



Special REGULAR Energy Edition

THE NEWSLETTER OF THE COALITION FOR ADEQUATE SCHOOL HOUSING

C.A.S.H. Forms Energy Network

The rapid rise of energy costs has had a negative impact on school district budgets all across the state, but unlike commercial entities, schools are not able to pass their increased energy costs on to their customers. In response to the concerns of its members, the C.A.S.H. Board of Directors has created the C.A.S.H. Energy Network to identify problems and develop solutions to the impact of the energy crisis on schools.

The C.A.S.H. Energy Network is chaired by Ted Rozzi (Corona-Norco USD), and includes Dwayne Brooks (CDE), Eric Hall (San Dieguito Un-

HSD), Dennis Dunston (HMC Group), Gary Mekeel (Burton SD), John Palmer (San Juan USD), Bill Kriz and Galeen Gibbons (Building Systems Management), Jeff Baratta (Stone & Youngberg, LLC), Rob Williams (Franklin-McKinnley Elem. SD), and Ron Bennett (School Services of California). In addition, the C.A.S.H. Energy Network regularly works with representatives of statewide educational organizations and individual school districts on issues of mutual interest.

The following is a brief summary of some of the activities the C.A.S.H. Energy Network has initiated:

- Provided testimony before the Public Utilities Commission in support of a change in rate structure which would benefit schools
- Organized support for proposed amendments to federal legislation intended to provide assistance for rising energy rates
- Provided input on State budget proposals and legislation related to schools and energy
- Conducted survey to determine the actual impact of rising energy prices on school district budget
- Conducted a series of workshops designed to assist schools address the challenges related to the rise in energy prices
- Planning a strand dedicated to energy issues for the 2001-2002 C.A.S.H. Annual Conference

For more information, please contact Ted Rozzi at 909.736.5047 or Ian Padilla at 916.441.3300. ☐

Ted Rozzi is the Director of Facilities at Corona Norco USD, and a member of the C.A.S.H. Board of Directors.

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Message from the Chair



In this special issue of the *CASH Register* are discussions of the many energy issues that California schools face. On April 6 of this year the C.A.S.H. Board appointed Board Member Ted Rozzi to Chair a C.A.S.H. Energy Network that is working to craft solutions to the current energy crisis as it affects public schools. I personally want to thank Ted, Ian Padilla, the C.A.S.H. lobbyist staffing the Energy Network, and the many C.A.S.H. members who are working diligently on this issue.

Following is C.A.S.H.'s letter to the Honorable Henry Waxman of the United State House of Representatives supporting his proposed price caps

amendment to the energy legislation considered in the House Commerce Committee on May 24. This letter gives a flavor of the energy positions the C.A.S.H. organization is supporting at both the state and federal level.

The Honorable Henry Waxman
United State House of Representatives
2204 Rayburn House Office Building
Washington, DC 20515

Dear Representative Waxman:

The Coalition for Adequate School Housing (C.A.S.H.) represents California school districts and businesses on issues regarding school facilities. California schools are facing significant costs from increased energy requirements. Unlike private businesses, schools cannot pass the energy cost increases on to its customers, the children and parents in California communities.

Over 60-70% of the schools in California were designed 30 years ago or longer and cannot be quickly modified to conserve energy. The only way to reduce energy costs and consumption is to create an almost unbearable learning environment. The schools in Imperial County, the deserts of San Bernardino, and the Sierra Nevada mountains all have or will have signifi-


cant increases in energy costs for heating and/or cooling necessary for their climate. The current manipulated energy market is forcing these districts to have to choose between a comfortable learning environment and instructional materials.

C.A.S.H. is writing to support your proposed amendments for the energy legislation being marked up in the House Commerce Committee tomorrow.

C.A.S.H. will be working to include provisions for energy efficient construction and refurbishing in the next California State school bond. These provisions, however, will take at least 18 months to accomplish because they cannot be voted upon until March 2002 at the earliest and probably not until November 2002. We need relief now to give schools time to implement effective energy conservation and efficiency programs.

Thank you for proposing your amendment.

Sincerely,

Kathleen Moore Baratta, Chair
Coalition for Adequate School
Housing 

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The CASH Register is published eleven times a year (January through November) by the Coalition for Adequate School Housing (C.A.S.H.) and distributed to C.A.S.H. members. Over 1,000 rapidly growing school districts, county offices of education, architects, attorneys, bond counsel, financial institutions, developers, contractors, consultants, inspectors, licensed professionals, manufacturers of portable classrooms, maintenance suppliers and others who are concerned about school construction issues hold C.A.S.H. memberships.

The CASH Register solicits articles on school facility-related topics from the membership. If you are interested in submitting an article, please send it or a letter of inquiry to: Editor, CASH Register editorial office, 1130 K Street - Suite 210, Sacramento, CA 95814. Sorry, we are unable to return or acknowledge unpublished manuscripts. The views expressed herein are those of the authors and not necessarily those of the Coalition for Adequate School Housing, its board, staff or general membership.

C.A.S.H. Letter to the PUC

May 8, 2001

Loretta Lynch, President
Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

Dear President Lynch:

On behalf of statewide education organizations and individual school districts, the Coalition for Adequate School Housing (C.A.S.H.) is requesting that the Public Utilities Commission (PUC) consider modifying its peak demand policies on behalf of schools. For reference, this letter is a follow up to the State Superintendent of Public Instruction's April 9, 2001 letter (attached) offering to work with the PUC on developing specifics of a separate ratepayer category for schools.

As you know, the recent rise in utility rates has created hardship for school districts in California. Specifically, many school districts have already seen utility bills, which exceed their budget projections by 100% or more, and anticipate further increases in the future. Unlike commercial entities, however, schools perform essential public services and do not have the ability to pass their utility bill increases on to their consumers.

To address this critical problem, we request that the Public Utilities Commission consider two changes in its policies dealing with peak demand for schools:

1. *Southern California:* change peak demand to the second Sunday in June through the second Sunday in September (currently the first Sunday in June through the first Sunday in October)
Northern California: change peak demand to June 1 through September 30 (currently May 1 through October 31)
2. Change time of peak demand to 3:00 p.m.– 6:00 p.m. (currently 12:00 noon – 6:00 p.m.)

Finally, school districts are committed to doing their part to meet the Governor's energy saving goals. We believe that favorable consideration of our proposal would provide significant relief to school districts, and so improve the ability of school districts to maintain the educational reform mandates established by the Governor and the Legislature over the past few years.

Thank you for your consideration of this proposal.

Sincerely,

Kathleen Moore-Baratta, Chair
Coalition for Adequate School Housing

KMB/IP/rd

Attachment: State Superintendent of Public Instruction's April 9, 2001 letter

cc:	The Honorable Kerry Mazzoni Governor's Secretary for Education	The Honorable Virginia Strom-Marrin Chair, Assembly Education Committee
	The Honorable Delaine Eastin State Superintendent of Public Instruction	The Honorable Debra Bowen Chair, Senate Energy, Utilities and Communications Committee
	The Honorable John Vasconcellos Chair, Senate Education Committee	The Honorable Rod Wright Chair, Assembly Energy Costs and Availability Committee


California Energy Commission: Low-Interest Loan Program for Energy Efficiency Projects

By Ian Padilla

To address the rapid increase in energy costs, the Legislature approved and the Governor signed SB 5X and AB 29X. Under this legislation, school districts can benefit from the Low-Interest Loan Program that makes \$48 million available in 3 percent interest loans for retrofit of energy saving equipment. There is no match requirement, but the loans must be paid back within 11 years from energy savings.

The applications for the low-interest loans are being accepted on a first-come first-serve basis. Please note that the program is open to cities, counties, special districts, public and non-profit schools, public care institutions, and hospitals so it is advisable to get applications in as quickly as possible. The following types of retrofits are eligible for funding under this program:

- Lighting
- Motors and pumps
- Heating and air conditioning
- Automated energy management systems
- Co-Generation equipment
- Light emitting diode traffic signal modules
- Renewable energy systems
- Thermal energy storage systems
- Energy audits/feasibility studies

For applications and more detailed information, please log onto the California Energy Commission website at <http://www.energy.ca.gov/peakload/index.html>. Time is of the essence. 

Ian Padilla is Legislative Advocate for Muirdoch, Walrath & Holmes.

Financing Resources

The US Department of Energy's Federal Energy Management program (FEMP) has a screening test to help you decide whether Energy Service Performance contracting (ESPC) is right for your needs:

- <http://www.eren.doe.gov/femp/financing/screen.html>

The State of California has a Notice of Availability for Loans for Energy Efficiency Projects at:

- <http://www.energy.ca.gov/efficiency/financing/index.html>

The State of California also has a list of companies financing solar energy systems at:

- http://38.144.192.166/greengrid/solar_financing.html

The State of California has a 60-page Guide on "How to Finance Public Sector Energy Efficiency Projects" which you can download at:

- http://www.energy.ca.gov/reports/1999-12_400-99-020.html

Partial List of Resources for Schools in Energy Efficiency

PG&E

Smarter Energy Line:
1-800-469-4743

Can answer numerous technical questions, as well as question regarding PG&E programs.

