

# Lawrence Berkeley National Laboratory

## Lawrence Berkeley National Laboratory

### **Title**

What organizations did (and didn't) do: Three factors that shaped conservation responses to California's 2001 "crisis"

### **Permalink**

<https://escholarship.org/uc/item/0xd5n855>

### **Authors**

Janda, Kathryn  
Payne, Christopher  
Kunkle, Rick  
et al.

### **Publication Date**

2002-08-18

# What Organizations Did (and Didn't) Do: Three Factors that Shaped Conservation Responses to California's 2001 "Crisis"

*Kathryn Janda, Oberlin College*  
*Christopher Payne, Lawrence Berkeley National Laboratory*  
*Rick Kunkle, Washington State University*  
*Loren Lutzenhiser, Washington State University*

## ABSTRACT

Beginning in the summer of 2000, California experienced energy supply problems, sharp increases in electricity and natural gas prices, and isolated blackouts. In response, California's state government implemented an unprecedented energy conservation effort to mitigate projected electricity supply shortages during the summer of 2001. Ultimately, significant electricity demand and consumption reductions were achieved.

This paper considers the response of commercial and institutional organizations to the California energy situation and offers a description of three factors that shaped these responses: (1) concern about energy problems; (2) operational conditions; and (3) institutional capacity for action. A matrix of possible combinations of concern, conditions, and capacity offers a heuristic for use in exploring how to best tailor and target policy interventions to the circumstances of particular subgroups of organizations.

## Introduction

Beginning in the summer of 2000, California experienced energy supply problems, sharp increases in wholesale (and retail) electricity and natural gas prices, and isolated blackouts. In response to the rapidly worsening electricity situation in California in 2000, the state set an initial goal for reducing California's peak demand for the summer of 2001 by 5,000 megawatts. To meet this goal, the governor and legislature took steps to enhance supply, encourage rapid voluntary reductions in demand, and provide incentives for actions that would result in load reductions. Three bills—Assembly Bill 970, Senate Bill X1 5 and Assembly Bill X1 29—allocated roughly \$950 million for consumption and demand reduction programs. The governor also enacted a variety of additional measures, including the "Flex Your Power" media awareness campaign, the requirements for retail sector outdoor lighting reductions, and the toughening of energy efficiency building codes.

Although the aggregate data show that Californians used less energy in 2001 than they did in 2000, it is difficult to tell who did what and why. To understand the nature of the demand reductions and the motivations for consumer responses, Washington State University (WSU) conducted research for the California Energy Commission (CEC). Separate papers in this volume address conservation responses in the residential sector (see Lutzenhiser, Gossard & Bender 2002a) and agricultural sector (McBride et al. 2002).<sup>1</sup>

---

<sup>1</sup> WSU was only one of many entities that conducted research for the CEC and other interested parties. Other examples of research on California consumers includes Hensler, LeBlanc & Siefert (2002), Local Government Commission (2001), CMTA (2001), and Quantum & Xenergy (2001).

This paper presents selected results from a more detailed report to the CEC (Lutzenhiser et al. 2002b) focusing on conservation responses of public and private organizations in the non-residential sector. We found that several factors *within* organizations affected their ability to respond to these external stimuli. We describe three intra-organizational factors—which we call “concern”, “conditions”, and “capacity”—and present a model for understanding how these factors affect the efficacy of various kinds of policy interventions.

## Methods

Understanding the commercial sector is a difficult task because of the diversity of actors, organizations, and building types in use. We tried to gain an in-depth understanding of the energy choices that some organizations made by conducting 84 semi-structured interviews with members of public and private organizations and 21 interviews with key informants. We describe our sampling, selection bias, and data collection in detail below.

### Sampling

We drew our sample primarily from CEC program participant lists. In particular, we focused on three programs—Cool Roofs, Public Sector Loan, and Innovative Peak Load—with a few participants in the Demand Responsive Program. We also interviewed “non-participants”—organizations that did not complete participation in a CEC-funded economic incentive program. This pool includes respondents who received rebates funded by non-CEC sources; those who tried but failed to complete CEC-funded programs; those who took solely voluntary actions; and those who made no changes in their consumption practices at all.

