

Appendix D

Response to Question 4 – External Option

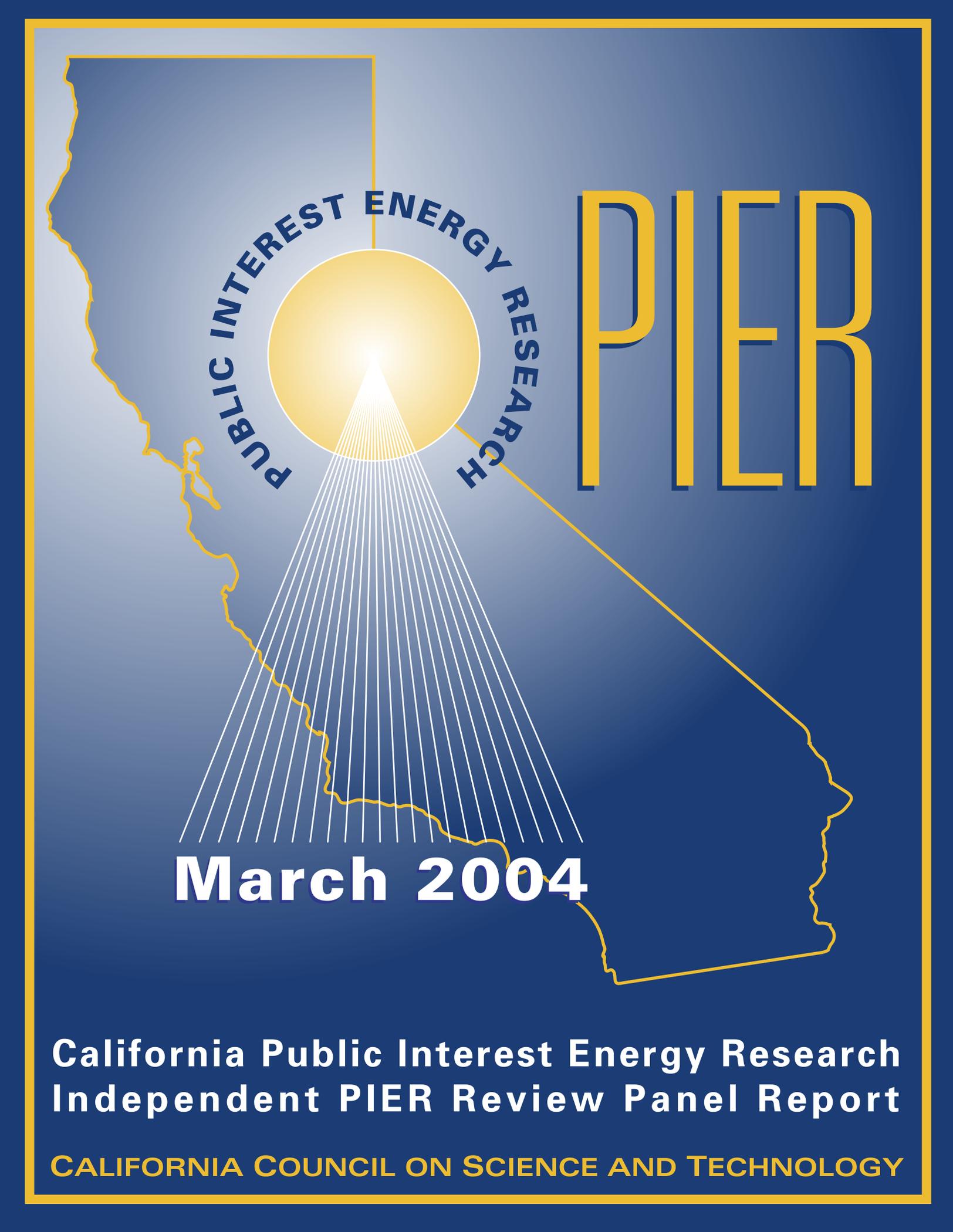
This appendix contains the following in response to Question 4.

Documents Relevant to PIER Administrative Models

1. California Council on Science and Technology, *California Public Interest Energy Research-Independent PIER Review Panel Report*, March 2004.
2. Kukulka, Ron et al. *Public Interest Energy Research Program, Independent Review Panel Response – Staff Report*, California Energy Commission, July 20, 2004.
3. Abelson, David. *Administration and Options Concerning California's Public Interest Energy Research Programs*, California Energy Commission, January 20, 2004.
4. Krebs, Martha et al. *Public Interest Energy Research (PIER) Program: 2007-2011 Management and Staffing Plan*. California Energy Commission, Research and Development Division. Publication number: CEC-500-2006-020-SF.
5. Weinberg, Carl and Linda Cohen. PIER Independent Review Panel letter to Energy Commission Chairman William J. Keese, 4 August 2004.
6. Therkelsen, Bob, former Energy Commission Executive Director. "PIER Program Evaluation." PowerPoint presentation given to PIER Independent Review Panel Meeting in 2004.

Documents Relevant to CPUC Natural Gas Administration

7. California Public Utilities Commission, *Order Instituting Rulemaking on the Establishment of a Public Purpose Program Surcharge Pursuant to Assembly Bill (AB) 1002, Opinion Regarding Implementation of Assembly Bill 1002, Establishing a Natural Gas Surcharge*, Decision 04-08-010, August 19, 2004.
8. California Public Utilities Commission. *Testimony of Michael DeAngelis on Behalf of the California Energy Commission Concerning the Funding and Administration of a Natural Gas Public Interest R&D Program*, Rulemaking 02-10-001, August 15, 2003.



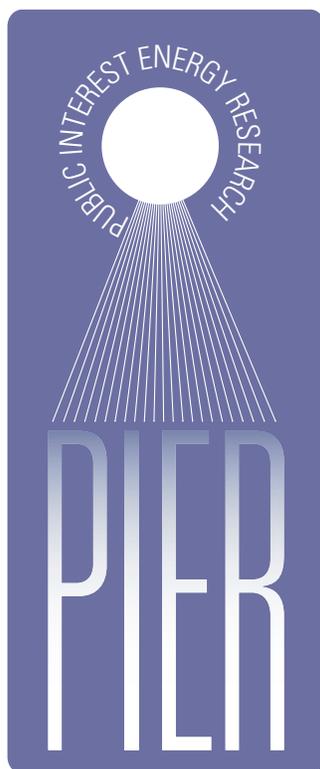
PUBLIC INTEREST ENERGY RESEARCH

PIER

March 2004

California Public Interest Energy Research
Independent PIER Review Panel Report

CALIFORNIA COUNCIL ON SCIENCE AND TECHNOLOGY



Independent PIER Review Panel Report March 2004

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EXECUTIVE SUMMARY

This second Independent Review Panel (IRP) was formed to evaluate the Public Interest Energy Research (PIER) program and make recommendations to both the Legislature and the California Energy Commission (CEC) regarding program design and implementation, as well as the degree to which the recommendations of the first IRP have been implemented.

The IRP commends the CEC for its accomplishments in the three years since the first PIER program review. We now find that the PIER program is better defined, has good leadership, and in most program areas, has well conceived research strategies. However, the IRP has identified several key issues of concern that appear to affect the ability of the program to fully realize the benefits of public interest energy research.

The IRP believes that further progress can be made through near-term changes internal to the PIER program.

- **The most immediate need is to fill the existing knowledge gap. The CEC should give the PIER Program Manager authority to fill vacancies and personnel shortfalls and supplement staff resources with contract staff.** This action would address the unintended consequence of staff resource cuts, which have imposed large burdens on remaining staff and threatens the program's effectiveness.
- **PIER management should streamline the advisory committee process, reconstitute the PIER Policy Advisory Council, reduce the number of program-area advisory committees, and link the advisory groups through shared membership.**
- **To ensure the integration of PIER efforts with research and development (R&D) programs at the state and national level, the PIER Program Manager should be given funding authority to support cross-program coordination, site visits, and staff professional development.**

Beyond these near-term issues, fundamental organizational limitations hinder the ability of PIER to become a first-class R&D organization. The current organizational structure of the CEC is not optimal for R&D. The CEC is a regulatory agency with limited flexibility, a near term focus, and a risk-averse culture. Under the current civil service rules, it is difficult to attract and retain top research managers. Managers do not have the independence and authority they need to be as effective as possible. The

PIER IRP believes that these problems need to be addressed before the PIER program can achieve the excellence that California citizens need and deserve.

We strongly recommend that the CEC develop a strategic operational and implementation response to solve PIER's structural problem. The response should include the development of two parallel plans, one to include a greater degree of operational independence and authority within the CEC and the other to include a structure outside of the CEC. We recognize that implementation is likely to require legislative action. For the IRP to incorporate the evaluation of the plans in its final report, the CEC's response should be completed by August 1, 2004.

CHAPTER 1. INTRODUCTION

1.1 CHARGE TO THE PANEL

Assembly Bill (AB) 1890 restructured the California electricity industry in 1996.¹ The legislation also authorized collection of a surcharge on retail electricity sales of not less than \$62.5 million annually for four years to ensure a continuation of public interest energy research, development, and demonstration projects. The Public Interest Energy Research (PIER) program was established at the California Energy Commission (CEC) to implement this provision, funded at \$61.8 million. Senate Bill (SB) 90 further defined the PIER program in October 1997, identifying key program areas and administrative and funding criteria.² While the originating legislation assured a funding level of not less than \$62.5 million for four years, recent legislation continues the PIER program until 2011 at the same \$62.5 million per year investment rate.³

Public Resources Code Section 25620.9(a) directed that an independent panel be established to conduct a comprehensive evaluation of the PIER program. The evaluation was to include a review of the public value of programs including, but not limited to, such factors as the monetary and non-monetary benefits to public health, the environment of those programs and the benefits of those programs in providing funds for technology development that would otherwise not be adequately funded.

The first PIER IRP evaluated the PIER program from February 1999 through March 2001. The findings of this evaluation were provided to the Governor and Legislature in the form of two reports released March 2000 and March 2001.⁴ The March 2000 report strongly endorsed the need for the PIER program in California, but also highlighted a variety of problems hindering effective program execution. These problems included the lack of a program director; a mismatch and lack of clarity between responsibilities, authority and assets for program area managers; limited coordination among other CEC programs; an overly complex and time-consuming contracting process; and unclear connections among other federal and private-sector energy R&D activities, California's future energy-related needs and public interest criteria. The CEC addressed many of the comments prior to the final report of March 2001.

¹ Assembly Bill 1890, Deregulation of the Electrical Industry, September 23, 1996.

² Senate Bill 90, as amended, Energy resources: renewable energy resources: funding (enacted in 1997). The PIER program does not address issues related to transportation or nuclear energy.

³ Assembly Bill 995 / Senate Bill 1194 (9/2000).

⁴ CCST, California Independent PIER Review Panel Report, March 2000; and CCST, California Independent PIER Review Panel Final Report, March 2001.

The second PIER IRP started in June 2003 and will evaluate the PIER program through January 2005. The CEC requested the assistance of the California Council on Science and Technology (CCST) to nominate IRP members and manage the review process. The IRP members were selected because of their competencies in areas necessary to evaluate the PIER program and their broad experience in research, development, and demonstration program management and execution.⁵ The IRP reviewed PIER documentation, including draft strategic plans and PIER project summaries, met with PIER personnel and CEC commissioners, and considered alternative R&D organizational structures. The IRP appointed subcommittees, who evaluated the program areas in more detail (The evaluations can be found at the CCST website at www.ccst.us). The IRP also reviewed whether or not the 13 expectations of the first IRP have been achieved (see Chapter 3).

A preliminary report to the Governor and Legislature on the PIER program implementation is required no later than March 31, 2004 and a final report no later than January 31, 2005.

This preliminary report presents the IRP's findings regarding the PIER program management and the organization within the CEC.

1.2 APPROACH

The IRP examined recent PIER program planning and management practices, the context of California's state energy policies, administrative and organizational issues, research review processes and advisory committees functions. The IRP did not assess or make recommendations about proposals submitted to the PIER program, because that responsibility was outside of the IRP's scope.

The IRP held five public meetings from June 2003 through January 2004. These meetings included briefings by CEC commissioners, the CEC Executive Director, PIER program managers and staff on plans, execution, and results to date. The IRP included management, staffing, contracting, travel, intellectual property, review and advisory process issues as well as the core public value issues in its program review.

To better frame its review of the PIER program, the IRP developed questions for the program managers to address. For the overall assessment of the PIER program, the IRP's questions focused on the program area portfolio in the context of the state's energy needs and the program manager's method of selecting, managing, measuring success and terminating projects.

⁵ See Appendix D, Matrix of Panel Member Competencies. Panel member selection included conflict of interest disclosure. While some panel members are under contract with CEC or other interested parties, no conflicts of interest exist with respect to PIER.

For specific program areas, the IRP and program area managers were requested to answer the following questions:

1. What are the overall goals and benefits of the program?
 - What vision is being communicated and to whom?
 - How were goals set and who was involved in the process?
 - What is to be accomplished in the program?
 - If successful, what difference will it make (i.e., what are the benefits to California)?
 - How successful has the program been to date?
 - Identify the program benefits according to the stated goals of the PIER program.
 - Have the CEC's Integrated Energy Policy Report (IEPR) or the Energy Action Plan (EAP) impacted the program's goals?
2. How is the project selection process chosen and managed?
 - How are winning projects selected?
 - Is there a portfolio of projects with different time scales (near, middle, far)?
 - How do you choose between a competitive solicitation for proposals vs. a sole-source grant or contract?
 - What is the invitation process: how are vendors identified and attracted to the program?
 - What approvals need to be obtained?
3. What management processes are in place?
 - What are the formal criteria for success?
 - How is the success or failure of a project tracked and communicated to other PIER managers?
 - How are projects redirected or cancelled and under what conditions?
 - Has any project been cancelled?
 - How are outside advisory boards and committees used?
4. What lessons have been learned?
 - What changes have been made in the selection process, the reporting/controls, and the size and scope of programs?
 - What changes have been made in response to the 2002 technical reviews?

- What further changes would you recommend?

The information provided to the IRP by the responses to this questionnaire played a major role in the evaluation.

CHAPTER 2. IMPORTANCE OF ENERGY R&D IN CALIFORNIA

California has an outstanding record of leadership in energy R&D and in the development of sound energy policies and practices. California's energy intensity (energy consumption per gross state/domestic product) is comparable to that of Germany and Japan, and significantly lower than for the U.S. national average.⁶ A rich mixture of low energy-intensity industries, advanced energy efficiency standards, and a relatively mild climate have contributed to California's success to date, but the state faces an uncertain energy future.

As a response to the energy crisis of 2001, and in order to ensure a stable energy market in the future, California's principal energy agencies recently created an Energy Action Plan for California.⁷ The goal of the Energy Action Plan is to ensure that adequate, reliable, and affordable electrical power and natural gas supplies are provided to California's consumers in a cost-effective and environmentally sound way. The energy agencies intend to achieve this goal through six specific actions:

- Optimize energy conservation and energy efficiency
- Build sufficient new generation
- Require renewable generation equivalent to at least 20% of sales by 2010⁸
- Upgrade and expand the electricity transmission and distribution system
- Promote distributed generation
- Ensure a reliable supply of reasonably priced natural gas

While R&D is not explicitly mentioned in the six actions of the Energy Action Plan, it is essential for each and every one of these actions. R&D produces the information and the technologies that enable California to consider various options to achieve the goal of the Energy Action Plan. The information gained helps in understanding energy-environmental-economic linkages and in developing the most cost-effective

⁶ In 2000, the energy intensity of California, expressed as total energy consumed per dollar of gross state product, was 6,405 BTU/\$. U.S. Department of Energy, Energy Information Administration (EIA), 2003; and U.S. Department of Commerce, Bureau of Economic Analysis, 2003. In 2000, the energy intensities of Germany, Japan, and the U.S. were 6,352 BTU/\$(GDP-PPP), 6,377 BTU/\$(GDP-PPP), and 9,520 BTU/\$(GDP), respectively. World Bank, World Development Indicators, 2003.

⁷ State of California, 2003. Energy Action Plan.

⁸ This goal is an accelerated version of the Renewable Portfolio Standard (RPS), which was signed into law by the Governor in 2002 (Senate Bill 1078), and requires renewable generation equivalent to at least 20% of sales by 2017.

solutions to address California's energy challenges. R&D leads to the development of innovative technologies that help to protect the environment while at the same time stimulating energy-related business activities. R&D provides the basis for sound policy decisions and their implementation and, in this way, contributes substantially to the enhanced living standard of California's citizens. The PIER program has provided vital information and has anticipated this direction by providing options in renewables, clean distributed generation, additional energy efficiency measures and developing mechanisms for integration to the transmission and distribution system.

The PIER program therefore has contributed and should continue contributing to the California challenge to develop a vibrant economy with a small environmental footprint. This is the kind of leadership that California is known for.

2.1 CALIFORNIA ENERGY CHALLENGES

California still faces numerous challenges in its energy future. The economy is showing signs of recovery, which will lead to an increased load on the state's energy supply capacities. The state is expected to continue its rapid population growth of the last several decades. Much of this growth – and considerable internal migration – will be in inland areas, which have hotter climates than in the currently densely populated coastal areas. New construction in these regions will increase the use of residential and commercial air conditioning. Trends toward larger residences and increased electrical appliance use statewide will also increase energy usage.

These increased energy demands – both base load and peak load – will further encumber an already strained generation, transmission, and distribution network. California and the Western States region currently operate with very little electric power reserve capability during peak summertime demands, and peak demand growth exceeds the growth in generation capacity. Not only will California need additional supply, but it must continue to reduce demand and ensure that additional supply consists of renewable power systems.

As the use of information systems becomes integral to the functioning of the economy, the quality and reliability of electric power will be increasingly important. Modern manufacturing processes are more and more computer controlled – a power outage for less than a second can create a disruption in the production process and lead to massive financial losses. Since electricity storage capacity is limited, the introduction of clean distributed generation and improvements of California's transmission/distribution systems are inevitable.

California's transmission system was originally designed and built to serve mainly local power needs. It did not anticipate the active wholesale market. Today, the transmission system is used in ways it was not designed for. Fragmented transmission planning, siting and financing problems are impediments to the necessary upgrading of the transmission system. However, there are alternatives to building new

transmission lines. These include energy efficiency improvements that reduce overall electricity usage, peak load management, distributed generation that is located near the customer load, and emerging transmission technologies that increase the transfer capability of the existing transmission system, such as Flexible Alternating Current Transmission Systems (FACTS) or Dynamic Thermal Circuit Ratings (DTCR) Technologies. All of these options require R&D support.

Another important challenge is the steadily increasing consumption of natural gas. California has limited pipeline capacity for the supply of natural gas from other states. Currently, 85% of statewide demand for natural gas has to be imported. California is located at the western end of a complex network of pipelines that spans the United States and Canada. Increasing demand for natural gas in Nevada, Arizona and the Pacific Northwest may lead to supply constraints. California aims to reduce its dependence on natural gas through higher use of renewable energy sources, enhanced use of cogeneration (combined heat and power), and improved energy efficiency of natural gas fired power plants. Many of these options are being studied by the PIER program. Other options include the better use of existing storage capacity for natural gas, enhanced natural gas drilling and exploration in California, and the development of liquefied natural gas facilities to allow the import of liquefied natural gas from overseas.

Climate changes impose a significant risk to California. Rising temperatures and sea levels, along with changes in hydrological and ecological systems, are threats to California's economy, public health, and environment. The PIER program is examining technologies to mitigate and/or adapt to these threats.

Targeted R&D can help to address these energy challenges through energy efficiency improvements; development of affordable, clean, and distributed energy sources; improvement of transmission line capacities and better load management; research on alternative fuels for power generation to natural gas, such as renewable energy sources; and the development of better, regional models showing the impacts of climate change and the development of climate change mitigation and adaptation options.

2.2 PIER COST-BENEFIT ANALYSIS

The goal of PIER is to enhance the affordability, reliability, diversity and the environmental standard of California's electricity supply system. The mission is to fill research gaps that are not adequately provided by competitive markets and to advance science and technology. PIER funds R&D activities that offer near- and long-term benefits to California.

Public benefits of PIER may include:

- lowering energy costs for consumers and businesses;

- enhancing the reliability of California's electricity supply system;
- reducing environmental impacts of electricity generation, delivery, and use;
- providing the basis for and support of the implementation of energy policies in the public interest of California's citizens;
- developing new industries that address widespread energy concerns and contribute to the state's economic growth; and
- advancing science and technology.

The program focuses on six energy-related research areas: renewable electric generation; environmentally-preferred advanced generation (fossil-fueled distributed generation technologies); environmental research; buildings end-use energy efficiency; industrial, agricultural and water end-use energy efficiency; and energy systems integration tools and information.

Since PIER's inception in 1998, a total of about \$260 million has been encumbered for research contracts. A review of contracts completed through 2002 revealed a total of 20 commercialized products with projected benefits of \$221 to \$576 million.⁹ The benefits are significant in comparison to the total contract disbursements of about \$125 million between 1998 and 2002, resulting in a benefit-to-cost ratio between 2 and 5 to 1.¹⁰ Table 2.1 lists the PIER R&D products and their benefits commercialized through 2002.

⁹ CEC. 2003. Evaluation of the Benefits to California Electric Ratepayers from the Public Interest Research Program, 1998-2002.

¹⁰ op.cit.

Table 2.1 Benefits of PIER R&D Products Commercialized Through 2002

Product Name	Year of First Use	Sales or Applications in First Five Years	Range of Benefits
Residential and Commercial Buildings End Use Energy Efficiency:			
Berkeley Lamp	2001	5,000 to 60,000	\$2 to 23 million
Commercial Kitchen Ventilation	2007	2,000 to 10,000	\$14 to 71 million
Particulate Emissions Measurement for Unhooded Restaurant Appliances	2001	Not tracked	< \$1 million
Revised Residential Framing Factors—Title 24 Update (2005)	2005	100,000-200,000	\$2 to 6 million
Duct Sealing Requirements for Small Commercial HVAC Systems—Title 24 Update (2005)	2005	50 to 175 million sq. ft.	\$40 to 140 million
Allowable Placement of Roof/Ceiling Insulation in Nonresidential Buildings—Title 24 Update (2005)	2005	18 to 30 million sq. ft.	\$67 to 112 million
Requirements for Skylight Use in Low-Rise Residential and Commercial Buildings—Title 24 Update (2005)	2005	80 to 175 million square feet	\$70 to 150 million
Goettl Comfortquest Gas Heat Pump	2002	<100	< \$1 million
Real-Time Energy Management and Control Systems	2002	Not quantified	
Environmentally Preferred Advanced Generation:			
Catalytica Xonon Burner	2002	50 to 250 MW	\$5 to 25 million
Energy Systems Integration:			
DG Interconnect Hardware	2001	Not quantified	
Real-Time Monitoring and Dynamic Rating System For Overhead Transmission Lines	2000	Not quantified	
Interconnection Standards for Small Distributed Generators	2002	500 to 2,000 kW	\$4 to 16 million
Improved Substation Seismic Design	2002	--	\$1 to 2 million
Reduced Utility Building Seismic Vulnerability	2002	100 buildings	\$15 to 20 million
Renewable Energy Technologies:			
NO _x Control in Biomass-Fueled Boilers with Natural Gas Cofiring	2002	2 to 7 boilers	\$0.2 to 1 million
PowerGuard-Solar Electric Systems for Flat Roofs	2001	5 to 10 MW	\$30 to 80 million (Revenues)
Energy-Related Environmental Research:			
Low NO _x FIR Burner for Gas Boiler	2002-03	5 to 15	< \$1 million
Industrial, Agriculture, and Water End Use Energy Efficiency:			
Cast Metal Industry Electricity Consumption Study	2001	5-50% CA market	\$0.5 to 5 million
Poultry Rinse Water Recycling	2002	10% to 50% of market	\$1 to 5 million

CHAPTER 3. EVALUATION OF PIER'S PERFORMANCE SINCE 2001 BASED ON FIRST IRP RECOMMENDATIONS

In March of 2001, the first IRP offered “a set of expectations of what the Governor, the Legislature, the CEC and the PIER program must accomplish over the next year to transform PIER into a high-quality research program within the CEC. If these expectations are not achieved, then the Legislature should consider the option of developing a PIER organization outside the CEC.”

The IRP's future expectations fell into three categories: those that CEC must accomplish internally; those that CEC must accomplish externally with the cooperation of the Governor and Legislature; and those that involve developing a broader set of “energy relationships.”

