Effects of Restructuring on the Mission of the California Energy Commission

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CALIFORNIA ENERGY COMMISSION

Gray Davis, *Governor*

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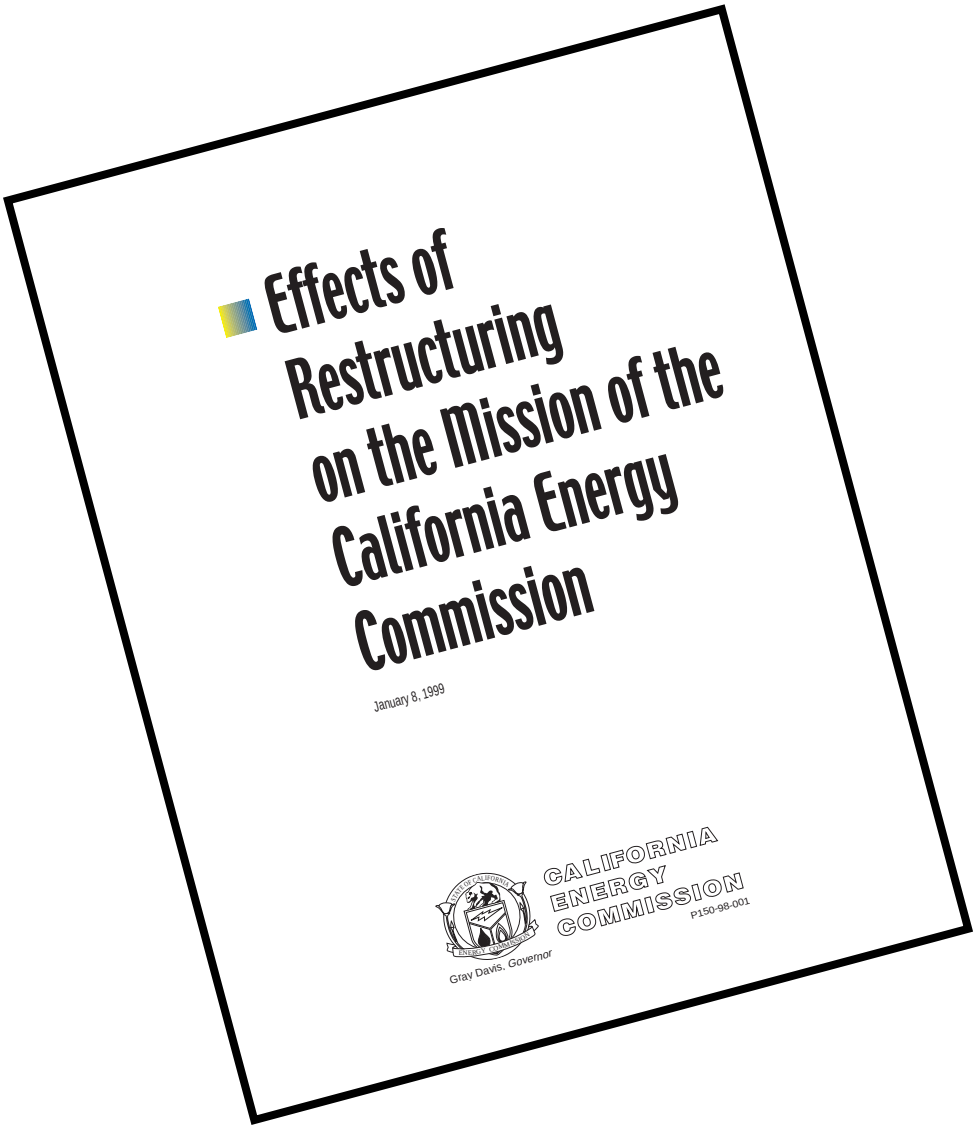

CALIFORNIA ENERGY COMMISSION

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EXECUTIVE SUMMARY

OVERVIEW

Major changes in the structure of the energy market, initiated by Assembly Bill 1890 (Chapter 854, Statutes of 1996), affect the public interest and call for changes in the way government carries out its responsibilities. The electricity industry has evolved from several decades of regulated utilities into dynamic enterprises. Where large vertically integrated monopolies once dominated the industry, entrepreneurs and private investors are taking advantage of new opportunities to provide goods and services competitively. Where government once stood guard over the public interest through regulation of the market, policy makers are now re-examining the nature of that interest and the best way to serve it.

The ***Supplemental Report to the 1998 Budget Act*** requested that the Energy Commission prepare, by January 10, 1999, a report to the Legislature "identifying any statutory and administrative changes the Energy Commission believes are required to meet the evolving mission of the Energy Commission under deregulation of the electricity industry and other aspects of utility deregulation."[1] The report is to "provide a full and detailed explanation of changes (and proposed changes) in the mission, and for each change detail the basis for (a) specific administrative changes that have been (or are planned to be) implemented, (b) proposed statutory changes, and (c) actual and proposed staffing changes."

The most important action to deregulate California's electricity industry was the passage of Assembly Bill 1890 (AB 1890). This Statute added to the responsibilities of the Energy Commission programs to ensure continuation of public interest energy research and support for existing, new, and emerging renewable power generation. The specific administrative changes and staffing changes to date have been in response to those additional Energy Commission responsibilities. The Energy Commission, with the assistance of the Legislature, streamlined its contracting processes to facilitate administration of the significant increase in funds to support these programs. To meet the staffing needs for the administration of these new programs, the Energy Commission redirected 32 staff positions (17 for research and development, and 15 for renewables) from other activities within the Technology Development Program. Also, the Energy Commission proposed and gained approval in the 1998 Budget Act, to shift 5.8 staff positions (2.8 for research and development and 3 for renewables) from regulatory and planning, energy efficiency and transportation program areas and to add 26 staff positions (14 for energy research and development, 10 for renewables and two for information technology) to administer the new program responsibilities.

The examination of potential administrative and staffing changes, in response to initiation of electricity industry deregulation, is continuing. Additional administrative and staffing changes are expected to be proposed, as a result of the extensive review of the Energy Commission's functions and structure being carried out under the Energy Commission's strategic planning process. There are key policy issues to be decided that will materially affect the Energy Commission's electricity-related functions.

The development of options for the resolution of policy issues affecting the Energy Commission's electricity-related public purpose, information, analytical, and licensing functions is underway through public workshop and hearing processes. The products of these processes will be options and recommendations for proposed legislation as required.

These policy issues are discussed in the Executive Summary and in the body of the report, along with a discussion of the history and context of the Energy Commission's electricity-related functions.

ENERGY COMMISSION CHANGES IN RESPONSE TO RESTRUCTURING

The Energy Commission has responded to restructuring in several significant ways. First, the Energy Commission embarked on a reexamination of the role of government in a restructured environment, with primary emphasis on the Energy Commission's role. This included clarifying the primary mission and objectives of the Energy Commission and a sharpening of the functions it performs that would not require legislative changes. Second, after the passage of AB 1890, the Energy Commission responded immediately by focusing on the specific provisions it was directly assigned, primarily the public interest programs. This included realignments in programs and staffing to implement directives dealing with PIER and renewables programs. As a part of this effort, the Energy Commission is also examining reorganization of the Energy Commission's structure to help it better serve the needs of the restructured industry. Third, the Energy Commission identified issues that may require statutory changes and has initiated a public process to more fully explore these issues with stakeholders. These three efforts are summarized below.

Energy Commission Mission and Responsibilities

The Energy Commission undertook a re-examination of its primary mission and responsibilities in light of restructuring. It has already begun fundamental changes through its additional responsibilities under AB 1890 and the process of change will continue as we further develop issues through stakeholder processes. Restructuring of the electricity market, in and of itself, does not materially alter the fundamental public interest rationale underlying the Energy Commission's primary mission and responsibilities. Energy continues to be essential to society. The Energy Commission has

an ongoing mandate to carry out its broad responsibilities with respect to all energy forms including fuels, natural gas, petroleum products, transportation, energy efficiency, alternative technologies and fuels among others. For electricity, the interconnected nature of the electricity grid poses system and environmental impacts that are statewide and regional in nature. Although the electricity market is now becoming competitive, these statewide and regional impacts require assessment and policy oversight.

The Energy Commission believes its primary purpose under restructuring is to serve as the policy adviser to the Governor and Legislature and the implementer of state energy policy to promote a sound economy and ensure a healthy environment for the state. The Energy Commission's primary areas of responsibility will continue to include: energy facility licensing; data collection, information, analysis and forecasting; energy efficiency; research and development; renewables; consumer education; international business opportunities for California energy businesses, and energy contingency planning. Along with its examination of roles and responsibilities, the Energy Commission is in the process of examining ways it might reorganize itself to better serve the needs of a restructured market.

The Energy Commission believes that the manner in which it carries out its responsibilities in some important areas should be better aligned with a restructured environment. The following sections of the executive summary lay out potential changes under consideration.

Public Interest Programs

AB 1890 made substantial changes to the way public purpose programs are carried out in the state. It directed specific funding from investor-owned utilities through 2001 of three energy-related public goods programs that would benefit California but that the Legislature felt the market may not adequately provide: existing, new and emerging renewable power generation; cost-effective energy efficiency; and Public Interest Energy Research (PIER). The Energy Commission is responsible for carrying out the PIER and renewable programs, while the CPUC is responsible for administering funding of energy efficiency programs provided by AB 1890.

Renewables

AB 1890 directed the collection of $540 million from investor-owned utility ratepayers to support existing, new and emerging renewable technologies and the market demand for such technologies. This required the redirection of three staff positions from other Energy Commission programs and the addition of 10 staff positions to quickly develop and implement the renewables program. This was approved by the Legislature through a Finance Letter to modify the 1998-99 budget. The Energy Commission has already developed plans to allocate funds and implement market based approaches for renewable resources and technologies. The primary focus of these activities is to create a sustainable market by developing the demand for renewable products and services. The California Energy Commission worked with the State Controller's Office to develop a streamlined

and more efficient payment system. This system has resulted in more consistent and timely payments to the Renewable program participants. In 1998, the Energy Commission approved over 50 projects for funding and disbursed over $40 million to support renewables. At this time, the Energy Commission does not anticipate additional statutory changes.