Three characteristics guided the selection of our respondents. First, we chose organizations in four different geographic locations: the San Francisco Bay area, the Los Angeles metropolitan area, the San Diego metropolitan area, and the Central Valley. Second, we targeted two particular building types: office and retail. Office buildings and retail stores are the two largest commercial subsectors, accounting for about one third of the sector’s square footage. A small portion of our sample included “other” commercial buildings such as schools, health care or other institutional facilities. Third, we focused on larger buildings (50,000 square feet or more) or firms with multiple buildings, but also included smaller businesses within the office and retail sectors. Table 1 shows the distribution of the 84 interviews in our sample across these three characteristics.

We also conducted a total of 21 key informant interviews: 10 with CEC staff contract aggregators and administrator groups associated with the innovative peak load program; 6 with Cool Roofs Program CEC staff and administrator groups; and 5 with other program staff, a public utility, a peer organization, and energy service providers. Because our key informants referred to many different organizations, we did not include them in Table 1.

**Table 1. Organizational Respondents by Building Type, Building Size, and Region**

Interviews	Bay Area	Central Valley	LA Basin	San Diego	Statewide/Nationwide	Totals
Large Office	9	7	6	8	0	30
Small Office	2	5	2	4	0	13
Large Retail	3	3	3	0	11	20
Small Retail	0	3	2	0	2	7
Other	3	7	2	2	0	14
Totals	17	25	15	14	13	84

### **Selection Bias**

Because our respondents are primarily from CEC program participant lists, it is likely that the bulk of our interviewees were more proactive than the general population. Although our sample is not necessarily representative of the commercial sector as a whole, we took care to counter this selection bias in two ways. First, we located and interviewed non-participants. Approximately 25% of our interviewees in the office and retail sector did not participate in a CEC program. Second, we asked our key informants at the CEC to identify a range of participant responses—both positive and negative—within their programs. These steps broadened our sample beyond the “star pupils” who are most likely to grant requests for interviews.

### **Data Collection**

Four researchers contributed to the data collection, conducting semi-structured interviews using an interview protocol. The protocol guided the interviewers in addressing specific topics while allowing the respondents to report their experiences in their own terms. The major topics included effects of the energy situation, actions taken, how choices were made, participation in programs, results achieved, and future plans.<sup>2</sup>

### **Findings**

Organizations were affected by the energy situation in numerous ways, and several factors influenced their ability to respond to it, including their energy-related awareness and concern, perceived conservation opportunities, and institutional capacity to act on these

---

<sup>2</sup> The entire text of the protocol is included in the full report (Lutzenhiser et al. 2002b).

opportunities. We consider these issues for office and retail<sup>3</sup> buildings and discuss the effects and persistence of our respondents' conservation and efficiency actions.

## Office Sector

We conducted interviews with individuals from 41 organizations<sup>4</sup> representing the office sector. Of these, 27 were with organizations using buildings greater than 50,000 square feet, and 14 were with those using spaces below this threshold. Local governments (cities and counties) accounted for 17 of the 41 organizations.<sup>5</sup> The remaining 24 interviews included 13 real estate firms that own and manage office properties and 11 tenants or owner occupants that use office space. In this section, we provide a snapshot of the energy-related concerns expressed by our public and private office sector respondents, some technical challenges they faced, and the extent of their organizational capacity to deal with the energy issues they identified as being important.

**Office concern.** Amazing as it may seem, some office sector organizations felt little to no direct financial effect from volatile energy prices. Those unaffected fell into three categories: small organizations that consumed little energy (like a small city government); organizations served by municipal utilities; and organizations with fixed price contracts with third parties (like Enron)<sup>6</sup>. In general, though, the office sector was well aware of the energy situation, but different subsectors felt the impacts differently. Local governments expressed a higher level of concern than private office sector organizations. Large private organizations tended to show more concern than small private organizations.

For public sector organizations, the potential impacts on budgets due to uncertainty in energy prices or the potential for sustained high prices was a significant concern. These organizations essentially have fixed incomes and fixed budgets. If costs for utilities go up, then money must be taken from other budget categories to compensate for the shortfall. Impacts on energy budgets and budget planning were as much as 50 to 100%.