3.1 EXPECTATIONS INTERNAL TO THE CEC

- *PIER organizational responsibility will have grown through the formation of a dedicated division with program managers and functional heads solely responsible for PIER.*

CEC has developed a coherent PIER research team with a management and technical staff dedicated to PIER goals and objectives. However, the team has yet to acquire division status with the authority and resources needed by a “high-quality” research program.

- *The PIER Program Manager will have been given authority to manage the PIER budget and selected authority to administer those funds.*

The PIER Program Manager has responsibility for managing the PIER budget as approved by the CEC R&D Committee and for program planning in coordination with the Committee. However, as a contract employee, the Program Manager has little formal authority and exercises control largely through the informal process of personal contacts and respect of the staff for his personal experience and ability.

- *The quality and experience base of PIER research managers will have continued to develop.*

PIER has competent team leaders in place along with strong technical managers and a small but high quality technical staff. However, civil service requirements and, more recently, budgetary issues have prevented the filling of needed staff positions and the hiring of expert consultants. The result is a short-handed staff and a lack of intellectual resources in several important research areas.

- *California energy research targets will have been set and contracts or grants awarded to achieve those targets.*

PIER has developed a set of California specific issues that are the basis of its research projects. A contracting and grants process is in place and operating. PIER programs are linked to related state programs, such as Title 24, Renewable Portfolio Standard, Air Resources Board and environmental regulations. PIER issues, which were developed in 2002, anticipated and fed into the California Energy Action Plan issues of 2003. Although in some cases long-term goals need to be more clearly defined and better articulated, PIER is generally recognized as doing a good job of linking its program to state energy policy.

- *The PIER Program Manager will have developed a management roadmap.*

Budgetary and administrative processes have been improved and policy guidance clarified; however, no formal management roadmap has been developed. There is an urgent need for the CEC to develop a management plan and a formal organizational structure to properly staff and more effectively manage the program.

- *The PIER program will have, on average, awarded contracts in four or less months.*

PIER and CEC have done a great job in improving the efficiency and response time of the contracting process. The average elapsed time processing in a competitive procurement, between the announcement of the selected awardee and the signing of the contract, is now 3.5 months.

3.2 EXPECTATIONS EXTERNAL TO THE CEC

- *The Governor and the Legislature will have been provided with the CEC forecasts of energy trends, needs, and resources developed as part of PIER's strategic planning process.*

PIER has not been assigned the task of providing strategic analyses and energy forecasts to the legislative or executive branches of the government. However, PIER submitted a legislatively mandated investment plan in March of 2001 outlining broad energy trends and needs, and the CEC provides monthly status reports to the Governor's office. PIER also developed a set of energy issues, which are tied to those later developed under the California Energy Action Plan and Integrated Energy Policy Report.

- *The CEC will have requested and received legislative relief from specific constraints on PIER innovation related to contracting, streamlining, and staffing.*

PIER has made vigorous efforts to get legislative relief on various management and administrative constraints. A number of legislative remedies were suggested and rewrites were submitted to and approved by appropriate senate staff as well as the

Department of General Services for consideration as part of Senate Bill (SB) 1038. This bill has yet to be considered by the Legislature and, given current budgetary issues, the outcome is uncertain.

- *PIER will have become an integrated part of California's funded energy efficiency and renewable energy programs.*

PIER has been working more closely with the California Public Utilities Commission and the utilities through the Emerging Technology Coordinating Council in the demonstration and deployment of PIER technologies. PIER has developed closer integration with the activities of the CEC Renewable Energy Program due to the Renewable Portfolio Standard and CEC commissioner interest, and PIER is advocating a natural public good charge to fund critical infrastructure and natural gas efficiency R&D.

3.3 EXPECTATIONS OF A BROADER SET OF ENERGY RELATIONSHIPS

- *The CEC will have developed a mechanism for informing the California Congressional Delegation of federal funding needs.*

PIER's efforts, carried out with the cooperation of CCST, have established a standing relationship with the California Delegation's caucus leaders. The CEC Chairman, the CEC Executive Director, and the PIER Program Manager have given presentations to the Delegation members and their legislative directors.

- *The CEC will have begun to affect the portfolio of DOE programs and their funding to meet California's energy needs.*

PIER has been successful in establishing a close working relationship with the U.S. Department of Energy (DOE) and with its national laboratories, particularly Lawrence Berkeley National Laboratory and the National Renewable Energy Laboratory. DOE consults with PIER in a number of program areas, and as a result, DOE has provided collaborative funds for a number of PIER projects. In addition, PIER is a participant in a DOE/multi-state program, the State Technologies Advancement Collaborative, that is being carried out with the Association of State Energy Research and Technology Transfer Institutions.

- *Partnerships and collaborations will have been pursued with other research centers.*

PIER has established relationships with other energy related research centers in the state and elsewhere in the federal laboratory system. For example, PIER has a growing interaction with the National Oceanic & Atmospheric Administration on climate change. There is a major contract in place with the University of California that lays out standard terms and conditions. PIER is working with the recently established Electricity Innovations Institute of the Electric Power Research Institute to develop

co-funded R&D projects. PIER is collaborating with a number of state agencies including: the Air Resources Board, Department of Water Resources, Department of Forestry and Fire Protection, and the Department of Conservation.

- *PIER program advisory groups will consist of knowledgeable people from a range of stakeholders including: utility, industry, regulatory, academic, and public interest.*

The PIER program has an elaborate advisory structure covering all program areas and with good stakeholder representation. In addition, there are annual technical review panels for each major program area who prepare detailed reports for the Program Manager. It would appear that, as the PIER organization develops, this elaborate system could be simplified in the interest of reducing costs and increasing efficiencies while retaining the involvement of the stakeholders. This is almost certainly true if the PIER Policy Advisory Council, which has not been active recently, is activated. The program would benefit from its overview.

3.4 IN SUMMARY:

This IRP finds that each of the 13 expectations of the previous IRP has been addressed, and in most cases, real progress has been made. The program areas are better defined with competent team leaders in place. There is an able program manager with general responsibility for the program, although he does not have a career position or a formal appointment and therefore lacks formal authority. The program has a capable, if small, dedicated technical staff. Well-conceived research strategies are in development and contracting procedures have been streamlined. The program is proceeding with relevant research and is producing practical results. However, the IRP is concerned about the program's future.

The program is having difficulty in acquiring and maintaining a technical staff with the depth and breadth required to sustain it. The lack of real authority on the part of the Program Manager and the tenuous nature of this appointment (he is an 80% time temporary appointment and there is no appropriate permanent position) are matters of major concern to the IRP and the staff. Cumbersome administrative practices and staffing requirements remain major concerns as well. Unless corrected, these issues will almost certainly limit PIER's ability to evolve into what should be CEC's objective, that of creating a "truly outstanding research & development program that will benefit the citizens of California."

CHAPTER 4. EVALUATION OF PIER PROGRAM IMPLEMENTATION

The PIER program has made considerable progress toward meeting the 2001 PIER IRP expectations under the leadership of the current PIER Program Manager and the new CEC R&D Committee consisting of Commissioners Arthur Rosenfeld and John Geesman.

- The program goals are better defined, the research plans have been improved and the contracting procedures have been streamlined.
- The PIER program is well linked to California energy policies and governmental energy programs.
- PIER funds ongoing appropriate collaborative research activities with a multitude of excellent research organizations, within California and nationwide.
- Its cooperation with DOE has vastly improved and PIER has taken on a leading role in California related research areas, such as the integration of energy systems into the electricity grid.
- The program has effective leadership thanks to the outstanding managerial skills of the appointed Program Manager. A severe downside however, is that this manager is a contract employee and cannot directly manage the PIER program or hire and fire employees. Furthermore, as part of cost cutting, the PIER Program Manager is presently not hired on a full time basis.
- The program has been destabilized and its effectiveness severely threatened by budget cuts involving the termination of contracts with key technical personnel. These skills are not available within the CEC and not otherwise available to PIER. Furthermore, since the PIER program is funded by an assessment of the California power companies, these actions resulted in no cost savings to the State of California.

The IRP wants to congratulate the CEC on accomplishments to date, but believes the program must still be enhanced. The special needs of managing R&D have been achieved primarily through informal arrangements and not by specific organizational structure, which is an important requirement for a first class research program. The PIER Program Manager, PIER program area managers, and contractors all ascribe the difficulties to the history and culture of the CEC, which is not conducive to R&D management. The lack of the CEC's focus on R&D makes it more difficult to preserve the PIER program in face of legislative budget cuts. Recent staff and budget cuts within the CEC affected the PIER program in a manner disproportionate to cuts in

other divisions and programs of the CEC. Only individual loyalty is maintaining the present high PIER program standards. The following sections discuss these issues in more detail.

4.1 LEADERSHIP AND ORGANIZATION

The PIER program now has an excellent Program Manager, who is hired as a contractor and not on a full time basis due to CEC imposed budget constraints. His duties are to plan and manage the overall strategy and direction of the PIER program in conformance with the policy and priority decisions of the CEC R&D Committee. Other duties are to provide overall program vision and strategic direction, and to coordinate and communicate with outside organizations and the Legislature. A deputy division chief, who is a full-time civil service employee within the CEC, assists the PIER Program Manager. His duties are to manage day-to-day program activities and to supervise staff. Each of the six PIER program areas has a permanent full-time program area manager. Under recent budget cuts, the PIER staff has been reduced approximately 30%. The budget cuts disproportionately affect the PIER program as the bulk of its energy expertise lies in the skills of the energy related experts who were contract employees and whose jobs were terminated in these reductions.

The authority of the current contractor PIER Program Manager is only informally defined. The current PIER Program Manager does not have direct control over staffing for the program. This includes selection of staff based on the capabilities needed for PIER, determining staffing levels and level of effort, enforcing staff availability and commitments, and providing input to staff performance evaluations. The PIER Program Manager does not have the authority to sign research contracts or to manage budgets, because the civil service structure of the CEC does not allow a contractor to take on these responsibilities. State employees within the CEC currently execute them by informal agreement with the PIER Program Manager. This system is working only because of good personal relationships, but it could change with another PIER program manager.

A PIER program manager needs the authority to manage personnel and budgets. He or she must also be the person who is accountable for PIER, and responsible for presenting and defending the program to the CEC, the external oversight agencies, the Legislature and the Governor. The incumbent PIER Program Manager performs these functions informally, since he is not a civil service employee. This management arrangement is dysfunctional and needs to be changed to a normal management structure.

4.2 KNOWLEDGE BASE

Staff knowledge of energy technology, markets and trends directly affects planning processes, allocation decisions and source selection. Staff familiarity with R&D management processes and contracting procedures affects the efficiency of program execution.

In general, the IRP believes that PIER has a strong knowledge base in most technical areas. However, current budget issues have required that PIER's remaining open positions be deleted, staff be reduced, and a hiring freeze introduced. Nearly all contract staff have been laid off. The result is that PIER may have a lack of "intellectual critical mass" and a severely reduced knowledge base in some important areas. This has taken place at the same time that the total number of contracts continues to increase.

This development has led to awarding larger research contracts (in dollar terms) as a means to manage with staff limitations. It also led to large-scale outsourcing of blocks of R&D contracts to organizations outside the CEC. This makes it more difficult to guarantee that PIER projects adhere to the CEC goals and PIER objectives.

An additional issue is the extremely limited travel budget for PIER staff. This hinders staff professional development and key interchanges with staff and stakeholders in other programs including the U.S. DOE. These constraints severely affect the ability of PIER staff to keep up to date on scientific, technological and policy issues relevant to the PIER program and to develop collaborative, cross-cutting programs.

Nevertheless, the IRP was impressed by the motivation of the PIER staff in spite of all these constraints. On the other hand, the IRP is concerned that this motivation on the part of the PIER staff may be lost in view of the losses in the skill base and the increasing work loads.

4.3 PORTFOLIO ANALYSIS

The PIER program is currently divided into six program areas with a manager assigned responsibility for each program area:

- Renewable energy research (Renewables)
- Environmentally-preferred advanced generation (EPAG)
- Residential and commercial buildings end-use energy efficiency (Buildings)
- Industrial, agricultural, and water end-use energy efficiency (IAW)
- Energy-related environmental research (EA)
- Energy Systems Integration (ESI)

Additionally, PIER has an Energy Innovations Small Grant (EISG) program that funds smaller research to establish the feasibility of new, innovative energy concepts.

The IRP divided into subcommittees, each assigned to a specific program area. They investigated each of the areas in more detail. These analyses can be found at the CCST website (www.ccst.us). These reports give most of the program areas' efforts high marks in terms of quality, applicability and balance to the PIER program goals. In addition, in the fall of 2002, the PIER program convened outside technical review panels for each program area. The detailed reports are accessible at the CCST website (www.ccst.us) and at the CEC website (www.energy.ca.gov). All in all, the PIER efforts received a very effective set of reviews from a large set of very knowledgeable reviewers and received high marks. The good news is that the program has been going well; unfortunately these efforts are threatened by a lack of appropriate management structure and flexibility and by losses in critical personnel.

The PIER research portfolio is based on a broad goal of the CEC R&D Committee for relative funding levels: 50% supply side (Renewables, EPAG, EA) and 50% demand side (Buildings, IAW). The PIER ESI program area and the EISG program include research projects that address both the supply and the demand side.

Between the program's inception in 1998 and June 2003, the PIER program encumbered \$260 million for research contracts. The current PIER research portfolio is depicted in Figure 4.1.

There are several research activities funded under PIER that cut across the six PIER program areas lines. These are listed in Table 4.1.

The PIER research portfolio is geared to address issues that are specific to California, such as population shifts, water issues, emission standards, etc. (see Table 4.2).

The PIER portfolio has an emphasis on near-term and low-risk research. Where possible, PIER projects tie into synergistic state regulatory and subsidy programs, such as the Renewable Portfolio Standard (RPS), Building Codes 20 and 24, Air Resource Board rules on distributed generation emissions, etc., and are collaboratively undertaken with other CEC divisions and other state agencies (see Table 4.3).

The portfolio of recipients of PIER funds is depicted in Figure 4.2.

The IRP believes that except for minor issues the current PIER research portfolio is well focused, addresses issues relevant to California as outlined in the Energy Action Plan, meets PIER objectives and is well balanced.

Figure 4.1 PIER’s Research Portfolio

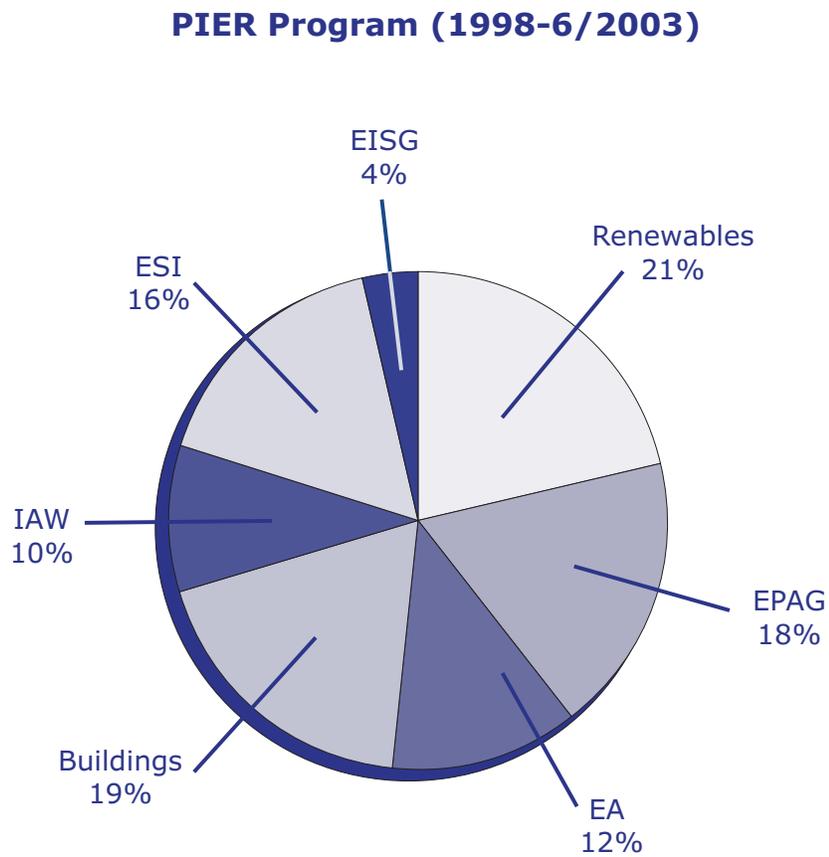


Table 4.1 Cross-cutting Research Areas

Research Area	PIER Program Areas					
	Renew	EPAG	EA	Bldgs	IAW	ESI
Distributed Energy Resources	⊗	⊗	⊗		⊗	⊗
Demand Response				⊗	⊗	⊗
Hydrogen Infrastructure		⊗	⊗			
Electricity Storage	⊗				⊗	⊗
Water Technology Issues			⊗		⊗	
Transmission	⊗		⊗			⊗
Indoor Environment R&D			⊗	⊗		
Zero Energy Buildings	⊗			⊗		
RPS	⊗		⊗			⊗
Carbon Sequestration		⊗	⊗			

Table 4.2 Significant California Energy Issues Addressed by PIER

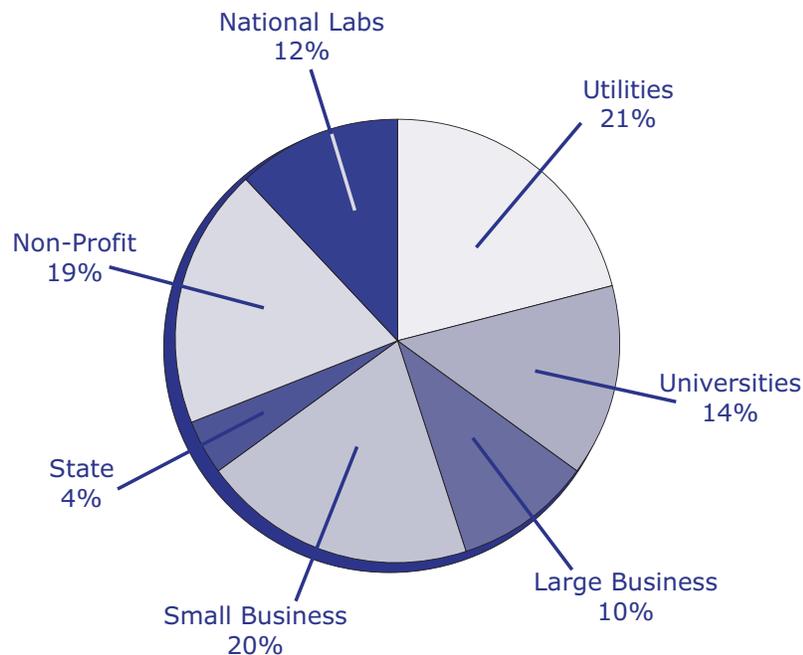
California Energy Issues	PIER Program Areas					
	Renew	EPAG	EA	Bldgs	IAW	ESI
Peak demand impacts reliability, affordability, and availability	M			H	H	H
Transmission and distribution system inadequate for distributed energy resources and congestion	M					H
Transmission grid inadequate for reliability, operability and efficiency			M			H
Emission standards driving need for new cleaner generation technologies	M	H	M			
Renewable portfolio standard driving need for acceptable and low-cost renewable systems	H		M			M
Reduction in energy per capita and per gross state product still cornerstone of California policy		H		H	H	M
California must be responsive to climate change issues	M	M	H	M		
Restructured markets will require improved reliability, quality and affordability	H	M			M	H
Infrastructure security must be addressed	M					M
Technology development and assessment must tie to changing market needs	H				H	H
Regulatory, environmental and economic policy decisions relative to electricity markets and technology require analyses	M		H	M	M	M

H ... high importance, **M** ... medium importance (Scoring by PIER program area managers)

Table 4.3 PIER Collaborations With Other CEC Divisions and Other State Agencies Addressing State Regulatory and Subsidy Programs

PIER Program Areas	Internal Agency Activities (CEC)	Collaborations with Other State Agencies
Renewables	<ul style="list-style-type: none"> Renewable Portfolio Standard (<i>Technology Systems Division</i>) 	<ul style="list-style-type: none"> California Department of Forestry and Fire Protection California Independent System Operator
EPAG	<ul style="list-style-type: none"> Fuel Cells (<i>Technology Systems Division</i>) Hydrogen (<i>Transportation Energy Division</i>) 	<ul style="list-style-type: none"> Air Resources Board
EA	<ul style="list-style-type: none"> Environmental Issues (<i>Siting Division</i>) 	<ul style="list-style-type: none"> California Department of Conservation (Division of Oil, Gas, and Geothermal Resources) California Department of Forestry and Fire Protection Air Resources Board
Buildings	<ul style="list-style-type: none"> Title 24 (<i>Energy Efficiency Division</i>) Real Time Pricing (<i>Energy Efficiency Division</i>) 	<ul style="list-style-type: none"> California Public Utilities Commission
IAW	<ul style="list-style-type: none"> Water Efficiency (<i>Energy Efficiency Division</i>) Real Time Pricing (<i>Energy Efficiency Division</i>) 	<ul style="list-style-type: none"> California Department of Water Resources California Department of Conservation (Division of Oil, Gas, and Geothermal Resources)
ESI	<ul style="list-style-type: none"> Real Time Pricing (<i>Energy Efficiency Division</i>) Transmission and Distribution Issues (<i>Siting Division</i>) 	<ul style="list-style-type: none"> California Public Utilities Commission California Independent System Operator

Figure 4.2 PIER Research Partners



4.4 CONTRACTING PROCEDURES

The independent review of the PIER program in 2000 identified three key issues regarding the PIER contracting procedures:

- The project selection and contracting processes were overly complex.
- The time from receipt of a proposal to contract signature was too long.
- A significant portion of the process-related problems was internally imposed or inherent in CEC's structure.

The 2001 report of the previous PIER IRP included the following recommendations on how to improve the contracting processes:

- Reduce the time from issuance of a competitive solicitation to starting work on an executed contract to less than six months.
- Develop research agreements that are more flexible and contain provisions for unexpected and mid-course corrections yet still have appropriate levels of accountability.
- Improve the consistency and quality of contract management through training of PIER staff.
- Establish an on-going mechanism to improve the contracting process.
- Award contracts in four or less months on average.

In order to achieve these goals, the PIER program established in September of 2001 a PIER Administrative Streamlining Team, called "Team Sparkey." This team created standardized work statement templates, revised standard terms and conditions in PIER research contracts, and established master research agreements with the University of California Office of the President and the Electricity Innovations Institute to get more flexibility and to speed up the contracting process. The result is that the average contract process time between the announcement of the selected awardee of a competitive solicitation and the signing of the contract with the awardee was reduced from 7.2 ± 10 weeks before the introduction of the administrative changes to currently 3.5 ± 2 weeks (see Figure 4.3).

