

The Energy Efficiency Public Goods Charge Report:

A PROPOSAL FOR A **NEW**

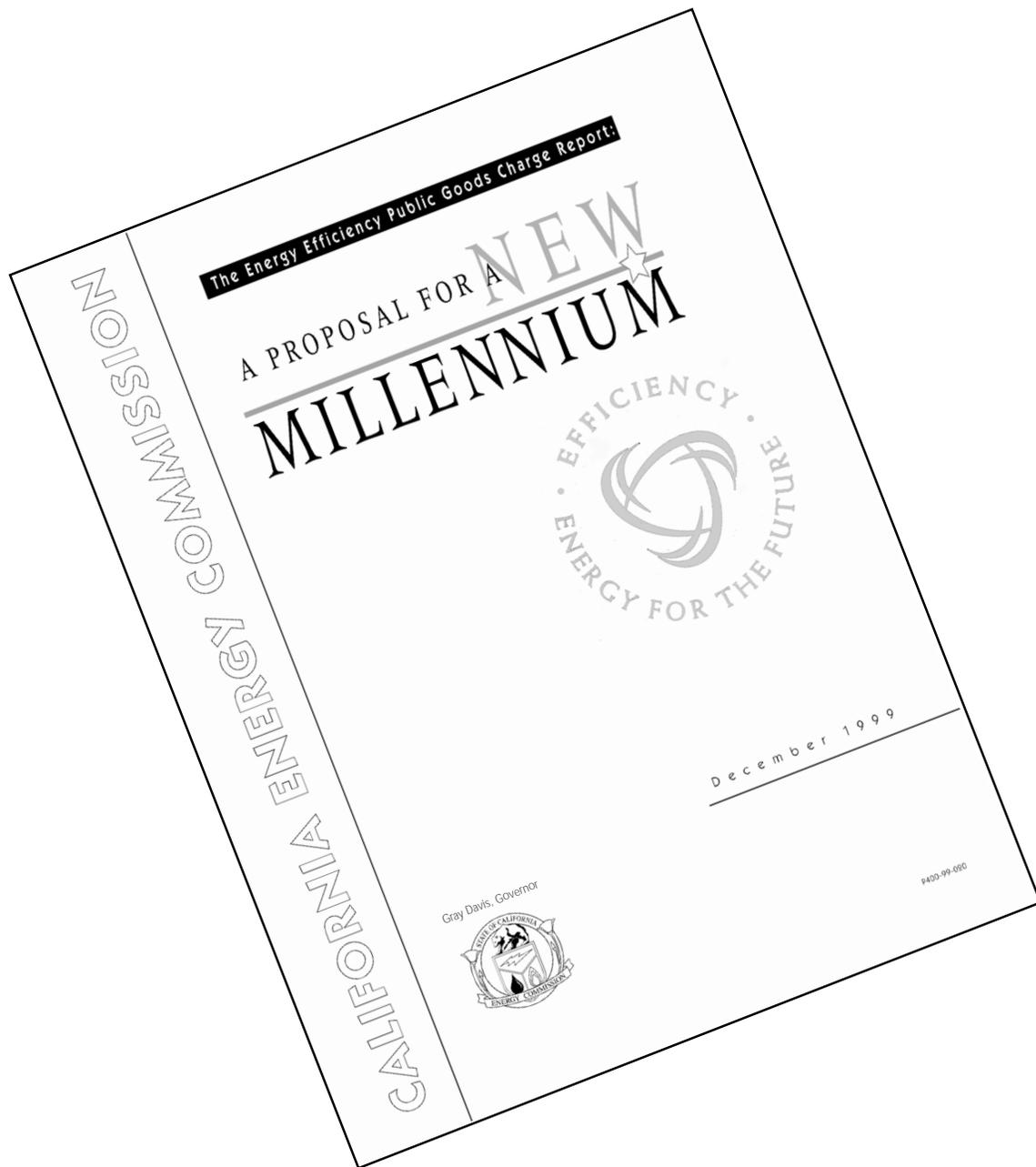
MILLENNIUM



Gray Davis, Governor



December 1999



CALIFORNIA ENERGY COMMISSION

William J. Keese, *Chairman*
David A. Rohy, Ph.D., *Vice Chairman*

Commissioners:
Robert A. Laurie
Michal C. Moore
Robert Pernell

Gray Davis, Governor

STATE OF CALIFORNIA

Mary Nichols, Secretary

RESOURCES AGENCY

ACKNOWLEDGEMENTS

CALIFORNIA ENERGY COMMISSION EFFICIENCY COMMITTEE

Robert A. Laurie, Commissioner and Presiding Member
Robert Pernell, Commissioner and Associate Member

ADVISORS TO THE COMMISSIONERS

John Wilson, Advisor to Commissioner Laurie
Laurie ten Hope, Advisor to Commissioner Pernell

REPORT EXECUTIVE TEAM

Kent Smith, Acting Executive Director
Scott W. Matthews, Deputy Director for Energy Efficiency

PUBLIC GOODS CHARGE EFFICIENCY PROGRAM REPORT TEAM

John Sugar, Project Manager
Donald Schwartz, Principal Author
David Abelson, Staff Counsel

PLANNING TEAM

Kae Lewis, Lead

Sylvia Bender
Bruce Cenicerros
Sy Goldstone
Lynn Marshall
James Woods

ADMINISTRATIVE TEAM

Michael Sloss, Lead

Dale Bosley
Michael Heintz
Mark Hutchinson
Daryl Mills
Cheryl Raedel

FUNDING TEAM

Michael Messenger, Lead

Bruce Cenicerros
Thom Kelly
Dennis Smith

PUBLIC PROCESS TEAM

Maxine Botti, Lead

Donald Kazama
Wendy Bader

SUPPORT TEAM

Maggie Read
Beverly Duffy
Alma Karr
Bob Aldrich

This report was prepared by the California Energy Commission's Efficiency Committee to be consistent with the objectives of Assembly Bill 1105. The report was adopted by the full Commission on December 15, 1999.

EXTERNAL STAKEHOLDER PARTICIPANTS

- Manuel Alvarez, Southern California Edison
- Don Arambula, Southern California Edison
- Greg Berlin, Southern California Edison
- Mark Berman, Davis Energy Corporation
- Nicole Biggart, Graduate School of MGT
- Carl Blumstein, UC Energy Institute
- Tyler Bradshaw, FAFCO Inc.
- Bob Burt, Insulation Contractors Association
- Sheryl Carter, Natural Resources Defense Council
- Chris Chouteau, Pacific Gas and Electric
- Dick Ely, ADM Assoc.
- Rich Ferguson, Sierra Club
- Richard Flood, Community Energy Services Corporation
- Lenny Goldberg, Toward Utility Rate Normalization
- Renee Guild, Electric power Research Institute
- Dale Gustavson, CE & EM Magazine
- Marcel Hawiger, Toward Utility Rate Normalization
- Dan Lieberman, City of San Jose
- Don Link, California Association of Lighting Energy Professionals
- Loren Lutzenhiser, Washington State University
- Mark McNulty, San Diego Gas and Electric
- Gary Mattesou, University of California
- Peter Miller, Natural Resources Defense Council
- Karen Mills, California Farm Bureau
- Harry Misurello, USPI
- Guy Nelson, Utility Energy Forum
- William Nelson, REECH Inc.
- Rita Norton, City of San Jose
- Michael Parti, Applied Econometrics, Inc.
- Bob Raymer, California Building Industry Association
- Mark Reedy, Global Energy Partners
- Mike Rufo, Xenergy
- Steve Schiller, Schiller Associates
- Don Schultz, Office of Ratepayer Advocates
- Frank Spasaro, Southern California Gas
- Richard Sperberg, Onsite Sycom Energy Corporation
- Ed Vine, University of California
- Stan Walerczyic, American Lighting Association
- Yole Whiting, San Diego Gas and Electric
- Stuart Wilson, California Municipal Utilities Association
- Lisa Wood, City of San Diego

TABLE OF CONTENTS

EXECUTIVE SUMMARY	4
VISION	5
STRATEGY	5
CONCLUSION	7
INTRODUCTION	8
A BRIEF HISTORY	8
LEGISLATIVE MANDATE ASSEMBLY BILL 1105	9
OPERATIONAL PLAN REPORT	11
NEED	11
VISION	13
PROGRAMS	14
Types of Programs	14
Coordination with Other Energy Efficiency Programs	15
Innovation	16
FUNDING	16
Rationale	17
Recommended Funding	18
Supply Adequacy	19
ADMINISTRATIVE STRUCTURE	20
Issues and Organization	21
Functions of the Administrative Structure	21
Recommended Administrative Structure	22
SUMMARY OF OPERATIONAL PLAN REPORT	26
TRANSITION PLAN REPORT	29
SCHEDULE	29
Transition Year One 2000	29
Transition Year Two 2001	31
Transition Year Three 2002	31
Transition Year Four 2003	32
Transition Year Five 2004	32
SUMMARY OF TRANSITION PLAN REPORT	33
CONCLUSION	33

EXECUTIVE SUMMARY

For over twenty years, two California public agencies have shared responsibility for the State's energy efficiency programs. The California Energy Commission (Energy Commission) has developed building and appliance energy efficiency standards, worked with municipal utilities and city governments on energy efficiency measures, and implemented energy efficiency programs statewide. During this same time, four investor-owned utilities, Pacific Gas and Electric, San Diego Gas and Electric, Southern California Edison, and Southern California Gas have gone to the California Public Utilities Commission (Public Utilities Commission) with requests for energy efficiency program funding and have had the costs and benefits of their energy efficiency programs debated in Public Utilities Commission proceedings.

With the passage of Assembly Bill 1105, on July 1, 1999, this bifurcation of responsibility for energy efficiency may end and a new system of review and oversight could emerge, a system where the investor-owned utilities, which have historically looked to the Public Utilities Commission for direction on energy efficiency, could look to the Energy Commission instead.

Assembly Bill 1105 directs the Energy Commission to report on transferring the authority over the energy efficiency programs funded by the public goods charge from the Public Utilities Commission to the Energy Commission, the State's energy analysis, research and development, energy efficiency, and power plant siting body.

In responding to the letter and spirit of the legislation, the Energy Commission has held three public Energy Efficiency Committee Workshops, one public Staff Workshop, and one Committee Hearing to receive comments on the Staff Draft Energy Efficiency Public Goods Charge Report released in November 1999. The Energy Commission adopted this report in a Business Meeting on December 15, 1999.

While the recommendations in this report are not likely to satisfy any one party completely, this report substantially reflects the concerns of stakeholders while also holding to the Energy Commission's vision for the disposition of public goods funds.

VISION

In this age of utility deregulation, energy efficiency public goods funds should be used to stimulate investments in cost-effective, sustainable energy savings that are not likely to be adequately provided by the competitive or the regulated market. Saving energy and using energy more efficiently is in the vital interest of the State's future, and public goods funds should be used to significantly reduce California's electric system loads.

Energy efficiency programs can reduce the energy intensity of the State's infrastructure, make businesses more competitive, and allow consumers to save money and to live more comfortably. Energy efficiency programs reduce the need for new generation or transmission capacity, improve the environment, and help customers control their utility bills. Analysis by Energy Commission staff shows that the amount of additional energy that would be saved by continuing all utility programs at current funding levels over the next decade is only a fraction of the remaining cost-effective potential to save energy. To achieve these additional savings, public goods funds should not be used to simply sustain existing programs. New programs must be developed to exploit the power of the market.

The Energy Commission proposes a program delivery structure that both builds on past successes and is well-suited to a restructured market a structure that allows contributions from multiple actors can make utility service territories transparent and encourage coordination with municipal utility systems.

STRATEGY

The Energy Commission must follow a strategy and develop a Strategic Plan to ensure that the transfer of the oversight of efficiency programs from the Public Utilities Commission to the Energy Commission is completed with minimal disruption to existing programs or markets.

The elements of this strategy are laid out in detail in this report under the headings of Operational Plan and Transition Plan. The general characteristics of the Commission's strategy are as follows:

Programs: All means of achieving cost-effective energy efficiency will be considered. That includes programs that focus on markets for new products or that dispense information (market transformation programs), programs that provide financial incentives and require precise, short-term quantifiable measurement of savings (resource acquisition programs), programs that seek to capture so-called lost opportunities, and programs that encourage the initiative of the public and private sectors. All program approaches have their place. No one approach, as a rule, is preferable to others.