Private sector office price concerns, on the other hand, were expressed in terms of profitability instead of budgets. The result was low concern, for two reasons. First, energy cost increases per square foot are small relative to building rents, which range from \$25 to \$40 per square foot. The vice president of engineering for a large office real estate firm put energy costs in perspective for us:

We had a 230% increase ... which really equated to slightly less than 2¢ per square foot when escalated to multi-tenant properties.

In addition to energy costs being small relative to rental revenues, many real estate and property management firms are able pass on increases in energy costs directly to their

---

<sup>3</sup> We also interviewed thirteen respondents in several different "other" building types (e.g., hospitals, a hotel, a concession service for a national park, etc.), but these results are not presented here. Given that this category was—by definition—idiosyncratic in its composition, a parallel analysis of these interviews with the office and retail sectors was unfeasible.

<sup>4</sup> Organizations where we conducted multiple interviews are only counted once.

<sup>5</sup> Although local governments employ a diverse mix of buildings, office buildings were the predominant type in our sample.

<sup>6</sup> Subsequent developments with this company, of course, engendered their own kind of volatility.

tenants. When asked if he had done any other efficiency improvements, an owner of a small real estate company said:

I know I should do more, but I'm just kind of apathetic about it. I pass the energy costs on to my tenants, and the cost just doesn't matter to me.

Tenants either pay energy costs or, in situations where the owner pays, have clauses in their lease that allow costs above a base level to be passed on to them.

**Office conditions.** The energy crisis presented organizations with time-dependent concerns and problems. Some had a sense of urgency and believed they needed to respond quickly to address price and budget concerns as well as public expectations. This was particularly true for local governments. This urgency often led to operational changes such as thermostat settings, shifting schedules, turning off lights and equipment, and other behavioral adjustments. For example, a county administrator told us:

The short term was more cost containment and self sufficiency. Making sure departments shut off the lights when they were not using them. ...[G]oing around and putting in motion sensors in public areas like conference rooms. There is a whole litany of things that ... we initiated....

In contrast to the public sector, private sector office organizations were more limited in possible operational changes due to the requirements of their lease agreements with tenants. They could not raise the cooling set point in a tenant space, change the hours of operations, or turn off the lights. In particular, as a vice president of engineering explained, they could not interrupt power to their clients, which limited their ability to participate in some types of curtailment or interruptible programs:

Commercial real estate is really dependent on electricity....We cannot shut off the electricity on demand. Not only would it violate the covenants of the lease, but it would not make any sense. We cannot sit here in the dark.

Although real estate firms could not make these changes in tenant spaces, we did talk to firms that reduced lighting and air conditioning in common areas and monitored tenant spaces more closely during after-hours use. One organization had even developed curtailment plans for implementation during Stage 3 alerts.

**Office capacity.** Organizations drew on their experience and knowledge to identify how they should respond to the 2001 energy situation. Many of the local governments and office building real estate firms we spoke with had some expertise with energy efficiency or conservation efforts. In some cases these efforts were ongoing, while in many others they had lapsed or were one-time events.

The energy crisis got the attention of top decision-makers at both public and private organizations. In many cases an individual, often part of general administration or facility management, was appointed to be responsible for developing an organization response to the energy situation. Many of the public organizations we spoke with developed an energy plan in response to the energy situation. Some already had energy policies or procedures that they dusted off. When making decisions about actions involving efficiency improvements to their buildings, organizations considered things they were already planning to do, problems that needed to be addressed (e.g., repairs/replacement of failing equipment), and what was feasible for them. In some cases the energy situation accelerated planned or needed actions that had already been identified. This situation was common for the local governments

participating in the public sector loan program. The short window of opportunity to apply for this program favored organizations that had already projects in mind. For example, the chief financial officer for a Northern California city described their decision to replace their HVAC system and controls this way:

Our HVAC system was failing us. ... We were looking at the HVAC controls when the CEC came out with their loan program. So we put in our application right away. We knew what we wanted to do. ... And the timing was made even more right by the energy crisis.

Energy plans often focused on operational changes to reduce energy consumption. In some local governments the proposed procedures were mandatory, but in most cases they were voluntary guidelines and departments or groups were encouraged to follow them. Our respondents reported that the response to proposed guidelines was very positive.