Research and Development

AB 1890 allowed for the funding of $61.8 million per year for public interest energy research and development, referred to as PIER, to advance science or technology the Energy Commission determines is not adequately provided by markets. The Energy Commission has designed its PIER program to further California's long-standing mission of providing environmentally sound, safe, reliable and affordable energy services and products. In January 1998 the Energy Commission awarded $17 million for 39 proposals under transition funding and in June 1998 another $18 million was awarded for 20 contracts under the first general solicitation. In 1999, the Energy Commission awarded an additional $10 million for end-use energy efficiency and strategic energy research under the second general solicitation. The Energy Commission redirected 2.8 staff positions from other Energy Commission programs and added 14 staff positions approved by the Legislature through a Finance Letter to modify the 1998-99 budget. In addition, it implemented numerous administrative changes to streamline contracting under the PIER program. No additional statutory changes are envisioned at this time.

Energy Efficiency

AB 1890 has introduced a number of new players in energy efficiency programs including the California Board of Energy Efficiency (CBEE) established by the CPUC to administer program funding established under that legislation. The Energy Commission is relying on energy efficiency program initiatives to compliment, not duplicate or conflict with, either private sector or CBEE-initiated programs and to facilitate better market choices. Our approach encompasses market transformation to focus on reducing barriers that prevent customers from making the most cost-effective decisions.

For the Energy Commission to successfully carry out its responsibilities, coordination with CBEE is essential to meeting the state's energy efficiency goals. For example, the Energy Commission and CBEE are currently discussing using Energy Commission staff and expertise to carry out mutual market assessment and evaluation activities.

Issues for Potential Statutory Changes
Information and Data Collection Responsibilities

The Energy Commission continues to revise its data collection regulations to bring them more in line with the restructured market and the requirements of SB 1305. The Energy Commission has identified alternative sources of data and alternative methods to acquire

data that would shift more of the burden for data collection activities to the staff and reduce burdens on market participants. Energy Information Agency (EIA) confidentiality remains a significant issue and the Energy Commission is working toward a model agreement to resolve these issues. The Energy Commission anticipates completing its information and data collection rulemaking in early 1999 and has identified the following issues that could require statutory changes:

- Maintaining and assuring confidentiality.
- Getting compliance on data collection.
- Data collection standards for supply, generation characteristics, and consumer information.
- Responsibility for funding.

Energy Facility Licensing

The current facility licensing process under the Act was designed when nearly all power plants were proposed and constructed by utilities. Nearly all of the currently pending licensing proposals and those soon to be proposed are merchant facilities proposed by private investors which pose new and different issues. The Energy Commission has initiated a process with stakeholders to identify changes necessary to the Energy Commission's mandate and regulations for facility licensing to make them more compatible with a competitive environment. The following changes are under consideration:

- Unification & Coordination of Generation and Transmission Facilities: Proposal for placing the approval processes for generation and transmission into one specified agency.
- Notice of Intention: Possible deletion or substantial revisions to NOI requirement (as proposed in SB 110).
- Integrated Assessment of Need: Examination of the integrated assessment of need, how it should be used for assessment purposes and possible changes to the current requirements to assure consistency with a competitive market,
- Statewide Jurisdiction Over Power Plants: Consideration of whether to change current 50 MW jurisdictional limit in light of anticipated expansion of distributed resources and proposed repowering.
- Eminent Domain: Consideration of the potential role of eminent domain in a unified licensing approval process.
- Secondary Issues: Geothermal licensing jurisdiction and facility closure rules.

Electricity System Assessment

Long-term and short-term assessment of the interconnected generation and transmission system is dispersed among several entities under restructuring. The Energy Commission shares some assessment responsibilities through its long-range assessment mandate and its role in licensing power plants. As part of the process discussed above the Energy Commission is considering the following issues:

- Electricity Resource Assessment: Examination of the form assessment activities should take to assure reliable and adequate sources of supply consistent with restructuring.
- Transmission & Grid Assessment: The need for Coordination of the varied entities (ISO, market participants, transmission owners, CPUC and Energy Commission) in addressing reliability.
- Alternative Grid Assessment Process: How to assure that alternatives to transmission are considered in the evaluation process and that market-based mechanisms are developed to foster desirable alternatives to solve grid problems.

While the issues discussed to this point have grown directly from the Energy Commission's electricity related responsibilities there are other effects of the shifts of resources to accommodate the Energy Commission's new responsibilities. The needed staff redirections approved in the 1998 Budget call attention to the Energy Commission's transportation mandates.

Transportation Issues

Energy use for transportation is as critical as electricity use in California, but it has not received the same level of attention or resource commitment. Over half the energy used in the state is used for transportation, and California is currently 99 percent dependent on petroleum and petroleum based products to meet these needs. Given population growth and economic development trends, transportation demand is likely to increase with conventional fuels dominating the sector; fuel-efficient vehicles will not sufficiently offset increased demand as long as conventional fuel prices remain low, as is currently forecasted. As a result, any disruption in petroleum supply or price spikes will have a significant impact on California's citizens and the economy.

The Energy Commission has the responsibility to "fully evaluate the economic and environmental costs of petroleum use, of other transportation fuels, and to establish a state transportation energy policy that results in the least environmental and economic cost to the state." The Energy Commission is also charged with developing a state policy that will "exploit all practical and cost-effective conservation and improvements in the efficiency of energy use and distribution, and to achieve energy security, diversity of supply sources, and competitiveness of transportation energy markets based on the least environmental and economic costs." To that end, the Energy Commission is responsible for:

- Analyzing and reporting on transportation energy use.
- Making recommendations on changes needed to ensure that clean burning fuels are used to the greatest extent practicable.
- Improving the efficiency of fuel use in transportation.
- Providing incentives to encourage the purchase and use of low-emission vehicles.
- Carrying out programs to accelerate introduction of nonpetroleum-based vehicles and fuels.

The key issue with the Energy Commission's transportation energy responsibilities is not the need for statutory changes, but with the funding necessary to carry out these responsibilities. At the current time, the Energy Commission does not have a stable or adequate revenue source for this work. Future funding is a problem because the Energy Commission's principal funding source, the federal Petroleum Violation Escrow Account (PVEA) is in dramatic decline. PVEA received money from federal court settlements on oil industry overcharging and distributed it among states as restitution. After June 2002 additional PVEA funds will no longer be available. Without a stable funding source, the Energy Commission will have difficulty fulfilling its responsibilities.

The Energy Commission will develop proposals for alternative funding dedicated to its transportation responsibilities. One means successfully used by the Energy Commission is to develop partnerships with industry, local governments, and air districts to leverage additional funding.

FROM MONOPOLIES TO COMPETITION

For almost one hundred years, large, vertically-integrated utilities provided electricity generation, transmission and distribution services to California. Up to the 1970s the state's public utilities were relatively stable as technological advances and economies of scale combined to keep utility rates steady or even in decline. The energy, economic and environmental crises of the 1960s and 1970s shattered this stability. Predictions were made that in order to meet what was then a seven-percent growth in electricity consumption, nuclear power plants would have to be built every 20 miles along the California coast. That raised fears of environmental damage and health and safety risks, along with the potential for many billions of dollars of construction for which ratepayers would be responsible.

Some parties were concerned that the prediction of inevitably increasing electricity demand growth were unrealistic. They believed that if steps were taken to conserve power, then fewer power plants would need to be constructed. Others noted that the then-current system of power plant licensing, involved dozens of state, regional and local

agencies that might have to grant separate permits. They raised concerns that this process was so long, costly and potentially inconsistent that sufficient power facilities could not be licensed in time to meet growing demand. Still others pointed out that it was difficult for members of the public to make themselves heard in licensing decisions. It became apparent that the state lacked a single agency to assess all of the relevant factors and interests, and to take timely, decisive action if necessary.

The Energy Commission

In response to these concerns the Legislature established the Energy Commission in 1974 through passage of the Warren-Alquist Act. The Legislature declared that energy is vital to the health, safety and welfare of the people of the state and its economy. It further declared it is the responsibility of state government to ensure a reliable supply of electricity - consistent with protecting public health and safety, promoting the general welfare, and protecting the environment.

The Act gave the Energy Commission broad authority to:

- Collect data and evaluate trends in energy supply and demand for electricity, petroleum, and natural gas, and assess the social, economic, and environmental implications of the trends.
- Establish state policy concerning all energy sources.
- Approve, in a "one-stop" licensing process, all new thermal power plants of 50 MW or larger and related facilities, in an open public proceeding where only those plants determined to be "needed" would receive a license.
- Administer, often through financial assistance, programs to increase energy efficiency and to promote alternative sources of energy such as renewable power and alternative transportation fuels.
- Set efficiency standards for buildings and appliances.
- Support energy research and development.
- Establish and implement contingency planning for energy emergencies.

The Energy Commission's ability to comprehensively assess and develop policy for energy markets, along with the interrelated nature of its functions, can be credited with much of the its success over the last 20 years. The Energy Commission assisted the state in accommodating its rapidly growing population and economy through investments in energy efficiency and building and appliance efficiency standards that contributed to slower growth in demand. The Energy Commission has allowed the addition of sufficient new power plants to meet remaining demand, including the approval of 46 projects totaling over 5,500 MW. The Energy Commission's public purpose programs, including energy efficiency and research and development, have been a remarkable success, saving

Californians an estimated $15 billion, generating jobs and encouraging technological advances and innovation.