Governance: The Energy Commission is the proper governing body for the Energy Efficiency Public Goods Charge Program (Energy Efficiency Program). The Energy Commission will set broad policies in a Strategic Plan for how these funds should be spent.

The Energy Commission is ultimately responsible to the Legislature and to the people of California for the success or failure of the program.

Administration: The Energy Commission will act as the chief administrator for the funds. This means the Energy Commission will develop a general statement of goals and objectives for the Energy Efficiency Program in the Strategic Plan and designate a project manager and support staff to select market sector (program) administrators based on competitive bids. Program administrators will have broad authority to manage their programs with little State intervention. This is both essential for the success of the program and to minimize State involvement. In order to accomplish this type of contracting, however, the Energy Commission will need legislative relief from various State contracting restrictions.

Non-Profit Corporation: While establishing a legislatively authorized non-profit corporation to administer the entire Energy Efficiency Program has a certain appeal, the Commission cannot at this time recommend such an action. The high start-up costs of developing a new organization and uncertainties related to whether or not the non-profit corporation would be governed by State contracting rules ultimately outweighed the perceived benefits of a new organization.

Evolutionary Process: Ultimately, administration of all programs covered under the public goods charge should be competitively bid, and where applicable, all programs should be delivered statewide. The Commission proposes to reach this goal through an evolutionary approach with a four-year phased-in bidding process. The process would take place incrementally. In year 2001, the Energy Commission will release two Requests for Proposals, one for innovative energy programs and one for a contractor to work on independent measurement and evaluation. In 2002, the Energy Commission will release a Request for Proposals for all the new construction programs. In 2003, based on the experience of the previous three Requests for Proposals, the Energy Commission will release a Request for Proposals for all nonresidential programs. And in 2004, a Request for Proposals for all residential programs will be released. During the interim, utilities will continue to manage the programs in their service territory until independent contractors have been selected. Utility program administrators will be eligible to bid for the statewide administrator positions. In keeping with the contracting nature of this process (as opposed to the regulatory nature), the utilities will manage programs under a sole source agreement with the Energy Commission during the transition period. The Energy Commission will also need legislative relief to expedite the sole source contracting process.

Competitive Bids: During the transition, utilities will not be required to bid against other utilities to maintain their program administrator roles, and will continue to administer programs in their service territories. Utilities will be eligible to bid for program administrator roles at the statewide level as those positions evolve over the transition period.

Funding: The funding level for energy efficiency programs will stay at the current level of \$270 million (in 1998 dollars), with annual adjustments for inflation. Included in the total is a non-bypassable natural gas public goods charge to collect roughly \$50 million in funds annually. Municipal utilities will continue to be obligated to collect revenues to support energy efficiency programs and will be asked to report their spending levels and energy efficiency program results to the Energy Commission. The current program should sunset in 2011 (ten years) and require legislative reauthorization to continue.

Staffing/Assistance: The Commission plans to request in the range of 10 to 15 new staff in each of the first two years of the transition period. These additional people are necessary to set up and operate the Energy Efficiency Program. The Energy Commission will also need contract funds for technical assistance. The start-up costs for this \$270 million program will be approximately \$3.5 million.

Review—An Independent Review Panel should be mandated by the Legislature to evaluate the overall operation of the Energy Efficiency Program. The panel should operate much like the current Public Interest Energy Research (PIER) Independent Review Panel.

CONCLUSION

The Energy Efficiency Program should continue at the current funding level for a set period of time. The Energy Commission should be the governing body of the Energy Efficiency Program. The actual management of the programs should be done by program administrators who would be selected by competitive bid over a four-year period beginning in year 2001. The Energy Commission will need 10 to 15 new staff in each of the first two years of the transition period to set up and operate the Energy Efficiency Program, for a total of approximately 30 new staff.

The Energy Efficiency Program will complement the Energy Commission's existing programs and enable the Energy Commission to continue providing Californians with the information and services they need to use energy as cost-effectively as possible.

INTRODUCTION

A BRIEF HISTORY

While many applications of energy efficiency have existed in this country at least as far back as the Pueblo Cliff Dwellers, who built their homes in the rock ledges of Mesa Verde, modern energy conservation programs grew out of the OPEC Oil Embargo in the early 1970 s. The Oil Embargo of 1973 and OPEC control of the petroleum market brought about long lines at the gas pump and eventually abrupt rises in electricity prices. These price rises in the mid-1970 s jolted and angered consumers who had grown used to low energy bills and decades of falling electricity prices. The Public Utilities Commission ordered California s investor-owned utilities to offer energy efficiency programs in the late 1970 s in response to customer complaints about high electric bills.

Early utility efficiency programs focused on providing residential customers with energy efficiency options to reduce their bills. These early programs were known as conservation programs. They offered suggestions such as turning off the lights in unoccupied rooms and turning down the thermostat in winter and putting on a sweater.

In the early 1980 s, energy conservation programs were giving way to what was to be called demand-side management programs. The term demand-side management was coined by the Electric Power Research Institute in mid-1983 to describe a broad range of programmatic efforts by utilities to shape total customer demand to better match system generating requirements and system costs.

Demand-side management programs gave utilities a new tool to improve system performance. Utilities could now both reduce or build load, depending on the demand-side management program and their performance goals. In California, investor-owned utilities used four different types of demand-side management programs: 1) energy efficiency programs, 2) load management programs, 3) fuel substitution programs, and 4) load building programs. Seventy-five to ninety percent of all demand-side management spending went to efficiency programs.

As demand-side management concepts and programs grew in popularity, statewide utility spending grew from \$100 million a year in 1980 to \$230 million in 1984. However, the fall of oil and gas prices in 1985 triggered a downturn in program funding. In 1989, total demand-side management funding dipped below \$100 million a year. Energy efficiency programs seemed to be in trouble.

In the early 1990 s, a group of government, utility, and public interest groups met to discuss ways to rekindle utility interest in demand-side management and to encourage utility management to promote energy efficiency. The group was called the California Collaborative. They came up with the notion of paying utilities for every measured BTU or kilowatt hour saved. The Public Utilities Commission authorized the utilities to collect ratepayer funds to buy what was now called conservation resources . As a result, the utilities once again found energy efficiency programs profitable and initiated massive energy efficiency programs statewide. The funding for those programs rose to \$500 million a year in 1994. The utility energy efficiency programs were now resource acquisition programs utilities invested in cost-effective energy efficiency instead of generation.

But all this changed in the mid-1990 s with the uncertainty that developed around utility restructuring. Energy efficiency program funding once again declined. In addition, researchers were raising concerns that funding for utility demand-side management programs was not linked to sustainable changes in the marketplace and that installers of energy efficient equipment, for example, T8 lights and electronic ballasts, would lose business if rebates were stopped.

In February 1997, the Public Utilities Commission, directed by Assembly Bill 1890, issued Decision 97-02-014 to create a new structure to implement public purpose energy efficiency under a restructured utility industry. The Public Utilities Commission stated that its goal for energy efficiency programs had changed from trying to influence utility decision-makers to trying to improve the functioning of the market so that individual customers and suppliers would make informed energy services choices. Energy efficiency programs were now supposed to make changes in the market that would be sustainable and result in energy savings and practices that lasted long after a program ended.

The Public Utilities Commission appointed an independent advisory board called the California Board for Energy Efficiency, to develop this market transformation approach to program funding. The Public Utilities Commission noted in R.98-07-037 that it was unwilling to continue exclusive utility administration of energy efficiency programs beyond 2001. However, the Public Utilities Commission never completed the process. The utilities are currently administering energy efficiency programs until the end of 2001.

In July 1999, the Governor signed Assembly Bill 1105 (1999 Stats., Chapter 67), which instructed the Energy Commission to prepare a report to discuss issues related to transferring the energy efficiency responsibilities set forth in Assembly Bill 1890 from the Public Utilities Commission to the Energy Commission.

LEGISLATIVE MANDATE—ASSEMBLY BILL 1105

This report and the process leading up to it are a response to Assembly Bill 1105 (see Appendix for complete text). The Energy Commission has attempted to address and comply with all the provisions of the legislation. In particular, the bill directs the Energy Commission to conduct a

public process and to prepare and submit to the Legislature by January 1, 2000, a transition plan report and an operational plan report regarding transferring energy efficiency programs from the Public Utilities Commission to the Energy Commission.

Since July 1999, when Assembly Bill 1105 was passed, the Energy Commission's Energy Efficiency Committee has held three publicly noticed Committee Workshops (August 23, 1999, September 9, 1999, October 12, 1999), one publicly noticed Staff Workshop (October 1, 1999), and one Committee Hearing (November 16, 1999) on a Staff Draft Report released on November 8, 1999. In addition the Energy Commission held a publicly noticed Business Meeting on December 15, 1999, to adopt the report. The entire administrative record upon which the Assembly Bill 1105 Report is based is available at the Energy Commission and will be provided on request.

In compliance with the legislation, the Energy Commission has broken the Energy Efficiency Program Report into two Reports. The Operational Plan Report addresses the post transition administrative structure designed to achieve efficient and effective program administration beginning on January 1, 2002. The Transition Plan Report addresses a number of transition issues regarding transferring the oversight of the program. The legislation identifies the transition period as January 1, 2000 to December 31, 2001. As will be discussed below, to fully achieve the desired post transition administrative structure, the Energy Commission should have a four year, not a two year transition period. The Transition Plan Report reflects this change.

Two other matters related to the legislation. The Energy Commission has addressed all the subsections of Assembly Bill 1105, but we have reorganized some of the sections so the report will flow better. Also, the independent review of existing energy efficiency programs directed by the Governor will be done by the RAND Corporation. This report will independently review the need for the program. The report will be available in draft in January 2000. The final report will be completed in February 2000.

OPERATIONAL PLAN REPORT

The Operational Plan Report is really the heart of the Energy Efficiency Program Report. In the Operational Plan Report, we will discuss the most fundamental questions in this process. Is there a need to continue the Energy Efficiency Program? And if there is, how should the existing administrative and governance structure change to accommodate the realities of the new competitive energy services market?

In addressing these questions, the Commission will provide its vision of the program, discuss individual programmatic issues, list the recommended funding level for the Energy Efficiency Program, and discuss the recommended administrative structure.

NEED

We are living in a time when electricity demand growth is outpacing the building of new generation. Energy Commission analysis shows that California will need 8,500 to 10,000 megawatts of additional peak demand capacity by 2005. This increase in peak demand will mean expanding the transmission and distribution system that delivers electricity to homes, businesses, and industry. The Energy Commission believes energy efficiency can play a vital role in the State's future by reducing some of this demand growth and by increasing system reliability.

There are at least four good reasons to continue the Energy Efficiency Program:

- Significant cost-beneficial opportunities for saving energy still remain;
- History suggests that the market will not achieve these savings alone because of market failures;
- Markets such as the small commercial and the residential markets are currently underserved; and
- In a deregulated market, a customer's best hedge against volatile prices may well be energy efficiency.

Significant cost-beneficial opportunities for energy efficiency savings remain. The history of energy efficiency savings from 1975 to 1998 has shown how we have progressed as a State. Since 1975, a combination of State energy efficiency standards for buildings and appliances and

utility energy efficiency programs have reduced electricity and natural gas consumption in California by over 470,000 gigawatt hours and over 50 billion therms. In 1998 alone, the savings from building and appliance standards totaled \$1.4 billion per year. Utility distribution company energy efficiency programs achieved a similar amount of savings. The displaced energy from both standards and programs was roughly the equivalent of fourteen 700 megawatts power plants. The combined impact of all the efficiency programs in the State in one year is equal to 15 percent of the total statewide electricity consumption. California continues to lead the nation in maximizing the amount of Gross State Product produced per unit of energy.

Assembly Bill 1105 Sec. 44(b)(2) asks the Energy Commission to consider an assessment of California's untapped opportunities to secure cost-effective savings. An Energy Commission analysis (see Appendix) shows that opportunities for cost-effective energy efficiency investments exist far beyond what we are likely to achieve at current levels of program funding. For example, at current funding levels energy efficiency programs would save 15,000 gigawatt hours in 2005, but another 13,000 gigawatt hours of additional saving would remain untapped enough electricity to meet the annual demand of approximately 1,600,000 Californians.

A basic premise of this report is that the market, acting alone, without outside intervention, will not capture a significant fraction of the cost effective energy savings that are both economic and currently available. Consumers and businesses often lack the information, tools, or correct incentives to identify and implement energy saving choices that would benefit them. Creating competitive markets in both energy efficiency and retail energy purchasing requires that consumers have meaningful information and choices available to them. It doesn't do much good if a manager of an office building wants to install efficient lighting but the fixtures aren't available or the manager doesn't know how to go about retrofitting the building. Bridging those kinds of gaps in product availability and information is where the Energy Efficiency Program comes in.