DOE

Hotline: 1-800-DOE-EREC

Has a tremendous amount of written resources on almost any energy efficiency subject. You can order more Energy Smart School packages here.

www.rebuild.org

Information on the Energy Smart School program, schools case studies, and Rebuild resources.

CEC

Contact: Judy Brewster,
916-654-4053.

Program lead for the Bright Schools Program.

Green Schools Program

www.alliance.org

Good information on learning activities for schools.

EPA Energy Star

www.energystar.gov

1-888-STAR-YES

Order a copy of the Purchasing Toolkit by calling this number. You can also look into Energy Star products, and various Energy Star programs on their website or by calling the number.

Energy Market Structures and Issues

By Michael Rochman

Energy market issues affect school districts in various ways.

Energy consumption is typically the second largest variable cost (after employee costs) in a district's annual budget. Expectations about future prices determine which energy efficiency projects are worth the investment and which are not. Also, California's energy "crisis" threatens to divert state government resources away from school funding and to erode our state's economic and tax base.

To deal with the risks presented by energy markets, school administrators must have a basic understanding of how those markets work.

Natural Gas Market

From the perspective of a school district or other typical energy end-user

in California, natural gas market prices are doubly important.

First, natural gas is our most common heating fuel. Second, natural gas has been the fuel of choice for electricity generation for many years, which makes it a key factor in power pricing. Virtually all new generation sources in California are fueled by natural gas, so the relationship between natural gas and electricity will only become more significant.

The main thing to remember about natural gas prices in California is that price levels are set almost entirely by the volatile wholesale market. This is true whether you purchase natural gas from a regulated utility corporation (such as Pacific Gas & Electric Company or Southern California Gas Company), from a self-aggregated cooperative (such

as SPURR or the Association of Bay Area Governments), or from an energy marketer (such as TXU or Enron).

Contrary to popular belief, *there is no regulated natural gas commodity pricing for natural gas*. The California Public Utilities Commission has established rates that regulated utilities can charge for energy deliveries to consumer facilities; but these charges apply without regard to the source, or price, of the natural gas itself.

Also, the CPUC has created incentive mechanisms for sales of natural gas by regulated utilities to residential and small commercial customers, called "bundled" customers. Oddly enough, these mechanisms tend to push the regulated utilities to match monthly market prices, even though many consumers might prefer more stable, predictable prices.

Wholesale energy markets consist of energy traders buying and selling large blocks of "physical" energy for immediate delivery or for future delivery, as well as trading pipeline space to move supplies from one place to another. Traders also deal in "financial" instruments, such as options and other hedging devices, to build a portfolio that fits their needs.

For an end-user, the ultimate price of natural gas will depend on the choices your retail supplier has made in participating in these complicated and sometimes chaotic wholesale markets. To oversimplify a bit, if your supplier has locked in long-term supply contracts on your behalf, then you will have stable, predictable prices. If your supplier stays with market-based arrangements (as the utilities tend to do), then your price will go up or down with current market conditions.

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Energy Market Structures and Issues

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If you are a bundled utility customer, then you have no input into the purchasing process. The utility makes choices and comes up with a one-size-fits all purchasing portfolio. If you are supplied by a non-utility provider, then you can have input either through contractual arrangements or through representative oversight (as in a co-op).

Your preference in a supplier will depend on the risks you want to manage. Do you want to match current market prices or do you want to assure you will stay within your energy budget? Do you want to know prices before you consume the energy or after? Do you want to influence purchasing decisions or take them as a given from your supplier?

SPURR's role as price risk manager and supplier, for example, is to give our pool participants as much input into the process, and as much knowledge and certainty about prices, as possible.

Electricity Market

If we had a truly deregulated electricity market in California, then electricity market issues would parallel almost exactly the issues discussed above related to natural gas. But we do not have deregulation in this state, again contrary to popular belief.

Effective in 1998, AB 1890 allegedly "deregulated" the power industry by allowing non-regulated companies to own generation facilities in the state. But the plan set up in AB 1890 also overlaid innumerable regulations that prevented true market structures from flourishing.

The two most infamous requirements were (1) a freeze on retail power commodity rates, and (2) a rule that the utilities must buy all of their power for re-sale to their bundled customers from a single, incredibly volatile market, the California Power Exchange.

The retail rate freeze drove PG&E and Southern California Edison to the

brink of financial ruin, since they both were required to sell power at a fixed rate but had to buy it at much higher, floating Power Exchange prices starting in about May 2000.

The requirement to purchase power from the Power Exchange meant that the utilities had no long-term supply contracts in place to moderate the effect of rising spot-market power prices in 2000. By the time the Power Exchange ceased operations in January 2001, the State of California had stepped in to take over power purchasing from the economically wasted utilities.

**"we do not have
deregulation in this
state, ... contrary
to popular
belief"**

Why spot-market power prices moved upward so radically, and have remained so high, is the subject of more debate than we could possibly cover here. Suffice it to say that a number of factors conspired to increase demand above available supplies, and that those factors probably will continue, in varying degrees, to keep prices relatively high for the next three to four years.

A wholesale electricity market does exist and it does determine prices in the wake of the defunct Power Exchange. But since the current market has so few buyers, so little structure, and such minimal disclosure, we cannot yet evaluate or manage electricity price risks for end-users.

Now, the State (rather than regulated utilities or non-regulated co-ops or marketers as on the natural gas side) serves as our collective power portfolio manager. The Department of Water Resources is purchasing power on our behalf through contracts that will lock

in some portion of prices for many years to come. Since we do not know the terms of these secret DWR contracts, we have no way to assess what future prices based on those contracts will be or how they might affect the market.

We do know that the State will refinance power purchase costs to date and will obtain working capital to buy power under forward contracts through a bond issuance in excess of \$13 billion. A surcharge will be added to end-user power bills for the foreseeable future to repay the bonds.

During January and March 2001, the CPUC approved the first (but likely not the last) set of rate surcharges, at an average of 4.0 cents per kilowatt hour for customers of PG&E and Edison. But since fairly large blocks of retail sales are exempt from the surcharges – residential purchases under 130% of baseline, low-income households, etc. – the non-exempt ratepayers (including schools) will end up paying an average surcharge of about 5.5 cents per kilowatt hour.

California's electricity market at this point is in an unprecedented state of turmoil and transition. Depending on (1) wholesale prices for power this summer, (2) the State's success in issuing bonds and purchasing portions of the high-voltage transmission grid, (3) the financial health of the utilities, (4) the success of statewide conservation efforts, (5) the actions of federal regulatory authorities, and about half a dozen other major factors, California's electricity markets will either return soon to a state approaching normalcy, or not.

The important thing for schools is to try to obtain as much certainty in their power usage and pricing as they can. Obtaining that certainty could be the subject of several additional articles. Stay tuned. 📺

Michael Rochman, SPURR's Managing Director, may be reached by phone at 925-743-1292 or by email at Rochman.M@spur.org.

Energy Conservation – The Basics

By Dennis Dunston

I have been asked to put together a basic primer in energy conservation – a road map to terms and concepts commonly used in energy conservation. Explaining energy conservation is not a problem. For many architects like myself who either went through their professional training or were actively practicing during the energy crisis of the mid 1970's, energy conservation became second nature in the design of all facilities. Explaining the concepts in one short article will be difficult. Fortunately, the basics have not changed a great deal. Unfortunately, after the 70's crisis was over, most of what we learned was no longer a priority for many clients, primarily due to the added cost. As many people learned during the 70's, there is a great deal of savings that can be made with the proper planning and investment in energy conserving measures. Those who invested in these measures in the 70's are probably still reaping the benefits in lower energy and maintenance costs.

Before we get started, I would like to point out one of the most important factors related to energy conservation: **life cycle cost analysis**. There are many elements of conservation that have little impact on the first cost of the facilities and these should be incorporated with no hesitation. However, many techniques will increase first cost. The true cost, or life cycle cost, of these elements must be calculated and viewed in conjunction with the first cost. Life cycle costing evaluates the expected life of equipment or systems, the maintenance costs during the life, replacement cost, and energy costs over the lifetime of the systems in conjunction with first cost. In many cases, a small increase in

the first cost can achieve significant savings over the life of the system. Through C.A.S.H.'s Energy Network we are currently working on proposals to increase the funding in the next bond measure for additional first cost which can demonstrate lower life cycle cost. Many may recall a similar program as a part of the Lease Purchase Program.

Most of the major systems affecting the consumption of energy fall into one of three categories: Building envelope, mechanical systems and electrical systems.