Competition and Restructuring

Since the creation of the Energy Commission, several factors have driven the electricity industry toward increasing competition. Foremost among these was the recognition that all aspects of electricity are not monopoly goods and the rejection of the notion that the most efficient way to provide electricity was through vertically integrated utilities. In 1978, Congress passed the Public Utilities Regulatory Policy Act (PURPA) which introduced limited competition in the generation of electricity. Under PURPA customers could produce their own power and sell any surplus to utilities at avoided costs. This spurred a massive investment in independent power production in the state and allowed some large industrial customers to negotiate less costly, alternative rates with their host utilities.

Although California was a recognized leader in the development of independent power production, barriers to full competition in the generation market still persisted. One of the primary barriers was access to transmission facilities owned primarily by investor-owned utilities. Following years of protracted litigation at the federal level and investigations at the federal and state levels into escalating transmission access disputes, Congress passed the Energy Policy Act in 1992. It called for open, non-discriminatory access for transmission and other essential grid services. FERC implemented this open access policy by introducing comparability for transmission and related services, meaning that a transmission owner had to provide transmission services to third parties on the same terms and conditions that it reserved for itself.

Changes in federal law and regulation paved the way for competition in electricity markets, but did not provide two additional features that were necessary full competition in generation markets. First was the ability of retail customers to choose among alternative suppliers. Second was full access to the transmission grid and a competitive spot market for all buyers and sellers. The CPUC released a proposal for restructuring the electricity services market in 1994 and a final decision in late 1995. In 1996, the Legislature passed AB 1890.

AB 1890 made fundamental changes to the structure of the electricity market to increase reliance on competitive market forces. Generation of electricity is no longer a monopoly service subject to traditional regulatory rate setting. Electricity generated by investor-owned utilities is now sold through the Power Exchange (PX) spot market at competitive prices. An Independent System Operator (ISO) now manages the investor-owned utilities' electricity grid and provides transmission services at market-based rates subject to FERC regulation. Alternative suppliers are allowed to compete for investor-owned utility customers through direct access contracts. Municipal utilities are not required under AB 1890 to sell power through the PX or allow direct access to their customers.[2] They will continue to serve the needs of their customers by generating their own power or participating in the PX at their discretion. However, the Legislature did intend that

municipal utilities would eventually participate in the ISO. These evolving market institutions pose new and different issues for policy makers.

Under restructuring, the majority of generation resource additions are no longer being proposed for construction by traditional utilities. These generators will not be subject to extensive regulatory processes at the CPUC and Energy Commission that determine the amount or influence the kind/type of resource additions. Private entities are now proposing to construct the majority of power plants in the state through private investments rather than ratepayer funds. Municipal utilities may continue to construct generation to meet their customers needs or rely on the PX to meet future needs. Private investors may also propose, for the first time in the electricity market, to construct major transmission lines. These evolving market institutions and merchant facilities present new and different issues for policy makers.

Effects of Restructuring On The Mission of the Energy Commission

INTRODUCTION

This report contains two major sections addressing the effects of electricity restructuring on the Energy Commission's mission. Part I provides background and history that establishes the context for raising options for statutory changes. It describes the original mission and functions of the Energy Commission, along with the major changes in the electricity industry that have occurred since passage of the Warren-Alquist Act. Part I also explains the restructured environment that now exists and the factors that brought about a competitive generation market.

Part II of the report addresses the evolving mission of the Energy Commission as it continues to respond to changes in the electricity market. Part II updates the Legislature on the ongoing examination of roles and functions the Energy Commission began when restructuring was first initiated in 1996. This includes clarification of its roles and responsibilities, possible reorganization, and changes that did not require immediate statutory revisions. Part II also describes the changes the Energy Commission has already undertaken to respond to restructuring including implementation of public interest programs mandated by AB 1890 such as revisions to information and data collection regulations. Finally, Part II presents a discussion of issues that may require future statutory changes associated with our information and data collection activities, facility licensing program, and assessment responsibilities that are currently being addressed in stakeholder processes underway. It also raises transporation issues affected by redirection of staff to address electricity restructuring. Part II lays out potential policy issues for legislative consideration.

PART I : FROM MONOPOLIES TO COMPETITION

TRADITIONAL UTILITY REGULATION

Historically, large investor owned utilities served the lion's share of the electricity market. These private companies engaged in businesses so critical to the community welfare that the U.S. Supreme Court found them to be "clothed in the public interest".[3] In California, the Railroad Commission had regulatory control over public utilities beginning in 1911. In the mid 1940's, the Railroad Commission's name became the California Public Utilities Commission (CPUC). The Legislature granted it authority to supervise and regulate every public utility in the state and do all things necessary and convenient in the exercise of such power and jurisdiction.[4] Up to the 1970s, these public utilities were relatively stable as technological advances and economies of scale resulting from the state's growth combined to keep utility rates steady. In this period, an unwritten regulatory compact evolved whereby utilities agreed to regulated prices and services in exchange for the exclusive right to serve a franchise territory and a guaranteed opportunity to earn a fair rate of return on investment.

The energy, economic and environmental crises of the 1960s and 1970s shattered this stability. Inflation and diminishing economies of scale reversed electricity rate declines that consumers had enjoyed. Rapid population and economic growth led to predictions that many new power plants would have to be constructed to meet growing demand.

Two large deficiencies in the traditional approach to utility regulation became apparent:

- Giving companies a guaranteed rate of return on investment, encouraged the utilities to build more plants, hire more people and focus on the short-term horizon, contributing to reliability but putting constant upward pressure on prices.

- While the CPUC controlled the investor-owned energy utilities it had little influence over the broader policies that determined how energy was produced and consumed.[5]

CREATION OF THE ENERGY COMMISSION

The Legislature established the Energy Commission in 1974, through passage of the Warren-Alquist Act (the Act), to counter regulatory deficiencies. The Energy Commission's duties went beyond electricity and natural gas delivered by monopolies to understanding and influencing all of the State's energy uses including petroleum and petroleum products, and alternative fuels and technologies. The Energy Commission was given broad authority to evaluate the trends in energy supply and demand; the statewide demographics and economic factors that would affect the demand and supply of energy; and the social, economic and environmental implications of these trends. Regulatory

programs included approving site applications for thermal power plants of 50 MW or larger and all related facilities including transmission lines.[6] In addition, the Energy Commission sets building and appliance standards to reduce energy consumption and increase energy efficiency

The Act also provided for the Energy Commission to develop policy for all energy uses in the state, including electricity, natural gas, petroleum and other fuels. The Energy Commission became vested with broad data collection authority for all energy forms and uses necessary to support these responsibilities. Finally, the Energy Commission was also vested with a number of public purpose programs intended to promote the development of cleaner, renewable and other alternative energy sources.

The interrelated nature of the Energy Commission's functions makes it unique among state agencies and can be credited with much of the Energy Commission's successes. The Energy Commission is specifically required to balance multiple public policy goals, while other agencies have more narrow interests such as the CPUC's focus on ratepayer impacts. Another unique aspect of the Energy Commission is the manner in which its various mandates (including technology evaluation, efficiency, system assessment and licensing functions) combine to allow it to develop comprehensive energy policy. A sustained ability to comprehensively assess and develop policy for emerging energy markets will be essential to policy makers in assuring that the state enjoys the benefits of well-functioning and competitive energy markets.

Energy Commission Assessment and Licensing Responsibilities

The Energy Commission was given responsibility for the long-term planning of the electrical generation system in the state. The Legislature found and declared in the Act the essential nature of electrical energy as follows:

> ...electric energy is essential to the health, safety and welfare of the people of this state and to the state economy, and... it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection.[7]

In the early years of the Energy Commission, its forecasting, planning and facility licensing authority proved to be one of its greatest and most challenging responsibilities. In the early 1970s, the RAND Corporation warned that to meet the state's seven percent annual increase in electricity demand, a series of nuclear plants would have to be built. This observation sparked debate between competing concerns - that nuclear reactors would be located every 20 miles along sections of the California coast and, alternatively, that public protest would prevent any new generators from being built.

The Act gave the Energy Commission exclusive decision-making authority over licensing of thermal power plants of 50 megawatts (MW) or greater and all related facilities. This

licensing process was designed to simplify and streamline the power plant licensing process, to reduce the time and expense involved in licensing power plants and to assure that facilities would be available when needed. Prior to the creation of the Energy Commission, power plant proponents had to obtain numerous licenses from a variety of state and local government bodies. The 50 MW jurisdictional threshold was established because the Legislature anticipated that new power plants would generally be larger the 50 MW and, therefore, the Energy Commission would be responsible for licensing most new facilities. The Act also created an open, public process to maximize stakeholder input in the Energy Commission's process.

The Energy Commission was empowered to approve only those new electricity generators that mitigated environmental impacts and were found to be consistent with the integrated assessment of need--despite efforts to reduce electricity demand through efficiency improvements, including building and appliance standards and mandated utility demand side management programs. This was accomplished through exercise of the Energy Commission's expertise and responsibilities in forecasting and assessment of electricity generation, in combination with its power plant licensing program.

The Act established the Energy Commission's forecasting and assessment function to produce state energy policy through an open process of determining trends, making projections and assessing options for meeting anticipated demand. The resulting Electricity Report guided government determinations of how much electricity was needed and to explore alternatives to constructing new generating facilities. The Energy Commission's forecasts of electricity demand challenged the conventional wisdom of utility forecasts, recognizing that higher prices and energy conservation would lower rates of demand growth. Although controversial at the time, the Energy Commission's forecasting capabilities lead the industry and the nation into using more accurate methodologies. The Electricity Report also served as the basis for the Energy Commission's integrated assessment of need for power plant that is a critical element in the Energy Commission's licensing process.

