6/28/2011



Hst.SCAIDA07.SCP3SOLARR1KW.F_C	SOP3 SOLAR ARRAY 1 KW	285.75	KW
Hst.SCAIDA07.DCP3SOLARR2KW.F_CV	DCP SOLAR ARRAY 2 KW	47.98	KW
Hst.SCAIDA07.SCP3SOLARR1IRR.F_	SOP3 SOLAR ARRAY IRRADIANCE	685	W/m2
Hst.SCAIDA07.SCP3SOLARR1TEMP.F_C	SOP3 AMBIENT TEMPERATURE	30	°C
Hst.SCAIDA07.SCP3SOLARR1TEMP.F_			

Navigation controls: 50% of Chart Width Back, 25% of Chart Width Back, 25% of Chart Width Fwd., 50% of Chart Width Fwd.

Left click mouse and drag rectangle to zoom in. Right click anywhere on chart to reset to original. Double left click anywhere on chart to modify parameters.