Building Envelope

Building insulation, fenestration, and building orientation are all elements of the building envelope which affect energy consumption. Each design should be analyzed for the cost effectiveness of these elements. Due to the limited space available for this article, I will leave insulation and fenestration to a future article.

One of the most basic elements of building design is **building orientation**. We often lose sight of this factor due to other programmatic issues, however, the way buildings are sited with respect to topography, sun, prevailing winds and existing vegetation can have a significant impact on heating and cooling of the facilities. The use of landscaping to shade building surfaces (windows in particular) can be a very cost effective measure in the long term.

Daylighting is a part of the building envelope but can have a significant impact on the mechanical and electrical systems. Recent studies have indicated the positive effect daylighting can have on educational performance. This has increased the interest in incorporating this daylight into the designs. If designed and operated properly, daylighting can effectively reduce the need for electrical lighting. Electrical lighting is a major contributor to electrical and cooling loads and the reduction in these loads will lead to significant savings.

One of the major concerns with daylighting should be the visual comfort of the users of spaces. Visual comfort can be adversely effected if direct sunlight falls on surfaces used for tasks such as reading or detailed project work. The direct light can cause a condition known as **disability glare** making it difficult or impossible to complete the tasks. Indirect lighting can reduce the possibility of disability glare and can be achieved with the use of north facing windows or clerestory lights and overhangs on south facing windows. Other methods commonly used are **light shelves**, horizontal elements which act as both overhangs and surfaces to reflect light into spaces. **Skylights** and **light tubes** can bring light in from the top. Translucent glazing, surface diffusers and adjustable louvers can be used to control the light levels.

Mechanical Systems

Some of the terms that are common in mechanical systems are **package**

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Energy Conservation - The Basics

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units vs. central plant. Package units are smaller units that serve single spaces or a small number of spaces. They generally offer lower maintenance costs and higher level of controls, but typically have a shorter life. Central plant systems serve entire buildings or, in some cases, full campuses. Central plant systems generally last longer but are more costly up front and can be more costly to maintain.

Terms we should all be familiar with are **SEER** (Seasonal Energy Efficiency Ratio) and **EER** (Energy Efficiency Ratio). These ratings are an indication of the amount of energy needed to run the mechanical units. Higher SEER units may have a greater first cost but could be less costly over the life of the units. You should discuss these ratings with your designers and consider the cost effectiveness of using the more efficient units. You should note that the base rating required by Title 24 Energy Code will be going up in June in response to the energy crisis.

A type of mechanical system that may have potential cost savings is **evaporative cooling**. This system works best in dry climates where there is a big difference between the **dry bulb temperature** or the temperature of air at 0% humidity and the **wet bulb temperature** or the temperature at 100% humidity. The wet bulb is commonly called the dew point temperature. In climates such as Sacramento these can be marginally effective on their own and very effective as a pre-chiller for a refrigerant cooling system. Some terms you might hear related to these systems are **direct vs. indirect**, a very important distinction. The direct system is more efficient, but dumps cool air at high humidity into the occupied spaces. An indirect system is less efficient and slightly more costly, however, the air going into the spaces is at ambient humidity. When there is concern over indoor air quality and

mold you might want to consider the indirect system.

Another type of mechanical system that you may run across is referred to as **off peak chilling**. This system uses the less expensive electrical rates during the night to run what is essentially an ice making machine on a grand scale. The ice is stored and used as a pre-chiller for a standard air conditioning system or as a stand alone system for cooling. As you can imagine, this type of system has a large first cost and is generally only cost effective with cost incentives from the power companies and when there is a large rate differential between day and night rates. This one requires close scrutiny in the life cycle cost analysis.

You may run across the term **mass storage**. This generally refers to building materials with greater mass that can retain heat or coolness. They work off the principle of **time lag** in which the materials with more mass such as concrete or water cool slowly during the night and give up that coolness slowly during the day. I remember one system proposed during the 70's that was a large water tank in front of a south facing window. The system was floor to ceiling and about 8"-12" thick. Water, as a medium, is good for storage, however, one of the problems I see with the mass storage is that the inhabitants of the spaces need to be very tolerant of temperature swings during the day. This is not always possible in schools.


Electrical

Most of the measures related to the electrical systems have to do with lighting. More efficient fluorescent lighting has been developed in the past few years. The use of **T-8 lamps** is common in new design where most older buildings use T-12 lamps. The designation refers to the diameter of the lamp in 1/8 of an inch. The theory is the smaller the light source, the less power will be required for the same amount of light. I understand that manufacturers have developed a T-5

lamp, but don't expect to see it soon in mass production. The small diameter does not allow for a 4' length, which is the standard for most applications.

Lighting controls are a major source of conservation and are widely used. Approximately 40% of the electrical usage for schools is associated with the lighting and a great deal can be saved by having controls that automatically turn off the lights when the space is not being used. **Occupancy sensors** add relatively little to the initial cost and can have a short pay back. **Automated daylighting controls** can also be used in conjunction with daylighting systems. With dimmable ballasts, light levels can be reduced when daylight is available. A less costly solution than dimming is the use of stepped lighting. The change is more noticeable, but the end effect is similar. The major concern in lighting is, of course, visual comfort. Hot spots caused by daylighting on desks or having a window next to the teaching wall creates a condition called **disability glare** and will reduce the learning capability of the students.

Another electrical term is **photovoltaics**. This is the process of converting solar energy directly into electricity. In most cases these systems are not cost effective over the life of the system, however, some energy providers are offering incentives that might make limited use of these systems feasible.

I have only scratched the surface of this topic, but I hope it has clarified some terminology. For a much more comprehensive guide to energy conservation I would refer you to the *Best Practices Manual* prepared by The Collaborative for High Performance Schools. This manual is available, free of charge, from CHPS and is a practical guide to many different energy conservation and sustainable design methods. Check out their web site at www.chps.net. 

Dennis L. Dunston, AIA, is an architect with HMC Group and a member of the CASH Board of Directors. He has a Masters of Architecture degree from Iowa State University with a minor in Energy Systems Engineering.

Being Prepared for the Energy Crisis:

By John Palmer

How to Develop a Successful Energy Plan

The energy crisis will probably be with us for some time. Governor Davis recently said that he thinks the shortage of electricity throughout the state will be with us until 2003, while others think it may be longer. We know that our electric energy costs at San Juan Unified School District will be 25 % higher than last year and natural gas costs may be 75% to 100% higher. This unprecedented energy situation means that we can no longer waste energy in our schools and offices. We are committed to an 8% minimum reduction in our energy usage and hopefully will be able to do much better than that.

While our facilities organization is taking the necessary steps to ensure that energy efficient lighting, heating and air conditioning is installed in our buildings, we must correct any energy wasting practices that are happening in our schools and buildings. It must become each and every district employee's responsibility to conserve energy.

A District-wide Energy and Resource Conservation Plan will guide the district's actions as we progress towards achieving energy reductions within the district. Our plan was put together by a team consisting of facilities, teacher, custodial and administrative employees. The team recognized early on that without support from every level of the organization, the plan would not be as effective.

An energy plan is the single most important part of an effective energy program. Without a plan, you can only react to a given situation. A plan allows you to be proactive regarding energy. When the energy crisis lessens, a plan allows you to proceed with energy conservation as a priority and policy for the district. Principles of quality management show us that strategic planning is how programs and projects get accomplished. Not only will an energy plan indicate that you are proactive on energy issues, but it will be developed and implemented according to quality principles.

Strategies for an Energy Plan

Ask your Board to authorize the development of an energy conservation plan using a multi-disciplinary team. Develop a time line that will show the schedule of meetings and the scheduled date the plan will come back to the Board for approval. The team should consist of no more than 15 members and be led by the person responsible for energy in the district. The team should consist of facilities personnel, teachers, principles, custodians, district staff, utility representatives and other public agency representatives if appropriate. The team should develop a charter that will define the purpose of the team and then bring that to the team sponsor for approval. Having your Board adopt an energy resolution to reduce energy in

the district is also a strategy that will prioritize energy within the district.

Why Develop a Plan

There is an energy crisis going on that has no immediate end in sight. Districts have not budgeted for these increases. The energy plan is the blueprint the district needs to follow to reduce energy and costs now and after the crisis is over. Planning does work and lets others know that you are prepared.

Saving energy involves a large number of stakeholders with different expectations. A successful plan will develop and communicate a unified set of goals, objectives and strategies for the program and a well-conceived plan to achieve them. Developing the plan will communicate the plan itself, the actions being taken and the results.

When to Develop a Plan

The energy plan should be developed at the earliest stages of program development. It is more difficult to write a plan after specific actions have been

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Being Prepared For The Energy Crises

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taken and stakeholders feel they have not had input into the plan. The plan should be started before the Board or superintendent asks for one. This topic is on everyone's mind these days. The plan will allow your district to be positioned for conservation grant money coming from the legislature. It is always best to have a plan in place before a crisis occurs, leaving you unprepared.