The outcome was an open licensing process in which environmental, public health and safety impacts for new generating sources and related facilities were mitigated and only those plants found to be in conformance with the Integrated Assessment of Need were approved. The Energy Commission is generally acknowledged for succeeding at this challenge, enabling the state to accommodate a rapidly growing population and economy with investments in demand-management technologies and sufficient new resources to meet less rapidly increasing electricity demand. To date, the Energy Commission has approved 46 projects with a capital investment of $6.2 billion and a generating capacity of 5,568 MW. Currently, the Energy Commission is reviewing four permit applications and is working with developers on 25 additional projects with a total generating capacity exceeding 15,000 MW.

Energy Commission Public Purpose Programs

The Act also conferred on the Energy Commission a range of public purpose programs intended to stimulate the market to develop energy alternatives that were less polluting,

less reliant on imported fuels and less consuming of existing energy supplies and finite natural resources. The Energy Commission undertook the function of technology development largely intended to compensate for the perceived under-investment in research, development and demonstration of technologies that would use alternative and cleaner energy sources, including transportation technologies and fuels. The Energy Commission's energy efficiency and conservation function consisted of:

- Grant and loan programs for improvements to hospitals, schools and public buildings
- Funded research programs and public education programs
- Established building and appliance efficiency standards program mandating minimum efficient levels for new buildings and appliances sold in the state, which the Energy Commission adopted through a process of public hearings and deliberations

Energy efficiency programs have been a remarkable success, saving California residents and businesses an estimated $15 billion, generating jobs, and encouraging technological advances that have made the state a leader in innovation. In addition, public purpose programs have contributed to helping the state meet goals for environmental improvement. Renewable energy resources have helped the state meet energy needs in cleaner ways, reducing the health costs of air pollution and avoiding more costly air pollution controls. Technological advances have brought renewable resources closer to market rates. Yet, despite these significant advances, energy efficiency technologies and services, renewables and new and advancing energy technology have yet to reach their full potential.

THE MOVE TOWARDS COMPETITION

Over the last two decades, several forces have driven the electricity industry toward increasing competition. State and federal policies have called for competition in generation based on the recognition that some aspects of electricity are not monopoly goods. Electricity customers, primarily commercial and industrial, have been demanding choice in the different types and level of electricity services and their suppliers. There has also been an increasing desire by regulators and consumers for lower electricity costs by allowing access to alternative electricity suppliers.

During this period, the traditional view of electricity as a natural monopoly has fundamentally changed. Two fundamental tenets about electricity supply and demand were challenged and proven false. First, it was widely thought that electricity was so essential to individuals and businesses that changes in price would not influence the amount and manner in which electricity is consumed. Therefore, it was believed that demand would continue to increase at the same rate as population growth. High oil prices, resulting in high electricity rates, during the 1970s proved this to be wrong. Customers responded to rate increases by changing the amount and the manner in which they used electricity in an attempt to lower electricity bills. Second, traditional economies

of scale that made large power plants appear to be the most cost-effective way to meet growing demand for electricity began to disappear. At the same time the widely held belief that large, integrated monopolies were the only entities with the technical and financial means to construct and operate power plants was proven false. With slower demand growth, smaller, more efficient power plants became more attractive. Independent power producers, including industrial companies, expressed their willingness and capability to build these facilities.

The 1970s and 1980s also saw a decrease in the role of vertically integrated investor-owned utilities in constructing new, large-scale power plants and serving the great majority of the state's electricity demand. Economic and political realities placing new construction in jeopardy led investor-owned utilities to look to other utilities for purchase, exchange and pooling arrangement. Utilities sought long-term purchase and exchange arrangements with neighboring utilities, including out-of-state utilities, that were cheaper than building new generating units to meet demand growth. Spot purchases from the Northwest and Southwest regions also gained increasing importance in California's supply mix. Starting in the 1980s, municipal utilities began to change their traditional reliance on investor-owned utilities for electricity supplies. Municipal utilities looked to other sources of supply and planned to eventually meet their own power loads.

INTRODUCING COMPETITION WITH INDEPENDENT POWER PRODUCTION

In 1978, Congress was persuaded that the generation of electricity was no longer a natural monopoly and passed the Public Utilities Regulatory Policy Act (PURPA). Under PURPA, customers could build their own power generation or self-generation and sell any surplus to the utility at avoided costs. In response, a virtual gold rush of independent power producers signed contracts and sought approval to construct generation. The advent of PURPA also gave large customers the additional opportunity to negotiate with their host utilities for better deals for electricity rates. The CPUC allowed alternative rate structures for customers proposing self generation at rates that covered some contribution to the margin, but were less than the fully allocated utility costs of serving that customer. Once customers had a viable alternative supply of generation, in this case self-generation, there was increasing pressure to bring utility costs down.

Although California has been a recognized leader in promoting independent power producers, it was widely acknowledged that here and elsewhere barriers to full competition in the generation market still existed. One of biggest problems was access to transmission. Although PURPA attempted to deal with transmission access issues for independent power producers, FERC was authorized to order transmitting utilities to provide access to them only if it determined that such access would reasonably preserve existing competitive relationships. This provision proved to be inadequate. During the 1980s and early 1990s, disputes escalated between those who owned transmission, primarily investor owned utilities, and those who did not own but sought access to existing transmission, primarily municipal utilities and independent power producers. This led to protracted litigation before FERC that finally spurred, in the late 1980s,

investigations and task forces at the national level to address transmission pricing and access policies.

In the meantime, access disputes in California became more heated and similar investigations into transmission access were instituted in the state. Municipal utilities proposed their own transmission construction projects as a response to their inability to successfully gain access at reasonable rates to investor owned utilities transmission. But, these transmission line proposals were met with public opposition. The Legislature ordered the Energy Commission, through the passage of SB 2413, to investigate and report on transmission concerns. The Energy Commission reported to the Legislature the need for a state policy of non-discriminatory access to transmission along with improved planning and other measures to reduce barriers to access.[8]

In 1992, Congress dealt with some unresolved transmission access concerns and sought to further promote competition in the generation sector with the passage of the Energy Policy Act (EPAct). EPAct introduced exempt wholesale generators and power marketers, not affiliated with utilities, who could sell power at unregulated, market-based rates. It also called for the establishment of open, non-discriminatory access for transmission and other essential grid services to be implemented by FERC.

In 1994, FERC introduced a policy of comparability for transmission access in several cases to deal with the disparity in transmission services offered to third parties such as independent power producers. Comparability meant that utilities had to provide access to essential transmission and related services, on the same terms and conditions they had until then reserved for themselves. Finally, in 1995 FERC required all utilities under its jurisdiction to file pro-forma tariffs which included specific non-discriminatory terms and conditions for providing transmission access, making comparability for transmission services the law of the land.

STATE ACTIONS TO RESTRUCTURE THE CALIFORNIA ELECTRICITY MARKET

Changes in federal law and regulation governing wholesale electric generation and transmission left a noticeable gap in the regulation of retail electricity markets which California policy makers moved in to fill. PURPA and EPAct created a multi-jurisdictional environment for the electricity market. These actions on the federal level paved the way for a competitive market, but they were not sufficient in and of themselves. Still missing were several key features of full competition: the ability of customers at the retail level to choose their generation supplier and the necessary corollary of full access to the transmission grid and a competitive spot market for all buyers and sellers. In the mid-1990s the states, with California as the forerunner, took the lead in introducing retail competition.

In April 1994, the CPUC released its "Blue Book" proposal for restructuring the electricity services industry in California. The proposal called for the phased, mandatory unbundling of generation, transmission, and distribution services, with generation to be competitive and transmission and distribution to remain monopolies. Following release

of the CPUC's proposal, there was a lengthy debate and a series of stakeholder processes to address issues on market models, stranded costs, competitive transition costs and numerous other issues. Power pools to establish spot markets for electricity and to deal with transmission and coordination of the electricity grid, vigorously advocated by the three investor-owned utilities, the Energy Commission and numerous other stakeholders, emerged as the preferable option. The CPUC released its final policy decision in December 1995.

In 1996, the Legislature passed AB 1890, which codifies some of the provisions outlined in the CPUC's final decision with some major changes and additions. It establishes the Legislature's intent to:

- Ensure that California's transition to a more competitive electricity market structure allows its citizens and businesses to achieve the economic benefits of industry restructuring at the earliest possible date.
- Create a new market structure that provides competitive, low-cost and reliable electric service.
- Provide assurances that electric customers in the new market will have sufficient information and protections.
- Preserve California's commitment to developing diverse, environmentally sensitive electricity resources.

To meet these objectives, AB 1890 provides for accelerated, equitable, non-bypassable recovery of transition costs associated with uneconomic utility investments and contractual obligations, also referred to as competitive transition charges. It calls for an immediate rate reduction of no less than 10 percent for residential and small commercial ratepayers. Rate reductions are financed through issuance of rate reduction bonds that create no new financial obligation or liabilities for the state.

AB 1890 endorsed the creation of a new market structure featuring two state chartered, nonprofit market institutions. The PX was charged with providing an efficient, competitive auction to meet electricity loads of exchange customers, open on a nondiscriminatory basis to all electricity providers. An ISO was given centralized control of the statewide transmission grid and charged with ensuring the efficient use and reliable operation of the transmission system. AB 1890 also directed the ISO to be able to secure generation and transmission resources needed to achieve specified planning and operational reserve criteria. A five-member Oversight Board was created to oversee the two new institutions and appoint governing boards broadly representative of California electricity users and providers.

The Legislature made additional findings with respect to the market structure.

- The delivery of electricity over transmission and distribution systems is currently regulated, and will continue to be regulated to ensure system safety, reliability, environmental protections and fair access for all market participants.

- Reliable electric service is of the utmost importance to the safety, health and welfare of the state's citizenry and economy.
- It is important that sufficient suppliers of electric generation will be available to maintain reliable service to the citizens and businesses of the state.