Figure 4.3 Reduced Contract Processing Time

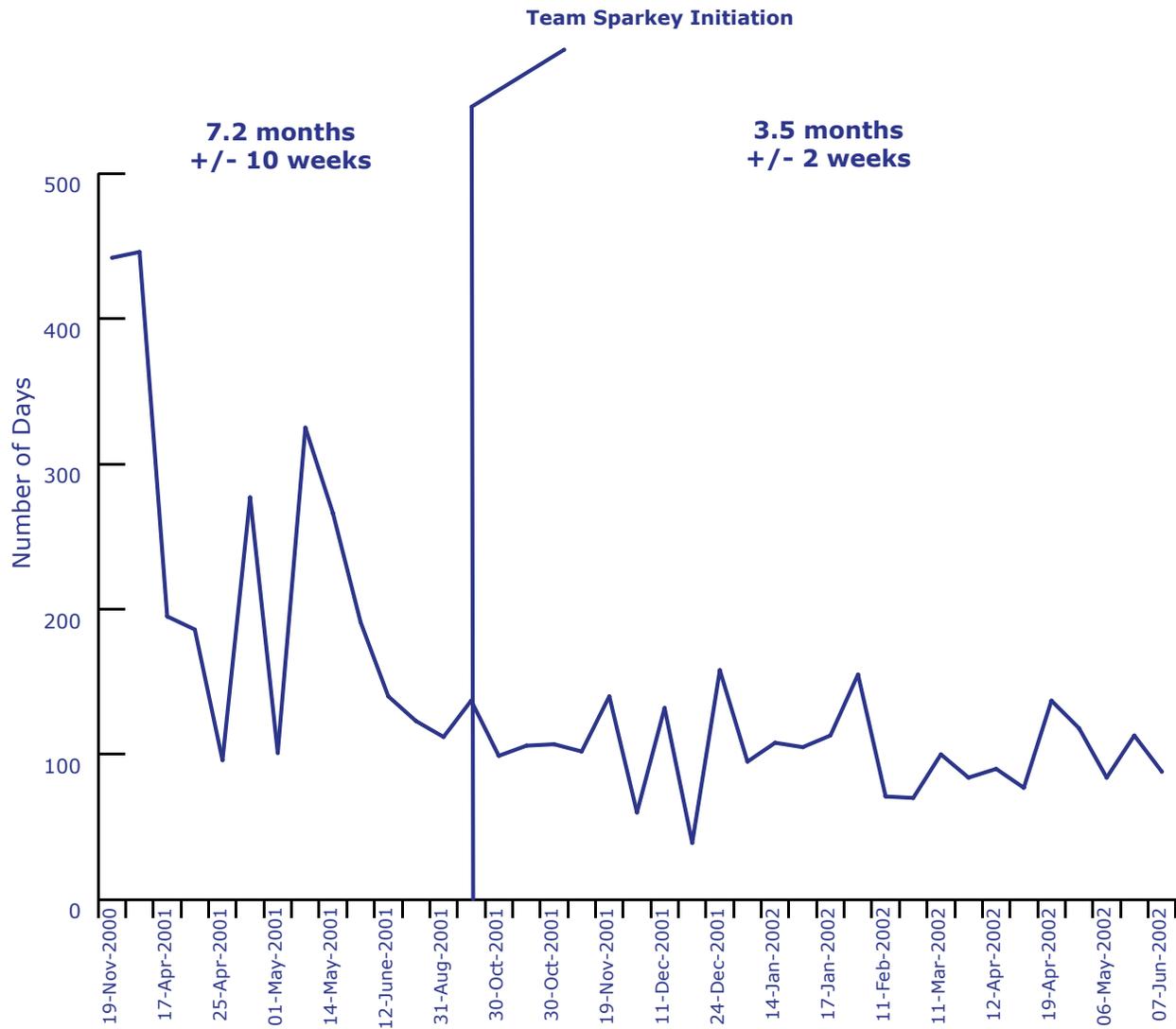
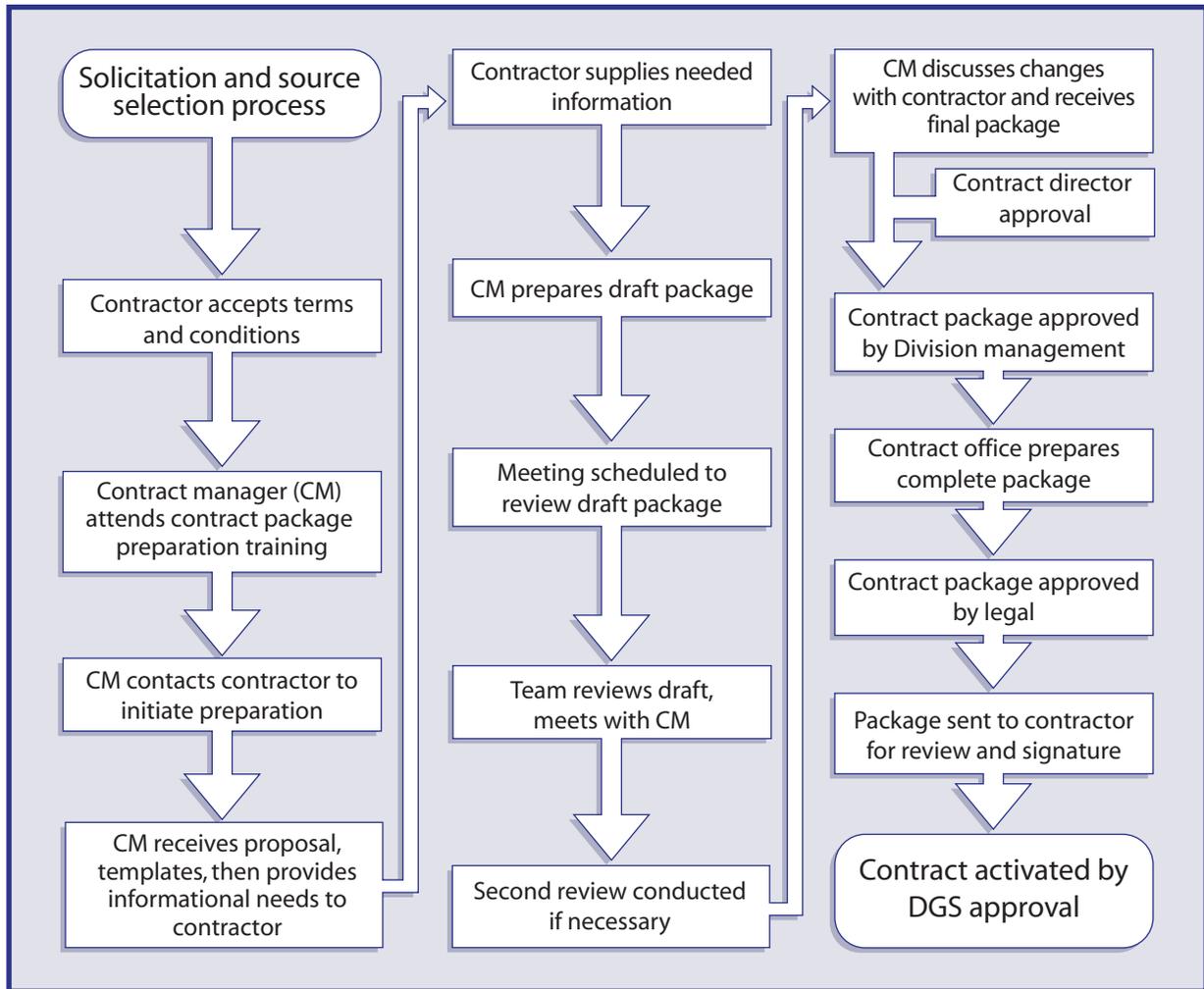


Figure 4.4 PIER Contract Preparation Process Flow



While the CEC has made considerable strides to shorten the time it takes to process agreements, the fundamental process has never been changed (see Figure 4.4). The CEC is currently asking the Department of General Services (DGS) to raise the authorization cap for research contracts not requiring DGS approval. Further improvements of contracting processes may not be in the purview of the CEC and may require legislative action.

CHAPTER 5. ALTERNATIVE ORGANIZATIONAL STRUCTURES

The performance of the PIER program has significantly improved since the last review in 2001. However, fundamental organizational limitations hinder the ability of PIER to become a first-class R&D organization. The current organizational structure of the CEC is not optimal for R&D. The CEC is a regulatory agency with limited flexibility, a near term focus, and a risk-averse culture. Under the current civil service rules, it is difficult to attract and retain top research managers. Managers do not have the independence and authority they need to be as effective as possible. The PIER IRP believes that these problems need to be addressed before the PIER program can achieve the excellence that California citizens need and deserve.

The IRP strongly recommends that the CEC develop a strategic operational and implementation response to solve PIER's structural problem. The response should include the development of two parallel plans, one to include a greater degree of operational independence and authority within the CEC and the other to include a structure outside of the CEC. We recognize that the implementation is likely to require legislative action. These two options for restructuring the PIER program are discussed below.

5.1 ENHANCE PIER WITHIN THE CEC

The IRP finds that PIER's subordinate administrative position within the CEC is not commensurate with its budgetary weight and with the program's potential impact on California's future. By elevating PIER to a CEC division, creating the position of director, and vesting greater responsibility in the program managers, the program would be less subject to its current constraints. This change in status would be more than merely symbolic; with the director granted full authority over project selection and management of staff resources (but still guided by CEC objectives and policies), the commission would be able to attract outstanding candidates for the position.

However, the necessary reorganization efforts would most likely take two to three years and would not resolve all current program limitations. The PIER director would still be bound to civil service constraints in managing personnel. The elevation of PIER to a CEC division would require hiring additional staff, which is very difficult in the near future due to the state budget crisis. The problem of the cultural incompatibility of a regulatory agency as research administrator would not be addressed by this option.

5.2 MOVE PIER (PARTIALLY) OUTSIDE OF THE CEC

The IRP has identified a number of inadequacies in the current organizational structure of PIER/CEC. As noted elsewhere in this report, many of the difficulties that PIER faces stem from its situation in an agency with a culture that is not ideal for an R&D program.

I. Create a Joint Powers Agreement

In the first IRP evaluation of the PIER program, a promising mechanism had been identified that would alleviate the existing structural problems of the CEC. This mechanism is called a Joint Powers Agreement and it creates a Joint Powers Authority (JPA). A JPA would team the CEC/PIER with another state agency having more experience in R&D management and the ability to attract and hire experienced R&D senior management. A likely candidate would be the University of California. This mechanism has precedents in state government; there are currently 154 JPAs in California.¹¹ A JPA would exist as an independent entity, with a board of directors that appoints a CEO to administer PIER. The CEC would fund the JPA. CEC commissioners would serve on the board of directors of the JPA, thereby preserving a strong hand for CEC governance of PIER while maintaining the link between PIER and the energy policy-making function of CEC. This would allow the CEC to continue to utilize research funded by PIER for the benefit of the state.

The main purpose of a JPA is flexibility in administrative procedures. The JPA board could, for areas such as contracting or personnel management, authorize use of rules and procedures of either JPA partner as best suits the needs of PIER. It is this that allows the hiring of some permanent PIER staff outside civil service under the auspices of UC or another non-CEC partner in the JPA. Once a JPA is formed, a transition of functions from the present arrangement in the CEC alone to the JPA could be planned in the best interests of a successful PIER program and good working relations with the CEC.

Potential problems that should be considered before forming a JPA are that this reorganization option is very likely to require authorization from the Legislature, that the administrative structure of a JPA is likely to be more complex and expensive than that of a single agency, and that there is the potential of a conflict of interest if the partner organization is also authorized to conduct research.

II. Create a Public Benefits Corporation (PBC)

The creation of a new Public Benefit Corporation (PBC) to administer the PIER program would allow a broad governance of PIER. Besides the CEC, private entities, such as investor-owned utilities, universities, public interest groups or other non-

¹¹ See website of the California Association of Joint Power Authorities <<http://www.cajpa.org>>.

profit organizations could be included in the governing board of PIER. The PBC is, therefore, a reorganization option that would allow the participation of a wider range of interested stakeholders than under the CEC alone or under a JPA between the CEC and another public agency.

There are precedents of this administration model for public interest energy programs. The New York State Energy Research and Development Authority (NYSERDA) serves as the statewide administrator for New York's various public goods energy programs. In the Pacific Northwest region (Washington, Oregon, Idaho and Montana), various public and private entities mutually created a non profit corporation to administer a portion of that region's public interest energy efficiency programs.¹²

Advantages of a PBC are that it includes multiple stakeholders, and that the administration of the PBC is likely to be more effective, flexible and efficient than that of a public agency or a JPA since a PBC may be able to operate without the restrictions of various laws that constrain state agencies in managing personnel and resources. The inclusion of the private sector in the governing board of the PBC is likely to enhance the market connectedness of PIER.

Several potential difficulties should be considered that are connected to the establishment of a PBC to administer the PIER program. The California Legislature would need to authorize this new organization. The extent to which the PCB would be exempted from state laws constraining the administration of PIER within the CEC would need to be clarified. There are also likely to be some start up costs associated with the creation of the new organization, such as for locating and hiring personnel.

¹² CEC, Administration Issues and Options Concerning California's Public Interest Energy Research Programs, Memorandum from David Abelson, CEC Senior Staff Counsel, January 20, 2004.

CHAPTER 6. RECOMMENDATIONS

The importance of energy R&D to California's continued economic growth, environmental performance, and science and technology leadership demands that the PIER program be implemented effectively. The state has the intellectual resources and economic infrastructure to address those challenges through a well-managed R&D program.

The IRP commends the CEC for its accomplishments in the three years since the first PIER program review. We now find that the PIER program is better defined, has good leadership, and in most program areas, has well conceived research strategies. However, the IRP has identified several key issues of concern that appear to affect the ability of the program to fully realize the benefits of public interest energy research.

This IRP finds that each of the 13 expectations of the previous IRP has been addressed, and in most cases, real progress has been made. The program areas are better defined with competent team leaders in place. There is an able PIER Program Manager with general responsibility for the program, although he does not have a career position or a formal appointment and therefore lacks formal authority. The program has a capable, if small, dedicated technical staff. Well-conceived research strategies are in development and contracting procedures have been streamlined. The program is proceeding with relevant research and is producing practical results. However, the panel is concerned about the program's future.

The program is having difficulty in acquiring and maintaining a technical staff with the depth and breadth required. The lack of real authority on the part of the PIER Program Manager and the tenuous nature of this appointment are matters of major concern to the IRP and the staff. Cumbersome administrative practices and staffing requirements remain major concerns. Unless corrected, they will almost certainly limit PIER's ability to evolve into what should be CEC's objective, that of creating a "truly outstanding research and development program that will benefit the citizens of California."

As with the first IRP, the current IRP found that many of the factors affecting the efficiency and effectiveness of the PIER program's planning, contracting and management processes are internal to the CEC. At a fundamental level, these factors are inherent in the current structure of the agency and its operating procedures. The PIER organization has largely been shaped by the CEC's internal constraints. These limiting policies and practices need to be further addressed if the PIER program is to meet expectations and mature into an outstanding R&D organization. In particular, the characteristics of the CEC's organizational culture and bureaucracy conflict with the characteristics of an organizational environment that facilitates a superior R&D program. The IRP felt this issue was key to PIER's successful future and enclosed as, Appendix B, a description of what characterizes a successful R&D organization.

The IRP believes that further progress can be made through near-term changes internal to the PIER program, including:

- **The most immediate need is to fill the existing knowledge gap. The CEC should give the PIER Program Manager authority to fill vacancies and personnel shortfalls and supplement staff resources with contract staff.** This action would address the unintended consequence of staff resource cuts, which have imposed large burdens on remaining staff and threatens the program's effectiveness.
- **PIER management should streamline the advisory committee process, reconstitute the PIER Policy Advisory Council, reduce the number of program-area advisory committees, and link the advisory groups through shared membership.**
- **To ensure the integration of PIER efforts with research and development (R&D) programs at the state and national level, the PIER Program Manager should be given funding authority to support cross-program coordination, site visits, and staff professional development.**

Beyond these near-term issues, fundamental organizational limitations hinder the ability of PIER to become a first-class R&D organization. The current organizational structure of the CEC is not optimal for R&D. The CEC is a regulatory agency with limited flexibility, a near term focus, and a risk-averse culture. Under the current civil service rules, it is difficult to attract and retain top research managers. Managers do not have the independence and authority they need to be as effective as possible. The PIER panel believes that these problems need to be addressed before the PIER program can achieve the excellence that California citizens need and deserve.

We strongly recommend that the CEC develop a strategic operational and implementation response to solve PIER's structural problem. The response should include the development of two parallel plans, one to include a greater degree of operational independence and authority within the CEC and the other to include a structure outside of the CEC. We recognize that implementation is likely to require legislative action. For the IRP to incorporate the evaluation of the plans in its final report, the response should be completed by August 1, 2004.

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APPENDIX A: CALIFORNIA ENERGY COMMISSION LETTER

STATE OF CALIFORNIA - THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

CALIFORNIA ENERGY COMMISSION

WILLIAM J. KEESE, CHAIRMAN
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SACRAMENTO, CA 95814-5512
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March 1, 2004

Mr. Carl Weinberg
Weinberg Associates
42 Green Oaks Court
Walnut Creek, CA 94596-5808

Dear Mr. Weinberg:

Thank you for sending us a draft of the *Independent Review Panel's 2004 Report on the California Energy Commission's Public Interest Energy Research (PIER) Program*. We sincerely appreciate the time the Panel has spent evaluating the program and the thoughtful comments provided in the draft report.

The Energy Commission took seriously the comments and recommendations of the first Independent Review Panel and implemented many modifications in the PIER program which are recognized in your draft report. These changes and the current success of the program would not have been possible without the efforts and dedication of the PIER program director, team leads, and program staff as well as others in the Energy Commission associated with the PIER program.

We recognize that it takes a lot of work to maintain and further develop a first-class, state-managed energy research and development program. The observations and recommendations made in your report will aid in this effort. Unfortunately, the state's budget crisis has had an adverse impact on the PIER program as it has on other programs within the Energy Commission and all aspects of state government. Our hope is that as the crisis is resolved, we will be able to achieve changes to the program that we mutually desire. The draft report concludes with a recommendation that the Energy Commission develop, by August 1, 2004, an operational and implementation response. We have begun this work and anticipate having it complete by the date requested.

We appreciate the Panel's support regarding the necessity of having a state-funded, energy research and development program that has strong ties to state energy policy and implementation programs, is able to bring federal and private research funds to California, and compliments research performed in the private and academic sectors.

Sincerely,


WILLIAM J. KEESE
Chairman



APPENDIX B: ESSENTIALS OF SUCCESSFUL R&D MANAGEMENT

The legislation that created PIER anticipated a state-managed energy R&D program that would support energy-related research not adequately funded by public- or private-sector organizations. PIER was expected to support a coordinated set of projects with significant public benefits; it was not simply a funding mechanism to provide contracts and grants to interested parties. In practice, this meant that PIER would need to identify state energy challenges, formulate a program for meeting those challenges, develop a strategy for implementing the program, develop and release RFPs, evaluate proposals and select projects for funding, negotiate contracts or other funding vehicles, monitor the research activity, and assess how well projects met program goals. These are the responsibilities of an R&D management organization; how well it carries out these responsibilities is determined by the organization's characteristics.

There is no single best path to a superior R&D management organization. However, certain principles pertaining to leadership, organizational environment and knowledge base guide all superior R&D management organizations, and, to some extent, all innovative organizations.¹³ While no organization or program can be expected to reflect all of these principles when it launches, a superior R&D management organization will continuously incorporate these principles into its operations.

LEADERSHIP

An R&D management organization requires a strong leader, not simply a manager. A leader keeps others in focus, maintains morale, and creates an environment that enables the fullest exploitation of talents. A leader earns the trust of everyone in the organization, both above and below, and has full responsibility for and authority over intellectual, administrative, personnel, and financial areas. The leader facilitates relationships with other relevant organizations and creates and maintains an environment appropriate for R&D management.

¹³ R&D management organizations that have struggled with some of the same issues that the CEC faces in administering PIER and that, to varying degrees, have found solutions, are the Defense Advanced Research Projects Agency (DARPA), the Electric Power Research Institute (EPRI), the Gas Research Institute (GRI), the Atomic Energy Commission (AEC) and the Advanced Technology Program (ATP) at the National Institute of Standards and Technology (NIST). An excellent discussion of the experiences at the R&D organizations is contained in Corey (1997).

A single leader improves accountability and consistency in program direction. He or she must have the authority to develop the vision to link program objectives to challenges, and to develop a strategy for addressing those challenges. The leader also has the responsibility to present and defend the strategy and objectives to external oversight authorities. There is less tendency for oversight organizations to micromanage if there is respect for the leader and understanding and acceptance of program plans and objectives.

A leader must be able to deploy resources, dollars and people. Activities must be coordinated among various disciplines and specialties. Each project must be embedded in a portfolio that balances the need for setting the objectives, available resources, degree of risk, and time of completion.

An R&D leader needs to control the program budget, with clear rights and authority that confer stature and respect. A leader requires the authority to use a variety of funding mechanisms, appropriate for different types of R&D activities. He or she also must have the ability to respond rapidly to a changing environment, including the relative importance of subject areas, budget and staff changes, quality of R&D performers, and program outputs and outcomes.

Innovative groups thrive on challenging work and stimulating colleagues. Such a group requires a superior leader, especially when the group must be formed quickly and action taken quickly. The leader's charge is especially difficult if the group is inherited from a prior program, or if the personnel have been designated by others. Successful leaders seek to reduce distractions, and are allowed to do so, while ensuring that information flow is sufficient to the organization's planning needs.

Successful leaders insulate their people from bureaucratic interference and ensure their autonomy, even when this protection may conflict with the organization's norms of control over decision processes, funds, contracts, and rules changes. The successful leader benefits from an enlightened administrative oversight that values the rewards of innovation more than it values control.

ORGANIZATIONAL ENVIRONMENT

A superior R&D management organization has well-established concepts and processes that define the organization's goals and objectives. These goals and objectives are jointly developed with upper management and stakeholders to ensure that the right problems and the potential influence of R&D are understood. The organization must communicate with political bodies who have oversight responsibility.

A superior organization has a vital and clear objective purpose, and can link each of its activities to that purpose. It becomes the framework for purposeful R&D management.

An R&D management organization requires an environment that fosters innovative thinking and allows intelligent failure. A well-functioning organization must be open and fair. R&D management organizations must reduce the fear of nonsuccess. Bold and risky, but well-conceived and managed projects that fail but yield valuable information must not be punished. Otherwise, only guaranteed successes will be funded, stifling innovation. This is a particularly difficult environment to develop in a public organization, wherein setbacks can be construed as mismanagement of funds. The authorities that oversee disbursement of public funds as well as citizens should prize innovation and tolerate occasional failure as an acceptable cost of the innovation process.

A successful R&D program requires an environment that minimizes oversight organization interference in program execution. Inappropriate interference by oversight organizations with established program management procedures can reduce the efficiency and effectiveness of R&D management. There is a distinction here between appropriate policy guidance and oversight functions, and micromanagement by external organizations.

Good R&D management also enables stakeholders to provide feedback to program managers in order to improve overall policies, objectives, processes, and resource allocation among program areas. The feedback process should be at least partially internal to the program.

KNOWLEDGE BASE

A successful contractual R&D management organization requires a high-quality team of managers and staff. The organization's knowledge base – its ability to provide technical assessments of proposals and provide technical oversight of projects – resides in its staff. High-quality staff are drawn to the organization by its mission, its leader, and an operating environment in which they can be assured of the responsibility, authority and resources to perform effectively.

The leader of a superior organization should engage the most talented, knowledgeable, and experienced managers who possess the diversity to address a spectrum of challenges. Superior performance requires good content knowledge, recognized by peers. High-quality information on the technologies and disciplines involved in the programs should flow quickly and directly to the work groups.

APPENDIX C: ABBREVIATIONS AND ACRONYMS

SYMBOL	DEFINITION
CCST	California Council on Science and Technology
CEC	California Energy Commission
DGS	Department of General Services
DOE	Department of Energy
EAP	Energy Action Plan
EIA	Energy Information Administration
EISG	Energy Innovations Small Grant Program
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
GRI	Gas Research Institute
IEPR	Integrated Energy Policy Report
JPA	Joint Powers Authority
NRDC	National Resources Defense Council
NYSERDA	New York State Energy Research and Development Authority
PG&E	Pacific Gas & Electric Company
PIER	Public Interest Energy Research
R&D	Research & Development (this can often include demonstration)
RFP	Request for Proposal
RPS	Renewable Portfolio Standard
UC	University of California

APPENDIX D: BIOGRAPHIES

PIER INDEPENDENT REVIEW PANEL MEMBERS

SHORT BIOGRAPHIES

CARL J. WEINBERG, CHAIR

Carl Weinberg is the principal of Weinberg Associates, which he founded in 1993 after 19 years with the Pacific Gas and Electric Company (PG&E) where he effectively managed and grew an internationally respected energy research and development program. Weinberg Associates was formed with the primary objective of accelerating the introduction of renewable and distributed power systems.

Prior to joining PG&E in 1974, he spent 21 years in the United States Air Force. He received a B.S. and M.S. degree in civil engineering from the University of California, Berkeley and a M.S. in physics from Vanderbilt University. He is a registered civil engineer and a member of the California Civil Engineering Honor Society XE, the Engineering Honor Society, the Research Honor Society ΣX , Cal Club, and the University of California Order of the Golden Bear.

LINDA R. COHEN, VICE-CHAIR

Linda Cohen is professor for the Department of Economics at the University of California, Irvine, and the 2003-2004 Gilbert White Fellow, Resources for the Future. She received an A.B. from the University of California, Berkeley in mathematics and, in 1979, a Ph.D. from the California Institute of Technology in social sciences. Her fields of study are political economy, government regulation, government policy for science and technology, and positive political theory and law.

Cohen has held positions at the Brookings Institution, the Kennedy School of Government, Harvard University, and the Rand Corporation. She was the 1998 Olin Visiting Professor in Law and Economics, University of Southern California Law School and is a member of the Irvine Research Unit in Mathematical Behavioral Sciences at the University of California, Irvine.