The Energy Efficiency Program should also continue because various sectors of the economy have not been reached by the existing set of energy efficiency programs. A recent study showed that abundant opportunities for addressing barriers to adoption of cost-effective energy efficiency (barriers such as lack of knowledge or financial incentives) were particularly prevalent in new construction, residential, and the small commercial markets. In the small commercial markets, most businesses have not implemented even the most common energy efficiency upgrades. There is ample room for improvement here.

Finally, some studies have shown that the savings from energy efficiency programs actually lower wholesale electricity prices. Certainly energy efficiency programs will be needed in the future to help customers control their energy bills when the electric utility industry is completely restructured and energy prices might become volatile.

Before leaving the question of whether the Energy Efficiency Program is needed or not, we need to mention the Governor's direction (see Appendix for complete text). The Governor, concerned that Assembly Bill 1105 assum[ed] program continuation without first providing

consideration for whether there is a need for the program, directed the Energy Commission to conduct an independent evaluation of the need for the Energy Efficiency Program. The Energy Commission has contracted with the RAND Corporation to conduct this independent evaluation. RAND's preliminary report is due to the Energy Commission in January 2000, with the final report to follow a month later. The Energy Commission will submit RAND's final report to the Legislature.

VISION

California has been a leader in the nation in promoting energy efficiency, both through public agency programs such as the California building and appliance standards mentioned above, and through energy efficiency programs run by the State's utilities under the direction of the Public Utilities Commission. The goal of the Commission is to maintain that leadership and to provide additional cost savings and environmental benefits for the citizens of California.

In this age of utility deregulation, energy efficiency public goods funds should be used to bring about cost-effective energy savings not adequately addressed by the competitive or the regulated market. The Energy Commission believes that saving energy and using energy more efficiently is in the vital interest of the State's future. Energy efficiency programs reduce the energy intensity of the State's infrastructure, make businesses more competitive, and allow consumers to live more comfortably.

Public goods funds should be used to continue to reduce California's electric system loads and natural gas consumption. In addition, energy efficiency programs significantly increase system reliability, reduce the need for new capacity, improve the environment, and stimulate the economy.

The Energy Commission wants to build on the successes of the current system, using the strengths of the utility distribution companies and the insights of the Public Utilities Commission. The Energy Commission also intends to gradually introduce new market players, increase competition for services, reduce the utility distribution companies' market power in delivery of services, continue to move to statewide program delivery where appropriate, enhance the synergy with the Public Interest Energy Research Program (PIER) and the building standards, and develop better coordination with municipal utility and local government programs.

The Energy Commission sees a future where energy efficiency programs are available to all customers, where local governments have an opportunity to provide regionally specific cost-effective energy programs, and where there is a vibrant, competitive private sector that can provide energy efficient goods and services at the lowest possible price and with the highest possible quality.

PROGRAMS

To translate the Energy Commission's vision into a reality, there needs to be a strategy to develop both policy goals and programs to realize those goals. This section, on efficiency programs, and the following two sections, on funding and administrative structure, will outline that strategy.

Types of Programs

As mentioned in the Introduction, conservation and energy efficiency programs have undergone changes over the last twenty years. There have been many types of conservation programs, four different types of demand-side management programs, resource acquisition programs to buttress energy supply, and recently, market transformation programs.

Sec. 44(a)(4) and Sec. 44(b)(1) of Assembly Bill 1105 call for the Energy Commission to consider the application of market transformation principles in current and future programs. Market transformation is defined by program approaches that are designed to ultimately encourage businesses to supply and customers to demand energy efficient products and services without financial incentives or other market interventions.

A key word here is ultimately. Market transformation programs that use education and information to change customer attitudes and perceptions can sometimes take a long time to bring about lasting change. The energy savings from these programs also can be quite difficult to quantify. Still, market transformation programs have their place within a mix of different programs. The goal is to bring about cost-effective energy savings in the most efficient and effective way possible. Often the combined effect of several different types of programs working together is more effective than using merely a single program.

There are many current programs that use market transformation principles. Since the Public Utilities Commission mandated that only market transformation programs are eligible for public goods funding, many utilities claim that all their programs are market transformation programs, even if they were designed years ago for a distinctly different purpose.

Certainly programs like the utilities Energy Centers, places where both lay people and energy professionals, such as architects and engineers, can go and see exhibits and take home ideas, qualify as market transforming programs. Studies have shown that designers who come to the Energy Centers are beginning to compete for new business based on what they learned. But other programs of a different nature are also market transforming, like some commercial lighting programs or the Residential Contractor Program which combine financial incentives with customer education designed to encourage customers to make energy-efficient selections even after financial incentives are removed. Also programs that provide so-called upstream assistance to manufacturers to encourage them to produce more energy efficient equipment may reduce barriers to energy efficiency (the unavailability of energy efficient products is a rather serious barrier to energy efficiency) and help to transform the market.

In the future California should encourage the continuation of these type of programs, in part because they eventually provide a sustainable market situation and in part because they encourage private firms to become actively involved in marketing energy efficiency goods and services. The Energy Commission would also like to see the whole area of market transformation studied more completely and will develop guidelines that will help provide a basis for evaluating market transformation programs and for determining what pilot programs are successful and worthy of expansion.

One current program called out specifically in Sec. 44(b)(8) of the legislation is the Standard Performance Contract program. The legislation asks the Energy Commission to consider this program as an example of a program that stimulates the growth of a competitive industry. In theory at least, the Standard Performance Contract program seems to be the kind of program that would stimulate the growth of a competitive industry. In the program, an independent contractor (usually an energy service company, sometimes called an energy efficiency service provider) enters into contract with the utility to provide a certain number of kilowatt hours saved. The contractor is paid by how many kilowatt hours they save for their utility customer client. Once a contract is signed, the contractor takes whatever action they have agreed to take (e.g., installing more efficient lighting in an office building) fairly quickly, within six to twelve months, then estimated program savings are rigorously verified over a two year period.

Preliminary evaluation of the Standard Performance Contract programs offers mixed results. For the nonresidential Standard Performance Contract programs, evaluations show that contracts to achieve a significant level of energy savings have been written, but so far there have been very few verifications of savings from these contracts. Interviews with participating energy efficiency service provider firms suggest that it is too early to determine if the market can now support the activities of these energy efficiency service provider firms without the continuing subsidies of the Energy Efficiency Program. In other words, it is too soon to determine if the market is being transformed. California Board for Energy Efficiency has continued its support for the nonresidential Standard Performance Contract program but cancelled residential Standard Performance Contract programs after the first year because of problems with implementation.

There is a place for Standard Performance Contract programs in the program arsenal. The Energy Commission would continue to follow the direction of the Public Utilities Commission in making the contracts simpler (one workshop participant likened them in size, with some hyperbole, to the San Francisco phone book) and in making a wider variety of contracts available so energy service companies of various sizes could compete.

Coordination with Other Energy Efficiency Programs

Sec. 44(a)(3) asks the Energy Commission to consider coordination and synergy between the Energy Efficiency Program and other public goods charge programs, such as the Public Interest Energy Research (PIER) program. Programs that should be coordinated with the Energy Efficiency Program include the Public Interest Energy Research (PIER) program, State energy efficiency standards, and the public goods charge programs run by the municipal utilities. In the

Administrative Structure section of the report, we have recommended an approach that we believe will facilitate coordination between all these programs and the Energy Efficiency Program. The Energy Commission recommends that municipal utilities should voluntarily report the annual spending and benefits of their public goods programs to the Energy Commission.

Energy efficiency technologies and practices offered by the research community through the Public Interest Energy Research (PIER) program need to be delivered to the marketplace using market transformation programs. The utilities have recently proposed creating an Emerging Technologies Coordinating Council to coordinate efforts between each of the individual utility s Emerging Technologies Programs and the Energy Commission s Public Interest Energy Research (PIER) program. Whether or not the Public Utilities Commission will approve this proposal is unclear. What is certain is that a statewide strategic vision for the deployment of emerging technologies is needed. If the Energy Commission is given oversight of the Energy Efficiency Program, the Energy Commission intends to articulate such a vision and make it part of its Strategic Plan.

Innovation

While our State s success in improving energy efficiency over the years is enviable, we must take advantage of the skills and new perspectives of a number of private and non-profit organizations who have not participated in the development of past program designs. An Innovative Programs area should be created to provide an opportunity for local agencies, for example, to develop and test programs meeting the needs of their residents. Individual stakeholders should have the opportunity to recommend new approaches for promoting or achieving efficiency that may be tested through pilot programs. New ideas and innovations that prove successful in the innovation area can be moved into mainstream programs without creating uncertainty for those providing the administration. The Public Utilities Commission s small third party program has fostered a number of very inventive concepts from this bottoms-up approach.

FUNDING

Investor-owned utilities are currently authorized to spend about \$270 million on both electricity and natural gas programs, including administrative costs and the cost of evaluating the programs. This compares to roughly \$25 million spent by municipal utilities. The funding horizon for the Energy Efficiency Program, however, does not extend beyond 2001 in the latest Public Utilities Commission order.

Sec. (44)(b)(6) of Assembly Bill 1105 asks the Energy Commission to consider the appropriate funding levels for the Energy Efficiency Program in the years after 2001. To arrive at a recommended funding level for the post-2001 era, the Energy Commission considered a number of factors: 1) current program effectiveness; 2) an assessment of potential future energy savings; 3) the relevance of programs after restructuring in the

electricity market; 4) the continued advantages of these programs to customers; and 5) the unpredictability of the electric industry's evolutionary process.

Rationale

In considering current program effectiveness, utility reports show that for 1995-98, energy efficiency programs are cost-effective. Studies show 1998 programs have returned at least two dollars in benefits for every program dollar spent. Given the current projection of electricity and gas prices, the Energy Commission can see no reason why these programs should not continue to be cost-effective.

The second factor, the potential for achieving additional savings beyond the year 2001, was discussed in the section above on need. Continued funding of the Energy Efficiency Program at the current level would capture savings averaging around 15,000 gigawatt hours per year over the next ten years. That would still leave an equal or greater amount of energy remaining as unrealized potential.

Recent market assessment and evaluation (MA&E) studies indicate abundant opportunities remain for addressing barriers to the adoption of cost-effective energy efficiency, particularly in the new construction, existing residential, and small commercial markets. The small commercial market in particular has been chronically under-served by previous utility programs.

The third factor, the unpredictability of the future of the electric industry, is another strong reason why the programs will be needed after restructuring is completed. Deregulation will reduce electricity prices for some customers but raise prices for others. Price reductions are most likely to accrue to large customers, not small businesses or homeowners. Power Exchange prices will likely remain volatile. In the deregulated market, investors, not customers, bear the financial risk of new power plants, and reliability problems are forecast.

In this kind of environment, the fourth factor comes into play. Energy efficiency programs continue to make sense. As in the early days of conservation, efficiency programs may once again become a hedge for customers against high prices. Clearly the best way to weather energy price variability is to use energy as efficiently as is cost-effective.

Finally we come to unpredictability. Everyone in the energy efficiency business, in fact everyone in any business, knows there are start-up costs and lag times for a new enterprise to get off the ground. New energy efficiency programs, like new restaurants, take time to develop a following. To withdraw funding for the energy efficiency programs in the year 2001, when electric industry uncertainty is likely to be at an all-time high, would be a grave mistake. History has shown that energy efficiency programs cannot be turned on and off like a faucet. The public needs continuity in efficiency programs to develop confidence in those programs. The Energy Efficiency Program provides a safety net during times of uncertainty for many citizens and businesses in the State and needs to be kept in place.

Recommended Funding

For these reasons the Energy Commission recommends that the funding level for the Energy Efficiency Program remain at current levels adjusted for inflation in the year 2002. Though there is more potential for achieving energy savings than this funding level can cover and though some programs have not worked out as planned, the Energy Commission has no real justification at this time for either increasing or decreasing the level of funding. To maintain program continuity, funds for program activities should be continuously appropriated. To ensure that natural gas customers pay an equitable portion of program costs, the Legislature should institute a non-bypassable surcharge to help fund program activities that reduce natural gas usage.