Your team will meet regularly to determine the goals, objectives and strategies needed for a successful energy plan. Utilizing the principles of strategic planning, the following needs to be developed, discussed and decided by the team:

Goals - programs are established to meet some specific need or requirement. Each has a specific goal to reach.


Objectives - objectives allow the team to provide more specific direction in support of the more general goals.

Strategies - organized approaches focused on efficiently accomplishing their objective.

Organization - an individual must be given responsibility for the program. Clear roles and responsibilities should be outlined.

Measurement - a system needs to be implemented that will provide information regarding the progress of the program. This will keep the stakeholders engaged in the program and provide credibility to the program.

Next Steps


The final energy plan, after the team has reviewed and agreed on the plan, needs to be presented to the Board for approval. You will then need to begin implementing the objectives and strategies in the plan. Finally, review and revise the plan as necessary. It should remain a work in progress as it meets the changing requirements of the program. 

John Palmer is the Director of Planning for San Juan USD

Energy Saving Ideas for Schools

The following ideas were provided by the Fairfax County Public Schools Office of Energy Management Services in Fairfax County Virginia.

- Form teams or environmental clubs.
- Teams should develop action plans such as:
 - o Calculate a theoretical minimum utility consumption for the school; compare with actual consumption and quantify waste.
 - o Do a walk through the building.
 - o Locate and read gas and electric meters; record typical daily usage and peaks.
 - o Identify the most avoidable areas of waste.
 - o Devise an energy-saving plan, then implement and sustain it.
- Consider adopting a curriculum that will help students develop energy-saving attitudes and habits.
- Publicize energy saving efforts through morning announcements, school-based TV broadcasts, and newsletters.
- Promote conservation through the use of posters.
- Display the monthly progress of your conservation efforts.
- Have a vigorous light patrol team issue tickets – too many tickets and the offending party is given appropriate attention.
- Make sure outside lights are not on during the day.
- Turn off light and use daylight where possible (e.g. near windows).
- Reduce lighting where feasible (e.g. corridors and hallways).
- Make sure the day/night time-clock system is functioning correctly.
- Periodically visit school during off-hours to see if lights and equipment are on unnecessarily.
- Make sure exhaust fans do not run after hours.
- Turn off computers and other such equipment when not in use.
- Discourage use of electric equipment like art kilns during peak periods.
- Restrict after-hour activities to as few zones of the building as possible.
- Encourage "Team Cleaning" by custodians so that a smaller area of the building requires lighting during this period.
- Monitor existing thermostat settings. Most area thermostats should be set at 78° in the summer and 68° in the winter.
- Keep outside doors closed.
- Clean air filters regularly.
- Run only one boiler during moderate weather.


MYTH: leaving *fluorescent lights* on uses less energy than turning them "Off" and "On". Wrong! A simple rule of thumb is that turning electrical devices off saves energy. 

How Glendale USD Saves Energy *By Dick White*

The following items are the District's current initiatives in developing and using energy savings ideas in the design of schools:

1. Changing lighting fixtures from standard fluorescence to electronic ballast and T8 lamps.
2. Providing four-way switching of the lights in the classrooms to allow teachers to use less electric lighting based on the available natural lighting.
3. Increasing the insulation value of the building envelop to R19 and R30.
4. Changing the roofing from a black tar finish to a high reflective coating.
5. Providing the highest SEER air conditioning systems available from Carrier.
6. Providing an economizer on each HVAC unit to minimize the run time for the AC compressor.
7. Purchasing of a custom-designed thermostat that will prevent the HVAC unit from operating when no one shows up for the day. The thermostat will also have a lower freeze point protection cycle which will save energy.
8. Controls on chillers.
9. Replacing existing single-pane windows with high E coated windows and maintaining the full height of the windows to increase natural light.
10. Replacing existing wooden framed single-pane windows with modern designed insulated frame windows.
11. Lowering ceilings to save energy on HVAC by reducing volume and improving insulation "R" values on each room by the use of a 'T-bar ceiling'.
12. Supplying a gas-fired heating unit instead of the standard electrical heater or a heat pump for each unit.
13. Splitting of the water systems to allow for a second meter for the irrigation water.
14. Using recycled water for irrigation purposes.
15. Starting the experimental use of Phase Wave equipment to save energy during the operation of electric motors.
16. Starting the experimental use of Phase Wave equipment to save energy in the operation of vending machines.
17. The overall use of high efficiency electric motors on all applications.
18. The use of high efficiency electrical transformers to replace the old transformers.
19. Purchasing of very low sensitivity surveillance cameras for school applications will reduce the *minimum* lighting requirements for nighttime security.

Future Use Concepts:

1. Photovoltaic generation systems at each school could save the utility companies 4 to 5 kWh for each kWh produced.
2. The use of micro-generation systems at each school could save the utility companies 4 to 5 kWh for each kWh produced.
3. The use of solar heaters for water and ventilation air.
4. Ground coupled heat pumps to replace existing air-cooled compressor units with water-cooled condensers. 

Dick White is Administrator of Planning, Development and Facilities with Glendale USD.

State Superintendent's Letter to the PUC

April 9, 2001

Loretta Lynch, President
Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

Dear Loretta:

I know these are difficult times for the Commission and I appreciate the effort the Commission is putting forth to address this crisis. I understand that during the next several weeks the Commission will be reviewing the current ratepayer categories and determining whether any adjustments to those categories are needed.

In previous correspondence to you, dated January 19, 2001, I requested your assistance in working with us to devise strategies to provide financial assistance to school districts so they do not have to close schools or lay off staff solely to pay their energy bills. One of the strategies I suggested was the creation of a special rate structure category for schools. I believe a separate rate structure category for schools is warranted because our schools perform essential public services and schools are not commercial entities that have the ability to pass their energy bill increases on to their consumers.

I would be happy to work with you and the Commission on developing the specifics of a separate ratepayer category for schools. Please contact me or my Chief Deputy, Scott Hill, at 916-657-2644 at your earliest convenience.

Sincerely,

DELAINE EASTIN
State Superintendent of Public Instruction

DE:db

Emergency Guidelines for Rolling Outages

San Juan Unified School District

Rolling outages have occurred at various district schools. The warmer weather will put an even greater demand on the shortage of electrical power as air conditioning units are turned on. This greater demand only increases the possibility of continued rolling outages. These outages may occur with little or no notice. Previous outages have been approximately one hour in duration. It is important that sites be prepared for any emergencies that may occur by utilizing the following procedures. First priority should be given to the safety of students and staff.

BEFORE

- Update student emergency contact information.
- Have flashlights and spare batteries available for key personnel.
- Keep cellphone and radio batteries charged.
- If your site has emergency lights, test batteries monthly.
- If possible, keep a battery-operated mega-phone available, test batteries regularly.
- Conduct site inspection for items that may become trip hazards during an outage. Eliminate trip hazards now.
- Backup computer data.

DURING

- Don't panic; remain calm. Others will find confidence in your calm, professional manner.
- Call M&O to report power outage.
- Move occupants to a safe location. This may be their assigned classroom or a common area such as cafeteria, MP room or gymnasium. Do not change classes at end of

instructional period. (*EXCEPT where the room is completely dark, no external light source*).

- **Middle and high schools only:** Turn off power in shop, crafts, industrial art, home economic type of classes. Stay in classroom, remain in your seat, and begin working on your bookwork.
- Conduct site walk - look for stranded, lost or injured individuals. Keep in mind special needs students and areas without emergency lighting.
- If restrooms are dark, lock restrooms and provide escorted access as necessary.
- Lock unoccupied and non-essential areas.
- Turn off or unplug as many appliances and equipment as possible to eliminate a surge when power is restored.
- Avoid opening refrigerator and freezer as much as possible.
- Site administrator should personally inspect all elevators/lifts to ensure that no one is trapped. If someone is trapped contact your M&O. Advise the individual to remain calm, do not self-rescue from an elevator or lift.
- Consider traffic control issues around school site.
- Expect transportation delays. Traffic signals may be out in surrounding areas, causing a ripple effect.

AFTER

- Once power has been restored, turn on and plug in all appliances and equipment previously turned off. Report all failures to M&O.


Evening / Night Specific Guidelines

- Start all evening/night events with a safety orientation explaining proper emergency procedures should an outage occur during the event.
- Verbally point out exits at the beginning of the meeting.
- Consider the appropriate number of administrators/staff necessary in view of the possibility of rolling outages.
- Maintain a list of evening/night events.
- If an outage should occur during an evening/night event, consider canceling the event.
- Consider providing a battery-operated mega-phone for all home and away events (test the battery).