ROBERT P. (CHRIS) CAREN

Chris Caren is the retired corporate vice president of Science and Engineering of the Lockheed Corporation, where his career spanned over 30 years. Among the positions he held at Lockheed were research scientist, laboratory director, chief engineer (Space Systems), program manager, director of the Palo Alto Research Laboratory, vice president and general manager of the Research and Development Division, and finally the corporate CTO position. He has carried out research in energy systems, low temperature technology, heat transfer, and plasma technology. Caren holds B.S., M.S. and Ph.D. degrees in physics from Ohio State University. He is a fellow of the American Association for the Advancement of Science, the American Astronomical Society, the American Institute of Aeronautics and Astronautics, and the Society of Automotive Engineers. He is also a member of the National Academy of Engineering.

Caren is founder and member of the Board of Directors of Litex Inc., a company involved in automotive emission reduction systems. He is past chairman of Hawkeye Enterprises, a company that was involved in the upgrade of natural gas. He is also a member of the Board of Directors of Superconductor Technologies Inc. a company producing high-end telecommunication products.

T. KENNETH FOWLER

Ken Fowler is professor emeritus, Department of Nuclear Engineering at the University of California, Berkeley. Fowler was chair of the Department from 1988 to 1994 and helped establish the multi-disciplinary Center for Nuclear and Toxic Waste Management at the University of California, Berkeley. His honors and awards include elected membership in the National Academy of Sciences; Fusion Power Associates Distinguished Career Award, 1995; and The Berkeley Citation, 1995. He was a member of the 1999-2001 review panel for California's Public Interest Energy Research Program.

His areas of interest include energy research funding and the appropriate role of government in anticipating problems of energy-associated pollution and energy-associated competition for resources in its research funding policies. He also focuses on issues of public trust and confidence in institutions, especially as they relate to energy companies and energy-related governmental laboratories and agencies.

HAROLD M. (HUB) HUBBARD

Harold Hubbard's particular interests are in the areas of research and development management; energy technologies; sustainable development; and public policy relating to science, engineering and technical systems. After receiving a Ph.D. in chemistry with a minor in chemical engineering from the University of Kansas, Hubbard joined Dupont's Atomic Energy Division. He was assigned first to Argonne National Laboratory and later transferred to the Dupont Explosive Department's Experimental Station Laboratory. When he resigned to accept a position at Midwest Research Institute (MRI) after 18 years as a member of the Dupont research staff, Hubbard was a research manager at Dupont's Eastern Laboratory.

In 1970, he joined the MRI as director of Physical Sciences. Hubbard was appointed executive vice president of MRI in 1981 and then transferred to Colorado to become the executive director and CEO of the Solar Energy Research Institute (SERI) from 1982 to 1990. In 1991, after spending a year in Washington, D.C., as a visiting Senior Fellow at Resources for the Future, he was appointed the Spark M. Matsunaga Distinguished Fellow in Energy and Environment at the University of Hawaii at Manna.

ALAN C. LLOYD

Alan Lloyd was appointed as chairman to the California Air Resources Board by Governor Gray Davis in February 1999. Lloyd earned both his B.S. in chemistry and Ph.D. in gas kinetics at the University College of Wales, Aberystwyth, U.K.

Lloyd most recently served as the executive director of the Energy and Environmental Engineering Center for the Desert Research Institute at the University and Community College System of Nevada, Reno. Previously, he was the chief scientist at the South Coast Air Quality Management District from 1988 to 1996, where he managed the Technology Advancement office that funded public-private partnerships to stimulate advanced technologies and cleaner fuels.

JOHNETTA MACCALLA

Johnetta MacCalla is chief executive officer of ASCI, Automated Switching and Controls, Inc., a high-tech company serving the public sector, especially the transportation industry. Her specialties include system design, development and installation of communication and control systems using fiber optics, wireless radio and networked cables as well as control signaling and robotic systems. She is the publisher of over 17 papers on communications and control.

MacCalla was a Hughes Doctoral Fellow and the recipient of a Bell Labs Fellowship. She is a former council member of the California Council on Science and Technology. She is a graduate of the University of Southern California, Stanford University and Brown University. She has been project manager for many high-tech projects including BART, Port of Los Angeles, TRW, NASA, and the U.S. Military.

WILLIAM J. MCLEAN

William McLean is director of the Combustion Research Facility at Sandia National Laboratories. He is also responsible, under Sandia's Energy and Critical Infrastructure Strategic Business Unit, for overall program management of Sandia's Energy Efficiency research programs. He maintains close association with the U.S. Department of Energy research programs sponsored by the DOE Office of Science and DOE Office of Energy Efficiency and Renewable Energy.

McLean received his undergraduate and graduate education in mechanical engineering at the University of California, Berkeley and was associate professor of Mechanical Engineering at Cornell University before joining Sandia 25 years ago. In the past his research has involved coal combustion, flame chemistry, engine combustion and alternative fuels.

PETER M. MILLER

Peter M. Miller is a scientist with the Natural Resources Defense Council, Inc., a nonprofit national environmental organization. He is part of NRDC's energy project, which promotes the increased development of energy efficiency and other environmentally sound and cost-effective energy resources. His work involves research, analysis, and advocacy at the state, national, and international levels. He has participated in utility advisory committees in California, Hawaii, and the Pacific Northwest, in numerous proceedings before the California Energy Commission, the California Public Utilities Commission and the Northwest Power Planning Council, and in rulemakings before the U.S. Department of Energy. He was appointed to the California Board for Energy Efficiency in April 1997.

MAXINE L. SAVITZ

Maxine Savitz retired from Honeywell, Inc., where she was general manager, Technology Partnerships. She has over 30 years of experience managing research, development and implementation programs for the public and private sectors. Savitz joined Honeywell, previously AlliedSignal, in 1985. From 1987 until June 2000, she was the general manager of AlliedSignal Ceramics Components, which is the only U.S. owned silicon nitride structural ceramic manufacturer for gas turbine application. In this capacity, she oversaw the development and manufacturing of innovative materials for the aerospace, transportation, and industrial sectors. Prior to joining Honeywell, she was employed at the U.S. Department of Energy and its predecessor agencies. From 1979 to 1983, she served in the capacity of deputy assistant secretary for conservation at DOE.

Her areas of interest include energy efficiency (buildings, industry, transportation) R&D, policies and programs, distributed energy resources, gas turbines, microturbines, and fuel cells and high temperature materials and application.

JANANNE SHARPLESS

Jananne Sharpless was appointed to the California Energy Commission in January 1994 and was a member through 1999. By law, the five members of the Commission have professional training and background in specific areas - engineering and physical science, environmental protection, economics, law and one commissioner from the public at large. Sharpless filled the environmentalist position. She graduated from the University of California, Davis with a B.A. degree in political science.

She has served on the United States Environmental Protection Agency Clean Air Act Advisory Committee; Federal Fleet Conversion Task Force; chairwoman 1990 United California State Employees Campaign; and chairwoman (1986-1987) Alternative Fuels and Vehicles Review Task Force (AB 234). From 1985-1993, Sharpless was both secretary of Environmental Affairs and chairwoman of the California Air Resources Board (1991 to 1993). She was also the chief deputy secretary of the Environmental Affairs Agency (1983-1985).

ESTEBAN SORIANO

Esteban Soriano has served as a faculty member, program director, executive director, and vice president of universities and colleges. He recently joined the University of California, Merced and serves as vice chancellor for University Advancement. In his professional career, he has been awarded designation as Ford Fellow, National Research Fellow, Fulbright Scholar, and J. H. Sanders Marketing Fellow. Soriano's disciplines are communication and market research.

Eleven years ago, Soriano left a senior administrative position at the University of California, Riverside to begin his own market research and program assessment company. That firm, The Resource Group, soon became one of the most relied upon research and assessment companies in California (specializing in educational and economic assessments). He has served three U.S. Presidents on national boards and commissions: the national task force looking at the communication needs of rural America (Carter); the Teacher in Space Selection Panel (Reagan); and the National Skill Standards Board (Clinton).

ARNOLD M. SOWELL, JR.

Arnold M. Sowell, Jr. is a former deputy secretary of policy and planning for the State and Consumer Services Agency. He is currently with the office of Assemblymember Fabian Nuñez. Sowell has served as an advisor to the California Waste Board for the last five years. During that time, he also served as an advisor to the California Waste Board chairman. Sowell has had an extensive career in state and local government having served in various positions. They include: senior consultant to then-Speaker Willie Brown; principal fiscal analyst to San Francisco City Controller Edward Harrington; assistant to former Mayor Art Agnos of San Francisco; and senior fiscal and policy analyst in the Legislative Analyst's Office. He earned a bachelor of science degree from Oregon State University and a master of public administration degree from the University of Washington.

JAMES L. SWEENEY

James L. Sweeney, of Stanford University, is professor of Management Science and Engineering, Senior Fellow of the Stanford Institute for Economic Policy Research, and senior fellow (by courtesy) of the Hoover Institution on War, Revolution and Peace. His professional activities focus on economic policy and analysis, particularly in energy, natural resources, and the environment. He holds a B.S. degree from Massachusetts Institute of Technology in electrical engineering and a Ph.D. from Stanford University in engineering-economic systems.

At Stanford, he has served as chairman of the Department of Engineering-Economic Systems and Operations Research, director of the Energy Modeling Forum, chairman of the Institute for Energy Studies, and director of the Center for Economic Policy Research (now the Stanford Institute for Economic Policy Research). He currently is on the executive committee of the Interdisciplinary Program in Environment and Resources, on the faculty advisory committee of the Earth Systems Program, and part of the Global Climate and Energy Program.

IRVIN L. (JACK) WHITE

Irvin White has over 30 years public and private sector management and leadership experience in energy, environment, science and technology policy, research and development management, and relationship management. He recently retired for the fifth time—this time from his position as executive director of the Association of State Energy Research and Technology Transfer Institutions, an organization of state energy research and development organizations he co-founded in 1990.

He was managing partner of The Winslow Group, a management-consulting firm that specialized in enterprise development and management. Prior to co-founding The Winslow Group, he was the senior director for Energy Programs at Pacific Northwest National Laboratories. From 1981 to 1991, White was the president of the New York State Energy Research and Development Authority. White has also served as the assistant director for Energy and Minerals in the Bureau of Land Management, Department of the Interior, and acting director for Exploratory Research at the U.S. Environmental Protection Agency. Before entering the federal service, he was a member of the faculties of the Universities of Oklahoma and Arizona and Purdue University. At Oklahoma, he was co-founder and assistant director of the Science and Public Policy Program, one of the most successful programs of its kind in the country.

MATRIX OF IRP MEMBERS' COMPETENCIES

Panel members were chosen based on an assessment of the required capabilities needed on the IRP. Table A.1 shows the match between needed capabilities and IRP member competencies.

Table D.1 Matrix of IRP Member Competencies

	Academic	Industry	Public Interest
Technology – Issues in R&D for Energy and Other Technologies	Soriano	Caren MacCalla Savitz Weinberg	
Economics/Markets – Market Impacts of Technologies, Economics of Energy	Cohen Sweeney		
General Energy and Energy Alternatives	Fowler	Hubbard McLean White	
Public Health and Environmental Impacts			Miller Sowell
State Government Policies – Contracting and Civil Service			Lloyd Sharpless

CCST PIER REVIEW COMMITTEE MEMBERS

SHORT BIOGRAPHIES

RICHARD E. BALZHISER – 2003 CHAIR

Richard E. Balzhiser retired as president and chief executive officer of the Electric Power Research Institute (EPRI) in August 1996. He remains active in a president emeritus role at EPRI in addition to serving on the boards of Reliant Energy, Aerospace, Electrosources, and Nexant. Balzhiser joined EPRI in 1973 at the time of its founding as director of the Fossil Fuel and Advanced Systems Division. He became vice president of Research and Development in 1979 and executive vice president in 1987 before assuming the presidency in 1988.

Prior to joining EPRI, he served in the White House Office of Science and Technology as assistant director for Energy, Environment and National Resources, 1971-1973. He was professor of Chemical Engineering from 1960-70 except for 1967-68 when he served as a White House Fellow in the Office of the Secretary of Defense. He was twice elected to serve on the Ann Arbor City Council. Balzhiser received his B.S. and Ph.D. degrees in chemical engineering and his M.S. in nuclear engineering from the University of Michigan and was an Academic All American on Michigan's 1953 football team.

MIRIAM JOHN – 2004 CHAIR

Miriam John is currently vice president of Sandia's California Division. Prior to her current position, John served as the director of the Center for Exploratory Systems and Development and in a number of managerial and technical roles for the laboratory, including nuclear weapons development, systems analysis, and thermal analysis/fluid mechanics R&D. John received a B.S. in chemistry from Rice University, an M.S. in chemical engineering from Tulane University, and a Ph.D. in chemical engineering from Princeton University.

Concurrent with her Sandia assignments, John has been recruited for a number of defense community efforts. She is a member of the Department of Defense's Threat Reduction Advisory Committee (for which she chairs the Nuclear Deterrent Transformation Panel), the National Research Council's Naval Studies Board and Board on Army Science and Technology. She is a recent past member of the Air Force Scientific Advisory Board and DOE's National Commission on Science and Security. She is a National Associate of the National Academies of Science and Engineering.

LAWRENCE B. COLEMAN

Lawrence B. Coleman is the University of California vice provost for Research and professor of Physics at the University of California, Davis. He served as chair of the University-wide Academic Senate in the 1999-2000 academic year following a year as vice chair of the University of California Senate. Arriving at Davis in 1976, he was promoted to associate professor in 1982. While at the University of California, Davis he has held the positions of chair, Davis Division of the Academic Senate, 1995-1997; director, The Internship and Career Center, 1988-1994; acting vice provost, Academic Programs and dean, Undergraduate Studies, 1991-1992; and acting associate vice chancellor, Academic Programs, 1990-1991.

Lawrence Coleman received a Ph.D. from the University of Pennsylvania in 1975 in experimental condensed matter physics. He received a B.A. in physics from The Johns Hopkins University in 1970.

SUSAN HACKWOOD

Susan Hackwood is currently professor of Electrical Engineering at the University of California, Riverside and executive director of the California Council on Science and Technology. Hackwood received a Ph.D. in solid state ionics in 1979 from DeMontfort University, UK. Before joining academia, she was department head of Device Robotics Technology Research at AT&T Bell Labs. In 1984 she joined the University of California, Santa Barbara as professor of electrical and computer engineering and was founder and director of the National Science Foundation Engineering Research Center for Robotic Systems in Microelectronics. In 1990, Hackwood became the founding dean of the Bourns College of Engineering at the University of California, Riverside.

G. SCOTT HUBBARD

Scott Hubbard serves as director of NASA's Ames Research Center in the heart of California's Silicon Valley. Prior to his appointment, Hubbard was the deputy director for Research at Ames. In March of 2000, Hubbard was called to NASA Headquarters, where he served as the first Mars program director and successfully restructured the entire Mars Program in the wake of mission failures.

Some of Hubbard's previous key roles include Ames associate director for Astrobiology and Space Programs; first director of NASA's Astrobiology Institute, and manager of the Lunar Prospector Mission. He is also credited with creating the Mars Pathfinder Mission. Prior to coming to Ames in 1987, Hubbard was vice president and general manager of Canberra Semiconductor and a staff scientist at Lawrence Berkeley National Laboratory. Hubbard received a B.A. in physics and astronomy from Vanderbilt University and conducted graduate studies in semiconductor physics at the University of California, Berkeley.

JOHN P. McTAGUE

John P. McTague is currently professor of Materials for the University of California, Santa Barbara. He is the past vice president, Laboratory Management at the University of California, Office of the President. A physical chemist, McTague received his undergraduate degree with honors in chemistry from Georgetown University in 1960 and his Ph.D. from Brown University in 1965. Brown also bestowed on him an honorary Sc.D. in 1997.

McTague was founding co-chair of the Department of Energy National Laboratory Operations Board and a member of the Secretary of Energy Advisory Board from its inception in 1990 through 2000. In January 1999, he retired from Ford Motor Company, where he served more than 12 years, first as vice president of Research and then as vice president of Technical Affairs. Prior to 1986 McTague served as deputy director and acting director of the White House Office of Science and Technology Policy, and was acting science advisor to President Reagan. During the Bush administration he was a member of the President's Council of Advisors on Science and Technology and U.S. Chair of the U.S.-Japan High Level Advisory Panel on Science and Technology.

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CALIFORNIA
ENERGY
COMMISSION

**PUBLIC INTEREST ENERGY RESEARCH
PROGRAM**

**INDEPENDENT REVIEW PANEL
RESPONSE**

STAFF REPORT

JULY 20, 2004



Arnold Schwarzenegger, *Governor*

CALIFORNIA ENERGY COMMISSION

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DISCLAIMER

This report was prepared by California Energy Commission staff. Opinions, conclusions, and findings expressed in this report are those of the authors. This report does not represent the official position of the Energy Commission until adopted at a public meeting.

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EXECUTIVE SUMMARY

Background

The second Independent Review Panel (IRP) was formed to evaluate the Public Interest Energy Research program and make recommendations to both the Legislature and the California Energy Commission (Energy Commission) regarding program design and implementation. The second IRP's preliminary report, dated March 2004, emphasizes the organizational challenges facing PIER.

Mission

The second IRP has tasked the Energy Commission with "...develop(ing) a strategic operational and implementation response to solve PIER's structural problem. The response should include the development of two parallel plans, one to include a greater degree of operational independence and authority within the Energy Commission and the other to include a structure outside of the Energy Commission...For the IRP to incorporate the evaluation of the plans in its final report, the response should be completed by August 1, 2004."

Approach

In response to the IRP request, the Energy Commission defined an analytical approach to evaluate the three alternative organizational constructs: a) an internal option within the Energy Commission, b) a Joint Powers Authority, and c) a Public Benefit Corporation. This approach consists of six steps:

1. Identify organizational problem statements in the IRP preliminary report, dated March 2004
2. Identify the guiding principles that make PIER a unique program
3. Identify the attributes of a first-class public interest R&D organization
4. Develop a concept organization for each of the three alternative organizational constructs that addresses the guiding principles, problem statements and attributes
5. Identify implementation implications for each alternative
6. Compare the organizational concepts based on the priorities used for their design.

Guiding Principles

Any PIER organizational structure will need to abide by the guiding principles that make PIER a unique program:

- Integrated with state energy policy
- Funds public interest energy research that benefits California electric ratepayers
- Complimentary with other public and private sector R&D efforts and implementation programs

- Non-duplicative of private sector research
- Clear and manageable program mission, vision and strategic objectives
- Conveys high-impact information for decision making to policymakers in a timely manner.

These guiding principles are derived from the PIER Program’s enabling legislation (e.g., AB 1890, SB90, SB 1194, AB 995, SB 1038) and the Energy Commission’s response to the legislative requirements in implementing the program (e.g., PIER Five Year Research Plan, PIER Vision, PIER Mission, Integrated Energy Policy Report, Energy Action Plan). The Energy Commission has made sure that the organizational concepts presented in this report adhere to these guiding principles.

Key Findings

Internal Option Concept

Implementing the Internal Option Concept as envisioned by the IRP will require obtaining administrative and legislative exemptions. These exemptions apply to three key areas:

- **Staffing.** Vesting staffing control with the Program Director requires administrative relief from Department of Personnel Administration (DPA), State Personnel Board (SPB), and Public Employment Relations Board (PERB) oversight. Examples of this staffing control include:
 - Creating positions outside of the budget change proposal (BCP) process (one year for the BCP, up to an additional year to hire)
 - Changing the organizational structure of PIER in response to programmatic changes without regard to staffing ratios.

Creating new civil service classifications and new pay grades can be accomplished with existing administrative processes.

- **Budgets.** Vesting budget control with the Program Director requires administrative relief from the Resources Agency and Department of Finance oversight. Examples of budget control include:
 - PIER budget no longer subject to Executive Orders or changes in Department of Finance policies
 - Related to staffing above, the Program Director has the authority to shift funds within an approved budget to meet staffing needs, outside of the BCP process
 - PIER travel budget no longer subject to Executive Orders or changes in Department of Finance policies.
- **Procurement.** Contract approval currently rests with the Commission. Vesting contract approval with the Program Director will require legislated delegation of

contract approval authority normally reserved for the Commissioners and control agencies.

Legislative exemptions have the advantage of greater permanency, but the disadvantage of being risky (e.g., undesirable provisions being added). If the control agency has the authority, administrative relief from procedures and rules reduces the risks associated with legislation, but the outcomes are not guaranteed. However, the result may be slower, more incremental solutions to the IRP problems. Also, administrative relief can be reversed by changing interpretations of rules, new agency heads and new policy. Examples of steps to implement the Internal Option Concept could include the following:

- Determine nature of exemptions. For proposed actions to obtain exemptions from control agency oversight, determine which exemptions can be obtained administratively, through legislation, or through executive orders. For exemptions requiring administrative actions, determine which control agencies are involved and establish an agency task force to negotiate with control agencies and establish exemptions. For exemptions requiring legislation, establish an agency task force with stakeholders, establish legislative sponsorship in coordination with the IRP, and draft and enact legislation.
- Implement new PIER structure. It is estimated that fully implementing the Internal Option Concept may take up to a year without legislation (according to Administrative Services staff) and 2 – 3 years with legislation.

PIER JPA Concept

Absent an amendment to the PIER enabling legislation, the PIER Joint Powers Authority (JPA) Concept would be able to administer most aspects of the PIER program (further legal analysis is needed before it can be confirmed absolutely) but final responsibility for program decisions would remain with the Energy Commission. There are examples of JPAs that have been formed by state agencies without legislation. The PIER JPA Concept could be implemented through a contract, without legislation, if all funding decisions made by the PIER JPA Concept continued to be approved by the full Commission. Examples of steps to implement a PIER JPA Concept include the following:

- Preliminary approval of the PIER JPA Concept. The Energy Commission would need to obtain preliminary approval and support from the Governor's Office and the Legislature, especially the energy committee chairs, to pursue implementation.
- Development and approval of a PIER JPA Concept Creation Plan. The plan would include a preliminary determination of the extent to which the Energy Commission can delegate authority over the PIER program to another governmental body without legislation, more detailed steps to create a PIER JPA Concept, estimated time to creation, a budget, and a more detailed description of

the PIER JPA Concept. PIER JPA Concept Creation Plan would need to be approved by the Energy Commission with instructions to staff to pursue implementation.

- Selection and approval of the JPA partner(s). It would be necessary to select partner(s) that contribute the appropriate capabilities (e.g., technical expertise, research program management, market connections), as well as flexible contracting and staffing guidelines (e.g., oversight exemption from the Department of General Services, Department of Finance, State Personnel Board, Public Employment Relations Board, Department of Personnel Administration). JPA partner selection would need to be approved by the governing authorities of all partners and by the Governor's Office and the Legislature.
- Development and approval of the PIER JPA Concept charter. Energy Commission staff and JPA partners' staff would develop the charter with cooperation from the Governor's Office and the Legislature. The PIER JPA Concept charter would need to be approved by the Energy Commission and the PIER JPA partner(s). The Department of General Services must authorize the Energy Commission's formation of the PIER JPA Concept.
- Implement the PIER JPA Concept. It is estimated that fully implementing the PIER JPA Concept may take 1 – 2 years without legislation and 2 – 3 years with legislation.

PIER PBC Concept

As with all public benefit corporations, the Energy Commission would need to register the PIER Public Benefit Corporation (PBC) Concept with the Internal Revenue Service and the California Secretary of State to achieve tax-exempt status. It is unclear if new legislation is needed to create the PIER PBC Concept. While a PIER PBC would be able to administer most aspects of the PIER program (further legal analysis is needed before it can be confirmed absolutely), final responsibility for program decisions would remain with the Energy Commission, absent an amendment to the PIER enabling legislation. However, the Energy Commission could contract with a PBC to provide specific, selected program implementation responsibilities without delegating its authority for PIER. Examples of steps to implement a PIER PBC Concept include the following:

- Preliminary approval of the PIER PBC Concept. The Energy Commission would need to obtain preliminary approval and support from the Governor's Office and the Legislature, especially the energy committee chairs, to pursue implementation.
- Development and approval of a PIER PBC Concept Creation Plan. The plan would include a preliminary determination of the extent to which the Energy Commission can delegate authority over the PIER program to a PBC without legislation, more detailed steps to create a PIER PBC Concept, estimated time to

creation, a budget, and a more detailed description of the PIER PBC Concept. Significant uncertainties need to be addressed regarding legislation needed to authorize the Energy Commission to contract with the PIER PBC Concept to provide support services and for the Energy Commission staff to work at the PIER PBC Concept while retaining civil service status. The plan would likely call for simultaneously pursuing legislation and continued planning for the creation of the PIER PBC. The PIER PBC Concept Creation Plan would need to be approved by the Energy Commission with instructions to staff to pursue implementation.