The budget for 2001-02 breaks down as follows:

Recommended Program Funding (in million of 1998 Dollars)		
	Commission Recommendation	1999 Level
Innovative Programs	30	--
New Construction	40	37
Residential	80	89
Nonresidential	100	128
MA&E/Governance	20	14
Total	270	268

We have picked these categories – new construction, residential, nonresidential – because they are the broad categories most often used when describing groups of programs. We have added the Innovative Programs category for reasons discussed elsewhere in the report. We have included in the above table the 1999 authorized funding level for the Energy Efficiency Program. It should be pointed out that some of the funding we recommend for the Innovative Program category is captured in the authorized 1999 level in the other categories. Also, we want to make it clear that the annual recommended funding level is for both electricity and natural gas programs, and that the funding level should not be less than \$270 million annually in 1998 dollars. Finally, we recommend that the funding level be adjusted upward to reflect inflation.

The funding recommended from utility distribution companies, \$270 million per year, should be collected through a uniform surcharge of 1.3 mills/kilowatt hours for electricity customers and 4 mills/therm for all jurisdictional gas customers. Municipal utilities should continue a comparable surcharge. Continuous appropriation of funds should be reviewed every four years thereafter by

the Legislature, after receiving the evaluation of how well the governance and administration system is working from the independent review panel. The current program should sunset in ten years (2011) and require legislative reauthorization to continue.

Supply Adequacy

Sec. 44(b)(5) of Assembly Bill 1105 asks the Energy Commission to consider whether eligibility for program funds should be expanded to support the ability of electricity consumers to shift electricity usage in response to pricing differences. Before the Energy Commission can answer this question, some history and a number of issues have to be addressed.

The Energy Commission has identified electricity supply adequacy as a key issue facing California over the next few years. A reliable system reflects a balance between demand and supply. In a competitive market, the balance can be achieved by either generation addition or demand modification. Key questions include: Will generation be there in the future during periods of high peak demand when Californians need it the most? How reliable will the restructured electricity system be? How high will prices go during the peak demand times of the day? Will consumers have the ability to respond to time-of-use pricing?

Electricity prices should reflect the costs of generation and delivery. Consumers can't make rational economic investments in energy efficiency and distributed generation if they are getting the wrong price signals. Most consumers, especially residential and small commercial customers, do not now, and probably won't for several years, receive prices that reflect time-of-use or geographic price variations. This is particularly true during the oppressive summer heat storms when actual prices spike, but consumers pay a much lower averaged-out price.

There are two major reasons why consumers don't currently pay these prices. The first is that real-time meters, devices that replace existing meters and let customers know how prices change throughout the day, are too expensive for any mass application. The second reason is that Assembly Bill 1890 has frozen rates in their current structure and does not allow the Public Utilities Commission to pass on the higher cost of generating on peak to customers. This rate freeze extends through the transition period or until the generation-related stranded costs—the cost of old plant and equipment that exceeds its value in the market—are collected. With the exception of San Diego, this has not yet occurred.

In light of the Energy Commission's concern for supply adequacy, we believe it is appropriate to first investigate whether Energy Efficiency Program funds should be used to increase a customer's ability to respond to prices and bid demand reductions into the electricity market. Then, if the Energy Commission determines the Energy Efficiency Program funds are to be used, to determine what way the funds should be spent and how much to spend.

In part, the supply adequacy concerns are a near-term problem associated with the need to add new generation during a time of market transition. However, addressing price (or demand) responsiveness should always be a consideration in designing energy efficiency programs.

Programs should properly value the cost of peak and off-peak energy, whether the programs are about real-time responsiveness or efficiency measures that reduce peak over a longer period of time.

Another important factor to consider is that as the market matures, keeping power plants in reserve to serve peak loads for a few hours a year may not be profitable. If that s the case, the need for price responsive load reductions will be essential for the electricity system to work.

Accordingly, the Energy Commission will investigate the kinds of measures and programs that could contribute to increasing price responsiveness and the appropriate means of paying for them. This investigation will assess progress being made in establishing pricing policies, load curtailment programs, and protocols to allow effective demand bidding into the market. The Energy Commission will initiate this investigation as part of our responsibilities under Senate Bill 735, which includes identifying how energy efficiency fits into the Independent System Operator s grid planning process. In addition, the Energy Commission will look at the potential to develop new energy management strategies that could give residential and small commercial customers the ability to control their own real-time response to changing prices. This could involve linking Public Interest Energy Research (PIER) research and development to energy efficiency demonstration programs.

Because the Energy Commission has yet to complete this investigation, it s impossible at this time to say if Energy Efficiency Program funds should be used and if so how much should be used. We estimate that costs probably would be about \$20 million per year, based on historical expenditures for load management that ranged from \$29 million in 1988 to \$8 million in 1997. If Energy Efficiency Program funds are used, they could either be redirected from the existing budget or be an additional incremental cost beyond the authorized level of expenditure for a limited number of years.

ADMINISTRATIVE STRUCTURE

The topic that drew the most attention and controversy at the workshops was what administrative structure would exist in place of the current Public Utilities Commission s oversight arrangement. Stakeholder opinion on this varied dramatically. Some parties basically wanted to continue the same type of administrative system that currently exists, with utilities continuing their present role and the Energy Commission replacing the Public Utilities Commission as the governing body, while other parties wanted to move away from any utility management of the program as quickly as possible.

In many ways proposing a new administrative structure is the most difficult and challenging part of the legislation. The option we will propose tries to be responsive to as many of the concerns of the stakeholders as can be reasonably integrated with our own vision of what the Energy Efficiency Program should do and our overriding concern with not damaging this fragile egg of programs, as one participant referred to them.

Issues and Organization

This section will, by necessity, cover many issues. Assembly Bill 1105 Sec. (44)(b) and Sec. (44)(b)(4) ask the Energy Commission to recommend a post-transition administrative structure that is designed to achieve efficient and effective program administration and to consider the appropriate role of other private and public entities providing energy services, including a nonprofit corporation as the program administrator.

Sec. (44)(b)(6) requests the Energy Commission address the appropriate program oversight in the post-2001 period. Sec. (44)(b)(7) directs the Energy Commission to consider minimizing the role of State agencies in providing administrative and implementation services. And, though it is not expressly asked for in the legislation, we will also discuss the kind of legislative relief we would need to make our recommended administrative structure work and what we believe the role of the utilities and other parties should be in the new administrative structure. This last point will include a brief discussion of a possible conflict of interest that the utilities may have in administering the Energy Efficiency Program.

How and over what period of time the Energy Commission plans to put this structure into place will be discussed in the Transition Plan Report, which follows this section.

Functions of the Administrative Structure

The Energy Commission has identified five key functions that an administrative structure must carry out:

- Program governance and oversight
- Program administration
- Program implementation and delivery
- Internal evaluation
- Independent program review

If all these functions were in a pyramid, program governance and oversight would be at the top. The governing entity needs to establish broad policy goals for the Energy Efficiency Program and articulate those goals in a Strategic Plan. The governing entity must also set broad budgets for all program areas and maintain a process to check to see if the Energy Efficiency Program is meeting its goals. The governing entity can either select and contract out the actual administration of the Energy Efficiency Program, and then oversee the work of Energy Efficiency Program administrators to assure conformance with the Strategic Plan, or the governing entity can oversee a non-profit corporation or other entity that handles all the contracting and administrative details. Lastly, the governing entity is ultimately responsible for the success or failure of the Energy Efficiency Program and is accountable to the Legislature and the people of California.

Energy Efficiency Program administrators are in the middle of the pyramid. Energy Efficiency Program administrators develop and manage programs. There will be four areas, or energy

markets, that Energy Efficiency Program administrators will be responsible for: residential, nonresidential, new construction, and innovative programs. Energy Efficiency Program administrators will have authority to manage these markets and obtain cost-effective energy savings.

Energy Efficiency Program implementation and delivery is the broad bottom of the pyramid where customer contact takes place. Energy Efficiency Program implementers are hired by the Energy Efficiency Program administrators or, in some cases, may be the Energy Efficiency Program administrators. Energy Efficiency Program implementers are out in the field. They are the people who knock on customers' doors and who replace inefficient lights with energy efficient T8 lamps. They may participate in regional alliances or trade groups, and, if they are not Energy Efficiency Program administrators themselves, are responsible for reporting back to Energy Efficiency Program administrators.

Internal evaluators move around in the pyramid. Internal evaluators will assess the overall performance of Energy Efficiency Program administrators and Energy Efficiency Program implementers. Though we will require and select conscientious Energy Efficiency Program administrators who will be continually evaluating and reevaluating their own programs, based, in part, on operational guidelines to be developed by the Energy Commission, the internal evaluator will be independent of them and will report to the governing entity and to the Energy Efficiency Program administrators. Internal evaluators will provide information that will be used in determining the need for changes in program policies, program budgeting, program design, or program testing.

Finally the independent program review operates outside of the pyramid. The independent program review will operate much like Public Interest Energy Research (PIER) Independent Review Panel and will provide objective feedback to the Legislature and others regarding the effectiveness of the overall program. They will also suggest ways for improving the administrative structure and functions.

Recommended Administrative Structure

The Energy Commission used five principles to determine how the new administrative structure should be set up: 1) the recommended administrative structure must provide a smooth continuity from the old structure and create no hiatus in the Energy Efficiency Program; 2) the new administrative structure must make efficient use of existing resources; 3) the new structure must operate in an efficient, fair, and effective manner; 4) the new structure must provide an open and accountable process to the public; and 5) the new administrative structure must support flexible, innovative, and coordinated design of statewide efficiency programs.

With these principles in mind, we make the following recommendation for a new administrative structure:

Governance and Oversight: The governance and oversight function of the Energy Efficiency Program needs by its very nature to be in the hands of a public agency. The

governance function must be publicly accountable. The two logical choices for this role are the Public Utilities Commission and the Energy Commission. The Energy Commission is the best public agency to oversee this program.

The Energy Commission has over 20 years of experience with over 70 experienced staff that can serve in a core governance capacity. The Energy Commission has experience running energy efficiency and public goods charge programs. We are uniquely qualified to tie the Energy Efficiency Program into activities going on under the Energy Commission's Public Interest Energy Research (PIER) program, building standards, government buildings programs, schools, agriculture and industry programs, and expanded new construction programs. Finally the Energy Commission has a stellar history of using the public process to develop public policy and ensure that all voices are heard.

Energy Efficiency Program Administration: Energy Efficiency Program administration is perhaps the key issue in the legislation. There are many, many options here: maintaining the status quo and leaving the utility programs as they are, having the Legislature set up a non-profit corporation to run the Energy Efficiency Program, letting the Energy Commission set up a non-profit corporation, delegating all of the administrative functions to the Energy Commission, delegating some of the administrative functions to the Energy Commission, and various combinations of the above.

We found the two most attractive choices were having the Legislature set up a non-profit corporation and having the Energy Commission contract out for administrative services.

There is much to be said in favor of having the Legislature set up a non-profit corporation. The Public Utilities Commission was heading in this direction. The Public Utilities Commission believed that setting up a legislatively mandated non-profit corporation would eliminate the legal and technical barriers the Public Utilities Commission faced when using other approaches, such as contracting, to administer the Energy Efficiency Program. Furthermore, nonprofit corporations have been serving as administrators for Energy Efficiency Programs in several other states. For example, in 1996 various public and private entities in the Pacific Northwest mutually decided to create a new, non-profit corporation (the Northwest Energy Efficiency Alliance) to administer a portion of that region's Energy Efficiency program. In 1998, New York designated an existing, legislatively authorized non-profit corporation (the New York Energy Research and Development Authority) to serve as a statewide administrator.

With a non-profit corporation, the Board of Directors could represent a wide range of interested stakeholders—private industry, ratepayer groups, utilities, policymakers. Examples of such a stakeholder-oriented board are California's Independent System Operator and California's Power Exchange. Both were set up by Assembly Bill 1890.

A non-profit corporation may be able to operate without the restrictions of various laws that constrain State agencies (the civil service employment system, the Public Contracts Code, the Public Records Act, etc.). This might allow the non-profit corporation to recruit and hire highly

qualified employees from the private sector and make internal administrative and program contracting decisions with a degree of speed and flexibility that a State agency simply cannot match.

Finally, the private sector nature of a non-profit corporation is likely to be compatible with the Energy Commission's vision of the Energy Efficiency Program, a competitive, statewide program that heavily draws in the private participation.

On the other side of the ledger, there are problems with a non-profit corporation. If an existing qualified non-profit corporation to oversee the current \$250 million in programs cannot be identified, there will likely be delays and other start-up costs in creating, staffing, and organizing a new entity. Identifying and selecting the proper mix of the Board, hiring an executive director and staff, and ensuring that the new organization fully qualifies for federal tax-exempt status under the Internal Revenue Code could prove overly complex and detrimental to the creation of an orderly process.