As part of your preparation, don't forget the following groups:

- Pre-school centers
- Children's centers
- After-school programs
- Athletic events
- Special needs students and staff
- Night classes - adult education
- Support staff
- Custodial staff
- Office staff

Other Resources:

- SMUD's website can be reached at www.SMUD.org.
- CAISO's website can be reached at www.caiso.com 

Energy Conservation in Capistrano USD

By Joe Dixon

Capistrano Unified School District (CUSD) is located in South Orange County and is served by three major utilities: Southern California Edison, SDG&E, and Southern California Gas. CUSD has 45 school sites and seven support sites; So. Cal. Gas provides natural gas service to all the sites. The district's area stretches from the ocean to inland valleys and endures tremendous temperature changes. Mark Twain's comment, "The coldest winter I ever spent was one summer in San Francisco," could be applied to Dana Point and certain parts of San Clemente. Yet, at schools in Rancho Santa Margarita, the air temperature is consistently 20 degrees hotter (or more!) from May through October.

When the electricity price escalation hit last summer, it was in the SDG&E region exclusively. Soon thereafter, Edison rates skyrocketed. Immediate action was necessary on the part of the district to reduce the impact of the spiraling electricity costs. Dr. James A. Fleming, Superintendent, directed staff to form an Energy Task Force to strategize on ways to reduce the impact of the rate increase. It was concluded that the quickest way to immediately save energy would be to change behavior. This is a daunting task, especially in a district as large and diverse as CUSD; therefore, all stakeholders were represented in the task force – cabinet, school administration, teachers, classified staff, and parents. The campaign to change behavior was worked out within this group.

The plan developed is threefold. First, to educate the school community that the crisis is real, posters were distributed to each site identifying

simple ways to save electricity. Simultaneously, stickers were distributed to each site for placement as reminders to do specific tasks, such as close windows, shut doors, turn off unnecessary lights, and close down equipment not in use; these bright yellow stickers are very visible throughout the district. Pool users were advised they must place covers on the pool at the conclusion of their activities. Part of the agenda at the superintendent's monthly meetings with the parent council, teacher council, and principals, is to administer regular reminders of the seriousness of the situation and the effort that is required by everyone to change energy-wasting behaviors.

Second, energy efficiency projects have been developed for certain sites. Daylighting (skylighting) was installed at R. H. Dana Elementary School and is planned for installation this summer at San Clemente High School. Ballasts were changed from magnetic to electronic at two schools - Barcelona Hills Elementary School and Castille Elementary School in Mission Viejo. Cogeneration is planned for installation this summer at Aliso Niguel High School, and distributed generation is planned for installation at Niguel Hills Middle School. Aliso Niguel was selected because it has the highest electric bills in the district, yet has electronic ballast lights and packaged HVAC units with controls. Niguel Hills was selected because it has a central plant HVAC system and is the largest middle school in the district.

Third, although summer school is going to be conducted at every school in the district, as part of the Summer

Energy Conservation Program, summer school classes will be held only in classrooms served by packaged air conditioning units or isolated in certain areas of the school as determined by the HVAC zones. Summer school principals' and secretaries' phones and computer equipment will be moved to air conditioned spaces separate from the main building (unless the areas will be used without air conditioning). CUSD's Maintenance and Operations Department has developed a model that suggests the district will save \$350,000 and 20% of last year's electrical consumption as a result of this program.

CUSD is changing behavior and is performing energy efficiency projects utilizing performance contracts, modernization funds, and state deferred maintenance funds. The district is aggressively pursuing its 2001 Summer Energy Conservation Program in order to reduce electrical usage by at least 20% as compared to last year. If you would like additional information, please email me at jdixon@capousd.k12.ca.us.

Joe Dixon is the Executive Director, Maintenance and Operations, for Capistrano USD

Cogeneration – The Corona-Norco Unified Experience

By Ted Rozzi


The Corona-Norco Unified School District lies 40 miles southeast of downtown Los Angeles and houses 39,000-plus K-12 students in 34 schools including four comprehensive high schools. Between 1986 and 1993, the District installed 70kW Caterpillar natural gas cogeneration units at Corona High, Centennial High and Norco High. The original installations cost the District approximately \$120,000 each. They were designed to produce additional electricity while capturing waste heat from the Caterpillar engine to heat water for the adjacent swimming pools through a heat exchanger. The District uses natural gas to fire the Caterpillar engines, but it has found no change in natural gas use although it formerly used natural gas boilers to heat swimming pool water. The District benefits from the availability of additional electrical power on each campus.

This additional power became vital during the fall of 2000 when the

District was required to cut electrical use to 50kWh at each comprehensive high school due to its interruptible service contracts with Southern California Edison (SCE). At 50kWh, each affected high school could do little more than maintain lighting and communication systems for the administration area. With the additional 70 kWh, the affected high schools could provide power for lighting and data systems in selected classroom buildings. During periods when the District is not required to reduce power in the SCE interruptible service program, the 70 kWh generated reduces the amount of electricity being used daily from the SCE transmission system. Overall, each cogeneration system provides about one-third of the campus electricity requirement, providing significant overall savings to the District.

To maintain the installed cogeneration units, the District has executed maintenance agreements with Pacific Energen Inc. that include a charge of \$0.0125 per kWh produced. The three

District cogeneration units produce 40,000 kWh monthly, resulting in an average maintenance cost of \$500 per month. In addition, the District must pay for the replacement of major engine parts, such as the catalytic converter and the engine head. This can be expected to occur every four to five years.

Due to this positive experience with cogeneration, the District intends to install a cogeneration unit in the new Santiago High School swimming pool complex planned for construction within the next two years. Although the installation cost has risen to approximately \$180,000 for a similar 70 kW Caterpillar engine, the ability to produce electricity onsite and to reduce power consumption from the local utility company will be real advantages in this time of skyrocketing energy costs. 

Ted Rozzi is the Director of Facilities at Corona Norco USD, and a member of the C.A.S.H. Board of Directors.

Governor Honor's Franklin-McKinley School District wins "Hero in Conservation" Award

By Rob Williams

In the middle of an energy crisis that is consuming the state and most of his attention during this year, Governor Grey Davis was recently in Santa Clara to honor Franklin-McKinley School District with a "Hero in Conservation" Award.

The Governor presented a "Hero in Conservation" Award to their Superintendent Larry Aceves, Board President Phil Renteria, and Energy Manager Kim Sheffield, explaining that the district has implemented energy conservation methods that have saved

them over 14% in electrical usage which equated to a cost avoidance of over \$100,000 so far this fiscal year. Superintendent Aceves thanked the school children of Franklin-McKinley for doing an outstanding job to help reduce energy usage. Energy Manager Kim Sheffield explained how through time reductions in running the HVAC systems, training staff and students, and creating energy monitors contributed to the energy conservation. In the audience was a group including students, teachers and administrators from Franklin-McKinley School District: a 14-school, ethnically and economically

diverse, Kindergarten through 8th grade school district in Southeast San Jose.

The Governor's address stated that the State is aggressively moving forward with construction on eight new power plants. Four plants are planned to be on-line this summer and four more plants on-line next summer, which should help alleviate our electrical shortage. However, until those plants are up and running he is asking that all consumers reduce their electrical usage by 10%. The Governor reported that usage for the state was down 8% in February and 9.2% in March. The

Continued on page 20

Vista District Gets 'A' in Energy Savings

By Harry Brooks, Staff Writer

The following article was reprinted with permission of the North County Times from the January 30, 2001 edition.

VISTA The financial crunch of rising energy rates is being lessened in the Vista Unified School District by the use of a central-control computer system that began operating in August 1996, district officials said Monday.

The system which continuously monitors all heating, air conditioning and ventilation functions at the district's 24 school campuses, two operations facilities and headquarters came with a guarantee from the installing company that the district's energy costs would remain stable.

"The savings are greater now than we anticipated," said the district's maintenance and operations director. Chuck Taylor, referring to a \$177,000 cost reduction in the system's first four years of operation that ended Sept. 1.

Contemplating future savings, Taylor shook his head, saying he couldn't estimate how much the district could save over the long run. He said the energy price spiral that hit San Diego County last summer hasn't been fully figured into the district's cost analysis for the system.

The Vista school district was billed \$882,317 for electricity use from July 1 to Dec. 1, with an additional \$251,820 paid for by an energy credit from San Diego Gas & Electric Co. Still, the cost to the district was higher than the \$791,494 total for the same period of 1999.

The district contracted with Honeywell Inc. in November 1995 to install the central-control system, which is monitored through one dedicated computer terminal in the district's maintenance headquarters. The contract calls for the district to pay Honeywell \$5.95 million over 10 years.

Honeywell guaranteed the system's cost would be offset by annual savings

in heating, air conditioning and ventilation, using costs for those functions in the year from June 1993 through May 1994 as the base for its assurance.

If the district's cost of providing heating, air conditioning and ventilation were not reduced by more than a specified amount each year, Honeywell guaranteed to pay the difference. The company's contract with the district was predicated on a 5 percent annual rise in those costs from the base year.

In the past six months, energy prices in California have skyrocketed.