- Development and approval of the PIER PBC Concept articles of incorporation and bylaws. Energy Commission staff would develop the articles of incorporation and bylaws with cooperation from the Governor's Office and the Legislature. The PIER PBC Concept articles of incorporation and bylaws would need to be approved by the Energy Commission and filed with the appropriate authorities.
- Development and approval of enabling legislation. The necessary enabling legislation is drafted by the Energy Commission and passed by the Legislature, signed by the Governor, and takes effect.
- Implement the PIER PBC Concept. It is estimated that fully implementing the PIER PBC Concept may take 1 – 2 years without legislation and 2 – 3 years with legislation.

INTRODUCTION

About This Document

The Independent Review Panel (IRP) for the Public Interest Energy Research (PIER) Program recently issued a report assessing the strengths and weaknesses of the PIER Program (*California Public Interest Energy Research Independent PIER Review Panel Report*, March 2004). The IRP report discusses many aspects of PIER's overall performance, noting that the program had improved since a similar review was conducted in 2001. However, it specifically states that the current organizational structure of PIER within the California Energy Commission (Energy Commission) is not optimal for research, development and demonstration (RD&D) and hinders the ability of PIER to perform as a first-class RD&D organization.

The IRP report identified three alternative organizational constructs for PIER that it thinks could significantly improve the identified problems:

- Internal Re-organization (Separate RD&D Division within the Energy Commission)
- Joint Powers Authority (JPA)
- Public Benefit Corporation (PBC).

The IRP asked the Energy Commission prepare an assessment of these three alternatives and present the results to the IRP by July 27, 2004 for inclusion in the IRP's final report, which will be delivered to the Legislature in early 2005. This report represents the Energy Commission's efforts to prepare such an assessment. This report has not been approved by the full Commission and does not necessarily represent agreement with the IRP's preliminary report.

Two important developments have occurred during the preparation of this report. One is the California Public Utility Commission (CPUC) decision on natural gas RD&D, which could expand the Energy Commission's RD&D responsibilities. The other is finalization of the Governor's California Performance Review, which could potentially reorganize state government, including the Energy Commission. This report does not reflect issues associated with either of these developments.

PIER Legislative Objectives

In 1996, the Legislature established the PIER Program at the Energy Commission, funding the program with payments from investor-owned utility (IOU) ratepayers. Assembly Bill (AB) 1890 was enacted to ensure that the benefits obtained from important public purpose programs, such as public interest energy RD&D, would not be lost in the newly deregulated environment. Starting on January 1, 1998 (and now extended through 2012), Public Utilities Code (PUC) Section 381 required that California's electric investor-owned utilities collect at least \$62.5 million annually to fund

energy-related RD&D activities “not adequately addressed by competitive and regulated markets.” In AB 1890, the Energy Commission was authorized to receive and administer these funds.

In September 2002, SB 1038 was signed into law. This bill restated the goal of the PIER Program and requires that the Energy Commission use a portfolio approach to achieve the following goal: “The goal of the program is to provide public value for the benefit of California and its citizens through the development of technologies which will improve environmental quality, enhance system reliability, increase efficiency of energy-using technologies, lower system costs, or provide other tangible benefits.” With its own robust research program, the state can more effectively and persuasively influence federal policies and spending patterns on energy RD&D. When RD&D is coordinated with and guided by state energy goals, the policies become catalysts for funding and implementing new strategies and technology, which in turn drives more effective regulatory policies and market incentives that will keep California’s future looking bright.

To address its goal, the PIER Program has been working to develop information and technologies that address critical public interest needs and can help avoid the next energy crisis. The program brings together parties with differing aims, creates better pathways to market for emerging technologies, and informs policymakers on trends and technical matters. Through its efforts, the PIER Program helps resolve issues and facilitates the development and deployment of technologies with broad public benefit, focusing on public interest concerns not adequately addressed in the private or academic sectors.

In the 2003 Integrated Energy Policy Report (IEPR), the Energy Commission concluded that “California’s energy system appears stabilized for now, but faces critical challenges in the years ahead,” and that targeted research and development is a “necessary means of introducing new, more efficient, and cleaner technologies into the market”. To this end, the PIER Program addresses California energy policies and implementation programs in four key areas:

1. Enhancing energy efficiency, demand-side management, and demand response programs
2. Diversifying electricity supplies by investing in renewable and other clean energy technologies
3. Strengthening California’s energy infrastructure to provide for reliability
4. Continuing California’s environmental stewardship.

California’s energy mix and policies will always differ from that of the nation as a whole, which is why the state must have its own energy RD&D programs. California’s energy policies emphasize energy efficiency, demand response, and renewable energy in contrast with the federal government’s focus on coal and nuclear research. Moreover, PIER focuses on California’s unique environmental, economic, and demographic challenges, allowing state policy makers to craft state-specific solutions to address the state’s energy needs. Without a state-funded program, California would have to rely on energy technologies and solutions developed at the federal level and without specific

considerations of the state's unique resources; range of business needs; diverse geography, climatic regions, and ecosystems; and societal needs.

In summary, the PIER Program is uniquely positioned for solving California's energy problems from an RD&D perspective for the following reasons:

- Close alignment with California's energy and environmental initiatives, policies and implementation programs
- Focus on RD&D to benefit the electricity consumers with no commercial bias
- Effectively leverages its funds through collaboration with other research organizations
- Provides a high return on invested funds
- Addresses California-specific issues and needs not met by federal and other research efforts.

Independent Review Panel

Public Resources Code Section 25620.9(a) directed that an independent panel be established to conduct a comprehensive evaluation of the PIER Program. The evaluation was to include a review of the public value of programs including, but not limited to, such factors as the monetary and non-monetary benefits to public health, the environment of those programs and the benefits of those programs in providing funds for technology development that would otherwise not be adequately funded.

The first PIER Independent Review Panel (IRP) evaluated the PIER Program from February 1999 through March 2001. The findings of this evaluation were provided to the Governor and Legislature in the form of two reports released March 2000 and March 2001. The second IRP started in June 2003 and will evaluate the PIER Program through January 2005. The Energy Commission requested the assistance of the California Council on Science and Technology (CCST) to nominate IRP members and manage the review process. The IRP members were selected because of their competencies in areas necessary to evaluate the PIER Program given their broad experience in RD&D program management and execution. A preliminary report to the Governor and Legislature was submitted in March of 2004, and a final report needs to be submitted no later than June 30, 2005.

Problem Statement

In its March 2004 report, the IRP stated "the PIER Program has significantly improved since the last review in 2001. However, fundamental organizational limitations hinder the ability of PIER to become a first-class R&D organization. The current organizational structure of the Energy Commission is not optimal for R&D." Throughout the report, it specifically identifies problems with the current organizational structure that need to be addressed (*Figure 1*).

Figure 1: Problem Statements in March 2004 IRP Report

March 2004 IRP Report	Problem Statements (P)
Legislative Objectives and Strategy	
p. 27 and 32	<i>P1. The CEC is a regulatory agency with a near-term focus.</i>
Processes	
p. 13 and 17	<i>P2. The special needs of managing R&D have been achieved primarily through informal arrangements and not by specific organizational structure, which is an important requirement for a first class research program.</i>
p.19	<i>P3. [Staff reductions have] led to awarding larger research contracts as a means to manage with staff limitations.</i>
p.19	<i>P4. [Staff reductions have lead to] large-scale outsourcing of blocks of R&D contracts to organizations outside the CEC. This makes it more difficult to guarantee that PIER projects adhere to the CEC goals and PIER objectives.</i>
p. 26 and 31	<i>P5. Cumbersome administrative practices, [such as the contract preparation process, remain a] major concern.</i>
p. 27 and 32	<i>P6. The CEC is a regulatory agency with limited flexibility.</i>
Resources	
p. 13, 18, 19, and 32	<i>P7. Civil service requirements and, more recently, budgetary issues have prevented the filling of needed staff positions and hiring of expert [contract staff].</i>
p. 13 and 19	<i>P8. PIER may have a lack of "intellectual critical mass" and a severely reduced knowledge base in some important areas.</i>
p 17-18	<i>P9. Recent staff and budget cuts within the CEC affected the PIER Program in a manner disproportionate to cuts in other divisions and programs of the CEC.</i>
p. 27 and 32	<i>P10. Under the current civil service rules, it is difficult to attract and retain top research managers.</i>
p.19 and 32	<i>P11. The extremely limited travel budget for PIER staff hinders staff professional development and key interchanges with staff and stakeholders in other programs, including the U.S. DOE. These constraints severely affect the ability of PIER staff to keep up to date on scientific, technological and policy issues relevant to the PIER Program and to develop collaborative, crosscutting programs.</i>
Organization	
p. 13 and 27	<i>P12. [PIER has yet to] acquire division status within the CEC with the authority and resources needed by a "high-quality" research program.</i>
p. 13, 17, and 18	<i>P13. [As a contract employee], the current PIER Program Manager does not have direct control over staffing for the program.</i>
p. 13 and 18	<i>P14. The PIER Program Manager does not have the authority to sign research contracts or to manage budgets, because the civil service structure of the CEC does not allow a contractor to take on these responsibilities.</i>
p. 17 and 31	<i>P15. The characteristics of the CEC's organizational culture and bureaucracy conflict with the characteristics of an organizational environment that facilitates a superior R&D program.</i>
p. 18	<i>P16. [The PIER Program Manager needs to be formally] accountable for PIER, and responsible for presenting and defending the program to the CEC, the external oversight agencies, the Legislature, and the Governor.</i>
p. 14	<i>P17. There is an urgent need for the CEC to develop a management plan and a formal organizational structure to properly staff and more effectively manage the program.</i>
p. 27 and 32	<i>P18. Managers do not have the independence and authority they need to be as effective as possible.</i>
p. 27 and 32	<i>P19. The CEC is a regulatory agency with a risk-averse culture.</i>

The March 2004 preliminary IRP Report devotes significant attention to the roles and responsibilities of the Program Director. There was some ambiguity, however, regarding whether the core problem stems from the status of the Program Director as a contractor or from the authority vested in the position. A subsequent discussion with the panel chair confirmed that the problem stems from authority and the IRP wants full contract, staffing and budget approval to be vested with the Program Director (7/7/04 teleconference).

Analytical Approach

In response to the IRP request, the Energy Commission defined an analytical approach to evaluate the three alternative organizational constructs: a) an internal option within Energy Commission, b) Joint Powers Authority, and c) Public Benefit Corporation. This approach consists of six steps:

1. Identify organizational problem statements in the IRP preliminary report, dated March 2004
2. Identify the guiding principles that make PIER a unique program
3. Identify the attributes of a first-class public interest RD&D organization
4. Develop a concept organization for each of the three alternative organizational constructs that addresses the guiding principles, problem statements and attributes
5. Identify implementation implications for each alternative
6. Compare the organizational concepts based on the priorities used for their design.

All three of the concept organizations were designed according to same set of priorities:

- Meet legislative intent when establishing the PIER Program including retaining strong Energy Commission oversight, linkage with state energy policies and policymakers, and coordination with other state agencies
- Solve problem statements asserted by the IRP report
- Incorporate attributes of a first-class public interest RD&D organization
- Minimize disruption to the PIER Program during transition to a new organizational structure.

The assessment of each organizational concept focused on the implementation requirements to address the guiding principles, the IRP problem statements, and the attributes of a first-class RD&D public interest organization. The report also looks at the impact each concept would have on the Energy Commission.

Guiding Principles

Any PIER organizational structure will need to abide by the guiding principles that make PIER a unique program (*Figure 2*). These guiding principles are derived from the PIER Program's enabling legislation (e.g., AB 1890, SB90, SB 1194, AB 995, SB 1038) and

the Energy Commission’s response to the legislative requirements in implementing the program (e.g., PIER Five Year Research Plan, PIER Vision, PIER Mission, Integrated Energy Policy Report, Energy Action Plan). Staff has ensured that the organizational concepts presented in this report adhere to these guiding principles.

Figure 2: Guiding Principles

Guiding Principles
Integrated with state energy policy
Funds public interest energy research that benefits California electric ratepayers
Complimentary with other public and private sector RD&D efforts and implementation programs
Non-duplicative of private sector research
Clear and manageable program mission, vision and strategic objectives
Conveys high-impact information for decision making to policymakers in a timely manner

Attributes of a First-Class Public Interest RD&D Organization

PIER, as a public interest RD&D program, faces most challenges commonly encountered by both private sector RD&D organizations as well as public interest programs with legislative oversight. PIER needs to stay at the forefront of innovation in the ever-changing energy sector. Moreover, like a public interest program with legislative oversight, PIER needs to conform to public interest organizational and operating principles as defined by the state legislature. For the PIER Program to achieve its stated objectives, it will need to adopt an organizational structure that meets the attributes in each of the elements of a first-class public interest RD&D (*Figure 3*). These attributes were derived from a combination of comments from the IRP Report and input from PIER staff.

Figure 3: Attributes of a First-Class Public Interest RD&D Organization

Attributes of a First-Class Public Interest RD&D Organization (A)
Legislative Objectives and Strategy
A1. Synergies with other government incentive, standard-setting and regulation programs (IRP Report p. 15 and 17)
A2. Flexibility to fund the short, medium or long-term research that best serves the needs of ratepayers (PIER Staff)
Processes
A3. Flexibility to use a variety of contracting mechanisms (e.g., sole source, competitive solicitation) and retain intellectual property features currently enjoyed by PIER (IRP Report p. 24-26 and PIER Staff)
A4. Risk-taking culture, consistent with program mission (IRP Report p. 39)

A5. Collaborates effectively with state and federal agencies, companies and other research organizations (IRP Report p. 15-16, 17, and 19)
A6. Functional and meaningful program plan and transparent planning process (IRP Report p. 14)
A7. Clearly established budgeting process for RD&D and program operations (IRP Report p. 14)
A8. Creates and tracks value from its RD&D efforts (e.g., public IP, technology commercialization, regulation implementation) (PIER Staff)
Resources
A9. Ability to add or reduce contract staff as workload requires (IRP Report p. 13, 17 and 19)
A10. Ability to attract and retain high quality staff (IRP Report p. 13 and 39)
A11. Program director controls the authorized budget, staff and contract staff (IRP Report p. 13 and 18)
Organization
A12. With approval from the board, the Program Director has the flexibility to reorganize the program in response to changing conditions (PIER Staff)
A13. Program director has authority and accountability for the following, consistent with approved budgets and plans: -Portfolio of program RD&D -Resource allocation in terms of staffing and budgets -Staff development (e.g., training, conference attendance, travel) -Hiring and firing staff -Organization and structure -Contract staffing flexibility -Signing contracts -Presenting and defending program to other interests -Developing the strategic direction of program and strategic relationships (IRP Report p. 18 and 37-38)
A14. Program director is responsible for presenting and defending the program to the CEC, external oversight agencies, the Legislature and the Governor (IRP Report p. 18 and 38)
A15. Program director is accountable for the program's performance (IRP Report p. 18)
A16. Board-level entity provides checks and balances for Program Director (PIER Staff)

Organization of Report

This IRP response report is structured around the three alternative organizational constructs. The next section focuses on the Internal Option Concept. It describes the proposed organizational structure, discusses governance issues, discusses key roles and responsibilities of the Program Director, analyzes required changes to current PIER operating processes, and assesses the implementation implications of having the option address the problem statements in the IRP report as well as the guiding principles and the attributes of a first-class public interest RD&D organization. The following two sections focus on the PIER JPA Concept and the PIER PBC Concept, respectively. The last section of the report provides a comparison of the three organizational concepts.

PIER INTERNAL OPTION

Existing Structure

The Energy Commission has five Commissioners, appointed by the Governor to 5-year rotating terms, who, with a quorum of at least three, can make decisions on behalf of the Commission. The Commission conducts its official business at regularly scheduled Business Meetings held roughly every two weeks. Within statutory limits, the Commission can delegate certain responsibilities.

There is a Policy Committee for Research and Development made up of two Commissioners. This Committee makes decisions on the overall direction and content of the PIER Program and they make recommendations on individual research contracts to the full Commission, which decides whether to support these recommendations at a Business Meeting.

The Executive Director is responsible for the management of Energy Commission staff, and for planning the Commission's budget. Four Deputy Directors, each managing a Division, report to the Executive Director. The vast majority of the Energy Commission staff who work on the PIER Program resides in the Research and Development Office, which is part of the Technology Systems Division (TSD). Fewer than five staff from other divisions manage individual projects part time.

In addition to the four Divisions, the following groups provide support services to the Commission: Office of the Chief Counsel (reports directly to the Energy Commission Chair), Office of Governmental Affairs, Media and Public Communications, Public Adviser's Office (reports directly to the Governor), Hearing Adviser's Office, Information Technology Services Branch, Financial Services Branch and the Human Resources and Support Services Branch.

Program and organization structure within the Commission varies depending on the scope of the program, the level of resources and range of technical expertise involved, and degree of interaction with other programs. In most cases, overall responsibility for major programs is assigned to Deputy Directors while components of such programs or minor programs are assigned to Office Managers. Offices are typically composed of supervisors with responsibility over a group of technical staff, contract managers, project managers, and support staff. Senior technical experts may report either to Deputy Directors or Office Managers. As program managers, the Deputy Directors and/or Office Managers are responsible for program direction, scope and schedule; program staff, operation, and contract resources; and policy recommendations. Committees, composed of two Commissioners, are the decision-makers on policy related to the program. In terms of contracts, the chain of command provides quality assurance functions while actual approval authority rests with the full Commission, subject to applicable control agency oversight.

As a result of the recommendations made by the first IRP, the PIER Program's structure is somewhat different than that of programs in other Energy Commission divisions. For example, the PIER Program Director reports directly to the Executive Director. This means that the position is equivalent to that of the TSD Deputy Director and the Program Director participates in the regular meetings of the Deputy Directors, alongside the Deputy Director for TSD. The PIER Deputy Division Chief reports to the Program Director, and by agreement, is primarily responsible for day-to-day operations of the PIER Program. There are six Program Area Leads who report to the Deputy Division Chief and who are responsible for planning and leading a large portion of the PIER Program. Each Lead shares one of four Supervisors who are responsible for managing the technical staff. Each Supervisor works closely with their Lead in order to provide the resources to accomplish the mission of the respective Program Area. The Supervisors report to the Deputy Division Chief, who is also the acting Office Manager.

Changing the Existing Structure

State personnel, procurement, and contracting practices are established through policies and procedures developed by control and oversight agencies. An effective Internal Option Concept that addresses all of the noted structural problems and attains the attributes of a first-class public interest research organization will require exemptions from oversight of multiple State control agencies, such as:

- The Department of Finance (DOF). DOF provides oversight and control of agency budgets and information technology.
- The Department of Personnel Administration (DPA). The DPA represents the Governor as the "employer" in all matters concerning California State personnel employer-employee relations. As such, they are responsible for all issues related to collective bargaining, including salaries and benefits, job classifications, and training.
- The State Personnel Board (SPB). The SPB is responsible for California's Civil Service System. SPB ensures that the State's civil service system is free from political patronage and that employment decisions are based on merit. The SPB provides a variety of recruitment, selection, classification, appellate, goal setting, training, and consultation services to state departments. The SPB also promotes efficiency and economy in state government and is a leader in efforts to improve and reform civil service practices.
- Public Employment Relations Board (PERB). PERB administers the collective bargaining statutes covering employees of California's public schools, colleges, and universities, employees of the State of California.
- The Department of General Services (DGS) is a large diverse agency that provides a wide variety of services to state agencies. The Energy Commission works closely with the Office of Legal Services (OLS), which is responsible for

contract review and approval on behalf of the state. OLS also provides preventive legal advice for state agencies regarding contracting issues, training on state contracting and leadership for constructive change in state contracting processes.

In addition, changes in civil service classifications, pay scales, employee benefits and rights, etc. will require discussion with the civil service unions currently representing employees at the Energy Commission:

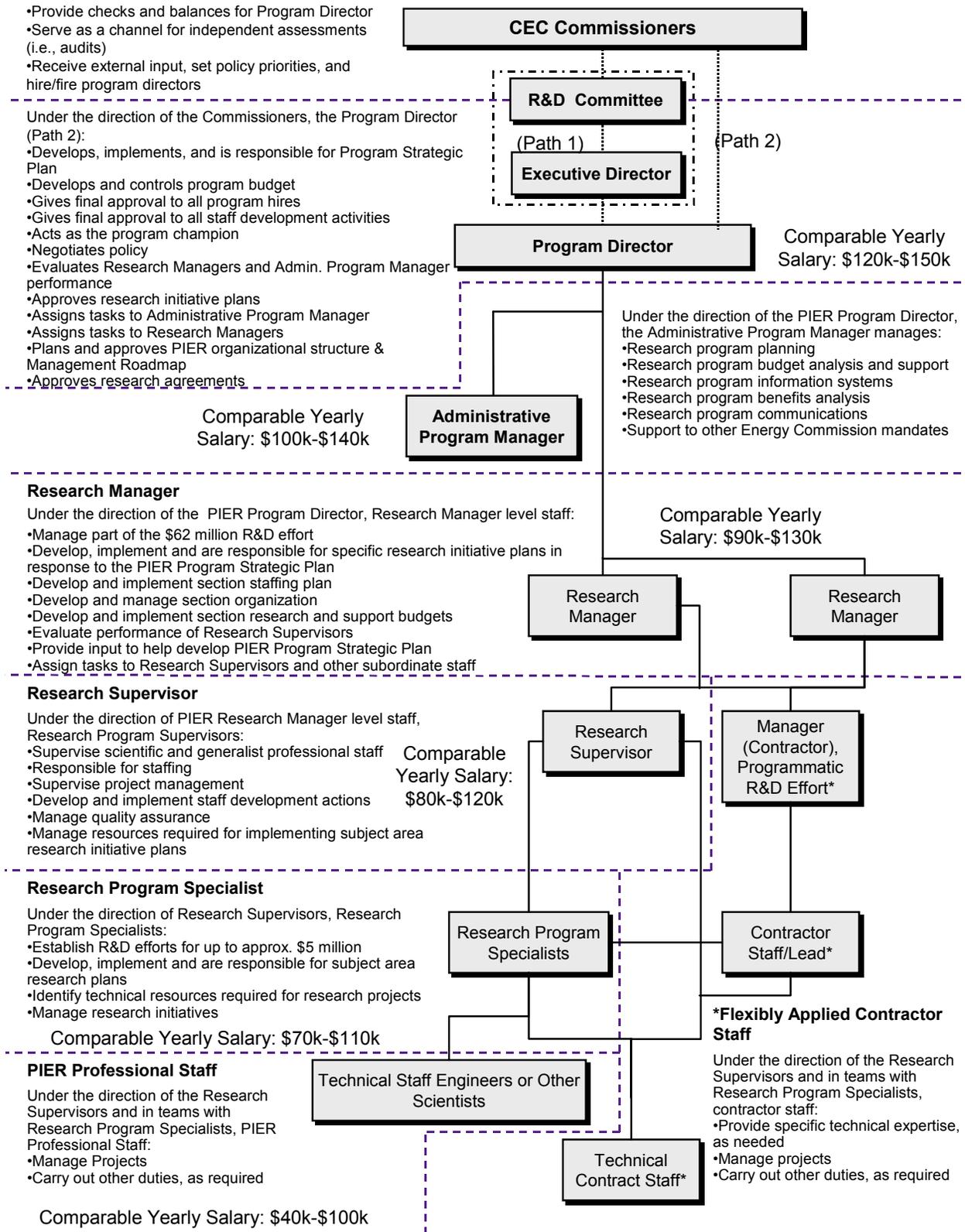
- The California Association of Professional Scientists
- Professional Engineers in State Government
- The California State Employees Association.

These parties constitute the stakeholders involved in the process of legislatively creating the Internal Option Concept.

Internal Option Concept

The Internal Option Concept (*Figure 4*) creates a Research and Development Division within the Energy Commission. It is possible to attain the organizational attributes and solve the problems by a combination of re-organizing the Energy Commission's research structure and implementing administrative, legislative, regulatory and changes to organizational culture.

Figure 4: PIER Internal Option Concept



The approach to developing the organizational structure in Figure 4 began with the information in the IRP report dealing with the roles and responsibilities of the Program Director and the Research Managers. The roles and responsibilities for each organizational stratum were developed using the information from the IRP report and staff knowledge of typical Energy Commission responsibility hierarchies. For instance, the report gave considerable detail concerning the abilities and authority of the Program Director. Less information was provided for the Research Managers and little if any provided for the remaining strata.