Also, it is legally uncertain if the non-profit corporation's apparent advantages of being outside State government (ease in hiring and contracting, exemption from the Public Records Act, etc.) would really come to pass. A U.S. Supreme Court decision (Evans v Newton, 382 U.S., 296, 299; 86 S. Ct. 486, 488 (1966)) stated, "When private individuals or groups are endowed by the State with powers or functions governmental in nature, they become agencies or instrumentalities of the State subject to its [legal] limitations."

The non-profit corporation itself would require oversight and governance, thus adding an unnecessary intermediary layer between the governance body and the program administrators and implementers.

Finally, an important issue of public trust and confidence may arise if too much of the Energy Efficiency Program is administered by a non-profit corporation, without the traditional government safeguards that assure public access, accountability, and fairness.

In the end we decided that, for now, though a non-profit corporation could be a logical option and may well be an alternative we turn to in the future, the Energy Commission recommends that overall program administration be handled through the Energy Commission contracting process. In addition, though utilities have argued for administration by a Public Utility Commission type of regulation rather than by contract, the Energy Commission cannot at this time select this path without further study of the issue.

The Energy Commission has had over twenty-five years of contracting experience. Unlike a non-profit corporation, the Energy Commission will have minimum start-up costs. The Energy Commission already has legal and contracting staff in-house. If the Energy Commission is given the contracting flexibility listed below, the Commission can develop contracts expeditiously and allow maximum participation by stakeholders.

The Energy Commission makes the recommendation above with the caution that our suggested contracting approach and our recommended administrative structure will only work if the Legislature allows the Energy Commission relief from some of the restrictions we face as a State agency. Most of the requests below have already been granted to the Energy Commission in one program or another (Public Interest Energy Research Program, Renewables), though no program has had all of these contracting restraints lifted. We believe, however, that the unique nature and magnitude of the Energy Efficiency Program requires all the following legislative changes:

- Specifically allow multi-year contracts;
- Allow for some limited advance payment (30, 60, or 90 days) so the program administrators do not have to float the payment of implementers;
- Allow the Energy Commission to establish regulations, if the Energy Commission deems necessary; and if so, with an exemption from the normal Office of Administrative Law process (similar to what is done in the Public Interest Energy Research Program and the Renewables programs);
- Allow all methods of contracting (including granting) and contract solicitation: including sole and single source, negotiated, and competitive contracts;
- Provide funds for technical support, program evaluation, and audits.

How the contracting method discussed above will work – what sections of the market will be contracted out and in what year – will be discussed in detail in the Transition Plan Report.

What is important to mention here is that the goal of the Energy Efficiency Program report is to eventually have the private marketplace administer the Energy Efficiency Program. However, the Energy Commission intends this change to take place in an evolutionary manner over the next five years, with the utility distribution companies continuing to be the fallback in every market.

Some stakeholders have asked, Why not leave the utility distribution companies as Energy Efficiency Program administrators? Why change a system that seems to have been working well? The answer to these questions is complex. In some respects, the Energy Efficiency Program *has* worked well. Many programs are saving energy cost-effectively. The utilities staff working in this field are as highly trained, dedicated, and professional as one is likely to come across anywhere in the energy field. Yet in a restructured environment designed to achieve maximum competition, leaving the program administration solely in the hands of utility distribution companies is problematic.

Restructuring has changed the game in many ways. Questions of conflict of interest seem more pertinent now than ever. There are real questions about high level corporate objectives to help consumers save electricity and gas when the company earns revenue by selling electricity and gas. Plus there are issues about service territory boundaries. Many energy efficiency programs need to be run statewide. The Energy Commission applauds the efforts of utility distribution companies under California Board for Energy Efficiency direction to work together on program design issues of programs that operate throughout the State. But the Energy Commission is concerned that too often in this utility collaboration, innovative programs get short shrift and the program that is selected among the utilities is the lowest common denominator program.

Also, having a natural monopoly like the utility distribution companies administer the Energy Efficiency Program seems contrary to the spirit of deregulation. If innovation and creativity are to be given a chance, the power of the market needs to be brought to bear on some of the barrier issues surrounding energy efficiency. The Legislation has determined that competition in the energy industry serves the public good. The Energy Commission's recommendations are consistent with that policy.

A case in point is the Third Party Initiative programs, specifically called out for consideration under Sec. 44(b)(8) of Assembly Bill 1105. These programs, that are designed and initiated by the private market using Energy Efficiency Program funds, would seem to have a better future if administered by a non-profit corporation or by the Energy Commission. Not that energy efficiency professionals in the utility distribution companies haven't been helpful or supportive of these programs. From all accounts they have. But the Energy Commission is concerned that corporate management may have reluctance to back programs that are not company programs.

Program Implementers: In order to minimize State involvement in the delivery of the programs, see Sec. (44)(b)(7), program implementation should be open to anyone but the Energy Commission. Program administrators should assign implementation responsibilities to a variety of different entities based on merit. Administrators can be implementers, but a percentage of contracts will be required to be put out to bid.

Measurement and Evaluation: All entities engaged in the management or implementation of the Energy Efficiency Program should be allowed and encouraged to conduct their own internal evaluations of the effectiveness of their efforts. However, to ensure objectivity and effective feedback, we recommend that the governing authority, with the assistance of one or more outside entities, as needed, conduct its evaluation of various aspects of the Energy Efficiency Program, and use this information as feedback for Energy Efficiency Program administrators and implementers as a basis for adjusting program goals and as a factor in determining appropriate compensation for the Energy Efficiency Program administrators.

Independent Program Review: We recommend that the Legislature set up an Independent Review Panel, using the Public Interest Energy Research (PIER) Independent Review Panel model, to evaluate the overall functioning of the Energy Efficiency Program. We also recommend that this panel provide results to the Legislature periodically.

SUMMARY OF OPERATIONAL PLAN REPORT

The goal of energy efficiency programs in the post-restructured world should be to save energy in an efficient and cost-effective manner. Under the Energy Commission's program planning process, all means of achieving cost-effective energy efficiency will be considered. New program ideas should be encouraged and tested.

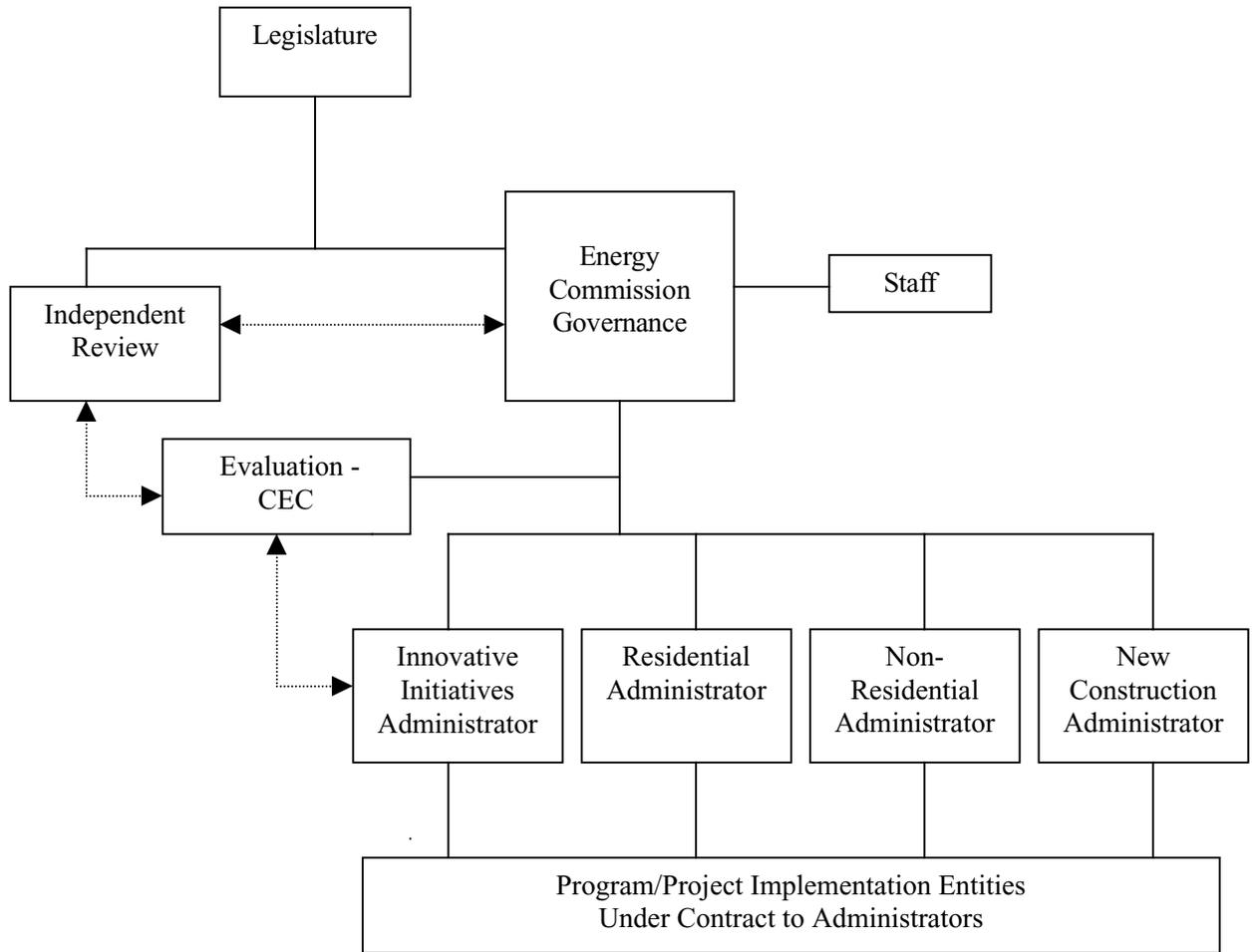
Funding for the Energy Efficiency Program should remain the same. The current funding level, \$270 million, should be adjusted annually for inflation.

As far as the recommended administrative structure, we see the Energy Commission providing policy direction and review of the program but not responsible for designing the programs or delivering them to the market. The Energy Commission will also select a project manager, a person at the Energy Commission who will oversee the administrative details of the Energy Efficiency Program. The project manager along with a small group of Energy Commission staff will, if provided with legislative relief, issue one or two Requests for Proposals in each year to hire new program administrators during the four-year transition period. These proposals will cover market assessment and evaluation and the innovative programs initially and then different market sectors in different years. The parties awarded these contracts will then have broad authority, pursuant to legislative relief, to administer subcontractors and programs within their market segment. The Energy Commission will not micromanage these Energy Efficiency Program administrators. The Energy Commission will make sure the program administrators are operating consistent with the Legislature's direction for the program and with the Energy Commission's Strategic Plan. During the transition, there will be no competitive bidding between utilities. The utilities will be eligible to bid for various Requests for Proposals as they are released.

Program administrators will be able, pursuant to legislative relief, to select contractors who will provide energy services and products to consumers or take whatever other actions the program administrators deem necessary to bring about cost-effective energy savings. There will be evaluators who will periodically evaluate what is happening in the individual programs. There will also be an independent review panel to evaluate the overall Energy Efficiency Program.

Utility distribution companies will be retained until such time as the Energy Commission can provide for competitive choice. This transition away from utility distribution companies will not occur sooner than is shown in the schedule contained in the Transition Plan Report.

The administrative structure we have recommended (see chart on next page) addresses the necessary functions of the Energy Efficiency Program and satisfies most, if not all, of the evaluation criteria listed above while retaining the expertise of the utility distribution companies, protecting the public, and ensuring the continuation of the Energy Efficiency Program in an effective manner.



_____ Reporting Relationship
 ←..... Feedback Relationship

TRANSITION PLAN REPORT

For the Transition Plan Report, the legislation asks the Energy Commission to consider: 1) how to transfer responsibility from the Public Utilities Commission to the Energy Commission (Sec. 44(a)(1)); 2) what the sequence of events needs to be to put in place the new administrative structure (Sec. 44(a)(2)); 3) what resources will be necessary to implement the Transition Plan (Sec. 44(a)(5)); 4) what coordination will exist between the Energy Efficiency Program and other public good charge programs such as Public Interest Energy Research (PIER) (Sec. 44(a)(3)); and 5) what program requirements are necessary to ensure the continuation of market transformation principles (Sec. 44(a)(4)).