In contrast to these larger organizations, smaller office respondents had less staff available to address issues like energy. Outside contractors are often used for things that go beyond day-to-day operations. Usually energy efficiency receives little attention; as a result, these organizations have little capacity to pursue energy efficiency improvements.

## **Retail Sector**

We conducted 27 interviews in the retail sector – 20 with respondents at large retail facilities. These interviews included 5 national full-line department stores, 8 national big box or stand-alone specialty stores, 3 shopping malls, 3 grocery stores (2 national and 1 statewide), and 1 car dealership. The 7 small retail interviews included a regional chamber of commerce, 2 local strip malls, an independent convenience store, a national lingerie chain, a pawn shop, and a national drugstore chain.

**Retail concern.** Most retail respondents, whether large or small, were concerned primarily by rising costs and public opinion. One high-end department store's facility manager said that the major effect of the energy situation was, "it reduced [our company's] profitability," but the company was able to absorb the burden of higher energy costs at the corporate level. Some smaller companies passed the higher energy costs on to their customers, as this owner of an independent convenience store did:

Everyone knows that there is a power shortage and the cost of energy has increased. And they understand that the cost of goods goes up, too. They come in and buy a gallon of milk. Before the crisis, they were paying \$2.50 a gallon. So now they're paying \$2.60. For us, it doesn't matter.

For most smaller companies, the situation was more dire. As the Chamber of Commerce for a Central Valley region told us, "Utility bills for some of our members went up by \$400- \$800. For a small business, this amount is the difference between staying alive and going under."

Although cost was an important motivator for many, for some retailers it was secondary to public relations. An energy manager for a large chain put it this way:

All retailers are subject to public opinion. And we're all energy hogs. Because it takes a lot of energy to run these big facilities. [...] Of course, you know, we have the resources and the dollars to run these facilities and run 'em wide open. And could, but for public sentiment. Our customers come in and yell at us: "Don't you understand there's energy constraints? Why are you running all these lights?"

For this retailer, *looking* like his company was saving energy was more important than saving the energy (or the money) itself. For other retailers, who served a slightly different public, appearances were important in the opposite direction. A consultant for another upscale national department store said the upper management at this establishment was reluctant to “harm the shopping experience” by shutting off lights or turning up the thermostat. Yet this company, like other high-end retailers, was feeling the effects of the downturn in the economy and was concerned about its expenses.

Given the combination of rising costs, public pressure, and the presence of incentive programs, it is small wonder that many retail organizations chose to respond to energy issues in some way. The nature and substance of an organization’s responses, however, are not easily mapped to the size of its buildings, the composition of its wares, or the class of its customers. For example, the Demand Responsive program was equally attractive to a big box retailer, a high end department store, and a grocery chain. Three different types of retail establishments all chose a similar energy solution. Nor are energy responses predicted by the choices of similar organizations. For example, of the five full-line department stores we interviewed, only two participated in a CEC program. Of the two participating stores, one joined the Innovative Program, the other selected a Demand Responsive strategy. Of the three department stores that did not participate in a CEC program, one applied for a Demand Responsive grant and was rejected. One hired Enron. And the third worked alone. Here we have a case of several similar retail establishments, each choosing a different solution. What factors can explain why similar stores do different things, and different stores do the same thing?

**Retail conditions.** Various kinds of technical conditions were an important factor that retail respondents cited as shaping their energy conservation and efficiency choices. In particular, the presence or absence of an energy management system was a key point. As the manager of a Bay Area shopping mall said “I don’t have an energy management system. We’re not that sophisticated.” In comparison, several big box stores and a national lingerie chain had the ability to control and monitor lights and HVAC systems from a single location. This central point was usually the corporate headquarters, which is often more than a thousand miles away from the stores in California.

The presence of an energy management system, however, does not guarantee it works properly or grants the desired level of control. The energy manager for the department store that was unsuccessful in winning a Demand Responsive grant had the following to say about his company’s efforts to upgrade their control systems:

We were probably one of the first companies to put EMS systems into our stores 20 years ago. But a lot of those systems you can’t buy parts for. So you got a lot of relay panels just sitting out there...just dead. [...] We needed to come up with an engineered standard that would be able to adapt all these different brand systems out there.