The structure in Figure 4 shows two reporting options for the Program Director: reporting through the Executive Director and RD&D Committee to the full Commission (Path 1); and reporting directly to the full Commission (Path 2). In the first option, the PIER Program Director would be under the supervision or administrative direction of the Executive Director in the same manner as Deputy Directors of other programs within the Commission. The R&D Committee would provide policy direction for the PIER program. In the second option, the PIER Program Director would report directly to the full Commission. This relationship would require a change in legislation. Under both options, Research Managers who have responsibility for large portions of the research program report to the Program Director. Research Supervisors report to the Research Managers, manage programmatic efforts in support of the overall program and supervise staff and provide the resources to implement the research initiatives of the Research Managers. Research Program Specialists are responsible for small portions of the research program and lead the team of Technical Staff, Engineers or Scientists who work to implement this portion of the research plans. As needed, Contract Staff can be brought in to assist one or more portions of the Program. The Administrative Program Manager, with responsibility for managing PIER administrative functions such as program planning, budgeting and benefits analysis reports directly to the Program Director. Staff assigned to administrative functions report to the Administrative Program Manager.

To address the IRP's concerns about competitive salaries (attracting and retaining top-quality staff), Energy Commission staff conducted an informal salary survey of the following research organizations:

- New York State Energy Research and Development Authority (NYSERDA)
- Lawrence Berkeley National Laboratories, Environmental Energy Technology Division (LBNL)
- University of California, California Institute for Energy and Environment (CIEE).

Each organization was sent the organizational structure shown in Figure 4 and asked to provide the salaries of persons with responsibilities similar to those depicted. The salary ranges shown in Figure 4 reflect those provided from these research institutions.

With the exception of the PIER Program Director, existing state employee classifications are consistent with the roles and responsibilities in Figure 4. Achieving these roles and responsibilities for the Program Director will require obtaining administrative or

legislative exemptions from several control agencies. In addition, no existing state classifications have salary levels comparable to those shown in Figure 5. Therefore, Figure 4 uses proposed, new classifications that would address both the salary levels and responsibilities of concern in the IRP report.

Figure 5: Results of the Informal Salary Survey

Salary Survey Results					
PIER Strata	Energy Commission	NYSERDA	LBNL	CIEE	Comparable Median
Program Director	CEA III \$96-\$106k	Executive Director \$120-\$150k	Division Director \$135-\$215k	Program/Exec. Director \$150k+	Program Director \$120-\$150k
Research Manager	ECS III \$65-\$79k Office Manager I \$72 - \$79k Office Manager II \$79 - \$85k	Program Directors \$90-\$100k	Department Head \$145 - \$155k	Program Manager \$85-\$110k	Research Program Manager \$90-\$130k
Project/ Technical Managers	ECS II \$59-\$71k	Program Managers \$78-\$90k	Group Leader \$120-\$145k	Project Manager \$75-\$85k	Research Supervisor \$80-\$120k
		Project Managers \$40-\$80k	Deputy Group Leader \$110-\$120k		Research Program Specialist \$70-\$110k
			Scientist and Engineer \$90-\$120k		Professional Staff \$40-\$100k

Internal Option Concept Governance

Board level responsibilities would be provided in the Internal Option Concept by the full Energy Commission. The Program Director would receive policy direction from and responsibilities delegated by the Commissioners. Under Path 1, the Commissioners would retain responsibility for the policy decision-making, strategic guidance and approval of annual budgets and individual contracts for the Program. The Executive Director would retain responsibility for the hiring/firing of the Program Director for establishing the overall organizational structure, and coordination between programs. The individual with primary accountability for the PIER Program would be the PIER Program Director. The Commissioners would have certain roles and responsibilities for the Program such as: providing policy and strategic guidance; approving annual budgets, organizational structure, contracting procedures and individual contracts; hiring/firing the Program Director; applying checks and balances (audits, oversight committees); and having the ultimate accountability for the program. In lieu of the broad authority envisioned by the IRP, under Path 1 the program director would have authority comparable to other deputy directors in the Energy Commission.

The governance as suggested by the IRP and shown as Path 2 in Figure 4 is different from the governance of other programs in the Energy Commission, being outside the normal chain of command, in which the Deputy Directors of other divisions report to the Executive Director.

Internal Option Concept Operating and Support Processes

The Energy Commission is subject to the Ralph M. Brown Act. Also, the Energy Commission must comply with the California Public Records Act governing disclosure of public documents, along with the Fair Political Practices Act prohibiting conflicts of interest and requiring periodic financial interest disclosures. Chapter 7.1 in the Warren-Alquist Act contains the enabling legislation that establishes the goals, requirements and flexibilities for the PIER Program. There are several flexibilities related to contracting, the most notable of which concerns making sole-source awards. The Internal Option Concept will maintain and seek to enhance these flexibilities.

The Internal Option Concept assumes that legislative and policy changes have been obtained that grant the Program Director the authority recommended by the IRP, and that the PIER Program obtains the relief it needs from a variety of administrative constraints. For example, under Path 2 the Program Director will have the authority, granted in legislation and delegated by the Commission, to approve contracts; the Program no longer will be subject to Executive Order hiring freezes and the Program will be exempt from certain civil service requirements such as staffing ratios. In addition, new classifications will have been approved that provide for the combination of responsibility and compensation suggested by the IRP’s report.

These changes in authority would allow the PIER Internal Option to have the flexibility required to meet the IRP’s characterization of a first-class R&D organization to freely enter into research and technical support contracts, as well as manage permanent and contract staff as the Program Director deems appropriate.

Assessment of the Internal Option Concept

As the analysis shows (*Figures 6 – 8*), the PIER Internal Option Concept addresses all guiding principles, IRP problem statements and attributes of a first-class RD&D public interest organization. In order to successfully implement this option, substantive, and in some cases unique changes need to be made in legislation, regulation or policy related to contracting, budgeting or personnel practices.

Figure 6: Implementation Requirements for PIER Internal Option Concept to Address Guiding Principles

PIER Guiding Principles	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
Integrated with state energy policy	Administration of the program within the Energy Commission ensures integration with other Commission programs and state energy policy	
Funds public interest energy research that benefits California electric ratepayers	The internal option will continue to embody this principle	

Complimentary with other public and private sector RD&D efforts and implementation programs	The internal option will continue to embody this principle	
Non-duplicative of private sector research	The internal option will continue to embody this principle	
Clear and manageable program mission, vision and strategic objectives	The internal option will continue to embody this principle	
Conveys high-impact information for decision making to policymakers in a timely manner	Administration of the program within the Energy Commission provides the best access to the policy makers and their interests and needs	

The Internal Option Concept addresses all of the guiding principles. The IRP has recommended that the Program Director be granted responsibilities not normally given to one person at the Energy Commission. The Career Executive Assignment (CEA) positions within the state may provide the authority and nearly the compensation recommended by the IRP. The Energy Commission may be required by the Department of Personnel Administration (DPA) to justify the use of an appropriate, high level CEA position. This process takes six to nine months and does not have a guaranteed outcome. In addition, it will be necessary to seek relief from other constraints to make operational the responsibilities granted to the Program Director. These additional changes are discussed in the sections that follow.

Figure 7: Implementation Requirements for PIER Internal Option Concept to Address IRP Problem Statements

IRP Problem Statements	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
P1. The CEC is a regulatory agency with a near-term focus.	Provide autonomy to the program within the Energy Commission	Individual programs are not typically granted autonomy within their host agency. The Legislature and most state agencies tend to have a near-term focus.
Processes		
P2. The special needs of managing R&D have been achieved primarily through informal arrangements and not by specific organizational structure, which is an important requirement for a first class research program.	The internal option creates a Program Director position in its organizational structure, clearer organizational relationships and a separate RD&D division	
P3. [Staff reductions have] led to awarding larger research contracts as a means to manage with staff limitations.	Initiate Budget Change Proposals to increase staffing. Obtain administrative or legislative exemptions from control agency oversight regarding staffing restrictions and reductions	Requires getting BCPs approved If legislation is sought, requires support by the appropriate control agencies

P4. [Staff reductions have lead to] large-scale outsourcing of blocks of R&D contracts to organizations outside the CEC. This makes it more difficult to guarantee that PIER projects adhere to the CEC goals and PIER objectives.	<p>Obtain administrative or legislative exemptions that allow the hiring of temporary staff or specialized expertise</p> <p>Initiate Budget Change Proposals to increase staffing</p> <p>Obtain administrative or legislative exemptions from control agency oversight regarding staffing restrictions and reductions</p>	<p>If legislation is sought, requires support by the appropriate control agencies</p> <p>Requires getting BCPs approved</p> <p>If legislation is sought, requires support by the appropriate control agencies</p>
P5. Cumbersome administrative practices, [such as the contract preparation process, remain a] major concern.	Continue managerial focus on changes that improve program support and administrative practices (e.g. surveying PIER contractors and modeling successful processes from other agencies or institutions)	Certain changes will require support by the appropriate control agencies
P6. The CEC is a regulatory agency with limited flexibility.	Obtain administrative or legislative exemptions that provide flexible contracting, staffing and budgeting	If legislation is sought, requires support by the appropriate control agencies
Resources		
P7. Civil service requirements and, more recently, budgetary issues have prevented the filling of needed staff positions and hiring of expert [contract staff].	Obtain administrative or legislative exemptions that allow the hiring of temporary staff or specialized expertise	If legislation is sought, requires support by the appropriate control agencies
P8. PIER may have a lack of "intellectual critical mass" and a severely reduced knowledge base in some important areas.	<p>Develop expertise in current staff. Attract high level expertise from the outside.</p> <p>Initiate Budget Change Proposals to increase staffing</p> <p>Obtain administrative or legislative exemptions from control agency oversight regarding staffing restrictions and reductions</p>	<p>Requires getting BCPs approved</p> <p>If legislation is sought, requires support by the appropriate control agencies</p>
P9. Recent staff and budget cuts within the CEC affected the PIER Program in a manner disproportionate to cuts in other divisions and programs of the CEC.	Obtain administrative or legislative exemptions from control agency oversight regarding, budgeting and staffing restrictions and reductions	If legislation is sought, requires support by the appropriate control agencies
P10. Under the current civil service rules, it is difficult to attract and retain top research managers.	Better targeting of recruitment efforts. Utilize or create classifications that attract top research managers, offering compensation competitive with other public research organizations.	<p>These classifications require formal approval by SPB</p> <p>Requires getting BCPs approved</p>
P11. The extremely limited travel budget for PIER staff hinders staff professional development and key interchanges with staff and stakeholders in other programs, including the U.S. DOE. These constraints severely affect the ability of PIER staff to keep up to date on scientific, technological and policy issues relevant to the PIER Program and to develop collaborative, crosscutting programs.	PIER Program Director controls the travel budget. This level of authority requires obtaining administrative or legislative exemptions from executive orders and control agency oversight regarding training and travel.	At a minimum, this legislation requires support from DOF
Organization		
P12. [PIER has yet to] acquire division status within the CEC with the authority and resources needed by a "high-quality" research program.	The internal option provides division status for the program	Division status, including changes to staffing ratios and creating new classifications will require Commission reorganization and approval by DPA
P13. [As a contract employee], the current PIER Program Manager does not have direct control over staffing for the program.	The internal option creates a Program Director position (CEA or IJE) in its organizational structure with the special authorities envisioned by the IRP	The staffing authorities envisioned require legislation supported by the appropriate control agencies

P14. The PIER Program Manager does not have the authority to sign research contracts or to manage budgets, because the civil service structure of the CEC does not allow a contractor to take on these responsibilities.	The internal option creates a Program Director position in its organizational structure with the special authorities envisioned by the IRP	Path 1 modification shifts responsibilities from the Program Director to the Executive Director and the R&D Committee (page 18). The signature and budgeting authorities envisioned under Path 2 require legislation supported by the appropriate control agencies
P15. The characteristics of the CEC's organizational culture and bureaucracy conflict with the characteristics of an organizational environment that facilitates a superior R&D program.	Generally addressed by other solutions	Further analysis is needed to identify issues. May need to change internal processes, procedures and organizational culture.
P16. [The PIER Program Manager needs to be formally] accountable for PIER, and responsible for presenting and defending the program to the CEC, the external oversight agencies, the Legislature, and the Governor.	The internal option delegates authority to the Program Director by the Energy Commission	
P17. There is an urgent need for the CEC to develop a management plan and a formal organizational structure to properly staff and more effectively manage the program.	This is currently a priority for the Commission and the essence of this analysis	Requires previously identified changes and exemptions
P18. Managers do not have the independence and authority they need to be as effective as possible.	The internal option provides for a research manager classification that reports to the Program Director	This classification requires approval by DPA
P19. The CEC is a regulatory agency with a risk-averse culture.	Generally addressed by other solutions	Further analysis is needed to identify issues. May need to change internal processes, procedures and organizational culture.

The Internal Option Concept addresses problems identified by the IRP. Three prominent problems are:

1. Division status for the Program
2. Enhanced roles and responsibilities of the Program Director
3. Control over a variety of administrative functions including budgets, hiring, contracting and travel.

Under the Internal Option Concept, the PIER Program will acquire the division status identified in number 1 above. Establishing an R&D division will require a Commission reorganization change and approval from the Department of Personnel Administration. Full implementation of the proposed structure will also require approval from control agencies for new classifications, staffing ratios and salaries shown in Figure 4. For example, this process with DPA takes six to nine months and does not have a guaranteed outcome.

As mentioned in Figure 6, the position of Program Director will need to be created. It will require several steps to grant the Program Director the roles and responsibilities recommended by the IRP in number 2 above. These responsibilities include management of budgets, contracts and grants, human resources, business services and being a signature party to decisions that affect the Program. It will be necessary to obtain administrative and legislative exemptions from several control agencies to allow the Program Director to fully implement the responsibilities assigned to this classification.

One of the most important responsibilities the IRP recommended is the delegation of authority to approve contracts and grants to the PIER Program Director. This is what we understand the IRP meant by the authority to sign research contracts. The Chief Counsel’s office has provided an opinion that unless the Energy Commission’s legislative mandate is changed, the Energy Commission does not have the ability to delegate contract approval authority. Several attempts have been made to enable delegation of contracting authority, both at the Commission level and for the PIER Program. These were brought to the Legislature but were not approved. To meet the desires of the IRP, the Energy Commission needs to acquire this ability through legislative change. Procedures will still need to be worked out with DGS.

There are several hurdles to overcome before the PIER Program will be able to control the administrative functions identified in number 3 above including: delegation of responsibility for budgets, the processing of contracts and grants, human resources, media and communications, governmental affairs, information technology and business services decisions. Some changes need to be made to internal policies and procedures (media and communications, governmental affairs and information technology) in order for the Program Director to have the responsibility and authority recommended by the IRP. Unless administrative exemptions are granted, other changes will require legislation (budgets, processing contract and grants, and human resources) that exempts the Energy Commission and the PIER Program from control agency oversight.

Figure 8: Implementation Requirements for PIER Internal Option Concept to Address Attributes of a First-Class Public Interest RD&D Program

Attributes of a First-Class Public Interest RD&D Organization	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
A1. Synergies with other government incentive, standard-setting and regulation programs	This authority currently exists and the internal option retains these synergies	
A2. Flexibility to fund the short, medium or long-term research that best serves the needs of ratepayers	This authority currently exists and this flexibility is retained in the internal option	
Processes		
A3. Flexibility to use a variety of contracting mechanisms (e.g., sole source, competitive solicitation) and retain intellectual property features currently enjoyed by PIER	This authority currently exists and this flexibility will be retained in the internal option	
A4. Risk-taking culture, consistent with program mission	The internal option’s exemptions, abilities and leadership will facilitate establishing this cultural change	These changes may conflict with other parts of the Energy Commission
A5. Collaborates effectively with state and federal agencies, companies and other research organizations	The internal option’s exemptions and authorities will facilitate these collaborations	Requires exemptions from executive orders and DOF oversight to control the travel budget
A6. Functional and meaningful program plan and transparent planning process	This attribute is embodied in the internal option	
A7. Clearly established budgeting process for RD&D and program operations	This attribute is embodied in the internal option	Exercising control over the Program’s budget requires exemptions from several control agencies

A8. Creates and tracks value from its RD&D efforts (e.g., public IP, technology commercialization, regulation implementation)	This authority currently exists and will be retained in the internal option	
Resources		
A9. Ability to add or reduce contract staff as workload requires	Internal option attains this attribute	Requires exemptions from several control agencies
A10. Ability to attract and retain high quality staff	Internal option attains this attribute	Requires exemptions from several control agencies
A11. Program director controls the authorized budget, staff and contract staff	Internal option attains this attribute	Requires exemptions from several control agencies
Organization		
A12. With approval from the board, the Program Director has the flexibility to reorganize the program in response to changing conditions	The flexibility envisioned by the IRP suggests the need for legislation to supercede requirements for staffing ratios and organization structure	If legislation is sought, requires support by the appropriate control agencies
A13. Program director has authority and accountability for the following, consistent with approved budgets and plans:		
-Portfolio of program RD&D	This authority currently exists and will be retained in the internal option.	
-Resource allocation in terms of staffing and budgets	Obtain administrative or legislative exemptions from control agency oversight regarding, budgeting and staffing restrictions and reductions	If legislation is sought, requires support by the appropriate control agencies
-Staff development (e.g., training, conference attendance, travel)	PIER Program Director controls the travel budget. This level of authority requires obtaining administrative or legislative exemptions from executive orders and control agency oversight regarding training and travel.	At a minimum, this legislation requires support from DOF
-Program staffing	The internal option creates a Program Director position in its organizational structure with the special staffing authority recommended by the IRP	The staffing authority envisioned by the IRP requires legislation supported several control agencies
-Organization and structure	The flexibility envisioned by the IRP suggests the need for legislation to supercede control agency oversight.	If legislation is sought, requires support by the appropriate control agencies
-Contract staffing flexibility	Obtain administrative or legislative exemptions that allow the hiring of temporary staff or specialized expertise	If legislation is sought, requires support by the appropriate control agencies
-Signing contracts (approval)	The internal option creates a Program Director position in its organizational structure with the authority to approve contracts	The approval authority envisioned by the IRP requires legislation supported by the appropriate control agencies
-Presenting and defending program to other interests	The internal option will continue to embody this attribute	
-Developing the strategic direction of program and strategic relationships	The internal option will continue to embody this attribute	
A14. Program director is responsible for presenting and defending the program to the CEC, external oversight agencies, the Legislature and the Governor.	The internal option delegates authority to the Program Director by the Energy Commission	
A15. Program director is accountable for the program's performance	The internal option will continue to embody this attribute	
A16. Board-level entity provides checks and balances for Program Director	The existing Commission will provide this function	

Of the three options, the Internal Option Concept provides the clearest connection to the State of California's energy policy. Legislative and policy changes, including but not limited to those discussed in the previous section will need to be made for the Internal Option to have the other attributes of a first-class public interest RD&D program. The PIER Internal Option Concept appears to have the fewest immediate negative impacts on the Energy Commission. The Internal Option will add staff and responsibility to the Energy Commission. It will be necessary to get approval from DPA and SPB to create the proposed PIER division, which may also include getting approval for a reorganized Energy Commission. As envisioned, PIER will have administrative processes and procedures that differ from the rest of the Commission. There will be a need for administrative support staff to learn the processes and procedures that are unique to PIER. This may cause a burden on the Energy Commission to provide training for the administrative support staff assigned to PIER.

Summary Discussion of the Internal Option Concept

The analysis shows that the PIER Internal Option Concept follows PIER guiding principles, addresses all the problems that the IPR identified with the PIER Program, as well as covers all attributes of a first-class public interest RD&D organization.

The biggest advantage of the Internal Option Concept is that it provides the closest relationship between the RD&D program and state energy policy and implementation programs. As a part of state government and the policy and program agency, it can best be used to inform and respond to policy development and program design. Of the three options, the Internal Option imposes the least disruption on the PIER Program during the transition period. However, there are several hurdles to overcome in order to implement this option, many with long processes that have uncertain outcomes. To obtain the higher levels of authority recommended by the IRP will require legislative and policy changes including exemption to oversight from several state agencies and creating new classifications (e.g., responsibilities, supervision ratios, compensation) for PIER staff. Given the powers vested in the Program Director, there could be staff displacement.

JOINT POWERS AUTHORITY (JPA) OPTION

Description of JPA Option

In the mid 1970's, the California Legislature amended the Government Code to add the ability for two or more public agencies to join together, under a joint powers authority (JPA), to provide more effective or efficient government services or to solve a service delivery problem. According the California Association of Joint Powers Authorities (CAJPA), various state agencies, over 58 counties, 471 cities, 1000 school districts and well over 3500 special districts in California have formed JPAs.

In general, JPAs can be formed for nearly any conceivable public purpose. The benefits sought through a JPA are different for every group of organizations. Some JPAs are formed for risk management purposes, where member organizations pool their assets to promote risk control and pay claims against member entities. Other JPAs are formed to finance infrastructure development or to manage research activities. JPAs are also formed to achieve operating flexibility (e.g., in budgeting, contracting, and/or staffing). As a separate legal entity, a JPA is permitted to adopt its own rules and regulations. Therefore, even though a JPA made up of a city and a county elects to follow the restrictions applicable to the city member, the JPA is not required to follow the specific rules and regulations adopted by the city. Rather, the JPA is required to follow only those restrictions imposed upon the city under state law.

An example of a JPA formed to achieve operating flexibility in addition to another purpose is the California Fair Services Authority (CFSA) which provides risk pooling services to nearly 70 California fair organizations and which has a state agency as one of its member entities, has elected to follow the restrictions imposed on a county member. Therefore, CFSA is not required to obtain Department of General Services' approval when it enters into contracts, even if those contracts otherwise would have required such approval when entered into individually by the state agency member. While no legislation is needed for public agencies to enter into a JPA, CFSA requested legislative approval for two special reasons. First, to allow the California Department of Food and Agriculture to enter the JPA on behalf of the 54 district agricultural associations and 2 citric fruit fairs in order to avoid having to submit the JPA charter to each and every board for approval. Second, to allow the Counties to enter the JPA on behalf of non-profit associations that manage the county fairs. This was necessary because the non-profit associations are not governmental entities and, therefore, cannot legally join a JPA on their own.

Another example of a JPA that provides operating flexibility is the Mountains Recreation and Conservation Authority (MRCA). The MRCA is a local partnership between the Santa Monica Mountains Conservancy, which is a state agency established by the Legislature, and the Conejo Recreation and Park District and the Rancho Simi Recreation and Park District, both of which are local park agencies established by the vote of the people in those communities. The JPA agreement designates the park districts' restrictions as the restrictions applicable to the JPA. As a consequence, even

though the Santa Monica Mountains Conservancy is required to obtain approval of the State Public Works Board before acquiring land, the MRCA is not required to obtain such approval because no such requirement applies to the park districts' acquisition of land. The MRCA JPA did not require legislation, nor did the Santa Monica Mountains Conservancy require legislative approval to enter into the MRCA JPA.

An example of a research oriented JPA is the Southern California Coastal Water Research Project Authority (SCCWRP). This agency is focused on gathering the necessary scientific information so that sewage and storm water dischargers can effectively and cost-efficiently, protect the Southern California marine environment. The SCCWRP is also an example of the flexibility granted to a JPA when forming its governing board. The four largest sewage dischargers (OC Sanitation District, LA County Sanitation District, City of LA Bureau of Sanitation, and San Diego Metro Wastewater Department) contribute \$300,000 a year each to the JPA, while two storm water dischargers (Ventura County Watershed Protection District and LA County Department of Public Works) contribute \$75,000 a year each. However, SCCWRP is governed by a commission controlled by regulators and not by the JPA funding members, as defined by the funding members themselves. The regulators (three regional water quality control boards, the State Water Resources Control Board, and the EPA Region IX) have five voting commissioners while the four sewage dischargers have four voting commissioners. The two storm water dischargers, who fund at a lower level, have non-voting commissioners.

SCCWRP receives 1/3 of its budget from member fees and 2/3 of its budget from research contracts and grants. It has a 35 person staff and performs 70% of its research internally. The commission approves a high-level research plan and operating budget. The executive director manages staffing, budget issues and research activities, periodically reporting the financial status to the commission. No legislation was needed for the state agency members to participate in SCCWRP.

