

# KEEPING CURRENT

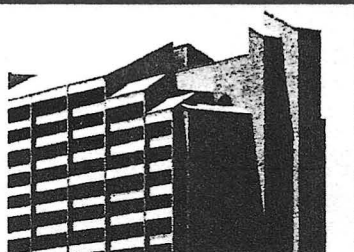
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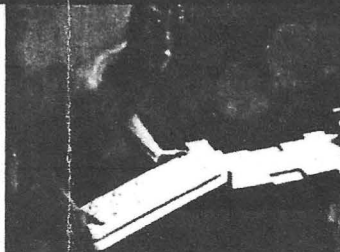
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## Rossmoor Towers Put High Energy Costs On Ice

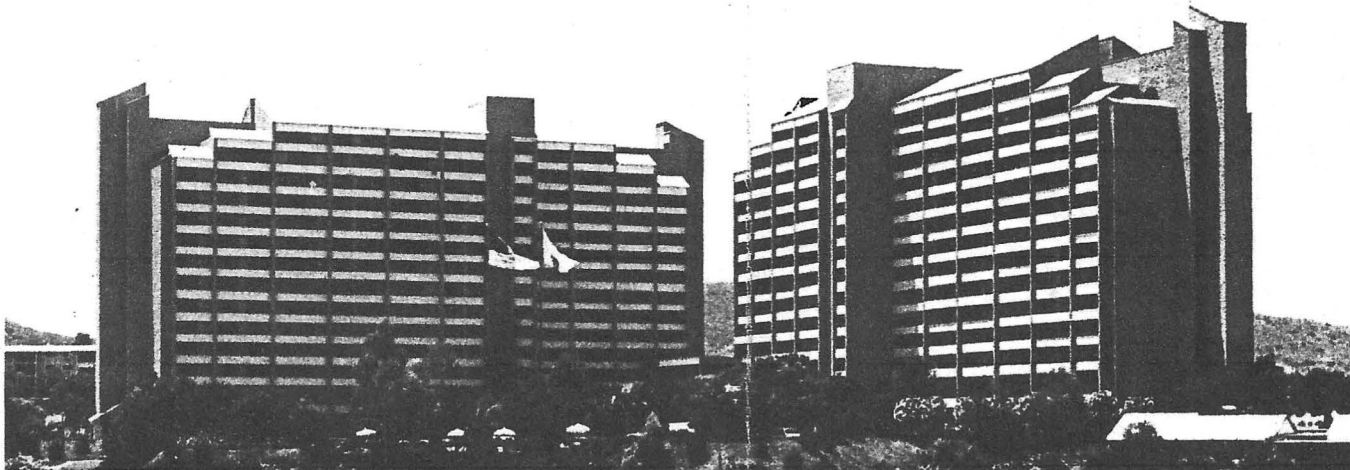
Back at the turn of the century, when the residents of Leisure World's Rossmoor Towers were just a gleam in their parents' eyes, off-peak cooling consisted of cutting blocks of ice from frozen

lakes, storing it underground, and using the stored ice for cooling the following summer.

Today's energy situation, combined with technological advances in storage and control equipment, makes off-peak cooling one of the most advanced, cost-effective space cooling options available.

So, when the residents of the twin, 14-story condominium development in Laguna Hills opted to install an off-peak cooling system, it was like putting high energy bills in cold storage.

The 500-kilowatt Off-Peak cooling system installed at the 311-unit retirement complex reduces annual energy



Rossmoor Towers is using new advances in old technology to manage its energy use.

charges an estimated \$45,000. The system will pay for itself in just over three years, thanks in part to a Southern California Edison incentive program which paid \$100,000 toward the \$268,000 cost of the system. (See accompanying article.)

In a typical off-peak cooling system, a medium is cooled or frozen during a time when electricity costs less, generally at night. This cooling is stored for use the following day.