"It's more like 100 percent now," Taylor said of the increases.

The system allows Taylor and his staff to easily monitor heating, air conditioning and ventilation functions in all of the district's buildings within its 55-square-mile area. Each room of a building can be scrutinized individually on the computer screen.

At 9:30 a.m. Monday, Honeywell technician Pat Brashear first called up a district map on the screen, showing all buildings and their basic vicinity.

Brashear moved the on-screen pointer to Alta Vista Continuation High School and used a dial-up modem to prompt a layout graphic of the school onto the screen. It showed the temperature inside each room, compared to that outside, 53 degrees.

He then moved the computer cursor to another prompt that called up a table showing the on-off status of every heating, air conditioning and ventilation system at the school and, if operating, which rooms were involved.

All rooms were at or within a degree of the district's target temperature of 72 degrees. The district allows a variance of two degrees in either direction before the appropriate function heating or air conditioning - automatically starts and then stops once the temperature hits 72.

"This way we have complete control," district maintenance supervisor

Herb Eckert said. "It eliminates teachers being able to play around with the control in their classroom."


With a school's operation schedule programmed in, the system provides automatic shutoff of heating, air conditioning and ventilation functions when faculty and students are not on campus. Variances are made for after-hour activities by either programming the event time into the system or allowing school personnel to temporarily control those functions when it is occurring.

Brashear said the San Marcos Unified School District followed Vista's lead by contracting with Honeywell to install a central computer system that allows district personnel to monitor use of heating, air conditioning and ventilation. The Oceanside, San Pasqual and Fallbrook districts contract for a similar Honeywell system, although the company monitors those functions from its Atlanta office.

Eckert, a 21-year maintenance veteran in the Vista district, noted that more than one-third of the system's total-cost saving comes from cutting back on employees having to travel around the district to check if heating, air conditioning and ventilation units are operating.

Taylor said he hopes similar central computer systems can be installed to monitor the district's lighting and irrigation functions.

He said the success so far of the current system should make it easier to gain school board approval of expanding central-computer control to other functions.

"It's pretty pragmatic," Taylor said. "It pays for itself in savings. It's important for us to keep looking for ways to save because every dollar we spend (in maintenance and operations) is taken out of the classroom. The more we can save, the more benefit there is for classroom instruction." 

Contact staff writer Harry Brooks at (760) 631-6621 or hbrooks@nctimes.com.

California's Energy Crisis —

The energy crisis in California, rightly, has sent people into a real tailspin. There is a growing sense of indignation among energy consumers - how did we get here? And why must we bear such a huge cost increase?

By Heidi Kriz

The doubling and tripling of bills is bad enough for the household consumer, many of whom have to make radical adjustments in lifestyle and budget to accommodate the crisis. Nevertheless, individual consumers, at least, can make choices for themselves that might ameliorate the problem. But what about the effects the shortage has on people who can't make those choices for themselves, but rather must rely upon institutions to figure out how to deal with the shortage, and to minimize the impact it will have on their lives?

One very poignant example of this is the public schools system in California. As educators know, in the super-slim margins of the boundaries of any public school budget, there is no such thing as excess. When the slice of one piece of the budget pie gets bigger, some other slice, or "slices," get big chunks taken out, to compensate.

The problem is, the money has to come from somewhere. And when a California state school system budget is only decided on every few years, there is very little opportunity to meet the needs of each fresh crisis. In other words, what often ends up happening, when school districts don't plan ahead, is that money to address these crises will have to come from some other, essential

Sanger and Riverdale Ameliorate their Situation

area of the education budget - such as cutting after school programs, like sports, or computer literacy.

Right now, the huge energy bills translate into more money to heating, cooling or lights in the classroom, and less money for things like books and computers. Literally, that's what's happening right now in schools across California.

But there is a way to minimize the collateral damage of the energy shortage that is taking place in California public schools - conservation through new alternative energy systems. And there are already some spectacular examples - resulting in equally spectacular energy savings - of the successful use of such systems, implemented in many areas of the state.

Sanger's Success

"Everything that we can do to have more money left over for other educational needs, is worthy of our efforts," says Lloyd Kuhn, the Assistant Superintendent of Business Services for the Sanger Unified School District.

"That's why, even before the current energy crisis, we knew that we had to come up with a cheaper more efficient energy system," says Kuhn.

Many of the schools in Sanger were hamstrung with older, aging systems that had been around for decades. Kuhn knew that they'd have to spend money initially in order to save money later, and that would likely be met with resistance from some parents and administrators and school board

members. But when Kuhn looked into the saving numbers, they were just too good to not make the change.

So Kuhn decided to take advantage of one of the many alternative, and significantly more efficient energy systems that consulting firm Building Systems Management helps develop and implement. For example, one of Sanger's elementary schools uses a distributive generation system, which uses the waste heat from the gas engine to heat the school while providing electricity for the site.

And for a new high school in the Sanger district, Kuhn and other administrators chose multiple gas engine chillers for operation during the summer, which reduces the demand on the electric grid, and uses natural gas, the demand for which is always lower in the summer.

Riverdale's Road To Energy Conservation

Other school districts have switched systems through Building Systems Management, with similarly impressive results.

The case of Riverdale District Schools was a typical one: Many of the schools had been built using an old central plan, with electric motor driven air conditioners and heaters, which are not very efficient, according to James Brooks, superintendent for Riverdale Unified. With the Fresno architectural firm, Temple Anderson Moore, Brooks discussed different energy options for a cooling system. Brooks knew that a

different and dramatically more efficient system was crucial in a school district that can experience temperatures in the 100's at certain times of the year.

Brooks decided that he wanted to test out an old, but very simple and efficient "evaporative" cooling system, colloquially known as "swamp coolers." The system uses heat exchangers in conjunction with evaporative technology. This simple process uses minimal energy and results in an impressively comfortable interior atmosphere, even under extreme conditions. According to Brooks, one Riverdale school gym has been easily cooled to 78 degrees inside, while outside it was a blistering 106 degrees! All of this, by just using a supply fan, and a little water. Brooks has also had the architect design this type of system for some of the district's new and pre-existing classrooms. The result was a dramatic reduction in potential energy cost.

Brooks laughs at the slang term for the cooling system - "swamp cooler" - that contributed to the resistance it was met with initially.

"I knew that the phrase would throw some parents, teachers and other folks off. And in fact, after we made the switch, it took them about a year to acclimate to the system. But it didn't take them long to adjust to the savings - which has helped reduce conventional energy costs up to 40 percent," says Brooks.

A 40 percent reduction! That's huge, especially in the current crisis. This, of course, has a direct impact on the quality of the Riverdale's school district's educational resources.

"Energy is one of the few things in schools that you can really influence," points out Brooks. "Most things are fixed in the system. But you *can* choose alternatives in this area, and almost all schools in the state would benefit from updating their energy systems with alternatives like those we implemented with the help of our architect, and Building Systems Management's ability

to provide the energy applications for funding through the State Program."

Bill Kriz, president of Building Systems Management, points that it is this kind of creative thinking which can reduce your energy and save vital school programs.

As for financing the new systems, BSM helps your school districts figure that out as well, through conventional financing or other low cost loans. "And, what we hope will also happen, is that the State Allocation Board reinstates the energy program that was in place from 1976 to 1998," says Kriz. "This grant program provided school districts in the State with over \$300 million dollars, which was used to generate over \$38.5 million dollars in energy savings per year!" Kriz points out.

The Emergency Deepens

Now, more than ever, is the time for such a change. The California State Public Utilities Commission has just announced exactly how much more schools can expect to pay for their energy, and the increases are staggering.

For schools operating within PGE and territory, it ranges from an increase in cost of 41 percent in summer to 27 percent in winter in the elementary schools, 73 percent in summer to 53 percent in winter in medium-sized schools, and finally, a whopping increase of 114 percent during summer peak hours to 80 percent in the winter for most high schools and some large middle schools.

The rate hikes in schools in the SCE territory have skyrocketed similarly.

There is good news, though. Governor Gray Davis has just requested that \$541 million additional dollars be provided for energy conservation in the state budget to help public schools pay the soaring costs. But, as BSM's Bill Kriz points out, there is only a small window of opportunity to take advantage of this special budget increase since the prices of energy are not going down anytime soon.

"This is a one-time spending increase which will benefit schools that figure out a way to cut current power usage by at least 10 percent," says Kriz.

To help schools figure out how to do that, BSM has developed an innovative and unique approach - their "Energy Report Cards." They're FREE. And the reports analyze a district's utility bills and compare the district's total energy usage against other schools of similar size and climate zone.


"In order for schools to conserve effectively, it is crucial for districts to know which of their schools are most in need of conservation. These report cards reveal this," says Kriz.

One thing is obvious. Time has run out for schools who are doing things the old way. And the men and women who are at the frontline of managing California public schools energy systems are acutely aware of this.