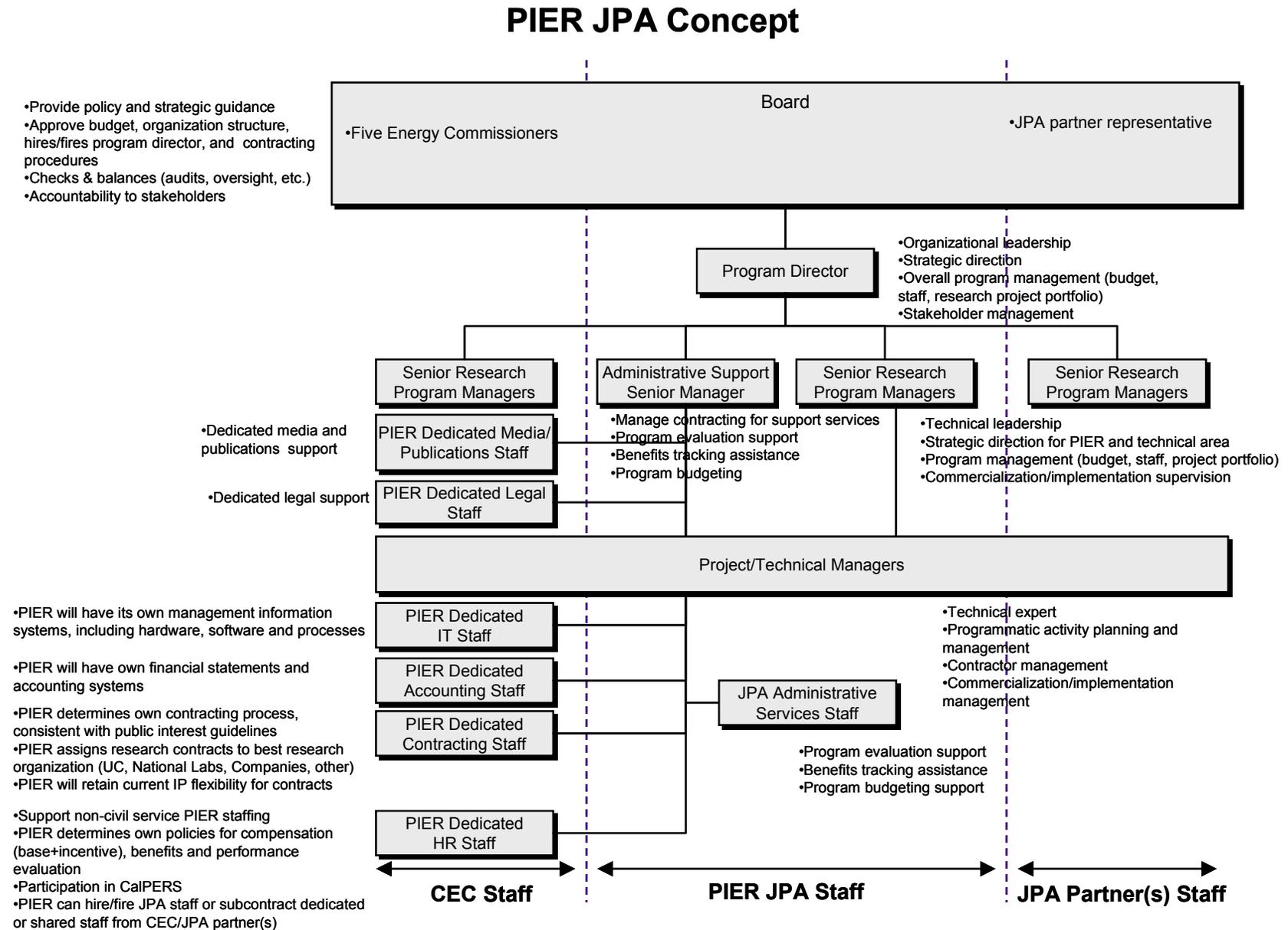
An example of an energy infrastructure JPA is the Transmission Agency of Northern California (TANC). It is comprised of 15 members with electric utility systems, including the California cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara and Ukiah, as well as the Sacramento Municipal Utility District, the Modesto Irrigation District, the Turlock Irrigation District and the Plumas-Sierra Rural Electric Cooperative. No legislation was needed for any of the members to participate in the JPA. TANC was established in 1984 to plan, design and construct the California-Oregon Transmission Project, a 340-mile, 500-kV AC transmission line between southern Oregon and central California. Once the initial project was completed, TANC's primary purpose evolved to provide ongoing electric transmission or other facilities, including real property and rights of way, for its members use. The JPA share allocation and corresponding funding was determined based on the electric loads of each utility. The JPA is governed by a commission, which consists of one representative of each of the members, with votes weighted by the respective percentage of shares owned by the each utility. TANC has no employees, with all functions subcontracted to

third party providers. Maury Kruth, from Navigant Consulting, currently serves as the Executive Director.

PIER JPA Concept

The PIER JPA Concept (*Figure 9*) consists of a high-level definition of the governing board/commission, as well as key program management and support positions. While the IRP identified the University of California as a potential partner, the PIER JPA Concept does not specifically name the partner(s). If the JPA option is selected as the best organizational structure for the PIER Program, further assessment will be required to identify the JPA partner(s) who will contribute the appropriate capabilities (e.g., technical expertise, research program management, and market connections), as well as flexible contracting and staffing guidelines (i.e., oversight exemption from the Department of General Services, Department of Finance, State Personnel Board, Public Employment Relations Board, and Department of Personnel Administration).

Figure 9: PIER JPA Concept



PIER JPA Concept Governance

A JPA has a governing body, typically called a board of directors or a commission. This board can take any form and function the JPA members want it to take. While JPA members need to be a public agency, the JPA could designate board members from public or private organizations, including Investor Owned Utilities, Private Research Organizations, Independent Lawyers and Independent Consultants. The JPA can distribute voting rights among board members in any way it deems appropriate. It also has the ability to create board level committees (e.g., research planning, finance, compensation and audit). In addition, the JPA must have a treasurer.

The PIER JPA Concept has a board of directors comprised of the five Energy Commissioners and one or more representatives from the JPA partner(s). The five Energy Commissioners would constitute a majority of the board. This structure would allow the Energy Commission (and thus the Legislature) to retain oversight of the PIER Program and keep the PIER Program closely linked with California energy policies and governmental programs. The board would have the same roles and responsibilities that were defined in the Internal Option Concept:

- Providing policy and strategic guidance
- Approving budgets, organizational structure, and contracting procedures
- Hiring and firing the Program Director
- Applying checks and balances (e.g., audits, oversight committees)
- Retaining accountability for the program to stakeholders.

A JPA has independent status under public law, and a liability of the JPA cannot be transferred to its member agencies. JPA board members have the same liability immunity as board members in public agencies. However, the JPA is still required to acquire liability insurance for its board members, which in this case would be relatively inexpensive.

The PIER JPA Concept also defines the position of the Program Director, which would have control over the operations of the program. The Program Director's roles and responsibilities include:

- Providing leadership and strategic direction to the organization
- Managing the program (e.g., budgeting, staffing, research portfolio)
- Dealing with external stakeholders (e.g., Legislature, Governor, state energy agencies).

The PIER JPA Concept's governance structure can take any form and function the JPA partners want it to take. It could have a board of directors comprised of the five Energy Commissioners and one or more representatives from the JPA partner(s). A variation of that board could include fewer Commissioners. The position of Program Director can also have variations in its title, authorities and responsibilities.

PIER JPA Concept Operating and Support Processes

JPAs are subject to either the Ralph M. Brown Act or the Bagley-Keene Open Meeting Act, depending on whether the JPA is local or statewide in nature. Also, JPAs must comply with the California Public Records Act governing disclosure of public documents and with the Fair Political Practices Act prohibiting conflicts of interest and requiring periodic financial interest disclosures. JPAs have the flexibility to choose among the less restrictive guidelines for contracting and staffing from its member organizations. In some cases, JPAs might include a member for the expressed purpose of applying the staffing or contractual flexibility that belongs to that member to the JPA.

The PIER JPA Concept assumes that the JPA partner would not require its contracts to be approved by the Department of General Services, nor its staff to follow State civil service requirements (e.g., classifications, pay ranges, staffing ratios), or be subject to Executive Order hiring freezes such as the Energy Commission currently is subject. This would allow the PIER JPA to have the flexibility required by a first-class RD&D organization to freely enter into research and technical support contracts, as well as manage permanent and contract staff as the PIER JPA Board and Program Director deem appropriate.

A JPA can be organized and staffed in any way the member entities wish – by existing employees of one or more of the member entities, by its own employees, by contracts with private persons or entities (including nonprofits), or by any combination thereof. For example, in the case of the CFSA, discussed above, the JPA is fully staffed with its own employees. It has a full package of benefits comparable to its state and local member entities, and it has its own contract with the Public Employees Retirement System (PERS) for health and retirement benefits. As a general matter, employees joining CFSA from other public agencies under contract with PERS can transfer their PERS benefits and credits to CFSA.

The PIER JPA Concept would employ staff from the Energy Commission and from its JPA partner(s) in addition to having its own employees. By employing Energy Commission staff that currently work in the PIER Program, the PIER JPA Concept would retain the staff that the IRP has praised for its “strong knowledge base” and “motivation”. This would minimize disruption to the PIER Program during the transition from the Energy Commission to the JPA. With this core Energy Commission staff, the PIER JPA Concept would be able to “hit the ground running” from the very first day of its existence. The PIER JPA should be physically located within the Energy Commission and nearby buildings to facilitate close contact with other Energy Commission staff and the Commissioners. This would retain the PIER Program’s close link with California’s energy policies and governmental energy programs.

Although a JPA has the ability to hire its own administrative support staff, Figure 8 shows that the PIER JPA Concept would contract with the Energy Commission to provide the same support functions it currently provides the PIER Program, including contract processing, legal support, media support, publications, accounting, human resources and information technology. These services would be done under the PIER

JPA Concept rules, however, not the state’s. Contracting back to the Energy Commission would minimize disruption to the PIER Program during transition by avoiding the need to develop support services from scratch immediately. If, however, the Energy Commission decided it did not want to perform the administrative functions, the PIER JPA would need to choose among hiring internal staff, subcontracting administrative staff from JPA partners or outsourcing to another third party.

Assessment of PIER JPA Concept

As the analysis shows (*Figures 10 – 12*), the PIER JPA Concept addresses all guiding principles, IRP problem statements and attributes of a first-class RD&D public interest organization. Once the JPA agreement is put in place, there are not significant legislative or regulatory changes required. The implementation effort would be centered on establishing the JPA agreement itself.

Figure 10: Implementation Requirements for PIER JPA Concept to Address Guiding Principles

PIER Guiding Principles	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
Integrated with state energy policy	PIER JPA Concept allows program to follow this principle and for CEC commissioners to review compliance.	
Funds public interest energy research that benefits California electric ratepayers	Would be a stated purpose in the JPA agreement	
Complimentary with other public and private sector RD&D efforts and implementation programs	PIER JPA Concept allows program to follow this principle and for CEC commissioners to review compliance	
Non-duplicative of private sector research	PIER JPA Concept allows program to follow this principle and for CEC commissioners to review compliance	
Clear and manageable program mission, vision and strategic objectives	PIER JPA Concept allows program to follow this principle and for CEC commissioners to review compliance	
Conveys high-impact information for decision making to policymakers in a timely manner	PIER JPA Concept allows program to follow this principle and for CEC commissioners to review compliance	

Figure 11: Implementation Requirements for PIER JPA Concept to Address IRP Problem Statements

IRP Problem Statements	Implementation Needed	
	Solutions	Outstanding Issues

Legislative Objectives and Strategy		
P1. The CEC is a regulatory agency with a near-term focus.	PIER JPA Concept takes PIER outside CEC	
Processes		
P2. The special needs of managing R&D have been achieved primarily through informal arrangements and not by specific organizational structure, which is an important requirement for a first class research program.	PIER JPA agreement would provide formal authority to Program Director over the organizational structure	
P3. [Staff reductions have] led to awarding larger research contracts as a means to manage with staff limitations.	PIER JPA agreement would provide the needed flexibility to increase the number of staff required to adequately manage the program	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P4. [Staff reductions have lead to] large-scale outsourcing of blocks of R&D contracts to organizations outside the CEC. This makes it more difficult to guarantee that PIER projects adhere to the CEC goals and PIER objectives.	PIER JPA agreement would provide the needed flexibility to increase the number of staff required to adequately manage the program	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P5. Cumbersome administrative practices, [such as the contract preparation process, remain a major concern.	PIER JPA agreement would provide the needed flexibility to change administrative practices	
P6. The CEC is a regulatory agency with limited flexibility.	PIER JPA Concept takes PIER outside CEC into a new organization with more operational flexibility	
Resources		
P7. Civil service requirements and, more recently, budgetary issues have prevented the filling of needed staff positions and hiring of expert [contract staff].	PIER JPA Concept would not have the civil service requirements	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P8. PIER may have a lack of "intellectual critical mass" and a severely reduced knowledge base in some important areas.	PIER JPA Concept will not have current contract staff restrictions	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P9. Recent staff and budget cuts within the CEC affected the PIER Program in a manner disproportionate to cuts in other divisions and programs of the CEC.	PIER JPA Concept would shield PIER from budget cuts	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P10. Under the current civil service rules, it is difficult to attract and retain top research managers.	PIER JPA Concept would not have the civil service requirements for positions it filled with its own staff	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P11. The extremely limited travel budget for PIER staff hinders staff professional development and key interchanges with staff and stakeholders in other programs, including the U.S. DOE. These constraints severely affect the ability of PIER staff to keep up to date on scientific, technological and policy issues relevant to the PIER Program and to develop collaborative, crosscutting programs.	PIER JPA Concept would not have travel restrictions on its staff	Requires JPA partner's legislative or administrative exemption from DOF oversight
Organization		
P12. [PIER has yet to] acquire division status within the CEC with the authority and resources needed by a "high-quality" research program.	PIER JPA Concept provides the authority and makes available the resources required without restrictions	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P13. [As a contract employee], the current PIER Program Manager does not have direct control over staffing for the program [and cannot hire or fire employees].	PIER JPA Concept provides the Program Director with authority over staffing issues	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P14. The PIER Program Manager does not have the authority to sign research contracts or to manage budgets, because the civil service structure of the CEC does not allow a contractor to take on these responsibilities.	The PIER JPA Concept allows the Program Director to sign research contracts	
P15. The characteristics of the CEC's organizational culture and bureaucracy conflict with the characteristics of an organizational environment that facilitates a superior R&D program.	The PIER JPA Concept would separate PIER from the CEC thereby eliminating conflict	

P16. [The PIER Program Manager needs to be formally] accountable for PIER, and responsible for presenting and defending the program to the CEC, the external oversight agencies, the Legislature, and the Governor.	The PIER JPA Concept makes the Program Director accountable for PIER	
P17. There is an urgent need for the CEC to develop a management plan and a formal organizational structure to properly staff and more effectively manage the program.	The PIER JPA Concept has a formal organizational structure that meets adequate staff and management needs	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P18. Managers do not have the independence and authority they need to be as effective as possible.	The PIER JPA Concept empowers managers to act as effectively as possible	Requires JPA partner's legislative or administrative exemptions from control agency oversight
P19. The CEC is a regulatory agency with a risk-averse culture.	The PIER JPA Concept would separate PIER from the CEC	

Figure 12: Implementation Requirements for PIER JPA Concept to Address Attributes of a First-Class Public Interest RD&D Program

Attributes of a First-Class Public Interest RD&D Organization	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
A1. Synergies with other government incentive, standard-setting and regulation programs	The PIER JPA Concept provides the appropriate organizational structure and oversight mechanism	
A2. Flexibility to fund the short, medium or long-term research that best serves the needs of ratepayers	The PIER JPA Concept allows PIER to determine own research priorities	
Processes		
A3. Flexibility to use a variety of contracting mechanisms (e.g., sole source, competitive solicitation) and retain intellectual property features currently enjoyed by PIER	The PIER JPA Concept retains and builds on current contracting flexibility	Requires JPA partner's legislative or administrative exemption from control agency oversight
A4. Risk-taking culture, consistent with program mission	The PIER JPA Concept provides the appropriate organizational structure	Requires JPA partner's legislative or administrative exemption from control agency oversight
A5. Collaborates effectively with state and federal agencies, companies and other research organizations	The PIER JPA Concept allows PIER to collaborate effectively	
A6. Functional and meaningful program plan and transparent planning process	The PIER JPA Concept governance includes transparency in planning process with appropriate oversight	
A7. Clearly established budgeting process for RD&D and program operations	The PIER JPA Concept defines an inclusive budgeting and planning process	Requires JPA partner's legislative or administrative exemption from control agency oversight
A8. Creates and tracks value from its RD&D efforts (e.g., public IP, technology commercialization, regulation implementation)	The PIER JPA Concept includes monitoring and management of value generated by the program	
Resources		
A9. Ability to add or reduce contract staff as workload requires	The PIER JPA Concept provides staffing flexibility	Requires JPA partner's legislative or administrative exemption from control agency oversight
A10. Ability to attract and retain high quality staff	The PIER JPA Concept provides the organizational structure and compensation to attract high quality staff	Requires JPA partner's legislative or administrative exemption from control agency oversight
A11. Program director controls the authorized budget, staff and contract staff	The PIER JPA Concept gives the Program Director control over budget and staff (internal and contracted)	Requires JPA partner's legislative or administrative exemption from control agency oversight
Organization		

A12. With approval from the board, the Program Director has the flexibility to reorganize the program in response to changing conditions	The PIER JPA Concept allows the Program Director to reorganize the program with authorization from the board	Requires JPA partner's legislative or administrative exemption from control agency oversight
A13. Program director has authority and accountability for the following, consistent with approved budgets and plans: -Portfolio of program RD&D -Resource allocation in terms of staffing and budgets -Staff development (e.g., training, conference attendance, travel) -Hiring and firing staff -Organization and structure -Contract staffing flexibility -Signing contracts -Presenting and defending program to other interests -Developing the strategic direction of program and strategic relationships	The PIER JPA Concept gives the Program Director authority over all of these issues	Requires JPA partner's legislative or administrative exemption from control agency oversight
A14. Program director is responsible for presenting and defending the program to the CEC, external oversight agencies, the Legislature and the Governor.	The PIER JPA Concept makes the Program Director responsible for communicating the program to external stakeholders	
A15. Program director is accountable for the program's performance	The PIER JPA Concept makes the Program Director accountable for the program	
A16. Board-level entity provides checks and balances for Program Director	The PIER JPA Concept provides the appropriate oversight mechanisms	

The Energy Commission will require approval from the Department of General Services to enter into any JPA agreement. However, it is unclear if new legislation would be required to create the PIER JPA Concept. As with other state agencies, the Energy Commission does not require special legislation to enter into a JPA to conduct RD&D activities with another agency that has such power, like the University of California. Yet in this case, only the Energy Commission is given legal responsibility for the PIER Program by the legislature. Therefore, legislation would be required to assure a complete delegation of authority for PIER from the Energy Commission to the PIER JPA.

However, it appears that the Energy Commission could contract with a JPA to provide specific, selected program implementation responsibilities without delegating its authority for PIER. In essence this is what the Energy Commission does today because of insufficient staffing in the PIER Program. For example, under an interagency agreement with the University of California Office of the President (UCOP), the Energy Commission has encumbered \$50 million and delegated complete authority to staff, administer and make awards in a number of PIER program activities including the Demand Response Center (\$8 million over 3 years); the Transmission Planning R&D initiative (\$15 million over 2 years); and the Environmental Exploratory Grant Program (\$1 million a year). Another example is the Energy Innovative Small Grants program in which the Energy Commission delegates to the San Diego State University Foundation the responsibility for administering a \$3 million per year program. In each case, the Energy Commission has the final approval on the awards but “out-sources” administration to third parties.

It appears that absent amendment to PIER enabling legislation, the PIER JPA Concept would be able to administer most aspects of the PIER Program (further legal analysis is needed before it can be confirmed absolutely) but final responsibility for Program decisions, such as awarding Program grants, would remain with the Energy Commission. The PIER enabling legislation designates the Energy Commission as the body responsible for fundamental Program decisions, such as determining the types of RD&D activities that are not adequately provided for by competitive and regulated markets, determining whether sole source awards are in the state's best interest, and awarding Program grants. In addition, state employees must make up at least 50% of any scoring panel evaluating Program applications. This means that without legislative changes, the PIER JPA Concept would require contracts to be approved by both the Energy Commission and the PIER JPA Concept board. While it is unlikely that the Energy Commission would reverse or overrule a decision made by the PIER JPA Concept board, since the Energy Commissioners would have a controlling majority of the board, the contracting process will be longer than if it only required approval from one board.

The PIER JPA Concept retains Energy Commission and legislative oversight of the PIER Program, and keeps the PIER Program closely linked to California energy policies and governmental energy programs by:

- Naming all five Energy Commissioners as PIER JPA Concept board members with majority control of the board
- Co-locating the PIER JPA Concept with the Energy Commission.

The PIER JPA Concept minimizes disruptions to the PIER Program during the transition to an external entity by:

- Contracting with the Energy Commission to employ all Energy Commission staff currently working in PIER Program
- Contracting back to the Energy Commission for all the support functions the PIER Program currently funds at the Energy Commission.

The PIER JPA Concept would be a separate entity with new contracting and hiring guidelines and processes. It will also have a mixture of staff from the Energy Commission, the PIER JPA Concept or the JPA's partner organization(s). This could add significant complexity to support functions.

Summary Discussion of PIER JPA Concept

The PIER JPA Concept has many attractive features that are not found in the other options. It provides significant flexibility in terms of assigning the desired governance structure, operating processes, contracting and staffing. The analysis shows that this flexibility could allow the PIER JPA Concept to follow PIER guiding principles, address all the problems that the IPR identified with the PIER Program, as well as cover all attributes of a first-class public interest RD&D organization.

A key consideration in implementing the PIER JPA Concept will be the selection of the JPA partner(s). The JPA partner(s) will need to contribute the appropriate capabilities (e.g., technical expertise, research program management, market connections), as well as flexible contracting, budgeting and staffing guidelines (e.g., oversight exemption from the Department of General Services, Department of Finance, State Personnel Board, Public Employment Relations Board, Department of Personnel Administration).

The Energy Commission would require approval from the Department of General Services to enter into a JPA agreement. It is possible that the Energy Commission could, through a contract, delegate specific PIER Program responsibilities to a JPA without delegating the legislative power for PIER but further legal analysis is needed before it can be confirmed absolutely.

The PIER JPA Concept would have to have all funding agreements approved by the Energy Commission. This would add approximately two weeks time to funding decisions. With legislation authorizing the Energy Commission to delegate complete legal authority for PIER from the Energy Commission to the PIER JPA Concept, the JPA would not need to pass any funding agreements to the Energy Commission for final approval. In either case, the five Energy Commissioners would retain control of the PIER Program. Through them, the Legislature would retain oversight of the PIER Program.

The PIER JPA Concept would suffer minimal “start-up pains”, retain legislative oversight of the PIER Program and keep the PIER Program’s link to California energy policies and governmental energy programs because:

- All five Energy Commissioners would sit on the PIER JPA board and constitute a majority of the board
- The PIER JPA would co-locate with the Energy Commission
- All Energy Commission staff currently working on the PIER Program could continue working in civil service on public interest energy research at the PIER JPA
- All the administrative and support functions currently provided to the PIER Program could be contracted from the Energy Commission.

Note, however, that if some Energy Commission staff did not choose to work at the JPA or were not selected to continue working on public interest energy research at the JPA, this could negatively impact the Energy Commission.

PUBLIC BENEFIT CORPORATION (PBC) OPTION

Description of PBC Option

A California Public Benefit Corporation (PBC), also called a Nonprofit Public Benefit Corporation, is a nonprofit, non-stock corporation organized for charitable, social, educational, recreational or similar purposes formed under the Nonprofit Corporation Law. PBCs are subject only to limitations contained in their articles of incorporation or bylaws.

Like with other organizational structures, PBCs offer a range of benefits. A common benefit sought through PBCs is the ability to have broad participation from public, non-profit, and for-profit organizations. PBCs also offer maximum flexibility to find the best sources of funding. In addition, PBCs can have as much operating flexibility as it defines, offering the potential for great efficiencies.