The last two of these topics have been considered in various places elsewhere in the Operational Plan Report. Coordination with the Public Interest Energy Research (PIER) program was considered under both Programs and Administrative Structure. The continuation of market transformation principles was considered under Programs.

Before we discuss the first three topics, we need to note that Assembly Bill 1105 described the transition period as the two years that remain before the current authorized funding for the Energy Efficiency Program expires. That is, years 2000 and 2001. The legislation envisioned that the new structure would be fully in place on January 1, 2002.

While the Energy Commission's recommended administrative structure will be in place by January 1, 2002, the goal of having a fully competitive Energy Efficiency Program will not be realized until 2005. These extra years are needed to ensure a smooth transition and not jeopardize the effectiveness of the current programs.

SCHEDULE

Transition Year One—2000

Starting on January 1, 2000, after submitting this report to the Legislature, the Energy Commission will begin a number of activities. The Energy Commission will begin to work with the Legislature to respond to additional questions and to offer assistance, if needed, to help craft legislation that would enable the Energy Commission to have the authority and degree of contracting flexibility necessary to make our recommended administrative structure work. In

return for the added flexibility provided by exemptions from the State contract procedures listed in the Administrative Structure section in the Operational Plan Report, the Energy Commission will propose oversight functions to ensure that it meets its responsibilities. The Energy Commission proposes that the Legislature incorporate a blend of requirements similar to those used for the Renewables and the Public Interest Energy Research (PIER) programs. These include a periodic audit of Energy Efficiency Program funds by the Department of Finance. Also, as mentioned above there should be an independent review panel set up to review Energy Efficiency Program operations and to report to the Legislature.

In the first year of the transition the Energy Commission will also begin drafting a Strategic Plan for the Energy Efficiency Program. This document will provide the guiding vision for all subsequent work. The Energy Commission will also determine the amount of energy efficiency that can still be realized in each market, review existing programs more thoroughly, and prepare operational guidelines that will serve, in part, as a basis for evaluating pilot and other programs. All of these activities will help the Energy Commission better allocate funds between program categories.

In late 2000, pursuant to legislative authorization, the Energy Commission will begin work on two Requests for Proposals. The first will be for independent measurement, analysis, and evaluation. As mentioned in our discussion of administrative structure, measurement and evaluation is one of the five key functions of an administrative structure. The Energy Commission will draw on experience gained from years of working in-house on measurement and evaluation and on the experiences of the Public Utilities Commission. We propose to continue efforts to collect general data about end-use characteristics using survey techniques. The Energy Commission has been authorized to collect this data by the Public Utilities Commission for 1999 and 2000.

The Energy Commission will also, pursuant to legislative authorization, begin working in late 2000 on a Request for Proposals for the Innovative Programs category. This Request for Proposals will include funds for Third Party Initiatives, local governments, and other innovative programs. The Energy Commission will ensure that there is no overlap between this Energy Efficiency Program funding category and Public Interest Energy Research (PIER) funding. In fact, the Energy Commission will attempt to maximize interaction between the two Energy Efficiency Programs, to create synergy and coordination in the words of Assembly Bill 1105. The Energy Commission will also work with utility distribution companies to determine which of their current programs qualify as programs in the Innovative Programs category and ensure that these programs are transferred over smoothly to a new administrator.

In 2000, the Energy Commission will continue to work with Public Utilities Commission. Currently the Energy Commission is actively involved with California Board for Energy Efficiency. The Energy Commission will continue this involvement and work to help make the transition of the Energy Efficiency Program smooth and effective.

Also, in 2000, the Energy Commission will select a project manager and establish a group of in-house staff whose sole responsibility will be to work on the Energy Efficiency Program. The

Energy Commission will need in the range of 20 to 30 staff by the end of 2001. Finally, the Energy Commission will need to begin to use outside technical assistance to help set up the new administrative structure. We estimate we will need \$1 million in each of the first two years. The Energy Commission recommends that the Legislature establish a Trust Account in the State Treasury by July of 2000 and transfer \$1 million from the current Energy Efficiency Program funds for the Energy Commission to use to fund technical assistance.

Transition Year Two—2001

In the second year of the transition period, the Energy Commission will release both the \$15-20 million measurement and evaluation Request for Proposals and the \$30 million innovative programs Request for Proposals to open bidding and award the contracts. By 2001, the Energy Commission will have laid the groundwork to transfer existing utility distribution company programs in the Innovative Program Category to a new administrator. The Energy Commission will start both contracts by the end of 2001 or the beginning of 2002. Utility distribution company administrators may have to slightly cut back on 2001 program funding levels (by \$5-10 million statewide) to fund start-up of the Innovative Programs Request for Proposal in late 2001. The utility distribution companies will still operate programs in the residential, new construction, and nonresidential markets.

In 2001, the Energy Commission will begin working on the new construction program Request for Proposals. This is the next logical program category to transfer to independent administration. The Energy Commission has a great deal of expertise in this area and has promulgated building and appliance standards for almost 20 years. The Energy Commission also has building inspector training programs, an 800 number Hotline for questions about the building standards, and other informational programs for the new construction market.

The Energy Commission will prepare the sole source contracts that will be awarded to the utilities in 2002 so that they can continue to operate all the efficiency programs that are not bid out by the various Request for Proposals.

The Energy Commission will continue to work with the Public Utilities Commission in 2001 to ensure a smooth transition.

The Energy Commission will use the second year of technical assistance funding to continue to put the new administrative structure in place.

Transition Year Three—2002

By the beginning of the third year of transition, the new administrative organization will be in place. The Innovative Program Request for Proposals will have begun and the independent measurement and evaluation team will begin to look at some of the existing programs administered by the utility distribution companies.

In 2002, the Energy Commission will release the \$40 million new construction Request for Proposals and award the contract. Work will begin on this contract in either late 2002 or early 2003. The utility distribution companies will continue to administer the residential and nonresidential new construction programs.

The Energy Commission will begin work on drawing up a Request for Proposals for the Nonresidential program category.

Transition Year Four—2003

The New Construction program will roll out under a new administrator. Innovative Programs will also be under a new administrator and underway. Measurement and evaluation activities will continue.

The Energy Commission will put the \$100 million nonresidential program out to bid and award the contract. The nonresidential program will start either late 2003 or early 2004.

Utility distribution companies will continue to administer residential and nonresidential programs, up to date of new administrator taking over.

Transition Year Five—2004

Nonresidential program begins statewide. Measurement and evaluation contract ends. Residential sector Request for Proposals developed.

By 2005, all administrative positions will have been bid out. No exclusive utility distribution company programs remain, and the transition will be complete. The potential exists to renew the Innovative Program administrator contract and evaluation contract or to issue new Request for Proposals.

Graphically, the schedule is as noted below:

Phased Request for Proposal (RFP) Release					
	2001	2002	2003	2004	2005
Innovative Programs	RFP Release	Contract Start		Contract End	New RFP/contract extension
New Construction		RFP Release	Contract Start		Contract End
Nonresidential			RFP Release	Contract Start	
Residential				RFP Release	Contract Start
Independent MA&E	RFP Release	Master Contract Start		Contract End	New RFP/contract extension

SUMMARY OF TRANSITION PLAN REPORT

The above schedule puts roughly \$60 million out to bid each year over a four-year period starting in 2001. The timing of this schedule is designed to let the Energy Commission test out and gain experience with the new contracting procedures, including those tailored approaches approved by the Legislature. The Energy Commission also hopes that a phased-in schedule like the one above will give the an opportunity to learn from any mistakes made in the first set of Requests for Proposals and make any revisions necessary in the timetable.

This schedule reduces the number of Requests for Proposals released in any given year to either two, as in the first year, or one per year, as in all the remaining years. This staggered release will allow the Energy Commission to operate the Energy Efficiency Program with limited new staff additions.

CONCLUSION

The Energy Efficiency Public Goods Charge Program should be continued and funded at the current level. Continuing this program provides energy efficiency activities that both increase the competitiveness of business and reduce energy bills.

The Energy Commission should be the governing body for this program. Market sectors should be bid out on a statewide level. Running the Energy Efficiency Program in this manner offers an opportunity to reduce the feudalistic division of energy programs along utility service area boundaries and to give the program over to the market where innovation can be given free rein.

**THE ENERGY EFFICIENCY
PUBLIC GOODS CHARGE REPORT**

TECHNICAL APPENDIX

Appendix A

HISTORICAL AND PROJECTED ENERGY SAVINGS

Fundamental to any recommendations on the future funding of energy efficiency programs is whether cost-beneficial opportunities for energy savings still remain, or whether the last twenty-five years of efficiency programs and individuals actions to conserve energy have exhausted all reasonably achievable cost-effective savings. Historically, publicly funded programs have achieved cost-effective savings in both electricity and gas in all sectors of the economy. To gauge the extent of remaining cost-effective savings, the Commission examined opportunities for electricity efficiency and the impact of public investment on capturing those savings. The analysis provides a strong indication that significant cost-effective potential savings still exist, and even with historically high levels of funding a large fraction of this potential would remain untapped. This appendix presents historical data on energy efficiency savings and funding trends, reviews the sources and methods used in the analysis, and presents the results.

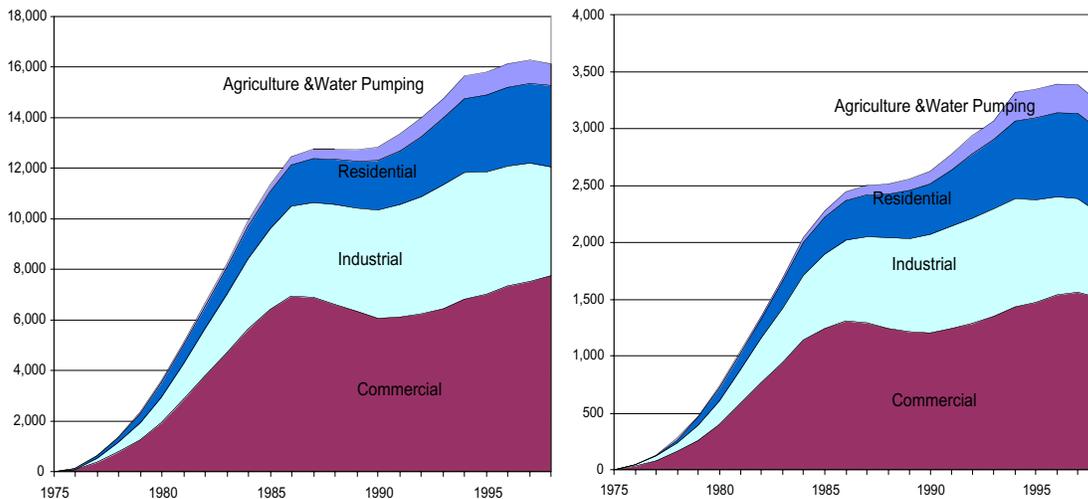
HISTORICAL ENERGY SAVINGS AND ENERGY EFFICIENCY FUNDING

Figures 1 and 2 present annual and peak electricity savings realized by utility-managed energy efficiency programs in California since 1975, including both investor-owned utilities (IOUs) and municipally-owned utilities, divided by customer sector. After a decade of rapid increases, the growth in electricity savings declined in the late 1980s as a result of a dramatic drop in funding, triggered by the fall of oil and gas prices.

Electricity Savings by Utility Energy Efficiency Programs

Figure 1
Gigawatt hours

Figure 2
Megawatts



Similarly, growth in natural gas savings leveled off in the 1980s, but has not had the resurgence seen in electricity due to a greater decline in funding levels since 1993.