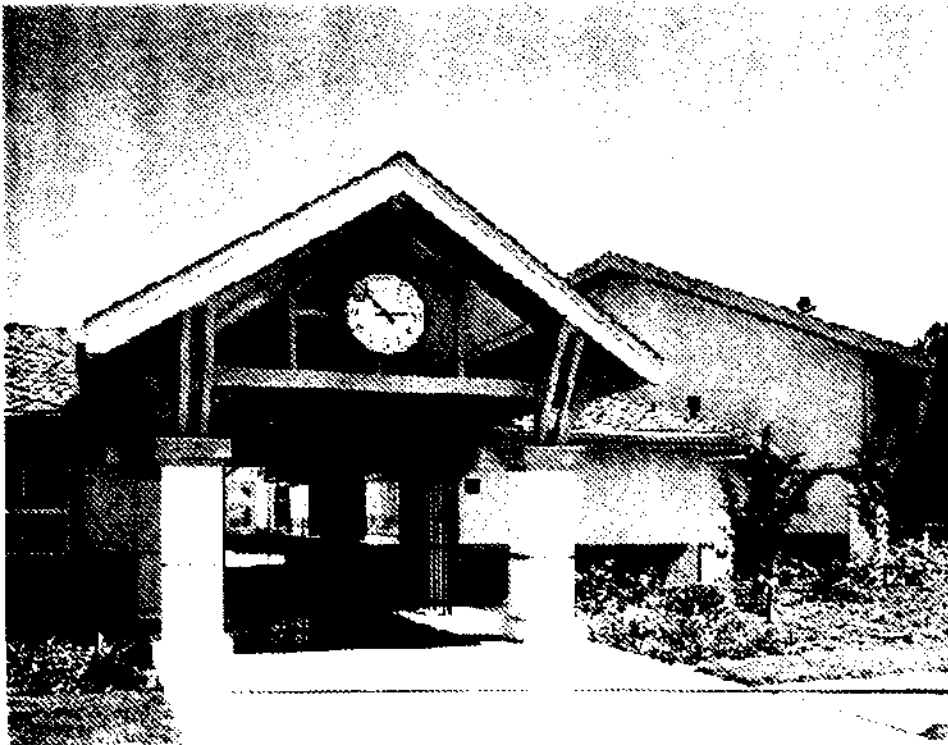
"We are only halfway through the year and our schools have already exceeded the \$1,400,000 million dollars we were allotted in our budget this year for energy," says Terry Tilley, who is head of Maintenance & Operations for the Sanger School District.

One of the ways Tilley is grappling with the crisis - and aiming to head-off such an emergency in the future - is by encouraging as many schools as possible to switch their outdated systems to the more efficient, co-generation and thermal storage systems.

"In the past, administrations have balked at the initial outlay of money and cost. But I have witnessed the long-term benefits of these systems and they are really dramatic. You can see a payback in less than four years," says Tilley.

"And, in the grand scheme of things, that's nothing. Because in my opinion, the cost of energy, and its availability in this state is not going to get a lot better, even after the so-called crisis ends," he says. 

Heidi Kriz is with Building Systems Management in Sacramento, California.




Berkeley Alternative High School

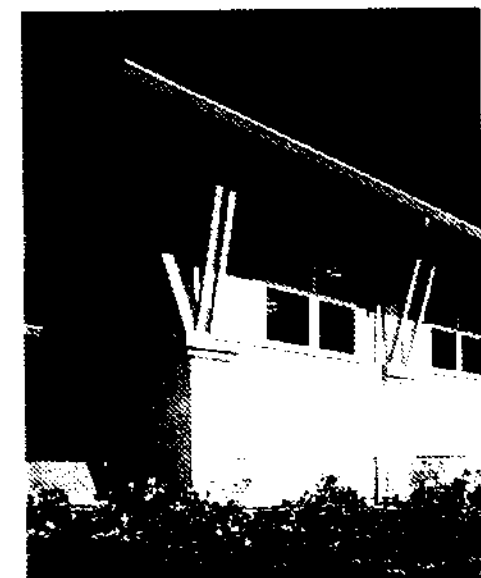


Completed: September 1999
Construction cost: \$3.3 million
Architect: VBN Architects (with WLC Architects – Associated Architects)

This newly completed 19,000 square foot specialized/independent study high school was designed to accommodate a future population of 200 students with expansion space of 3,000 square feet. Located in an urban, mixed-use neighborhood, the new campus was designed on a tight site and a limited budget, through a remarkable community design process.

The plan included a new 2,500 sf multi-purpose/community room, new administration services, new classrooms,

and a new media center/library. All functions were housed in a U-shaped building fronting the thoroughfare, Martin Luther King Jr. Way, giving presence and identity to the school. The ten new classrooms on the campus consist of refurbished relocatables transferred from the existing Berkeley High School campus. In addition, the campus emphasizes a strong connection to exterior spaces for outdoor teaching and learning, which includes a horticulture program with a community garden as well as new athletic fields. 



C.A.S.H. MONTHLY MEETING MINUTES

– May 23, 2001 –

C.A.S.H. Chair Kathleen Moore Baratta called the meeting to order at 11:00 a.m. New members and guests were introduced and welcomed.

LEGISLATIVE REPORT – Tom Duffy

Tom reported on several bills that C.A.S.H. is following. The bond for 2002 is still in the works. Tom noted that \$10 billion would be appropriate for the bond. C.A.S.H. is taking the lead on the bond effort and is working on a statewide survey. C.A.S.H. consultant, John Engellenner is available to work with districts to provide information that they may share with their local press. C.A.S.H. is reviewing the issue of grant adequacy and working on reforms.

Tom noted that the report to the SAB on Level III Developer Fees has been postponed. C.A.S.H. will send a letter to the SAB asking them to review the issue.

Tom briefly discussed AB 14 and noted that it has been put on the suspense file.

The C.A.S.H. lawsuit is still in the works. The attorneys in the Godinez case filed a motion to change judges. The motion was granted. C.A.S.H. will update members when the next court date will be.

ARCHITECT'S COMMITTEE – Dennis Dunston

Dennis noted that work on the model architect's agreement is continuing. A final draft should be available by the end of August.

A new energy code is taking effect on June 1.

DSA is going to start checking mechanical and electrical drawings for architects.

ENERGY NETWORK – Ted Rozzi

A special CASH Register will be coming out next month regarding C.A.S.H.'s efforts on the energy issue. The network recently sent testimony to the PUC regarding changes to the regulations that would help school districts. The network will be testifying before the SAB today regarding additional grants to meet their energy needs in further bond issues.

C.A.S.H. is looking at the Governor's measure to add to the budget moneys for energy issues. Ted encouraged those who are interested in joining the network to contact Ian Padilla or himself.

CAL FED – Emily Stone Kozak

14 Cal Fed members were in Washington DC the week of May 16. They met with legislators on several issues. It was the most successful trip they have made.

CALIFORNIA DEPARTMENT OF EDUCATION – Jim Bush

Jim introduced Diane Wurst as a new staff member.

CSR applications for 2001 are due June 1. CDE is working with OPSC on the school repair and renovation program.

DIVISION OF THE STATE ARCHITECT – Chip Smith

Chip noted that bin time is continuing to decrease. A program is being coordinated for the mechanical electrical review for plumbing. The program won't be implemented until it is complete and will not cause delay to projects.

DSA is trying to inform the designers and school districts about the new energy regulations that will be set in place on June 1. The information is on the DSA website and a mailer has gone out. A process to check for energy compliance is in the works to begin in June. DSA is also working on an accuracy review process.

The DSA Advisory Board is continuing to meet and is taking nominations to increase the Board from 14 to 29. Contact Patty Earhardt for more information.

DSA will post a bulletin to their website prior to August 1. They are also hoping to mail a monthly bulletin on the DSA's requirements for submittal of projects.

IMPLEMENTATION COMMITTEE – Dave Zian

The next meeting will be held June 1 in Sacramento. 4 items will be on the agenda that are continuations from previous meetings: Financial Hardship, Date Change Regulations, SFP Filing Status, and SB 2066 (O'Connell). They hope to get several of these issues to the SAB at its June meeting.


OFFICE OF PUBLIC SCHOOL CONSTRUCTION/STATE ALLOCATION BOARD – Audrey Edwards

A May 1 advisory was issued regarding bridge/alternative financing. Contact Dave Zian or Carolyn Harmon with any questions.

Audrey reported on the current workload and the status of funds available.

Audrey briefly discussed the current SAB agenda.

Kathleen reminded everyone about the workshops in June.

The meeting was adjourned at noon. 