Diversity of an organization’s building stock also affected its ability to respond. The energy manager for a big box store claimed that all of his 500 stores were “virtually identical,” as they were all built within the last five or six years. This similarity makes energy planning and estimations much easier than for a chain that has greater diversity in its building stock. One department store, for instance, had a slight problem with an internal awards program it developed for store managers as an incentive for pursuing energy efficiency. In this program, managers could gain credits by implementing various energy efficiency

measures and exchange them for a percentage of their utility budget deficit, which the corporate office would then absorb. Occasionally, the awards program gave target bulb reduction numbers that were larger than the number of lights in the building. “Our buildings,” said the energy manager for this company, “aren’t cookie-cutter buildings.”

**Retail capacity.** Another issue that our respondents discussed was the capability of the organization to control and/or motivate employees. For example, in comparison to the flexible award program at the department store described above, other large retailers rarely allowed store managers to make decisions locally. A department store’s consultant told us, “We have a different organization, where the directive for how you operate comes from the top-down, and you don’t go against the top.” Just as there are degrees of technical control, there are variations in organizational capability to assert dominance or ascertain compliance. An energy manager from the national lingerie chain described how she uses information from their monitoring system to keep track of store managers’ behavior:

[W]e do keep track of how they’re doing, right now, not just in CA but everywhere. And we do kind of police them a little bit with the energy management systems that we have. And let them know that “This month you’re saving this much energy by doing what you’re doing. Keep it up.” Or “Hey, you need to do something.”

Just as there are different qualities to EMS systems, some personnel are more or less equipped to deal with energy issues. An energy manager for a drugstore chain described his frustration with having to provide in-store contacts for a CEC funded lighting retrofit program :

What’s the difference if they know the name of the store manager or not? I can’t reasonably provide that to them with any degree of certainty. That district manager may change that store manager tomorrow. I don’t know. And yet that’s a requirement. And the phone number. Why would they want to contact store personnel? Store personnel have no idea what’s going on.

Relying on people as opposed to technology isn’t perceived as a bad thing in all organizations. For at least one department store, the energy manager considers the store personnel an asset:

Basically, the store personnel--because we’re not automated--are focused to reduce energy during non-customer hours. [...] We’ve got an ethic that is probably one of the best in the industry since we don’t have automated controls. I’ve been with other retailers and [company name] definitely has the best program. For what we do with the staff and the personnel in the field.

Finally, the size of the energy management team, extent to which it is integrated within the company, and the power it seems to be able to exert are all relevant factors that give some sense of energy’s relative importance in the corporate structure. Although the energy manager quoted above seemed proud of the store personnel, he also lamented, “My counterpart at WalMart has 35 or 40 people working for her. I’m just one guy.”

## **Effects and Persistence**

Generally our respondents had a favorable view of the results of their actions. Many believed they had reduced their electricity demand and that this contributed to the lack of blackouts. Staff responded positively, and customers had few complaints. The respondents felt their actions helped to mitigate the negative affects of the energy crisis on their organization.

The respondents believed their actions produced energy savings. Some believed they were saving 10-20% relative to the previous year, although they recognized that they did not yet have the data to show this, as this county administrator said:

We can't demonstrate it because we haven't got the data in the right program every month. But my guess is that we are somewhere between 10 and 15 percent at least over everything that we are responsible.

Our interviews indicate that much of the initial energy reduction resulted from the quick, voluntary reduction actions like shutting off lights and raising thermostat levels. Longer-term projects are underway and the full savings impact from organization actions may not be evident for quite some time. The following quote from a utility account manager for a city described the duality:

Most of the stuff right now for the CEC program are in progress. The LED traffic signals we will have in by December. ... I expect 70 to 80 percent reduction from that. Still we are currently running with just the reduction policies and everybody paying attention to energy efficiency in their buildings, from the previous year this last month we were running about 8.5 percent under previous year. So people, it is still in their mind. They're still doing it.