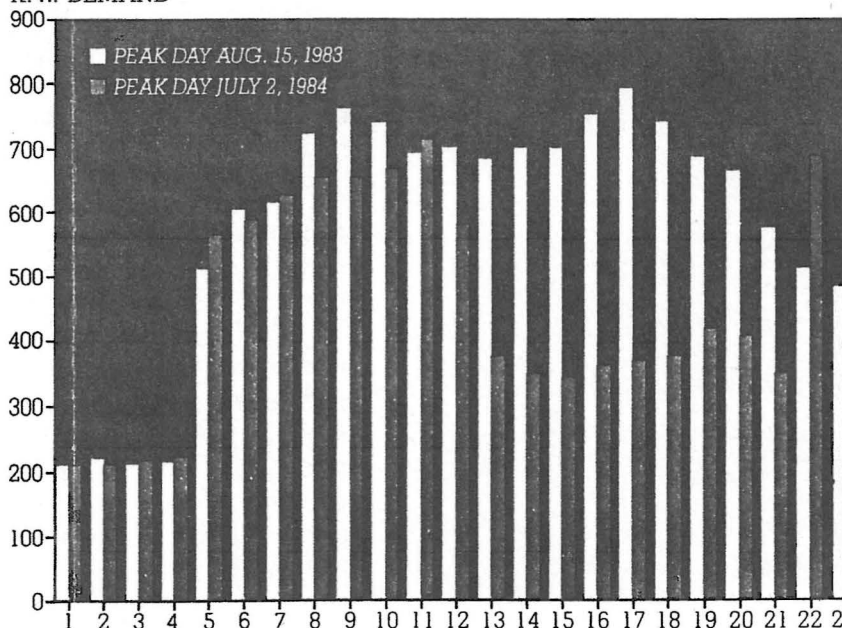
Now in its third summer of operation, the system installed at Rossmoor Towers employs a salt and water composition to store the cooling capacity. The mixture, known as a eutectic salt, freezes and thaws at 47°F and is sealed in one-gallon, plastic bottles. There are 54,000 such bottles stacked like bricks inside a concrete pool 45 feet long, 35 feet wide, and 8 feet deep.



Containers of Eutectic Salts are stacked in the storage tank.

The existing chillers, previously used to furnish chilled water for air conditioning purposes directly to the 390,000-square-foot complex, are now used at night — when charges for electricity are lower — to pass cold water through the storage pool and freeze the salts. During Edison's peak hours, when air conditioning

K. W. DEMAND



This load profile shows typical kilowatt demand for Rossmoor Towers before and after the installation of an off-peak cooling system.

is needed by tower residents, the chillers do not operate. Instead, cold water is pumped from the storage tank through the building.

While the building still uses approximately the same amount of electricity overall, shifting a large portion of the air conditioning load to an off-peak period reduces energy costs by an estimated \$45,000 per year. These savings are passed on to residents of the towers in the form of reduced energy bills.

While modern, state-of-the-art technology has yielded big savings for these Leisure World residents, they have also relied on some tried and true energy management measures to reduce their energy expenses ever further.

More than 855,000 kilowatt-hours (kWh) per year

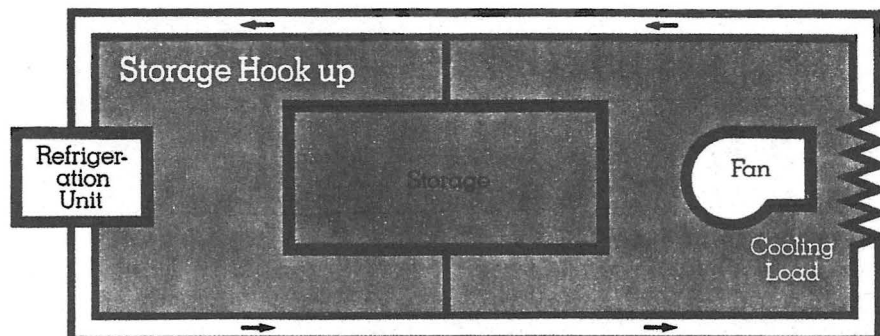
were saved through such time-tested actions as retrofitting incandescent lighting in hallways and other common areas with fluorescent fixtures. At current rates, this equates to an energy cost savings of nearly \$70,000 per year, which helps to lighten the load on residents considerably.

For example, converting 620 hallway fixtures from incandescent to fluorescent reduced the buildings' annual energy use by more than 271,000 kWh. Other lighting improvements, such as changing 188 incandescent exit signs to fluorescent fixtures, resulted in annual energy savings in excess of 127,000 kWh.