C.A.S.H. MONTHLY MEETING AGENDA

Esquire Building
1215 K Street, 14th Floor
California Chamber of Commerce
Meeting Room
Sacramento, CA


Wednesday, June 27, 2001

11:00 a.m. to Noon

1. **Introductions**
Kathleen Moore Baratta
2. **Legislative Report**
Jim Murdoch
3. **C.A.S.H. Architects' Committee Report**
Dennis Dunston
4. **C.A.S.H. Annual Conference Planning Committee Update**
Eric J. Hall
5. **CAL-Fed Update**
Emily Stone Kozak
6. **California Department of Education Update**
Jim Bush
7. **Division of the State Architect Update**
Richard Conrad
8. **Implementation Committee Update**
Dave Doomey
9. **Office of Public School Construction Update**
Dave Zian
10. **Job Exchange**
Kathleen Moore Baratta
11. **People's Choice**

Hero in Conservation Award

Continued from page 14

critical months upcoming were May, June and July. He asked that school districts go even further with their energy conservation by cutting their electrical usage by 20%. Davis also felt that schools should lead by example with simple measures such as turning off lights in unoccupied areas, closing doors when heating and air conditioning systems are running, and turning off computers, monitors, and printers when not in use. This will easily contribute to reaching the goal of 20% reduction. He reminded those in attendance that any dollars saved through conservation meant dollars for use on facilities or classrooms instead of going to electricity suppliers. 

Rob Williams is the Director of Maintenance, Operations & Transportation for Franklin McKinley SD

New Member Service

C.A.S.H. is now offering a new service for member school districts – a Professional Opportunities Section on the C.A.S.H. website. The Professional Opportunities section enables school districts to post job openings free of charge. School districts may also post RFP's and RFQ's free of charge as well. All listings will be posted for at least one month prior to the closing deadline.

For more information, please contact Shannon Mahoney at (916) 448-8577 or sfife@m-w-h.com. Check out the Professional Opportunities on the C.A.S.H. website at www.cashnet.org in the Members Only section.

Energy Saving Resources

The Facility Resource Center (FRC) on C.A.S.H.'s website (cashnet.org) provides information on **Energy Savings** for your schools. The FRC features information on such topics as: design efficiency, cost benefits, natural lighting, cool roofs, updating controls, improper wiring and optimizing the environment.

- For information on Savings by Design click on 1.6.24; 5.3.15, 1.1.24
- For information on Energy Efficiency click on 1.6.2; 2.1.20; 2.2.4; 5.2.5
- For information on High Performance click on 2.1.17; 2.1.18; 2.1.21; 1.1.23

If you have energy saving information to share please send to smalls@foothill.net or sfife@m-w-h.com

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The *CASH Register* is published 11 times a year (January through November) and is circulated to school district superintendents, business managers, facility planners, architects, maintenance personnel, contractors, developers, financial institutions, attorneys, licensed professionals, construction inspectors and consultants throughout California. Monthly readership is minimally 2,500. The *CASH Register* will accept advertising from C.A.S.H. members only.

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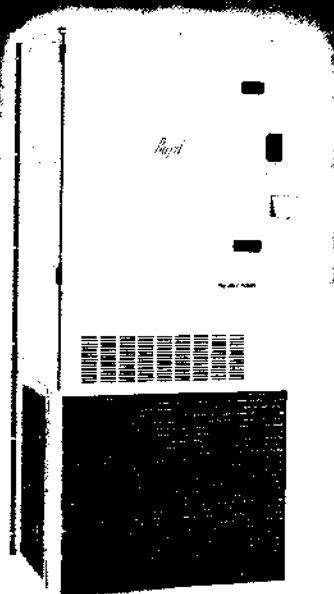


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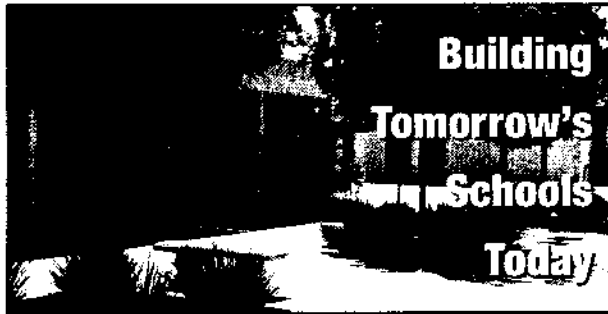
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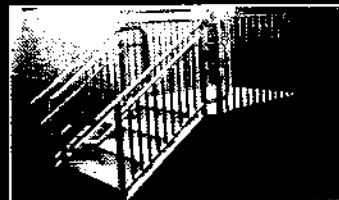
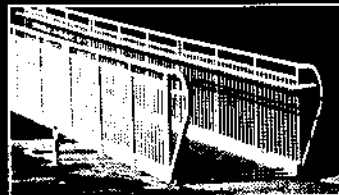
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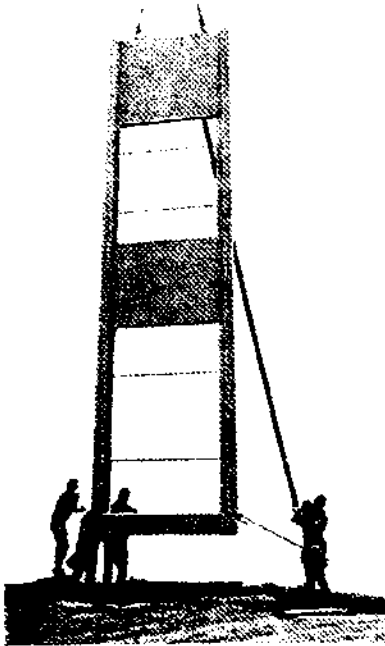
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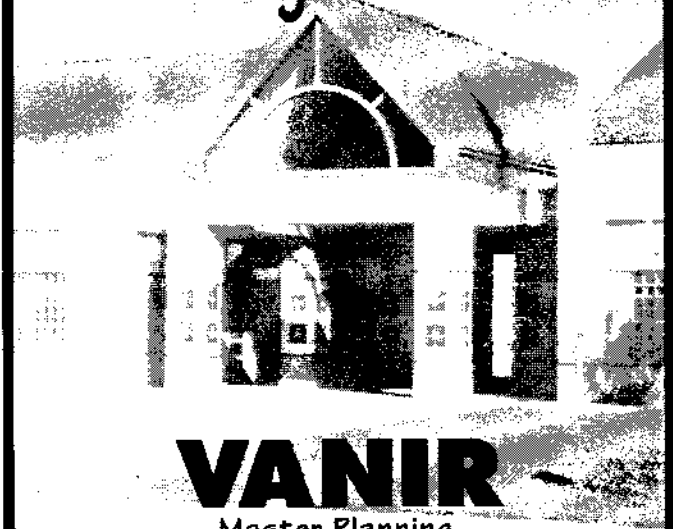
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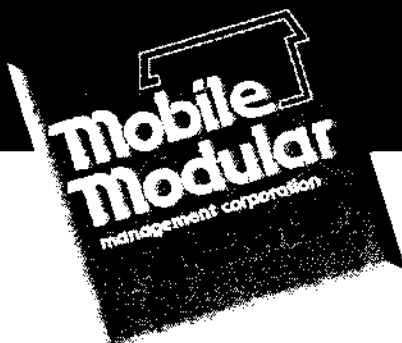
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C.A.S.H. MEETINGS, CONFERENCES & WORKSHOPS

- June 26, 2001**
Tuesday
Level III Developer Fees (a.m.) and Joint Use (p.m.) Workshops
Doubletree Hotel, 2001 Point West Way, Sacramento, CA
- June 27, 2001**
Wednesday
11:00 a.m. - Noon
General Membership Meeting
Esquire Building, California Chamber of Commerce, Meeting Room
1215 K Street, 14th Floor, Sacramento, CA
- June 29, 2001**
Friday
Level III Developer Fees (a.m.) and Joint Use (p.m.) Workshops
Ontario Airport Marriott, 2200 E. Holt Blvd., Ontario, CA
- July 24, 2001**
Tuesday
Lead and Asbestos (a.m.) and Energy Financing (p.m.) Workshops
Doubletree Hotel, 2001 Point West Way, Sacramento, CA
- July 25, 2001**
Wednesday
11:00 a.m. - Noon
General Membership Meeting
Esquire Building, California Chamber of Commerce, Meeting Room
1215 K Street, 14th Floor, Sacramento, CA
- July 27, 2001**
Friday
Lead and Asbestos (a.m.) and Energy Financing (p.m.) Workshops
Ontario Airport Marriott, 2200 E. Holt Blvd., Ontario, CA
- February 25-28, 2002**
Mon. - Thurs.
C.A.S.H. 23rd Annual Conference
Sacramento Convention Center, Sacramento, CA

Monthly C.A.S.H. meetings are held from 11:00 a.m. to Noon in Sacramento. The monthly meetings are always scheduled to coincide with the monthly meetings of the State Allocation Board on the fourth Wednesday of the month, except in November and December, to enable C.A.S.H. members to attend the SAB's afternoon session. Both SAB meetings and General membership meetings are subject to change.



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