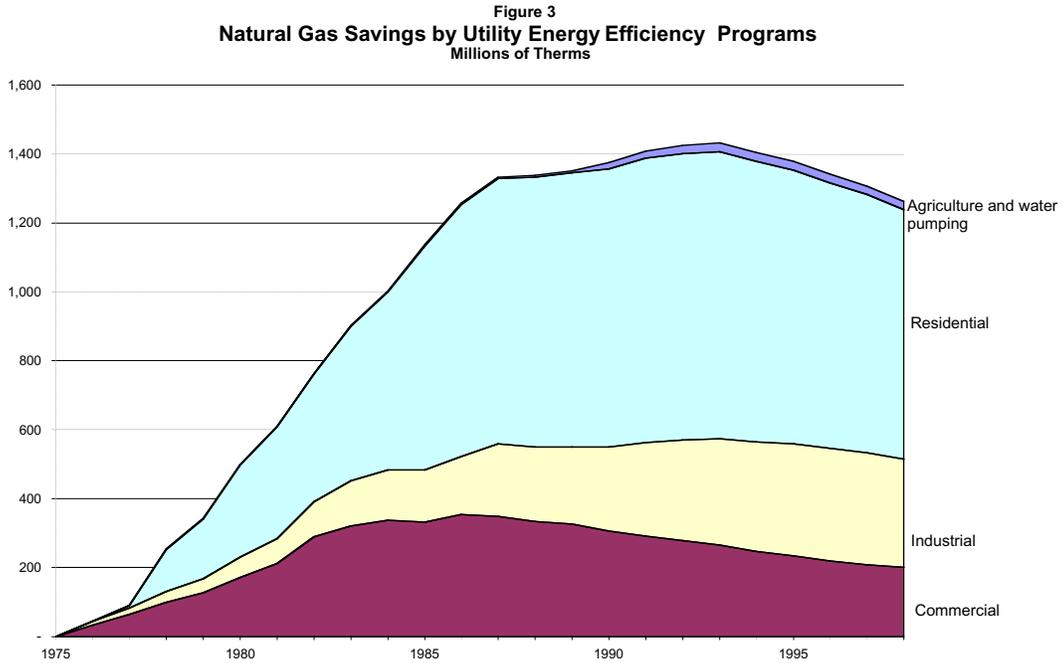
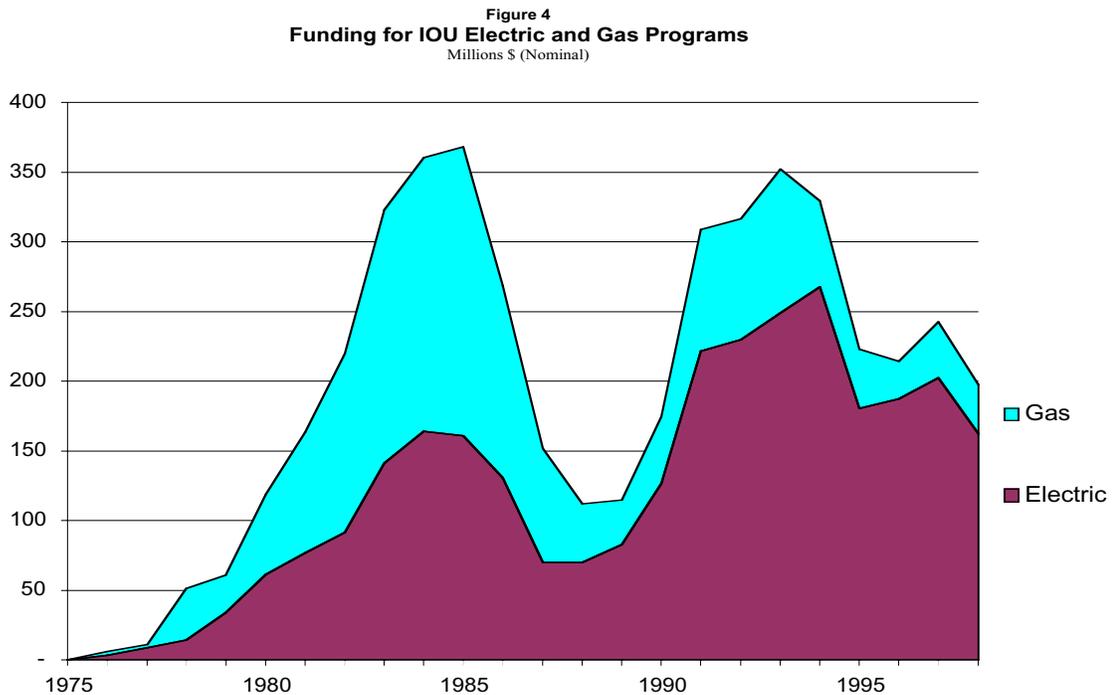
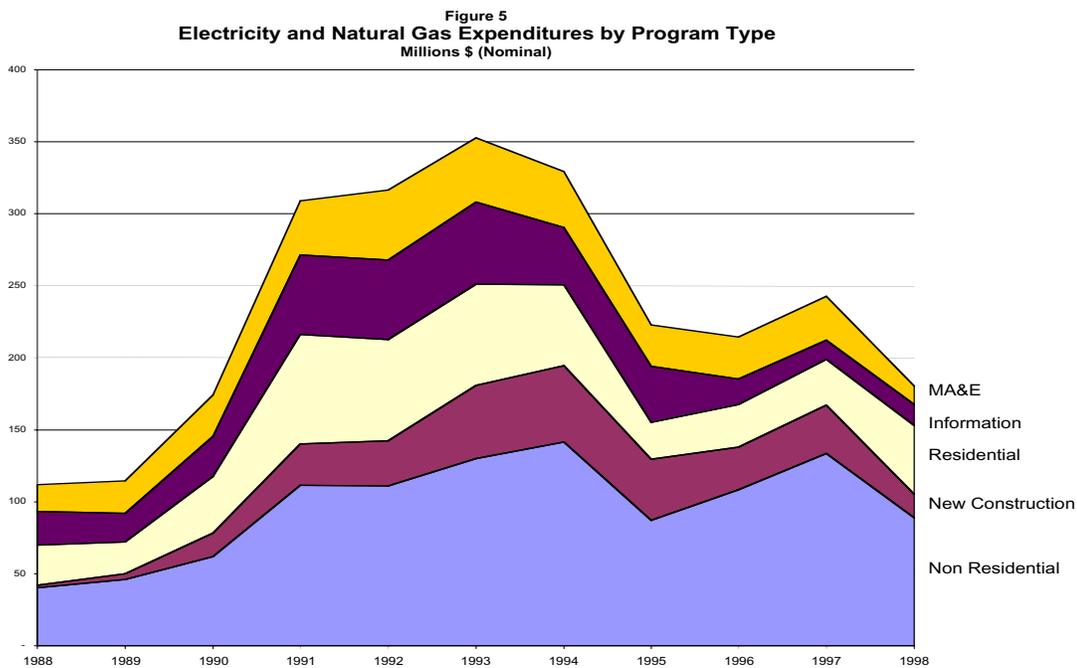


Figure 4 shows funding for IOU gas and electricity energy efficiency programs for the same time period.



Since 1988, the IOUs have reported energy efficiency program funding in more detail, allowing tracking by program categories. Figure 5 shows total electricity and gas funding by program category. Funding for nonresidential programs, which target both industrial and commercial customers, increased to about fifty percent of total energy efficiency program funding in recent years. Residential retrofit program funding, while still relatively low in absolute values, returned in 1998 to its historical high of about twenty-five percent of funding. The share of funding for information and new construction (for both residential and nonresidential customers) has trended down. Overall, the share of program funding directed to commercial customers has averaged about forty-two percent, and about seventeen percent to industrial, six percent to agricultural, and thirty-five percent to residential customers. Funding for measurement, assessment and evaluation activities (MA&E) to support program design, planning, and evaluation reached a low of seven percent of the total electricity energy efficiency and gas Demand Side Management (DSM) budget in 1998.



ANALYSIS OF FUTURE ELECTRICITY SAVINGS IN THE RESIDENTIAL AND COMMERCIAL SECTORS

The pattern of the historical data suggests that cost-effective efficiency opportunities still exist in all customer sectors. To gauge the order of magnitude of this remaining cost-effective potential, the Commission made use of detailed energy efficiency measure data available for the residential and commercial sectors. After accounting for future expected savings from market forces, building and appliance standards, and existing utility programs, the Commission compared its forecast of remaining cost-effective potential

electricity savings to savings likely to result from different funding levels for publicly-funded electricity efficiency programs.

The results presented here include only electricity and only for the investor-owned utilities (PGE, SCE and SDGE); a similar analysis will be completed for natural gas in the near future. Analysis of peak electricity impacts may also be completed although less detailed data are available. Municipally-owned utility savings and programs are not included here, but would not change the results materially. Analysis of the industrial and agriculture sectors would require additional data and model development.

The Commission used a combination of several forecasting and analysis models to:

1. identify the amount of energy savings likely to occur under purely competitive markets (without energy efficiency programs);
2. project the energy savings reasonably expected to occur due to buildings and appliances standards;
3. develop a preliminary assessment of the remaining potential for cost-effective energy savings in the commercial and residential sectors; and
4. estimate the energy savings that would be achieved or foregone under different levels of energy efficiency funding.

Each of these steps and its role in this analysis is discussed below.

Market-Driven Energy Efficiency

The first step is to estimate the extent to which individuals and businesses will take advantage of cost-effective opportunities to save energy without further prompting or encouragement by standards or energy efficiency programs.

Estimates of market-driven actions were derived from the Commission's residential and commercial sector models of end-use energy demand which use engineering and econometric methods to forecast electricity and natural gas demand by climate zone and utility planning area.¹ These models combine, among many factors, forecasts of growth in commercial floorspace and number of residential households to reflect the effects of building and appliance standards, energy prices, and other variables on end-use efficiency. The resulting estimates of market-driven energy savings represent the effects of customer response to changes in energy prices, income, and advances in technology without any programs or regulatory intervention.

Energy Savings from Building and Appliance Standards

The impacts of mandatory statewide building and appliance standards in effect in California since 1975 are quantified using the sector models described above. These

¹ The methodologies used to estimate the effects of prices and standards are described in CEC Commission Report, *California Energy Demand: 1995-2015: Volume II: Electricity Demand Forecasting Methods* (July 1995) California Energy Commission, publication number P300-95-005.

impacts include the effects of all federal and state energy efficiency standards.

Assessment of Cost-Effective Potential Energy Savings

The next step in evaluating whether continued funding would provide cost-effective savings is to estimate the *economic* potential for energy savings. This is a much smaller amount of savings than *technical* potential because it excludes that great amount of energy savings that are *possible* but are not economic (cost-effective). That is, it represents only the energy savings that could be achieved if businesses and households were to implement known cost-effective technologies and measures in each new building or to replace older equipment only after it wears out.

To estimate remaining cost-effective potential beyond existing standards and normal market behavior, the Commission used the California Demand Side Management (DSM) Resource Assessment Model (CALRAM), a forecasting tool that integrates electricity load forecast data from the models used above with the results of the energy engineering simulation model DOE-2.1 applied to typical buildings and appliances.² Key features of CALRAM are its explicit linkage with the Commission's residential and commercial end-use demand models and with the efficiency measure and technology data in the Commission's Database for Energy Efficient Resources (DEER).³ The DEER contains the incremental costs of installing efficiency measures, energy impacts, baseline measure penetration, and characteristics of emerging technologies for each measure in the database.

CALRAM provides estimates of energy and peak savings from energy efficiency measures by sector, year, and levelized cost category for each planning area or climate zone in California. CALRAM uses five major steps to evaluate which measures are likely to provide cost-effective energy savings under a given scenario:

1. Calculation of levelized and marginal measure costs and application of economic screening to each measure.
2. Consideration of households and floorspace projections, fuel saturation, maximum and remaining market potential, and net-to-gross ratios to adjust for free ridership.
3. Annual program participation rates.
4. Consideration of measure life.
5. Consideration of measure continuance.

Although the model does not reflect some effects that may tend to overstate the potential that may be achieved in practice – practical limitations of program design and implementation make it unrealistic to expect to achieve 100% of remaining potential – other, probably much more important, limitations suggest that these estimates of

² CALRAM is described in the Commission Staff Report, Uncommitted Energy Efficiency Scenarios, April 3, 1996, prepared for the Staff Workshop on **ER 96** Uncommitted Energy Efficiency Scenarios, April 17, 1996

³ More information on the DEER can be found at <http://www.energy.ca.gov/forecasting/DEER.html>

remaining cost-effective energy efficiency are understated. First, the analysis does not adequately capture the probable additional long-run energy savings potential from market transformation programs. By stimulating structural changes in the way energy efficiency goods and services are bought and sold, market transformation programs should cause continued energy efficiency investments beyond the direct impacts measured here. Second, this analysis uses measure costs collected in 1996 and measure savings from 1992.⁴ The estimated potential therefore excludes newly emerged technologies, increased efficiencies and decreased costs of existing measures.⁵ Third, the potential energy savings from the industrial, agriculture and public sectors were not included. These exclusions bias downward the estimated cost-effective potential.

For this analysis, the cost-effectiveness of each measure in the DEER database is evaluated using the most recent Commission electricity price forecast, in which electricity prices initially decline as the Competition Transition Charge is phased out, followed by slight increases. A market-based value for electricity generation emissions reductions reflects some of the environmental benefits of energy efficiency.⁶ In the residential sector, end uses with the greatest savings statewide are forecast to be interior lighting, refrigeration, and central air conditioning. Interior lighting, heating and cooling measures are forecast to have the greatest potential savings in the commercial sector.

