



# San Leandro Unified School District

## Energy Conservation Program Board Update

June 2012 to September 2013 (16 Months)

Presented by Pauline Cutter

December 17, 2013

### Program Goals ...

- Maintain Comfort
- Eliminate Waste
- Save Money
- Create a Sustainable Culture of Conservation

# Key Accomplishments to Date

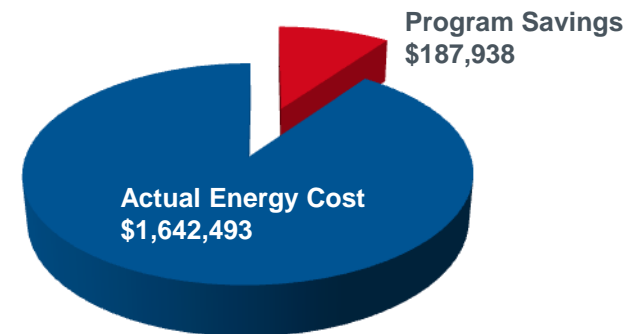
- **SLUSD Board of Education embraced concept of energy conservation / management adopting a policy and set of district-wide guidelines**
- **Energy Specialist (Pauline) ...**
  - ✓ Partnered with District HVAC staff to input energy efficient set points on EMS system districtwide
  - ✓ Completed 673 site audits
  - ✓ Managed 5 shutdowns to date - 60% of classrooms now participating
  - ✓ Ordered 100 new T-Stats with 'push to start' feature
  - ✓ Identified PG&E billing error charging a monthly Utility Use Tax of up to \$3,000 per month – will also result in a credit of \$52,216 not yet calculated into our savings



# Total Savings

June 2012 thru September 2013

Expected Energy Costs	\$1,830,431
Actual Energy Cost	\$1,642,493
<hr/>	
Program Savings	\$187,938
Savings Percent	10.27%
<hr/>	
Special Savings	\$1,976
Total Savings	\$189,914



## Expected Energy Costs

Amount you would have spent on energy without energy management program.

This is the base year usage adjusted for changes in weather, equipment, schedules, occupancy and prices

## Actual Energy Costs

Actual utility costs for electricity, gas, water, sewer, etc. obtained directly from bills.

## Program Savings

The difference between Expected and Actual Costs, calculated in accordance with the International Performance Measurement & Verification Protocol. ~~Does not include savings attributable to reduced equipment maintenance, replacement costs and other collateral benefits.~~ These savings can increase the program savings up to 20%.

## Special Savings

Additional documented savings attributable to Program activities but not the direct result of usage reductions, such as rebates, refunds, tariff changes, etc.

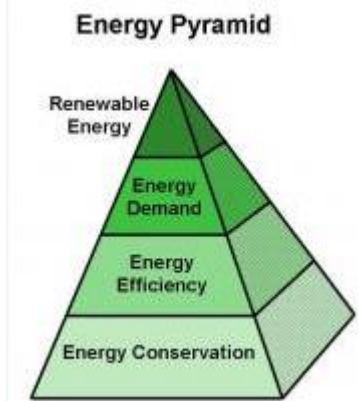
## Cumulative Greenhouse Gas Reduction

- 454 equivalent metric tons of CO<sub>2</sub>, or
- 81 cars not driven for one year, or
- 11,603 tree seedlings grown for 10 years.

# Energy Conservation & Solar-Generated Electricity

- **Dennis Buffington, Penn State Agricultural & Biological Science Professor urges organizations consider the Energy Pyramid ...**

*“When the energy pyramid is built with energy conservation as the base, followed by energy efficiency and energy demand – capped off with renewable energy, then we will be saving energy and saving money.”*



- **Energy conservation views solar-generated electricity as another source of electricity while striving to reduce the organizations overall energy use.**
- **Energy conservation enhances your solar investment by ...**
  - ✓ Helping to meet or beat the Solar Sizing 80/90 Ratio (80% solar electricity 90% of the year)
  - ✓ Minimizing “non-green” electricity use during non-solar (night) & limited-solar time periods
  - ✓ Maximizing solar “spinback“ during unoccupied times, more quickly decreasing amount owed PG&E
- **Having an energy specialist allows ...**
  - ✓ Monitoring of PG&E net-metering to ensure proper credit received
  - ✓ Active tracking & verification of solar production, inc'l predicted production

# Savings by Energy Type

June 2012 thru September 2013

Commodity	Expected \$	Actual \$	Avoided \$	Avoided %
Electricity	\$1,317,413	\$1,185,977	\$131,436	10%
Natural Gas	\$155,008	\$111,537	\$43,471	28%
Water & Sewer	\$310,079	\$301,931	\$8,148	3%
Irrigation	\$47,931	\$43,048	\$4,883	10%
<b>Total</b>	<b>\$1,830,431</b>	<b>\$1,642,493</b>	<b>\$187,938</b>	<b>10%</b>

- Comprehensive, extensive site shutdowns are key to achieving savings targets – Summer 2013 (June – August) produced \$85,500 or 45% of our total savings.
- Electricity is our largest commodity and therefore warrants the greatest effort.
- Water & Sewer and Irrigation represents our next challenge.



# Progress

- Cenergistic's projections for our savings at this point was \$329,000
  - Our savings to date is \$187,938 or 57% of that projection
  - The cost of our program to date is \$206,650 or \$18,712 more than our savings
  - We will be discussing our contract guarantee with Cenergistic
- SLUSD's EUI (Energy Use Intensity) is currently 28.4 kBtu/sq. ft.
  - That is down 24% compared to our base year EUI of 37.6 kBtu/sq. ft.

District	Perf Mos	Total Savings %	Total Sq. Ft.	EUI (kBtu / Sq. Ft.)		
				Base Year	Last Perf. Year	% Change
San Lorenzo USD	102	21%	1,185,895	31.1	25.1	-19%
Dublin USD	67	33%	971,046	44.9	25.6	-43%
Cupertino SD	95	25%	1,553,804	33.9	25.9	-24%
<b>San Leandro USD</b>	<b>16</b>	<b>10%</b>	<b>1,001,506</b>	<b>37.6</b>	<b>28.4</b>	<b>-24%</b>
Turlock USD	51	26%	1,347,457	43.0	33.6	-22%
Ceres USD	68	36%	1,178,367	59.1	35.2	-41%
Sunnyvale SD	46	16%	664,261	37.8	37.0	-2%

- We need to have all district personnel, from top to bottom, to get behind this program to make it successful

# Plans

- **Communicate progress and opportunities to principals**
- **Install new ‘Push to Start’ thermostats and evaluate their effectiveness. If desired results obtained, buy and install next tier.**
- **Monitoring HVAC use & new exterior lighting**
- **Focus on water use / conservation – Work with Maintenance to complete water audits at facilities.**
- **Continue to ...**
  - ✓ Communicate and educate about the Energy Conservation Program. Find creative ways to **engage staff’s participation**
  - ✓ Audit sites regularly, during all hours of the day & night and execute effective, extended shutdowns
  - ✓ Review & analyze utility bills – Drill down into sites performing below average
- ✓ **Create Energy Usage instruction manuals for rental units (i.e. Pacific Fields Complex, pools, gyms)**