Feedback from organization staff and customers ranged from positive to neutral acceptance of the need to take the actions that were done. This range of response was evident between organizations, and even within them, as evidenced by this remark from the corporate energy manager from a national retail chain:

I think a lot of the guests were very, very supportive. It was very well understood through the media exactly what was going on. And the guests appreciated we were doing something and not acting business as usual. I don't think our store-merchandising people appreciated it. They like it to be bright and comfortable. So it kind of slapped in the face of their philosophy to be operating more dim. But they bit the bullet. I think we had pretty much 100% cooperation.

In many cases, actions that had been assumed to require discomfort or inconvenience were seen as "not being all that bad." In some cases, energy efficiency actions actually produced unintended non-energy benefits. For example, a respondent from a car dealership in the Central Valley told us that when he turned off his nighttime security floodlights he saved money and decreased vandalism. Instead of using the security lights all night to protect his inventory, he hired a security guard. The security guard was cheaper than the electricity for the lights and had the added benefit of deterring local teens from frequenting the premises after hours. The dealer got a cleaner lot for less money.

Likewise, energy projects often provide improved levels of comfort due to the application of better technology and good design. The deputy director for public works for a county described their positive experience with a lighting retrofit as:

One of the things we have seen in the buildings that have had lighting retrofits so far is that the lighting is very pleasant. ... There is enough illumination to do what you need to do at your work area. It has just been a pleasant experience so far. I am not aware of any complaint whatsoever with any of the buildings we have finished with the level of lighting or quality of the lighting. It seems very successful.

Although it is clear that time is needed for organizations to fully judge the effects of their actions and whether this experience supports continuation of their efforts, the organizations we spoke with generally felt that the effects of their actions will continue. The continuation of the effects will likely be dependent on the nature of the actions. This philosophy was expressed by an assistant county administrator:

You know with the conservation part—where we have replaced refrigerators and so forth where we are actually reducing demand—that obviously will continue. The stuff that is more voluntary conservation—I think we have raised consciousness about it. Hopefully that will continue into the future. I am sure there will be some slackening off, there has been already. But I think in general people have gotten into the habit of turning off the lights. I think a pretty large percentage of it is permanent.

Many behavioral changes are likely to move back toward pre-crisis habits, but not all the way back. Where physical efficiency improvements have been made, the effects may be more likely to persist.

## A Model of Organizational Conservation Response

To examine the implications of our findings, we have developed a model of organizational conservation action that locates the firm and its technology in a larger context. In this model, we suggest that three factors shape organizations’ abilities to respond to calls for greater energy efficiency and conservation. First, *concern* varies between organizations and is a necessary precondition for action. Second, real world *conditions* facing the organization (e.g., the nature of its buildings, its production processes and machinery, its capitalization structure, etc.) vary and are crucial determinants of conservation choices. Third, organizational *capacity* (e.g., the presence/absence of energy manager, the extent to which the manager has the political power or financial resources to change policies and technologies, etc.) varies and is an important precondition for action.

In Table 2, we present a matrix of possible combinations of concern, conditions, and capacity factors. For simplicity’s sake, the matrix treats the three factors described above as binary variables. Although the reality is much more complex, this reductionist view allows us to develop a heuristic for use in exploring how to tailor and target policy interventions to the circumstances of particular subgroups of organizations. This matrix can help us consider what actions might help maintain or raise concern, develop capability, and increase capacity.

**Table 2. A Heuristic for Tailoring Interventions**

<b>Concern</b> Concern about energy	<b>Conditions</b> Opportunities for conservation	<b>Capacity</b> Ability to act on opportunities	<b>Policy approach to increasing energy efficiency (EE)</b>
Yes	Yes	Yes	Encourage EE
Yes	No	Yes	Recognize past EE, identify non-energy benefits
Yes	Yes	No	Technical assistance, incentives, peer support, education
Yes	No	No	Technical assistance, peer support, education
No	Yes	Yes	Incentives
No	No	Yes	Support continuous improvement, identify non-energy benefits
No	Yes	No	Technology assistance, incentives
No	No	No	Mandatory efficiency standards

It is beyond the scope of this paper to describe each combination of factors in detail, but our intention is to offer a systematic way of thinking about how real-world circumstances

differ in their effects on organizations. This model allows policymakers to think constructively about how programmatic issues may be resolved in new ways.