Impacts of Funding Levels on Energy Savings

The final step is to project the savings that future programs might achieve as a result of different funding levels. These savings are then compared to the cost-effective potential, adjusted for market- and standard-driven investment, to see whether a given energy efficiency funding level would lead to implementation of all known opportunities for cost-effective savings, or whether opportunities would still remain.

To estimate savings from future efficiency programs the Commission used DENRAM (DSM Energy Resource Assessment Methodology), a program-based method that is an extension of the methods the Commission used to derive its committed DSM forecasts. DENRAM uses assumptions about program funding levels, program effectiveness (energy savings per dollar spent), program impact decay over time, and program lifetimes to derive both the first-year and subsequent annual program savings. Lifecycle energy savings are estimated using first year savings and assumptions about the useful life of the

⁴ The Commission will issue an RFP, cofunded with PGC and natural gas DSM funds, to update measure cost and energy savings data for the DEER database in January 2000.

⁵ For example, a recent San Diego retrofit project reduced the energy bill for an office building from \$10,000 per month to only \$3,000.

⁶ The Commission used a value of \$0.006 per kWh to reflect marginal emissions reductions from criteria pollutants (NO_x, SO_x, PM10, and VOC) and carbon. The criteria pollutant values were derived from recent prices of trades of emission reduction credits under both New Source Review and South Coast Air Quality Management District trading programs.

energy technologies or measures promoted by each program,⁷ drawing upon previous utility and Commission program-level determinations of energy efficiency impacts.⁸

Over the past ten years, program effectiveness (the kilowatt-hours saved per program dollars spent) has decreased slightly; Commission estimates of remaining cost-effective energy efficiency potential are based on the assumption that this trend will continue indefinitely. However, the decline in electricity savings per dollar invested in energy efficiency programs has not been the same for all programs in all sectors for all utilities. Indeed, some sector programs have even seen *increases* in energy savings per dollar. It is possible that the observed declines in efficiency gains are the result of correctable program design problems, within-utility funding reallocations, or reasons not yet identified. The declines certainly do not reflect the application of market transformation principles, the introduction of which will almost certainly effect improvements in efficiency per program dollar spent through lasting changes in markets for energy efficiency goods and services.

Savings are derived from utility estimates of first year energy savings achieved by programs as reported to the CPUC annually.⁹ The impacts used in the analysis include effects from energy efficiency and new construction programs, but exclude energy savings from load management programs (such as thermal energy storage and air conditioning cycling), because energy savings is only a small component of those programs. Excluded also are savings from residential low income assistance programs, fuel substitution programs, and load retention and load building programs. Also, utilities do not report savings for information programs.

To compare the estimated remaining cost-effective potential energy savings with the energy savings that the electricity efficiency programs are likely to achieve, three different scenarios of funding levels were evaluated for the years 2002 through 2015:

1. *No More Funding* after 2001— assumes that program funding will be continued at 1998 levels through 2001.¹⁰ Programs will be terminated after 2001, although the effects from these programs are assumed to persist beyond 2001 reflecting the endurance of each program s impacts.

⁷ Methods of calculating DSM impacts are described in the Commission Staff Report, *California Energy Demand: 1995-2015: Volume XI: Committed Demand Side Management Program Savings* (July 1995) California Energy Commission, publication number P300-95-014.

⁸ For a similar analysis see Commission Staff Report, *Uncommitted Energy Efficiency Scenarios*, April 3, 1996, prepared for the Staff Workshop on **ER 96** Uncommitted Energy Efficiency Scenarios, April 17, 1996.

⁹ The four IOUs annually submit reports to the CPUC on DSM activities. The Office of Ratepayer Advocates of the CPUC publishes summaries of these reports; the most recently in 1996 published as *Demand Side Management: Expenditures and Cost Effectiveness: Trends and Patterns: 1988 — Current*.

¹⁰ Although utilities typically report expenditures and impacts as occurring in the year in which funds were committed, some recent DSM programs committed expenditures of funds approved before 1998 into post-restructuring years (i.e., 1998). In 1999, the utilities reported expenditures and impacts of pre-1998 programs that occurred during calendar year 1998. For this analysis pre-1998 impacts and expenditures are not considered part of 1998 programs.

2. *Current Funding* level— assumes that funding is maintained at 1998 levels through 2015.
3. *High Water Funding* — assumes funding is restored to the highest level since detailed reporting on IOU program funding began in 1988. This peak was in real terms approximately 43 percent greater than the 1998 level.

The scenarios reflect electricity savings by residential and commercial customer classes within the major investor-owned electric utilities (PG&E, SCE, and SDG&E). Therefore only electricity expenditures for energy efficiency programs for these customer and electric utilities are relevant. For these categories, funding peaked in 1994. These restrictions mirror the assumptions in the Commission assessment of the remaining cost-effective energy savings potential.

Table 1 below shows the assumptions (aggregated to statewide totals by customer class) for the *No More Funding* scenario and the *Current Funding* scenario. GWh refers to the programs gigawatt-hours saved during the first year of its implementation, which is used to calculate annual savings over the life of the program. \$ Millions Expenditure refers to the funding requirement for these programs and customer classes. The *No More Funding* scenario used the data in Table 1 as the basis for the years 1999 through 2001; the *Current Funding* scenario also used this data to continue 1998 levels through 2015. For the *High Water* scenario for years after 2001, the values in Table 1 are increased by 43%.

The expenditures used in this analysis reflect only a percentage of the total IOU energy efficiency funding levels. The analogous total budget for the *Current Funding* expenditure, including natural gas programs and all customer sectors and program categories, would be about \$230 million. The analogous total budget for the *High Water* expenditure of \$203 million (1998 dollars) would be about \$360 million.

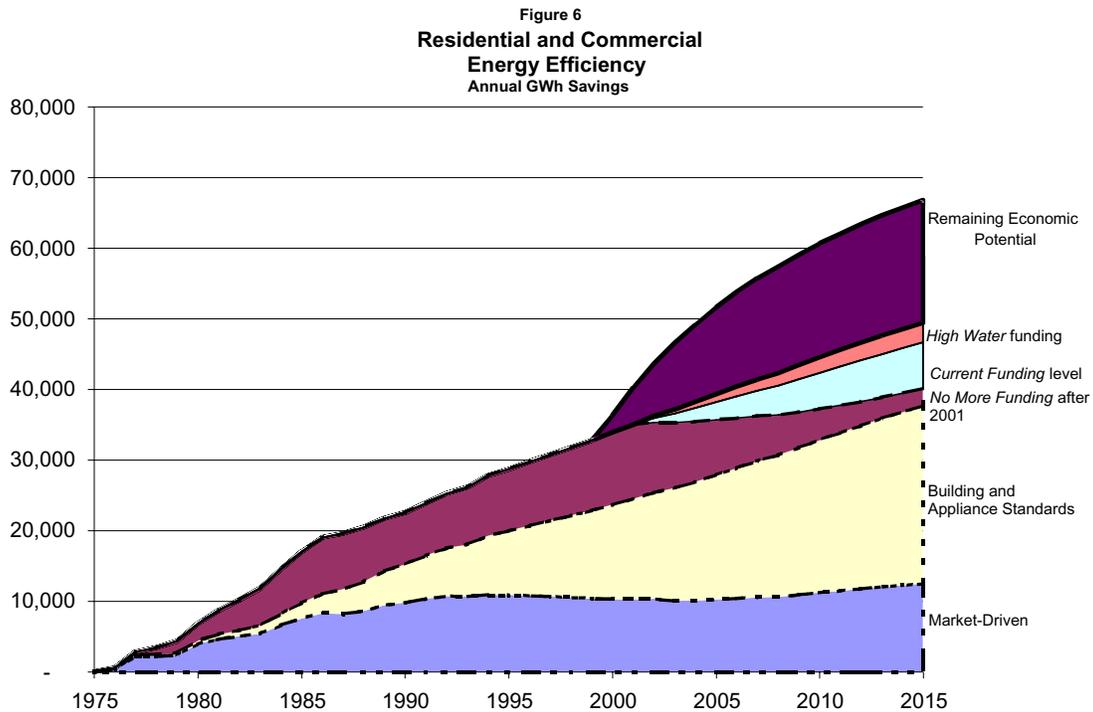
Table 1

Assumptions for the *No More Funding* and *Current Funding* Scenarios

Customer Class	GWh (1st year)	\$Millions Expenditure
Residential	147	51
Commercial	444	136
TOTAL	591	142

RESULTS OF THE ANALYSIS

Figure 6, Residential and Commercial Energy Efficiency, shows the magnitude of the remaining potential savings after taking into account the annual historical and projected future cost-effective electricity savings from the market, current building and appliance standards, and electricity efficiency programs, accumulated vertically. Each of the components of total savings shown in Figure 6 is described below.



Market-Driven Energy Efficiency

The bottom wedge shows the energy savings produced by energy efficiency investments driven only by market forces, unaided by special programs or government intervention. As would be expected, beginning in the mid-to-late 1990s, the market driven wedge shows that spending on energy efficiency will decline as the Competition Transition Charges mandated by AB 1890 are removed from customer bills.

Current Building and Appliance Standards

The second wedge from the bottom indicates that electricity savings from the maintenance of current building and appliance standards are expected to continue to grow over time, driven by the number of buildings built and appliances purchased.

Funding Scenarios

The third, fourth, and fifth wedges from the bottom show the forecast of cost-effective electricity savings under three different funding scenarios beginning in 2002. Under *No More Funding*, savings would continue after 2001 when funds are terminated, but taper off as the residual benefits of past programs diminish.

The *Current Funding* wedge represents the incremental savings of continuing funding at 1998 levels compared to the *No More Funding* scenario. This incremental benefit can be compared to the remaining potential shown by the upper bound of *Remaining Economic Potential*: the electricity savings achieved as a result of continuing funding post 2001 is one fourth of the estimated cost-effective potential.

By increasing funding to *High Water* levels, electricity efficiency programs still would realize less than one-third of potential savings by 2010, and only slightly more than one-third by 2015.

However, some of this potential may be tapped by future changes to standards. To evaluate this possibility, the Commission used the residential energy demand model to estimate savings from ten percent more stringent state residential building and federal appliance standards. Even utilizing the combined approaches of increased building standards, increased appliance standards and reinstating the *High Water* funding levels, more than half of the remaining economic potential would remain untapped.

The results indicate that even if efficiency program funding were increased after 2001 to historically high levels, only about a third of potential cost-effective electricity savings would be achieved by 2015. Furthermore, because of data and modeling limitations, this is most likely a conservative estimate of the magnitude of the remaining untapped savings potential.

Direction to California Energy Commission:

AB 1105 (Excerpt) and Governor's Message

Appendix B

Governor s Message

Item 3360-001-0465 For support of Energy Resources, Conservation and Development Commission. I revise this item by reducing:

- (c) 30-Development from \$93,827,000 to \$92,827,000;
- (fx) Amount payable from the General Fund (Item 3360-001-0001) from -\$5,000,000 to -\$4,000,000;

and by revising Provision 3.

I am revising Provision 3, which specifies the allocation of the amount appropriated in Item 3360-001-0001 for the diesel emissions incentive program, to conform with my action taken in Item 3360-001-0001.

3. Of the funds appropriated in Schedule (fx), ~~\$5,000,000~~ \$4,000,000 shall be expended for the support of the Diesel Emissions Incentive Program. Of this amount, ~~\$2,500,000~~ \$2,000,000 shall be used for advanced technology projects and ~~\$2,500,000~~ \$2,000,000 shall be used for alternative fuels infrastructure.

I am sustaining Provisions 1 and 2 which requires the Energy Resources, Conservation and Development Commission to evaluate the efficacy of the State s Renewable Energy Resources Program. I am also sustaining Provision 5, which requires the Commission to prepare a plan regarding the post-transition administrative structure to achieve cost-effective energy efficiency and conservation in the State s energy markets. I believe that both reports will be useful. However, the reporting requirements outlined in these provisions fall short of providing a complete, objective assessment of the affected programs. The provisions prejudge the evaluations by assuming program continuation without first providing consideration for whether there is a need for the programs. Additionally, the provisions do not provide for adequate independent review to ensure the studies are valid, reliable, statistically sound, and based on performance measures. Therefore, I am directing the California Energy Commission to include these factors in the evaluations.