AB 1890 authorized direct access transactions between electricity suppliers and end use customers, to commence simultaneously with the start of the ISO and PX. Direct access means that any customer of an investor-owned utility can now buy its electricity from alternative suppliers. It also allowed for aggregation of customer electrical loads by private market aggregators, cities, counties, and special districts or on any other basis made available by market opportunities. To protect consumers, AB 1890 required registration of certain sellers, marketers and aggregators of electricity services, and providing consumers with information and the compilation and investigation of complaints.

Finally, AB 1890 continues funding of public purpose programs for public goods programs to enhance system reliability and provide in-state benefits including:

- In-state operation and development of existing and new and emerging renewable resource technologies.
- Cost effective energy efficiency and conservation activities.
- Public interest research and development not adequately provided by competitive markets.

The Legislature directed specified funding for these public interest programs to be collected by the CPUC from investor-owned utilities during a transition period ending December 31, 2001. The CPUC was made responsible for administering the energy efficiency funds and the Energy Commission was made responsible for research and development and renewable funds.

PART II: ENERGY COMMISSION CHANGES IN RESPONSE TO RESTRUCTURING

INTRODUCTION

The Energy Commission has responded to restructuring of the electricity market in several significant ways that are addressed in more detail in the following sections:

- **Review of Primary Mission and Responsibilities of the Energy Commission:** The Energy Commission then embarked on a reexamination of the role of government in a restructured environment, with primary emphasis on its role. This included clarifying the Energy Commission's primary mission and objectives and sharpening the functions it performs that would not require legislative changes. In addition, the Energy Commission has undertaken an examination of ways it might reorganize its structure to better serve the needs of the restructured electricity industry.
- **Implementing Public Interest Programs under Restructuring:** After the passage of AB 1890, the Energy Commission responded immediately to focus on the specific provisions it was assigned, primarily the newly revamped public interest programs. This included undertaking major realignments in programs and staffing to implementing AB 1890 directives dealing with public interest programs.
- **Examination of Issues for Proposed Statutory Changes:** The Energy Commission also instituted an identification and assessment of issues that may require statutory changes and has initiated a public process to more fully explore these issues with stakeholders. The primary focus of these efforts is the Energy Commission's information-related functions and data collection, energy facility licensing program and its assessment responsibilities. Finally, the Energy Commission examined its overall responsibilities and raised additional issues that may require legislative action.

REVIEW OF PRIMARY MISSION AND RESPONSIBILITIES OF THE ENERGY COMMISSION

Overview of Mission and Responsibilities

The Commissioners conducted a process by which they reexamined the primary mission and functions of the Energy Commission in light of electricity industry restructuring. The Commissioners agreed that the primary purpose of the Energy Commission under a restructured electricity market is to:

> Serve as the energy policy advisor to the Governor and Legislature and the implementer of adopted state policy in a manner consistent with promoting a sound economy and ensuring a healthy environment for the State of California.

The Commissioners also concluded that the Energy Commission's current and future areas of responsibility, considering a restructured and more competitive electricity market, are the following:

- Issue licenses and enforce license conditions for power plants.
- Gather and maintain historical energy data, analyze trends, and forecast future energy supply and demand.
- Promote energy efficiency through market transformation strategies.
- Advance science and technology through RD&D and assist in the transfer of the public benefit results to the market place.
- Promote the advancement and development of renewable energy markets.
- Contribute to consumer education on energy issues.
- Enhance international business opportunities for California's energy companies.
- Plan for and direct the state's emergency response to energy emergencies.

This provides the context for identifying the necessary changes for the Energy Commission to better align its functions and activities with a more competitive electricity market. In the following section we discuss the Energy Commission's examination of appropriate roles related to the above responsibilities and highlight major changes already made and those areas where we may propose statutory in response to restructuring.

The Energy Commission is also engaged in deliberations on reorganization. In contemplating the merits of a revised organizational structure, the Energy Commission has developed a preliminary set of attributes any new reorganized effort must meet. These are that a managerial system must:

- Be flexible and interdisciplinary.
- Fully utilize its greatest resource: people.
- Allow for full communication.
- Maintain a high level of competence.
- Be highly cross-trained.
- Meet new market requirements.
- Be responsible and accountable.

- Promote cooperation and collaboration.

The Energy Commission is examining the concept of a matrix-type structure that emphasizes human resource management and program objectives, as perhaps the most effective means of meeting reorganization goals. The Energy Commission will continue to study and discuss structure issues and intends to engage staff in these discussions in the near future.

IMPLEMENTING PUBLIC INTEREST PROGRAMS UNDER RESTRUCTURING

In response to electricity restructuring and changes outlined in AB 1890 regarding the funding and administration of public interest programs, the Energy Commission has taken the following actions to implement the renewable energy, R&D, and energy efficiency programs.

Renewable Resources

AB 1890 directed the collection of $540 million from existing investor owned utility ratepayers to support existing, new and emerging renewable electricity generation technologies and to foster the market demand for renewable energy. The Energy Commission reported to the Legislature in March 31, 1997 with recommendations for support of renewable energy technologies and industry. The Energy Commission recommended market-based mechanisms to allocate the funds to:

- Reward the most cost-effective renewable generation
- Implement a process for registering renewable resource providers
- Allow customers to receive a rebate from the renewables fund
- Use financing and other mechanisms to maximize the effectiveness of the available funds.

The Energy Commission redirected three staff positions and added 10 staff positions during the budget year 1998-99 to quickly develop and the implement the renewables program. An additional 15 staff positions were redirected to this program from technology development activities. After evaluating a number of proposals in relation to AB 1890 objectives, the Energy Commission developed the following allocation strategy:

- 45 percent ($243 million) is allocated for the support of existing renewables to maintain the benefits of the renewable industry by providing support that reflects industry needs, while encouraging movement towards a competitive market by the end of AB 1890 funding period by phasing down funding over the four years. Tier one technologies (biomass and solar thermal) are funded at $135 million, tier two

(wind) is funded at $70.2 million, and tier three (geothermal, small hydro, digester gas, landfill gas & MSW) is funded at $37.8 million.

- 30 percent ($162 million) is allocated to new technologies recognizing that new renewable generation developed with this support must eventually be competitive in the PX or direct access markets. It does not specify technology allocations but instead sets up competitive bidding mechanisms to reward the most competitive and cost-effective new renewable generation.

- 10 percent ($54 million) is allocated to emerging technologies to help develop the market for distributed technologies by providing a buy-down of eligible capital costs.

- 15 percent ($81 million) is allocated for use in the development of a consumer-driven renewables market. 14 percent ($75.6 million) will be returned as a bill credit to consumers who purchase renewable energy from existing, new or emerging technologies, while 1 percent ($5.4 million) is allocated to consumer information and market building.

The Energy Commission proposed a simple self-certification process for renewable resource suppliers (generating facilities) and providers (marketers, aggregators, or generators selling directly to end-users) for eligibility for AB 1890 funds.

Senate Bill 90 (SB 90), subsequently adopted by the Legislature, codified the Energy Commission's recommendations for implementing the AB 1890 renewables program. The Energy Commission has implemented guidelines to market participants and programs to pay money from the various funds established through SB 90. The primary focus of these activities has been to create a sustainable market by developing the demand for renewable products and services so that after the transition period continuing subsidies would no longer be necessary.

In June 1998, the Energy Commission conducted an auction designed to support the development of new renewable facilities. On July 9, 1998, funds were awarded (contingent on submission of final qualifying documents) to 55 different projects that will result in nearly 500 MW of new production by the end of the transition period. Since then, the Energy Commission has approved the project Award Packages for 16 facilities. Through the September payment period, the Energy Commission has disbursed $49.7 million to support existing renewables and over $2.4 million in customer credits for renewable purchases. Over $540,000 has been paid out to support emerging renewables and another $6.7 million has been reserved. In addition, the Renewable Committee has solicited public comments and suggestions to develop a consumer education program to make consumers more aware of the potential benefits of renewable energy. The program details will be announced in a recommendation to the full Energy Commission in early 1999. The Energy Commission continues to routinely monitor program activities and periodically revise operating rules and guidelines as needed.

The Energy Commission has identified five upcoming activities that we will continue to address with respect to renewables:

- Monitoring the upcoming new projects to ensure success.
- Encouraging distributed generation participation in reserving block funds.
- Developing and promoting consumer education programs.
- Developing policy options for renewables beyond 2002.
- Evaluating the customer credit and emerging renewables accounts to determine strategies to help stimulate more participation in these accounts.

At this time, we do not anticipate the need for additional statutory changes, beyond SB 90, to successfully carry out these programs.

Research Development & Demonstration

Following the passage of AB 1890, the CPUC released a decision transferring $61.8 million of the public interest funds collected by the CPUC to the Energy Commission for public interest RD&D. AB 1890 intended this money to fund certain public interest RD&D efforts that will advance science or technology not adequately provided by competitive and regulated markets. This required the Energy Commission to redirect 2.8 staff positions and add 14 staff positions to take on these new responsibilities. Starting in October 1996, the Energy Commission decided to develop a plan and provide input to the Legislature regarding appropriate administration and expenditure criteria for this RD&D program. After a series of collaborative efforts including hearings and workshops, the Energy Commission adopted a Proposed Strategic Plan on Implementing the RD&D Provisions of AB 1890 in May 1997. The Energy Commission's plan was subsequently codified in SB 90 and forms the foundation for administering this RD&D funding.