## **Implications**

We have offered a snapshot of office and retail sector responses to the energy crisis and suggested how different policy interventions might be used to affect various subgroups in the commercial sector. An important policy question remaining is whether the lower levels of energy consumption in 2001 will continue, especially if the crisis atmosphere recedes. Based on our interviews, we offer the following thoughts on this topic.

### **Continued Efficiency Practices**

There are a number of changes that took place during 2001 that could support the efforts of organizations to continue in their energy conservation and load reduction efforts. For example:

- Energy plans and procedures developed during the 2001 energy crisis provide mechanisms within organizations that will continue to support and justify energy actions.
- The 2001 energy crisis raised consciousness that energy conservation, efficiency, and demand reduction are good practices that justify the investment of resources. Any concrete savings achieved will reinforce this view.
- Where technological adoption has taken place, the information barrier associated with the technologies has been reduced. (For example, CFL purchasers may recognize the benefits of longer operating life.) Market delivery mechanisms will play a key role in maintaining the gains of technology change. (For example, if replacement CFLs are not available, consumers will return to using incandescent bulbs.)
- Retail electricity prices have increased significantly and are not likely to go down anytime soon. This will continue to put pressure on organization budgets and justify the investment in consumption reduction. Most organizations recognize that they needed to conserve in the long-term to mitigate the impact of higher energy prices.

### **Erosion of Conservation Gains**

Although there are many factors that can contribute to continued conservation and efficiency practices, there are also factors that could erode the gains made in 2001. For example:

- The media attention devoted to the energy crisis has largely disappeared. What little media attention that exists is largely critical of the major players involved in the crisis. This is producing very mixed messages about the crisis and the need to continue to respond.
- Other crises or issues will take over the attention and resources of organizations and push energy to a lower priority. Current issues include a much higher level of attention being paid to security and the decline in the overall economy.

- Attention to other issues also causes energy programs to fall to a lower priority of California government. Some of the programs that promoted energy reduction have disappeared, and the current budget crisis makes justification of continued high budget levels for these programs difficult.
- Uncertainty about the structure of California's electricity market, combined with the volatility (and even viability) of major utility providers will make private investment in energy an uncertain prospect.

## Conclusion

Ultimately, our research has revealed that the commercial sector cannot be effectively considered as a monolithic entity. Common energy policy assumptions about consumption practices and business behaviors do a poor job of describing the variety and complexity of organizational responses that we observed. We have presented a model of organizational action that begins to explain how, why, and when organizations make choices about energy consumption options. Further development and refinement of this inter-organizational dynamic will contribute to more effective energy policy formulation and implementation.

## References

- CMTA. 2001. *Energy Casualty Report*, August 16, 2001. California Manufacturers and Technology Association. [http://www.cmta.net/press/081601casualty\\_report.php](http://www.cmta.net/press/081601casualty_report.php).
- Hensler, T., B. LeBlanc, and D. Seiferth. 2002. *California Energy Efficiency in 2001: Customer Actions and Perceptions*. Boulder, CO: E Source.
- McBride, R.A., K.A. Bagby, L. Luzenhiser, and R. Amon. 2002. "Consumer Conservation, Demand-Reduction and Fuel-Switching Behaviors among Agriculturists in California, Summer 2001." In *Proceedings of the 2002 ACEEE Summer Study on Energy Efficiency in Buildings*, Volume 8. Washington, D.C.: American Council for an Energy-Efficient Economy.
- Local Government Commission. 2001. *Cool Savings with Cool Roofs: Customer Survey Response Summary*. Report prepared for the California Energy Commission.
- Luzenhiser, L., M. H. Gossard and S. Bender. 2002a. "Crisis in Paradise: Understanding Household Conservation Response to California's 2001 Energy Crisis." In *Proceedings of the 2002 ACEEE Summer Study on Energy Efficiency in Buildings*, Volume 8. Washington, D.C.: American Council for an Energy-Efficient Economy.
- Luzenhiser, L., R. Kunkle, K. Janda, and C. Payne. 2002b. *Understanding the Response of Commercial and Institutional Organizations to the California Energy Crisis*. Report to the California Energy Commission. Forthcoming.
- Quantum and Xenergy. 2001. *Statewide Small/Medium Nonresidential Customer Needs and Wants Study*. Final Report, December 2001, P1923-0121.