More than 400,000 kWh were saved annually through a combination of staging four 25-horsepower cooling tower fans so only two operate at a time, reducing the hours of operation for fountain pumps, installing plastic strip curtains on walk-in freezer and refrigeration units in the kitchen, and installing a low-temp chemical dishwasher.

In addition to the \$100,000 off-peak cooling incentive, the towers' residents have enjoyed more than \$10,000 in rebates through Edison's Energy Management Hardware Rebate Program. This program offers customers cash rebates when they install hardware measures recommended during a free Edison energy survey.

Energy management activities implemented at Rossmoor Towers reduced the demand on Edison's system by 225 kilowatts. When combined with demand reduction associated with off-peak cooling, the 10-year-old complex has lightened the load on Edison's system by nearly 750 kilowatts, enough energy to serve about 500 typical residential customers.



*Storage is typically placed between the cooling load and the refrigeration unit. In this way it acts as a buffer between the cooling plant and the cooling load. With storage it is possible to operate cooling at times and capacities which suit best plant efficiency and the optimum electric rate schedule.*

The implementation of off-peak cooling technology in either new or existing buildings has the twofold advantage of reducing the customer's energy costs while helping Edison to make the most efficient use of existing generation facilities.

By deferring the need to build new generating plants, all customers benefit through lower electricity rates, since the cost of those new plants is eventually reflected in the price everyone pays for electricity.

By helping our customers to reduce on-peak demand and kilowatt-hour consumption, Edison has made a long-term commitment to managing load growth and helping customers to identify ways to lower their energy costs.

Off-peak cooling is only one of many programs available to Edison customers throughout our 50,000 square-mile service territory. If you haven't already taken advantage of these free services, you could be using

more energy and spending more money than necessary.

To find out more about how we can help you to manage your energy costs, call us toll free at our Conservation Action Line: 1-800-952-5062. Or, you can contact your local Edison office and ask for the Energy Services department. We're listed in the white pages under the Company's name: Southern California Edison.



*Ray Peterson (left), chief building engineer for PCM, Inc., which manages Rossmoor Towers, discusses energy management with Edison Energy Services Specialist Pete Quick. The 29 million BTU storage tank for the towers' off-peak cooling system is located under the lawn behind them.*

## **P**ut Your Cooling Costs On Ice

Would you like to lower your energy costs, save money and earn up to \$100,000?

Southern California Edison's Off-Peak Cooling Program is designed to help you put energy costs on ice by shifting demand for electricity used for air conditioning or process cooling to off-peak hours.

Just as telephone calls or airline fares cost less during the times when demand is low, electricity costs less during off-peak periods, those night and early morning hours when the demand for electricity is less.

If you choose to participate in the Off-Peak Cooling Program, you'll save in several ways. First, you'll notice a significant savings on your monthly electric bill as you reduce demand charges. Second, to help defray the cost of installing off-peak

cooling systems, Edison offers a one-time incentive based on the electricity deferred to off-peak hours. As an added incentive, Edison will pay part of the cost for a feasibility study to determine if off-peak cooling is a cost-effective option for you.

Off-peak cooling is right for many buildings, both existing and planned. The best way to determine if this time-tested technology is right for you is through an analysis of your facility performed by a licensed mechanical engineer. To offset the cost of this analysis, Edison will enter into a contractual agreement to cover 50 percent of the cost for such a study, up to a maximum of \$5,000.

(To qualify for this incentive, you must *first* contact Edison. If accepted, we will initiate the agreement and you can then select a consulting engineer to perform the study.)

If the study indicates an off-peak cooling system is cost effective and you decide to proceed, Edison will agree to provide an incentive of \$200 per kilowatt of electrical demand shifted from on-peak as a result of the permanent installation of an off-peak cooling system, up to a maximum of \$100,000. This incentive is intended to help defray the expense of installing the storage container and related equipment.

If you'd like to get all the details about Edison's Off-Peak Cooling Program, just call our toll-free Conservation Action Line at 1-800-952-5062. Our operators are standing by. We're ready to help you put high energy costs in cold storage.

For more information, contact your local Edison office or call the Conservation Action Line toll free at 1-800-952-5062.