The Energy Commission's plan established a primary mission and objectives for the Public Interest Energy Research (PIER) program. The Energy Commission designed the PIER program to further California's long-standing mission of providing environmentally sound, safe, reliable and affordable energy services and products to its citizens. This mission will be achieved by focusing on specified RD&D activities, whole implementing the PIER program in an efficient, merit-driven, public manner. The primary objectives include:

- Developing and implementing a robust RD&D portfolio of public interest projects that addresses California's energy needs in the broad subject areas of end-use energy efficiency, environmentally preferred advanced generation, renewable energy technologies, energy-related environmental issues and "cross-cutting" RD&D.
- Creating and maintaining a public interest RD&D program that balances risks, time frames and public benefits consistent with California's energy policies.

- Creating a public interest RD&D knowledge base and disseminating information that will allow citizens, businesses and government to make informed energy technology and service decisions.

SB 90 directed the Energy Commission to include in the PIER research portfolio the five subject areas of:

- Environmental Enhancement
- End-Use Efficiency
- Environmentally Preferred Advanced Generation
- Renewable Technologies
- Strategic Energy, including system reliability

The Energy Commission has already begun administering the PIER program. In January 1998 the Energy Commission authorized funding for the PIER Transition Funding Solicitation designed to preserve the benefits of promising public interest RD&D projects previously conducted by investor-owned utilities. Sixty-one proposals requesting $24 million were submitted of which thirty-nine proposals were awarded $17 million for 1998. In February 1998, the Energy Commission released its First General Solicitation under the PIER program and received 184 proposals in response. In June 1998, the Energy Commission approved 20 contracts totaling nearly $18.4 million for this solicitation including: 10 renewable generation projects for $6.5 million; 3 energy-related environmental research projects for $5.72 million; and 7 environmentally-preferred advanced generation projects for $6.11 million. In April 1998, the PIER program's Second General Solicitation was publicly released offering approximately $10 million for public interest subject areas of end-use energy efficiency and strategic energy research. In October 1998, projects totaling $13.6 million were approved for research in end-use efficiency and strategic (including reliability) areas. The Energy Commission has joined the Electric Power Research Institute (EPRI) as a member, in order to take advantage of the extensive research expertise of that organization.

In order to meet the challenge of effectively and promptly disbursing PIER funds, the Energy Commission undertook a major streamlining of contracting procedures. The Energy Commission redirected 17 staff positions to this program from the technology development program. In addition, the Energy Commission reallocated 3 staff positions and added 10 staff positions to address these new responsibilities. No additional statutory changes beyond SB 90 are envisioned at this time.

Energy Efficiency

AB 1890 established a non-bypassable surcharge, collected from investor-owned utilities ratepayers to be spent on energy efficiency. The CPUC was given the task of administering these funds and has charged the California Board of Energy Efficiency

(CBEE) with responsibility for creating policies and programs and establishing independent administrators. Prior to passage of AB 1890, the Energy Commission and the IOUs were the primary providers of California energy efficiency programs. California is transitioning from a command and control environment, where utilities could be ordered to provide public interest services, to a mode of providing customers with information to make their own choices.

The Energy Commission is selecting program initiatives to complement, not duplicate or conflict with, either private sector or CBEE initiated programs. In addition, Energy Commission programs are being redesigned to facilitate better market choices. A market transformation approach has been developed to focus on reducing barriers that prevent customers from making the most cost-effective decisions. Before full-scale programs are implemented, this new approach requires a much better understanding of how the market is functioning including who market players are, what products and services are offered, their incentives and disincentives to participate, and consumer behavior.

The Energy Commission is the designated state Energy Office for Federal energy efficiency programs. As a result, the Energy Commission leads many of California's responses to federal initiatives. The Energy Commission will continue to leverage these relationships to increase the quality and level of efficiency choices available to Californians. In addition to our responsibilities for monitoring the energy industry and making policy recommendations to the Governor, we can develop programs to address gaps in CBEE or private sector programs and push energy efficiency through building and appliance standards and other program when needed.

Restructuring, as well as other market changes, has altered the landscape of energy efficiency providers and obligates the Energy Commission to reexamine the appropriate government role in this area. The Energy Commission has identified the need for coordination to assure the energy efficiency programs carried out by the different agencies compliment each other.

Coordination Challenges

Restructuring, along with other market changes, makes it incumbent on the Energy Commission to interact, monitor, and coordinate with a multitude of new players in energy efficiency. Coordination of CPUC / CBEE's energy efficiency programs and the Energy Commission's RD&D programs is needed to assure that:

- The needs of the marketplace are translated into RD&D projects,
- Effective products developed in RD&D programs have a conduit to the marketplace,
- Gaps are filled where neither program has explicit responsibility (namely technology commercialization).

Coordination of CBEE's market programs and the Energy Commission's programs, particularly the building and appliance standards, is paramount to both programs' success. Although CBEE and the Energy Commission, as well as others, have responsibility for energy efficiency program design and implementation, no other agency has the full range of authority and responsibility granted the Energy Commission. (The Energy Commission has regulatory authority over new buildings and appliances. These standards alone have resulted in over 50 percent of the state's energy savings.) If CBEE programs provide technical assistance and training to improve compliance with the standards, the programs must be compatible and coordinated, and ideally complementary to the regulations.

The Energy Commission has invested significant staff effort in CBEE. Beyond assuring coordination of our programs, we are committed to assuring that CBEE is successful because the success of CBEE is critical to achieving state energy policy.

One issue before the CPUC is the selection of an independent entity to evaluate the effectiveness of CBEE programs. We believe that unbiased, technically sound analysis of the programs will be very important to the Legislature in determining program effectiveness and will provide the basis for future deliberations regarding appropriate funding levels post-transition. The Energy Commission has submitted a proposal to CBEE to provide the evaluation services that will ensure that independent oversight of the evaluations is quickly realized. The Energy Commission has the staff resoruces to manage these evaluations and produce timely and independent assessment of the programs. Because this is a good match with our strategic mission, the Energy Commission believes this solution maximizes government resources, carries out Legislative mandates and encourages coordination.

Though coordination challenges remain, much has already been done. To connect PIER with CBEE, CPUC Commissioner Josiah Neeper sits on the PIER Public Advisory Committee. CBEE also appointed a PIER subcommittee; a representative of CBEE was included in the Energy Commission's scoring panel for the general solicitation targeted to end-use efficiency projects. The Energy Commission has given presentations to CBEE on RD&D. The Energy Commission, in partnership with EPRI, made a presentation to the CPUC on the continuum from research to product introduction into the marketplace. An additional significant effort has been made to link the data collection, survey, and evaluation functions of the Energy Commission with the needs of CBEE. Conversations between the two entities have been very fruitful, resulting in the preliminary assignment of some of these functions from CBEE to the Energy Commission.

EXAMINATION OF ISSUES FOR POTENTIAL STATUTORY CHANGES

Energy Information and Data Collection Responsibilities

In 1997, the Energy Commission initiated an Energy Market Information Proceeding to address information-related issues associated with the restructured electricity market. This included a rulemaking to consider changes to both its data collection and

confidentiality regulations. The Energy Commission initiated this rulemaking in order to keep its data collection, analysis and dissemination requirements in step with a restructured electricity industry. Over the course of the proceeding the Energy Commission and interested parties found that data collection and analysis are inextricably linked to the broader goals and functions that the Energy Commission performs as the state's primary energy agency. Parties to the proceeding raised issues regarding the Energy Commission's authority and jurisdiction with respect to these functions, in light of electricity restructuring. Thus, the clarification of Energy Commission functions and activities with respect to the restructured electricity market was an important element to the Energy Commission's dealing with information-related issues.

Energy Commission Information-Related Functions

As a result of information developed through the Energy Market Information Proceeding, the Energy Commission concluded that responsibilities for assessing the electricity system, monitoring market trends and developing energy policies continue to be justified and may become more important as the competitive market develops.[9] The fundamental public interest rationale for continued assessment and monitoring in the electricity market are the statewide electric system impacts and environmental impacts associated with the electricity market. (See Energy Facility Licensing section for more detailed discussion of statewide electricity interests.)

The Energy Commission found that while the nature of the electricity industry has changed to rely on market forces and competition, restructuring, in and of itself, does not eliminate the need for the Energy Commission's electric industry monitoring and policy development functions. The Energy Commission endorsed certain activities that support these core functions (including electricity system assessment and trends analysis, electricity policy analysis and making policy recommendations) and concluded these activities remain important to state decision-makers, consumers and market participants. The Energy Commission also believes that the form these activities take, as well as the data that will be needed to support them, will need to change to respond to changes in the electricity market structure.

Energy Commission Data-Collection Authority

As a result of the Energy Market Information Proceeding, the Energy Commission also concluded that restructuring of the electric industry does not change the Energy Commission's authority to collect data necessary for its monitoring and policy development functions. The Energy Commission found ample authority in PRC Sections 25216 and 25216.5(d) to allow it to move forward with the rulemaking on data collection to serve these functions. The Energy Commission further concluded that it has ample authority to collect data from ESPs and UDCs and announced its intention to include these entities in data collection regulations as appropriate.

The Energy Commission determined that the function a market participant performs, regardless of ownership or monopoly status, should define what data it supplies. This

was based on the principle that participants performing equivalent functions or delivering equivalent services should have equivalent data-submission responsibilities. The Energy Commission endorsed streamlining its data collection activities where possible and developing the most efficient, equitable and cost effective methods for acquiring necessary data. On the demand side, the Energy Commission concluded that sufficient data was needed to allow it to assess consumer-choice opportunities and pricing influences in the new market structure. On the supply side, the Energy Commission concluded that sufficient data was needed to allow it to characterize power plants and the electricity system including data for system modeling. As part of streamlining efforts, the Energy Commission's intention was to rely on one form or set of forms for all entities that perform the same function.

