



An Energy Efficiency Workshop & Exposition
Palm Springs, California

Please be courteous to our speakers



**Turn off all cell phones
and
Set pagers to vibrate**



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Palm Springs, California

EDUCATIONAL FACILITIES

**THE ROAD FROM OBSTACLES
TO IMPROVEMENTS**



*If Energy Efficiency Projects are so great –
what's preventing them from happening?*

- Lack of funding
- Other modernization efforts take priority
- Facility management and operations are up to their ears in other projects and priorities
- Design – Bid – Build process is lengthy, risky and often yields poor quality work

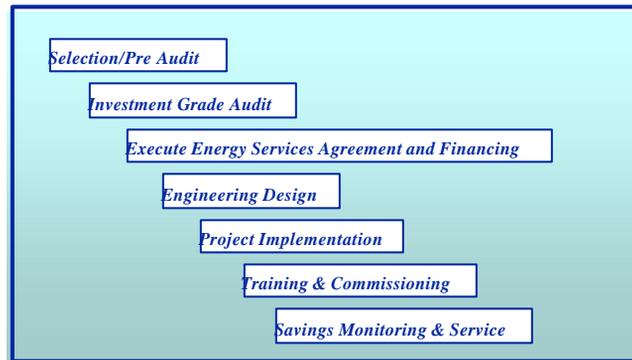


*Energy Saving Performance Contracting
Offers a Solution*

- | | |
|--|---|
| □ Lack of funding | □ Projects are self funding |
| □ Other modernization efforts take priority | □ Projects should complement & enhance modernization |
| □ Facility management and operations are up to their ears in other projects and priorities | □ A skilled performance contractor serves as an extension of facility staff |
| □ Design – Bid – Build process is lengthy, risky and often yields poor quality work | □ Design -build solution, focused on quality with guaranteed performance |



Performance Contracting Implementation Process



California Community Colleges which have successfully used Performance Contracting

1. Foothill-DeAnza Community College District
2. Los Angeles Community College District
3. Chabot – Las Positas Community College District
4. San Mateo County Community College District
5. State Center Community College District
6. Solano Community College District
7. Southwestern Community College
8. Grossmont College
9. Mount San Antonio College
10. Kern Community College District
11. Santa Barbara City College



Common Energy Retrofits in Community Colleges

- New or Improved Central Plants with Variable Speed Chillers, Primary/Secondary Conversions, New Boilers, Variable Speed Pumping
- Conversion of CV to VAV Systems With VFD's
- Addition of Cooling to Existing Buildings
- New Energy Efficient Motors
- Energy Management Systems with DDC Controls
- New/Retrofitted Lighting with New Ceilings
- Cogeneration and Renewable Power Systems
- Power Monitoring And Load Shedding Strategies

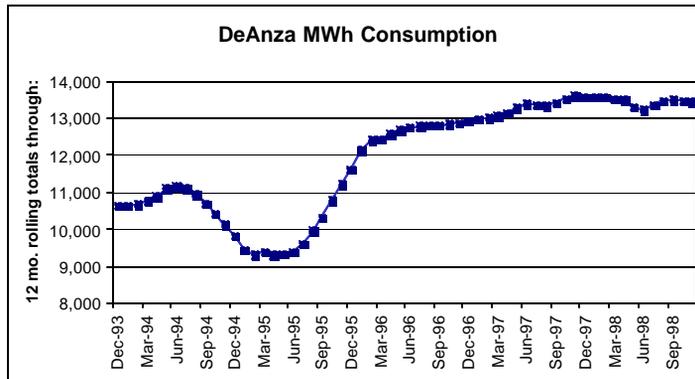


Implementation Problems in Community Colleges

- CC Boards more attuned to education
- Unionization makes outsourcing difficult
- "Shared Governance" clouds issues
- Access and Scheduling difficulties
- Campus and District have differing concerns
- Occupants and Facilities have differing concerns
- Maintenance has inherent difficulties



Importance of Maintenance



Foothill-DeAnza Community Colleges (FHDA)

- Located near San Jose
- Serves 42,500 students on two campuses
- 1,150,205 sq.ft. built in 1962-67





Foothill-DeAnza Community Colleges (FHDA)

- \$8.5 million CMS Viron project completed in 2000
- Extensive HVAC & lighting project
- One of first Utility Vision customers
- Energy Awareness Program implemented during Monitoring phase.



FHDA Energy Awareness Program

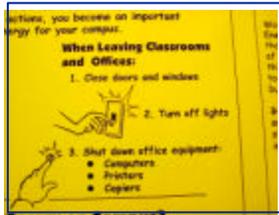
- Customized program for FHDA
- Facilitated collaborative program design process
- Hired and trained student interns
- Developed customized educational materials
- Interns monitored energy use, open doors, lights and computers "on"



FHDA Energy Awareness Program

Customized Materials

- Addressed targeted behaviors
- Intern participation in development



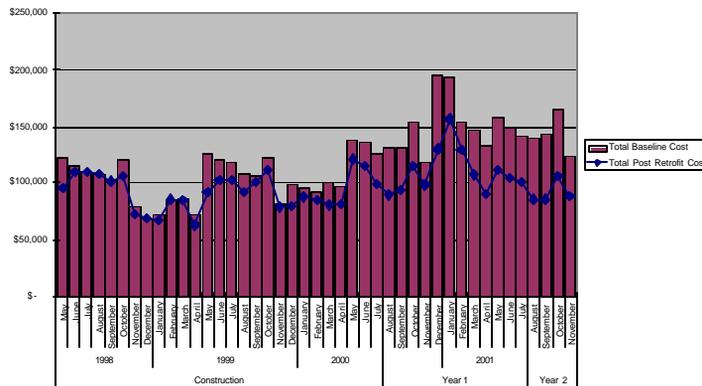
Energy Monitoring

- Daily inspections of facilities
- Data-informed decisions about energy management on campus



DeAnza Energy Reduction

De Anza Campus Savings w/ Actual Rates





Distributed Generation & EMS

Santa Rita Jail Facility in Dublin, California

Central Plant Efficiency &
Controls Upgrades



Solar Photovoltaic (PV)
915 KW AC output



Solar Power Peak Reduction





Cogen Energy Reduction