A New Concept for Acquiring Data

Beginning in September 1998, the Energy Commission conducted a series of workshops and hearings to fundamentally change the way it conducts its data collection responsibilities. The Energy Commission currently collects data (through The Quarterly Fuels & Energy Report and the Common Forecasting Methodology) to support its role in monitoring the electricity market and developing electricity policy. In addition, SB 1305 requires the Energy Commission to collect certain data and verify claims regarding the characteristics of retail sales to consumers under restructuring. The Ad Hoc Information Committee (AHIC) was assigned responsibility for developing rules and regulations for data collection under restructuring.

The Energy Commission has already adopted rules and regulations (already approved by OAL) to implement disclosure under SB 1305 and address confidentiality. Currently, a label is available for use by generators and Energy Service Providers (ESPs) who wish to make a specific claim regarding electricity characteristics. Actual reporting and tracking will commence in early 1999 with reports made available annually to the Legislature. In developing rules and regulations, AHIC has identified a gap in the Energy Commission's ability to track out of state generators that might be making retail sales to California with specific claims about their power sources. The concern is that out-of-state suppliers are also making sales with similar claims in their own states or in the western region. These electrons and their characteristics should be recorded as being sold once, and only once. If other states were not tracking these sales and claims, it would be difficult for California to verify that such claims are true. AHIC has explored various methods to rectify the situation including greater cooperation with Energy Information Agency (EIA) and voluntary participation in a regional tracking pilot project with eleven other western states, Canada and Mexico. AHIC reported to the Energy Commission on these activities and will bring forward a more detailed proposal in January.

The Energy Commission also sponsored a series of workshops and internal staff discussions regarding the need and demand for data and information in terms of generator characteristics, generation and system data (supply) and consumer characteristics (demand). AHIC has identified alternative sources of data and developed alternative methods to acquire data that would shift more of the burden for data collection activities to the Energy Commission and reduce burdens on market participants for data

filings. For example, EIA presents a significant alternative source for much of the data needed. In addition, AHIC identified an alternative data collection method for generator characteristics that relies on the Energy Commission maintaining one database on characteristics. This involves a major shift in responsibility for maintaining data to the Energy Commission while generators would be only be obligated to provide biennial updates. These substantial changes represent a new way of doing business that are more in line with a competitive market than traditional methods of data collection.

A remaining issue associated with reliance on EIA data is confidentiality. The Energy Commission is somewhat hampered by current confidentiality rules. However, we have initiated a meeting with EIA, the Bureau of Labor Statistics and the Bureau of Census to attempt to craft an agreement in the form of an MOU with Department Of Energy (DOE) that would overcome these limitations. AHIC expects to present a model MOU for Energy Commission discussion in January 1999.

Remaining Information Issues

AHIC is overseeing a comprehensive effort that includes a consultant review of the entire data archive and retrieval procedures at the Energy Commission, future software and Local Area Network (LAN) standards and protocols, and hardware purchase recommendations. Changes in these areas could greatly increase the Energy Commission's and other parties' efficiency and effectiveness in collecting and using energy data.

There are a number of other issues that may not require statutory changes but which the Energy Commission should address:

- Nature of reports which would include this data
- Opportunities to obtain data from existing sources
- Nature of models employed at the Energy Commission
- Possible use of estimation techniques to replace field data

A number of implementation and other issues associated with the above issues are in the process of being addressed and could require statutory changes. These include:

- Maintaining and assuring confidentiality
- Getting compliance on data collection
- Data collection standards for supply, generation characteristics
- Responsibility for funding

Upon completion of the Energy Market Information Rulemaking, the Energy Commission will report back to the Legislature with final recommendations for any necessary statutory changes.

Energy Facility Licensing Responsibilities

The Warren-Alquist Act granted the Energy Commission exclusive authority to permit thermal power plants of 50 megawatts (MW) or above and all related facilities. The provisions of the Act and accompanying regulations set forth a specific process for licensing energy facilities that constitutes a comprehensive program that serves as an equivalent California Environmental Quality Act (CEQA) review process. This process includes:

- A determination of consistency with the Energy Commission's most recent Electricity Report's integrated assessment of need which serves as the basis for approving new resource additions including new thermal power plants.[10]
- A Notice of Intent (NOI) to seek energy facility certification requires the Energy Commission to examine alternative sites and determine suitability and relative merit of these alternatives. The NOI decision allows the proposal to proceed to an Application (as described below) and the site to be "banked." The Act exempts a number of project categories from the NOI.
- An Application for Certification (AFC) process includes an environmental review as set forth in CEQA, an examination of consistency with other laws, local ordinances, and regulations, a determination of whether the energy facility is in conformance with the integrated assessment of need, and workshops and public hearings with full Energy Commission participation in the final decision. At the conclusion of the AFC, the Energy Commission approves specific conditions related to the construction, operation and eventual closure of the facilities.
- Compliance Monitoring to ensure that all energy facilities approved by the Energy Commission are designed, constructed, operated, and closed in compliance with all conditions of certification and all applicable laws, ordinances, regulations and standards.

The fundamental public interest rationale underlying the Energy Commission's jurisdiction for licensing power plants in the state lies in the essential nature of electricity as outlined in the Act and reiterated in AB 1890. The Energy Commission considered whether power plants of 50 MW or greater and related transmission facilities should continue to be reviewed and licensed at the state level, or whether, under restructuring, the licensing of power plants might be moved to the local level.

The Energy Commission has made a preliminary determination that statewide interests are not diminished or eliminated as a result of restructuring and the advent of merchant power plants. In fact, the movement to a competitive market, the creation of a statewide

spot market and the establishment of an ISO to operate the grid at a statewide level emphasize this interest.

Two basic principles underlie this conclusion. First, power plants are interconnected through transmission lines and operated within a regional grid in which the operation of any one power plant impacts the grid as a whole and the use of other power plants and transmission lines. The network interactions of electricity facilities distinguish them from other industrial facilities that are planned and sited at a local level. Second, there is a statewide interest due to the interconnection of facilities and the fact the environmental impacts from the operation of a power plant can extend far beyond the geographic boundaries of any one local jurisdiction. This results in cross-boundary electricity system impacts as well as environmental impacts, both across counties and across states. These regional and statewide impacts, discussed in more detail below, require state over-sight.

Electricity Network Interactions and System Impacts

The electricity system is a network composed of power plants and transmission lines whose operation must be continuously controlled and kept within given engineering and physical constraints. Virtually every power plant on that network affects the operation of power plants that are interconnected to it; the network must be constantly, and instantaneously, coordinated to maintain system stability and reliability. The transmission lines that interconnect power plants to each other and to load centers also must be operated subject to physical operating characteristics.

When a new power plant is added to the electricity system, it will inevitably impact other parts of the electricity system. For example, the addition of a power plant in an area already experiencing transmission constraints could exacerbate transmission congestion problems and increase the costs of the ISO's mitigation of congestion, raising prices to existing power plants. At some point with the addition of more plants in a congested area it becomes cost-effective to upgrade the transmission system. In other cases a power plant added to one part of the system could provide system benefits in terms of grid support services or transmission benefits. Understanding these system impacts is crucial to the evaluation of a power plants licensing case and protection of statewide interests.

These system impacts require both sophisticated analytic capabilities and a policy context within which to weigh and balance competing interests. Congestion and reliability concerns are already being raised as significant issues that may impact the licensing and location of new facilities in the restructured market. The Energy Commission, through its expertise in electric system assessment and its role as the energy policy adviser to the Governor and the Legislature, is well suited to continue to carry out responsibilities for licensing power plants in a restructured electricity market.

Implications of System Interactions on Transmission Licensing

Network interactions and electricity system impacts also raise statewide interests in the licensing of transmission lines. Transmission licensing jurisdiction in California has been

fragmented for several decades. At times, there has been intense local opposition to several transmission projects, including both municipal utility projects that extended beyond the utility's boundaries, as well as projects proposed by investor-owned utilities. The restructured market brings with it new needs for transmission licensing and assessment that the Legislature should address.

In a competitive market, the increasing importance of transmission access and the fragmentation and potential conflicts in the current regulatory scheme points to the need for statewide uniformity in transmission licensing and environmental review. The current framework can result in:

- Duplicative transmission lines
- No consistency between the siting and licensing process for various transmission lines due to jurisdiction largely determined by ownership of a proposed line
- Project proponents facing substantially different costs for processes
- Possible delays and unpredictability in getting needed transmission facilities sited

A single licensing authority could significantly improve the current transmission-licensing situation and better serve the needs of a restructured market.

Environmental Impacts beyond Local Jurisdictions

Statewide environmental impacts of energy facilities provide another important public interest rationale for statewide licensing of power plants. Power plants often have environmental impacts beyond the city or county in which they are located posing environmental impacts that transcend the boundaries of a local jurisdiction. Some of these impacts are regional in nature, however, no regional government has appropriate jurisdiction to address them. In other cases, these environmental impacts pose statewide concerns. For example, California has significant air quality problems, as well as problems pertaining to the availability and quality of water supply. A decision on a power plant made at the local level may not always reflect the state's best interest. Power plants can also create disputes between neighboring jurisdictions on environmental impacts and mitigation that can best be mediated at the state level.

As is the case with electricity system impacts, statewide environmental interest also apply to transmission lines and are probably more significant than for power plants because they often cross several local jurisdictions' boundaries.

Re-examination of Facility Licensing Program

As previously discussed, the Energy Commission's preliminary assessment is that statewide licensing of power plants continues to be justified by statewide interests in electricity system and environmental impacts. The Energy Commission has initiated a

process to identify changes necessary to the Energy Commission's facility licensing mandate and regulations to make them more compatible with a competitive market. Changes to the following provisions are under consideration:

Unification and Coordination of Generation and Transmission Facilities: The current multi-jurisdictional process for licensing generation and transmission facilities is fragmented and may be detrimental to the assessment and licensing process. The Legislature should consider unifiying the generation and transmission approval process under one specified agency.

Notice of Intention: The NOI process is a lengthy and complex process that may no longer be appropriate in a competitive market. Over recent months many power plant applicants have filed for and been granted exemptions under ER 96 provisions allowing gas-fired power plants that result from a competitive solicitation to be exempt. As a result of restructuring and the advent of merchant plants, the purpose for the NOI and need for such a process has come into question. The Legislature should consider deleting or substantially modifying the NOI requirement.

Integrated Assessment of Need: The integrated assessment of need required under statute has been implemented as a binding requirement on power plant licensing cases under a regulated utility environment to determine the amount of electricity beneficial to the state and set limits to address problems of oversupply. Under restructuring, the market is now relied on to send the appropriate signals for how much generating capacity is needed in the state. However, the market and its institutions are still evolving. The Energy Commission should examine the integrated assessment of need analysis and how it should be used. As the market develops, the Energy Commission should reevaluate the current policy to assure its consistency with a competitive market.

Statewide Jurisdiction Over Power Plants: Currently, statewide jurisdiction is limited to the construction of new thermal plants of 50 MW and above and the repowering of existing plants only when 50 WM or more of capacity is being added to the capacity of the plant. The Energy Commission should consider whether to change these jurisdictional limits, especially in light of the anticipated expansion of distributed resource facilities and proposed repowering of existing units.

Eminent Domain: Utilities currently have eminent domain powers for power plants and transmission line construction, while new market participants do not. The Energy Commission should consider whether the sensitive issues of eminent domain should be more closely tied to a unified licensing approval process.

Secondary Issues: There are a number of secondary issues that would rely on decision-making of the above policy issues such as geothermal licensing jurisdiction, facility closure rules and coordination with the Independent System Operator.

Electricity Assessment Responsibilities

The Energy Commission has historically carried out its electricity assessment and policy development for the electricity market through its demand forecasting and supply assessment activities under the Electricity Report as required in the Act. In crafting these portions of the Act, the Legislature could not have foreseen the introduction of competition and the restructuring the electricity market that would occur over the next 20 years. As a result, the regulatory requirements of the Electricity Report and the Common Forecasting Methodology (CFM) used to conduct analysis of electricity supply and demand is no longer in step with the restructured electricity market. There appears to be general agreement among major stakeholders that these portions of the Act must be brought into alignment with the restructured electricity market that exists today. Many parties also argue there is continued value in the Energy Commission performing assessment of the electricity system and establishing guidance for new projects.

Changes in the restructured electricity market may warrant changes in the policy development process, including policy reports such as the Electricity Report, Fuels Report, and Energy Efficiency Report called for under the Act. More frequent and relevant policy analysis and reports may be better suited to the restructured market. The Energy Commission is already in the process of addressing these and related issues in a public process currently underway addressed in a following section.

State Policy-Making Authority

AB 1890 not only increased competition in the electric industry; it also created new agencies and redistributed certain state level responsibilities for oversight of the electric industry. Currently, oversight and responsibility for establishing policy for the restructured electricity market is fragmented among three agencies: the Energy Commission, the Public Utilities Commission, and the Electricity Oversight Board (EOB). Each of these agencies has different mandates and interests they serve, which can result in conflicts and overlap in policies and recommendations made by each. In addition, new market institutions have various responsibilities in the electricity industry that are also fragmented.

For example, the ISO has responsibility for assuring the day-to-day reliability of the electricity grid under its control. However, the Energy Commission, CPUC and EOB also have keen interests in assuring that the state has a safe and reliable electricity system. Another important issue for these entities is assuring that restructuring creates the kind of well-functioning market the Legislature intended in passing AB 1890.

Assessing and mitigating market power, something that is necessary in any market to assure that it is functioning in an efficient manner, is fragmented among many entities. The ISO and PX have their own market surveillance units charged with identifying, assessing and mitigating market power. Their role in monitoring market power is primarily directed to issues involving possible gaming strategies involving bidding and withholding of capacity. The ISO and PX are not specifically charged with examining market power abuses that may arise from market structure issues. While FERC has

authority over market power abuse and can investigate specific claims by parties, their resources for fully addressing market power issues in the California market may be limited. The CPUC, EOB and Energy Commission all have interests in assuring that market power abuses do not occur; however, the scope of these efforts has not yet been clarified.

The Energy Commission believes it is crucial for the Legislature to bring coherence to energy regulation and policymaking to avoid potential conflicts and overlap in authority, which is likely to require statutory changes.

Re-examination of Electricity Assessment Issues

In November 1998, the Energy Commission instituted a formal proceeding with stakeholders to solicit their input and provide for Commission discussion on electricity system assessment issues. The primary question to be addressed is: How should the Energy Commission's responsibilities related to the electric system and facilities be carried out and coordinated? Key related issues include:

- How to address concerns of resource adequacy under the existing competitive market structure
- How to develop the demand side of the California market and assure all viable alternatives to generation and transmission are adequately considered
- How to successfully coordinate all key players involved in assessing the restructured market

The Energy Commission has initiated a process to identify necessary changes to existing law to assure the public's interest in an adequate supply of energy and a reliable electricity system and to allow for proper coordination of activities in the restructured market. The Energy Commission has initiated a public process to address these issues. The Energy Commission is considering the following issues.

Electricity Resource Assessment: The Energy Commission suspended the Electricity Report's integrated resource planning process required under the Act while considering its role in the evolving electric industry structure. Concerns over whether the market alone will assure adequacy of supply and the reliability of the interconnected system bring into question the need for information, regulatory actions or additional market rules in the restructured market. A fundamental question the Energy Commission is addressing is whether, under competition, there is a remaining public interest rationale for continued electricity system assessment. The Energy Commission's preliminary assessment is that the unique, interconnected nature of the state's power plants and transmission facilities through the electricity grid, provides a strong public interest rationale for providing essential information and understanding of the implications of individual actions, additions or modifications on the electricity system as a whole.

We are currently addressing the form this assessment should take to assure a reliable source of supply consistent with a restructured market.

Transmission and Grid Assessment: Restructuring has changed some of the responsibilities for grid planning and reliability. Primary responsibility for the reliable operation of the grid has been transferred to the ISO and market mechanisms. It is still unclear which entities, the ISO or transmission owners, have primary responsibility for planning the grid and assuring that transmission additions and other grid services necessary to maintain grid and allow access to new market entrants are provided by the new market structure. In addition, several public entities, including regional transmission groups, the Energy Commission and the CPUC, still have remaining interests in the area of reliability and licensing which have not yet been fully addressed or coordinated. It is also unclear how considerations such as new and repowered generation facilities, local land use plans, public input, environmental policies and alternatives including energy efficiency are considered in transmission and grid planning. It is also not clear how these processes relate to the licensing process. All of these considerations must be addressed.

Alternative in the Grid Assessment Process: The current grid assessment process does not adequately provide for the consideration of alternatives to constructing bulk transmission lines, which are costly and difficult to construct. Opportunities to assure that alternatives to transmission are considered should be built into the assessment process.

Transportation Issues

Energy use for transportation is as critical as electricity use in California, however it has not received the same level of attention or resource commitment. Over half the energy used in the state is used for transportation, and California is currently 99 percent dependent on petroleum and petroleum based products to meet these needs. Given population growth and economic development trends, transportation demand is likely to increase with conventional fuels dominating the sector. Fuel-efficient vehicles will not sufficiently offset this demand as long as conventional fuel prices remain low, as currently forecasted. Any disruption in petroleum supply or price spikes will have significant impact on California's citizens and the economy.

The Energy Commission has responsibility for transportation energy use data collection, analysis and reporting. The Act notes that it is the policy of the state:

> "to fully evaluate the economic and environmental costs of petroleum use, of other transportation fuels, and to establish a state transportation energy policy that results in the least environmental and economic cost to the state."

The Energy Commission is directed to pursue state policy to:

"exploit all practical and cost-effective conservation and improvements in the efficiency of energy use and distribution, and to achieve energy security, diversity of supply sources, and competitiveness of transportation energy markets based on the least environmental and economic costs."

The Energy Commission has several mandates for:

- Analyzing and reporting on transportation energy use.
- Making recommendations on changes needed to ensure that clean burning fuels are used to the greatest extent practicable.
- Improving the efficiency of fuel use in transportation.
- Incentives to encourage the purchase and use of low-emission vehicles.
- Carrying out program to accelerate introduction of nonpetroleum-based vehicles and fueling facilities and sale on nonpetroleum fuels.

The Energy Commission has no stable revenue source dedicated to these responsibilities. Funding in the future appears bleak since Petroleum Violation Escrow Account (PVEA) decline as settlements expire. Those funds will no longer be available for transportation funding. Without a stable funding source, the Energy Commission will have difficulty fulfilling its responsibilities. The Energy Commission will be working to develop proposed solutions to these issues.

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ENDNOTES

[1] ***Supplemental Report of the 1998 Budget Act***, Item 33600-001-0465 - Energy Resources, Conservation and Development Commission, p.19.

[2] Municipal utilities currently serve about one-quarter of the state's electrical energy demand.

[3] Munn vs. Illinois, 94 U.S., 113, 1877.

[4] Public Resources Code Section 701.

[5] Little Hoover Commission***, When Consumers Have Choice: The State's Role in Competitive Utility Markets***, December 1996.

[6] A 50 megawatt power plant would roughly serve the needs of 50,000 residents.

[7] Warren-Alquist Act PRC Section 25001.

[8] California Energy Commission***, Transmission System and Right of Way Planning for the 1990's and Beyond,*** March 1992. This report is available on request from the Commission's publications unit by called 916-654-5200.

[9] The Energy Commission adopted findings of fact, conclusions of law and policy conclusions dealing with the Energy Commission's jurisdiction and authority, as well as its information-related roles and functions in the restructured electricity market at its June 24, 1998 Business Meeting.

[10] PRC Section 25309(b), PRC Section 25523(f).