An example of a PBC is the New York State Energy Research and Development Authority (NYSERDA). Arguably the closest comparable organization to the PIER Program, NYSERDA was created in 1975 by the New York State Legislature to serve as the statewide administrator for New York's various public goods energy programs, including energy research. Its 13-member board is made up of four ex officio members who head cabinet-level state agencies. The remaining nine members are appointed by the governor with approval of the state senate and represent a diverse background (e.g., scientist, engineer, and economist) and include the senior officers of an electric utility and a gas utility. The chairman is an unpaid position, appointed by the governor. The board provides high-level direction and does not get involved in day-to-day operations, like in any corporate setting. The NYSERDA president had a significant freedom to manage the program and hire/fire staff. Policies and guidelines were designed to conform to state standards and stand up to scrutiny, but generally had much more flexibility than those at the average state agencies. All the key administrative functions were housed internally at NYSERDA since it seemed to simplify things for the staff and management. NYSERDA has a staff of 200 people, with an annual budget of \$170 million. The program manages to keep a low program administration cost due to high workloads and concentration in junior staff.

Another example of a PBC analogous to PIER is the San Diego Regional Energy Office (SDREO). This program, funded primarily by California ratepayers under the auspices of the California Public Utilities Commission, provides research, analysis and long-term planning on energy issues for the San Diego region. SDREO began with a Memorandum of Understanding signed between San Diego Gas & Electric (SDG&E), San Diego Association of Governments, and the San Diego State University Foundation with the purpose of supporting the implementation of the 1994 San Diego Regional Energy Plan. In 2001, SDREO was formalized as a PBC when it received around 15% of the public goods funds generated in the SDG&E territory. No special legislation was required to create SDREO, only the same approval from the Secretary of State required for all non-profit corporations. SDREO also pursues private foundation grants, federal

funding (e.g., DOE, EPA), and state funding (e.g., Energy Commission) to support its activities. It currently manages over \$30 million in public funds. The 10-member board incorporates a broad range of stakeholders including politicians, academics, corporate leaders, customers, and community activist groups. A current SDREO board member was still an Energy Commissioner when he joined SDREO's board. The board does not look at the contracts awarded to and by SDREO individually, but expects to see proper controls in place (e.g., contracts require a minimum of three signatures). The executive director has the responsibility to make the organization as effective and cost efficient as possible.

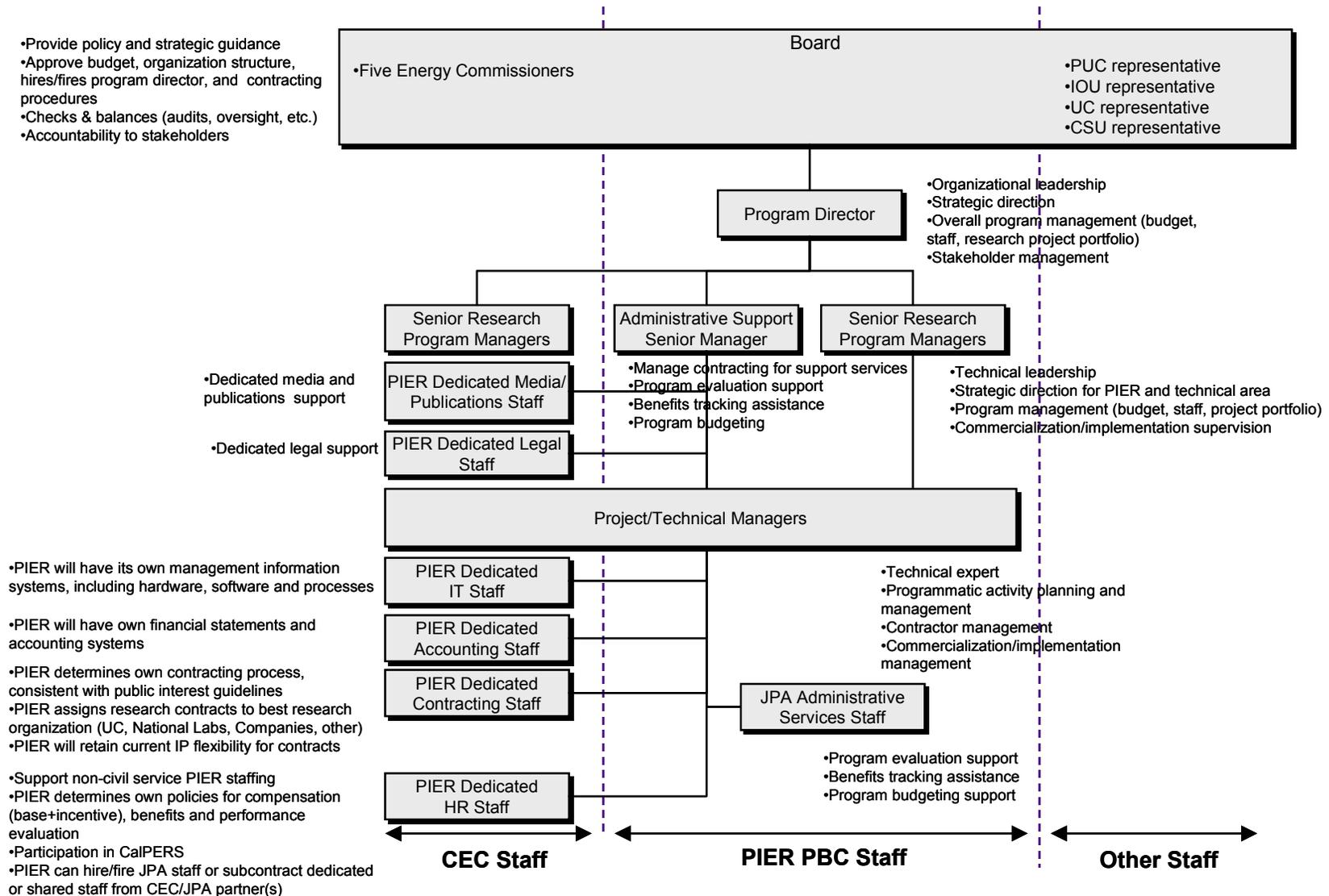
A unique example of a PBC is SAFE-BIDCO. This organization is a 501(c)3 non-profit corporation created over 20 years ago by the state legislature to manage energy efficiency loans to small businesses, landlords, and non-profit organizations. SAFE-BIDCO is governed by a board, which is made up of appointees from the governor's office, Legislature, and related (i.e., funding) state agencies including the Energy Commission. This has helped ensure a close linkage between the program and the state government. With the support of its board, SAFE-BIDCO has repeatedly gone back to the Legislature to expand its capabilities and authority. The most prominent example of this is that of the corporation obtaining the ability to manage Small Business Association (SBA) 7(a) Guaranteed Loans on behalf of the federal government. SAFE-BIDCO does not operate like a public agency, having only 12 employees and contracting out many administrative services to private companies. However it is authorized under state law to participate in CalPERS. The current expectation is that SAFE-BIDCO will begin actively participating in CalPERS in two to three months.

PIER PBC Concept

The PIER PBC Concept (*Figure 13*) consists of a high-level definition of the governing board/commission, as well as key program management and support positions.

Figure 13: PIER PBC Concept

PIER PBC Concept



PIER PBC Concept Governance

A PBC can define its own governance structure and guidelines. Typically, you will find a board of directors that provide guidance and share oversight responsibility over the PBC. Board members can be independent individuals or come from public, non-profit and for-profit organizations, including state agencies, private research organizations, and investor owned utilities. The PBC can distribute voting rights among board members in any way it deems appropriate. It also has the ability to create board level committees (e.g., research planning, finance, compensation, and audit).

Only individuals and not organizations can be board members in a PBC. This means that while the Energy Commission cannot be a board member, its commissioners can be board members. To retain control over a PBC, the Energy Commission could craft the bylaws so that the state agency would have majority control. The bylaws could state that a specified number of board seats would be given to the individuals acting as Energy Commissioners.

The PIER PBC Concept has a board of directors comprised of the five Energy Commissioners and representatives from the Public Utilities Commission, an Investor Owned Utility, the University of California, and California State University. The five Energy Commissioners would constitute a majority of the board. This structure would allow the Energy Commission (and thus the Legislature) to retain oversight of the PIER Program and keep the PIER Program closely linked with California energy policies and governmental energy programs. The board would have the same roles and responsibilities that were defined in the Energy Commission RD&D Division option and the PIER JPA Concept, including:

- Providing policy and strategic guidance
- Approving budgets, organizational structure, and contracting procedures
- Hiring and firing the Program Director
- Applying checks and balances (e.g., audits, oversight committees)
- Retaining accountability for the program to stakeholders.

The Energy Commission appointed board members, as with other board members appointed from state agencies in general, do not have the same liability immunity enjoyed while functioning in their agency role. They would have the same liability as other independent directors. However, their respective state agencies would owe these individuals liability indemnity and the cost of defense. Moreover, as a director of a non-profit, the board members have the duty to ensure that the PBC has liability insurance.

Similar to the PIER JPA Concept, the PIER PBC Concept also defines the position of the Program Director, which would have the control over day-to-day operations of the program. The Program Director roles and responsibilities include:

- Providing leadership and strategic direction to the organization
- Managing the program (e.g., budgeting, staffing, research portfolio)

- Dealing with external stakeholders (e.g., Legislature, Governor, state energy agencies).

The PIER PBC governance structure can take any form and function. The PIER PBC Concept defined a board of directors comprised of the five Energy Commissioners and representatives from the Public Utilities Commission, an Investor Owned Utility, the University of California, and California State University. Variations of that board could include fewer Commissioners, and fewer or more individuals representing different stakeholder groups. However, it would be valuable to allow the Commission to retain a controlling stake, either by retaining a voting majority or by establishing weighted voting procedures. The position of Program Director can also have variations in its title, authorities and responsibilities.

PIER PBC Concept Operating and Support Processes

A PBC has no contracting or staffing restrictions, other than the ones defined in its articles of incorporation and bylaws. While PBCs allow for closed meetings as well as reduced requirements for financial disclosure, a PBC can decide to comply with Brown Act and publish financial statements.

The operating flexibility offered by a PBC allows the Energy Commission to retain control over the PIER Program while removing contracting and staffing limitations imposed on state agencies. This would allow the PIER PBC Concept to function like a first-class RD&D organization, awarding research and technical support contracts, as well as managing permanent and contracted staff, as the program deems appropriate.

As shown in Figure 13, the PIER PBC Concept would employ staff from the Energy Commission in addition to having its own employees. By employing Energy Commission staff that currently work in the PIER Program, the PIER PBC Concept would retain the staff that the IRP has praised for its “strong knowledge base” and “motivation”. This would minimize disruption to the PIER Program during the transition from the Energy Commission to the PBC. Furthermore, with this core Energy Commission staff on board, the PIER PBC Concept would be able to “hit the ground running” from the very first day of its existence. However, without legislation the Energy Commission cannot contract its staff to work at the PIER PBC Concept.

Although a PBC has the ability to hire its own administrative support staff, Figure 12 shows that the PIER PBC Concept would contract with the Energy Commission to provide the same support functions it currently provides the PIER Program, including contract processing, legal support, media support, publications, accounting, human resources and information technology. These services would be done under the PIER PBC Concept rules, however, not the state’s. Contracting back to the Energy Commission would minimize disruption to the PIER Program during the transition by avoiding the need to develop support services from scratch immediately. However without legislation, the Energy Commission cannot contract with the PIER PBC Concept to provide the same support functions it currently provides the PIER Program. If the

Energy Commission decided it did not want to perform the administrative functions or it was not authorized by legislation to perform such functions, the PIER PBC would need to choose between hiring internal staff and outsourcing to another third party.

The PIER PBC Concept should be co-located with the Energy Commission to facilitate close contact with other Energy Commission staff and the Commissioners. This would retain the PIER Program’s close link with California energy policies and governmental energy programs. However, it is unclear whether a PBC that is not a governmental entity may lease space in a state-owned building.

Assessment of PIER PBC Concept

As the analysis shows (*Figures 14 – 16*), the PIER PBC Concept addresses all guiding principles, IRP problem statements and attributes of a first-class RD&D public interest organization. Once the PBC is incorporated, there are not significant legislative or regulatory changes required. Thus, the implementation effort would be centered on the PBC incorporation itself.

Figure 14: Implementation Requirements for PIER PBC Concept to Address Guiding Principles

PIER Guiding Principles	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
Integrated with state energy policy	PIER PBC Concept allows program to follow this principle and for CEC commissioners to review compliance.	Without legislation, CEC staff cannot work at the PIER PBC Concept
Funds public interest energy research that benefits California electric ratepayers	Would be a stated purpose in the PBC agreement	
Complimentary with other public and private sector RD&D efforts and implementation programs	PIER PBC Concept allows program to follow this principle and for CEC commissioners to review compliance	
Non-duplicative of private sector research	PIER PBC Concept allows program to follow this principle and for CEC commissioners to review compliance	
Clear and manageable program mission, vision and strategic objectives	PIER PBC Concept allows program to follow this principle and for CEC commissioners to review compliance	
Conveys high-impact information for decision making to policymakers in a timely manner	PIER PBC Concept allows program to follow this principle and for CEC commissioners to review compliance	Without legislation, PIER PBC Concept cannot be co-located with CEC.

Figure 15: Implementation Requirements for PIER PBC Concept to Address IRP Problem Statements

IRP Problem Statements	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
P1. The CEC is a regulatory agency with a near-term focus.	PIER PBC Concept takes PIER outside CEC	
Processes		
P2. The special needs of managing R&D have been achieved primarily through informal arrangements and not by specific organizational structure, which is an important requirement for a first class research program.	PIER PBC agreement would provide formal authority to Program Director over the organizational structure	
P3. [Staff reductions have] led to awarding larger research contracts as a means to manage with staff limitations.	PIER PBC agreement would provide the needed flexibility to increase the number of staff required to adequately manage the program	
P4. [Staff reductions have lead to] large-scale outsourcing of blocks of R&D contracts to organizations outside the CEC. This makes it more difficult to guarantee that PIER projects adhere to the CEC goals and PIER objectives.	PIER PBC agreement would provide the needed flexibility to increase the number of staff required to adequately manage the program	
P5. Cumbersome administrative practices, [such as the contract preparation process, remain a major concern.	PIER PBC agreement would provide the needed flexibility to change administrative practices	
P6. The CEC is a regulatory agency with limited flexibility.	PIER PBC Concept takes PIER outside CEC into a new organization with more operational flexibility	
Resources		
P7. Civil service requirements and, more recently, budgetary issues have prevented the filling of needed staff positions and hiring of expert [contract staff].	PIER PBC Concept would not have the civil service requirements	
P8. PIER may have a lack of "intellectual critical mass" and a severely reduced knowledge base in some important areas.	PIER PBC Concept will not have current contract staff restrictions	
P9. Recent staff and budget cuts within the CEC affected the PIER Program in a manner disproportionate to cuts in other divisions and programs of the CEC.	PIER PBC Concept would shield PIER from budget cuts	
P10. Under the current civil service rules, it is difficult to attract and retain top research managers.	PIER PBC Concept would not have the civil service requirements	
P11. The extremely limited travel budget for PIER staff hinders staff professional development and key interchanges with staff and stakeholders in other programs, including the U.S. DOE. These constraints severely affect the ability of PIER staff to keep up to date on scientific, technological and policy issues relevant to the PIER Program and to develop collaborative, crosscutting programs.	PIER PBC Concept would not have the travel restrictions imposed to CEC staff	
Organization		
P12. [PIER has yet to] acquire division status within the CEC with the authority and resources needed by a "high-quality" research program.	PIER PBC Concept provides the authority and makes available the resources required without restrictions	
P13. [As a contract employee], the current PIER Program Manager does not have direct control over staffing for the program [and cannot hire or fire employees].	PIER PBC Concept provides the Program Director with authority over staffing issues	

P14. The PIER Program Manager does not have the authority to sign research contracts or to manage budgets, because the civil service structure of the CEC does not allow a contractor to take on these responsibilities.	The PIER PBC Concept allows the Program Director to sign research contracts	
P15. The characteristics of the CEC's organizational culture and bureaucracy conflict with the characteristics of an organizational environment that facilitates a superior R&D program.	The PIER PBC Concept would separate PIER from the CEC thereby eliminating conflict	
P16. [The PIER Program Manager needs to be formally] accountable for PIER, and responsible for presenting and defending the program to the CEC, the external oversight agencies, the Legislature, and the Governor.	The PIER PBC Concept makes the Program Director accountable for PIER	
P17. There is an urgent need for the CEC to develop a management plan and a formal organizational structure to properly staff and more effectively manage the program.	The PIER PBC Concept has a formal organizational structure that meets adequate staff and management needs	
P18. Managers do not have the independence and authority they need to be as effective as possible.	The PIER PBC Concept empowers managers to act as effectively as possible	
P19. The CEC is a regulatory agency with a risk-averse culture.	The PIER PBC Concept would separate PIER from the CEC	

Figure 16: Implementation Requirements for PIER PBC Concept to Address Attributes of a First-Class Public Interest RD&D Program

Attributes of a First-Class Public Interest RD&D Organization	Implementation Needed	
	Solutions	Outstanding Issues
Legislative Objectives and Strategy		
A1. Synergies with other government incentive, standard-setting and regulation programs	The PIER PBC Concept provides the appropriate organizational structure and oversight mechanism	
A2. Flexibility to fund the short, medium or long-term research that best serves the needs of ratepayers	The PIER PBC Concept allows PIER to determine own research priorities	
Processes		
A3. Flexibility to use a variety of contracting mechanisms (e.g., sole source, competitive solicitation) and retain intellectual property features currently enjoyed by PIER	The PIER PBC Concept retains and builds on current contracting flexibility	
A4. Risk-taking culture, consistent with program mission	The PIER PBC Concept provides the appropriate organizational structure	
A5. Collaborates effectively with state and federal agencies, companies and other research organizations	The PIER PBC Concept allows PIER to collaborate effectively	
A6. Functional and meaningful program plan and transparent planning process	The PIER PBC Concept governance includes transparency in planning process with appropriate oversight	
A7. Clearly established budgeting process for RD&D and program operations	The PIER PBC Concept defines an inclusive budgeting and planning process	
A8. Creates and tracks value from its RD&D efforts (e.g., public IP, technology commercialization, regulation implementation)	The PIER PBC Concept includes monitoring and management of value generated by the program	

Resources		
A9. Ability to add or reduce contract staff as workload requires	The PIER PBC Concept provides staffing flexibility	
A10. Ability to attract and retain high quality staff	The PIER PBC Concept provides the organizational structure and compensation to attract high quality staff	Without legislation CEC staff cannot contract with PIER PBC to perform ongoing program and project management.
A11. Program director controls the authorized budget, staff and contract staff	The PIER PBC Concept gives the Program Director control over budget and staff (internal and contracted)	
Organization		
A12. With approval from the board, the Program Director has the flexibility to reorganize the program in response to changing conditions	The PIER PBC Concept allows the Program Director to reorganize the program with authorization from the board	
A13. Program director has authority and accountability for the following, consistent with approved budgets and plans: -Portfolio of program RD&D -Resource allocation in terms of staffing and budgets -Staff development (e.g., training, conference attendance, travel) -Hiring and firing staff -Organization and structure -Contract staffing flexibility -Signing contracts -Presenting and defending program to other interests -Developing the strategic direction of program and strategic relationships	The PIER PBC Concept gives the Program Director authority over all of these issues	
A14. Program director is responsible for presenting and defending the program to the CEC, external oversight agencies, the Legislature and the Governor.	The PIER PBC Concept makes the Program Director responsible for communicating the program to external stakeholders	
A15. Program director is accountable for the program's performance	The PIER PBC Concept makes the Program Director accountable for the program	
A16. Board-level entity provides checks and balances for Program Director	The PIER PBC Concept provides the appropriate oversight mechanisms	

As with all public benefit corporations, the Energy Commission would need to register the PIER PBC Concept with the Internal Revenue Service and the California Secretary of State to achieve tax-exempt status. However, it is unclear if it would require new legislation to create the PIER PBC Concept. There do not appear to be limitations on Energy Commissioner participation in a PBC, as a former Commissioner was a board member in SDREO during his tenure, and SDREO receives funding from state agencies such as the CPUC and the Energy Commission without having special legislation put in place.

As with the PIER JPA Concept, it is possible that the Energy Commission could, through a contract, delegate specific PIER Program responsibilities to a PBC without delegating the legislative power for PIER. In essence this is what the Energy Commission does today because of insufficient staffing in the PIER Program. For example, under an interagency agreement with the University of California Office of the President (UCOP), the Energy Commission has encumbered \$50 million and delegated complete authority to staff, administer and make awards in a number of PIER program

activities including the Demand Response Center (\$8 million over 3 years; the Transmission Planning R&D initiative (\$15 million over 2 years); and the Environmental Exploratory Grant Program (\$1 million a year). Another example is the Energy Innovative Small Grants program in which the Energy Commission delegates to the San Diego State University Foundation the responsibility for administering a \$3 million per year program. In each case, the Energy Commission has the final approval on the awards but “out sources” administration to third parties.

While a PIER PBC Concept would be able to administer most aspects of the PIER Program (further legal analysis is needed before it can be confirmed absolutely), final responsibility for program decisions, such as awarding program grants, would remain with the Energy Commission, absent amendment to the PIER enabling legislation. The PIER enabling legislation designates the Energy Commission as the body responsible for fundamental program decisions, such as determining the types of RD&D activities that are not adequately provided for by competitive and regulated markets, determining whether sole source awards are in the state's best interest, and awarding program grants. In addition, state employees must make up at least 50% of any scoring panel evaluating program applications. However, except for the final decisions that are reserved to the Energy Commission, a PIER PBC would be able to perform all other aspects of the program, including presenting recommendations to the Commissioners concerning the decisions reserved to the Energy Commission. However, it is unlikely that the Energy Commission would reverse or overrule a decision made by the PIER PBC board, since the Energy Commissioners would have a controlling majority of the PBC board.

The PIER PBC Concept retains Energy Commission and legislative oversight of the PIER Program, and keeps the PIER Program closely linked to California energy policies and governmental energy programs by:

- Naming all five Energy Commissioners as PIER PBC Concept board members with majority control of the board
- Co-locating the PIER PBC Concept with the Energy Commission.

The latter would require legislation to authorize the Energy Commission to contract with the PIER PBC Concept.

The PIER PBC Concept minimizes disruptions to the PIER Program during the transition to an external entity by:

- Contracting with the Energy Commission to employ all Energy Commission staff currently working in PIER Program
- Contracting back to the Energy Commission for all the support functions the PIER Program currently funds at the Energy Commission.

These two actions would require legislation to authorize the Energy Commission to contract with the PIER PBC Concept.

It should also be remembered that the PIER PBC Concept would be a separate entity with new contracting and hiring guidelines and processes. It will also have a mixture of its own staff, staff from the Energy Commission, and other contract staff. All of this will add significant complexity to support functions.

Summary Discussion of PIER PBC Concept

The PIER PBC Concept provides the highest degree of organizational structure and operating flexibility, allowing it to make PIER a first-class public interest RD&D program. The analysis shows that this flexibility could allow the PIER PBC Concept to follow PIER guiding principles, address all the problems that the IPR identified with the PIER Program, as well as cover all attributes of a first-class public interest RD&D organization. Once established the PIER PBC Concept would be exempt from oversight by the Department of General Services, Department of Finance, State Personnel Board, Public Employment Relations Board, and Department of Personnel Administration.

The Energy Commission would need to register the PIER PBC with the Internal Revenue Service and the California Secretary of State. However, it is unclear if new legislation would be required to create the PIER PBC.

As with the PIER JPA Concept, legislation would be required to assure a complete delegation of authority for the PIER Program from the Energy Commission to the PIER PBC. However, it is possible that the Energy Commission could delegate specific PIER Program responsibilities to a PBC without delegating the legislative power for PIER (further legal analysis is needed before it can be confirmed absolutely). The PIER PBC would have to have all funding agreements approved by the Energy Commission. This would add approximately two weeks time to funding decisions. With legislation authorizing the Energy Commission to delegate complete legal authority for PIER from the Energy Commission to the PIER PBC Concept, the PIER PBC Concept would not need to pass any funding agreements to the Energy Commission for final approval. In either case, the five Energy Commissioners would retain control of the PIER Program. Through them, the Legislature would retain oversight of the PIER Program.

The PIER PBC Concept would suffer minimal “start-up pains”, retain legislative oversight of the PIER Program and keep the PIER Program’s link to California energy policies and governmental energy programs by:

- Naming all five Energy Commissioners as PIER PBC Concept board members with majority control of the board
- Co-locating the PIER PBC Concept with the Energy Commission
- Contracting with the Energy Commission to employ all Energy Commission staff currently working in PIER Program
- Contracting back to the Energy Commission for all the support functions the PIER Program currently funds at the Energy Commission.

The latter three actions would require legislation to authorize the Energy Commission to contract with the PIER PBC. Note, however, that if some Energy Commission staff did not choose to work at the PBC or were not selected to continue working on public interest energy research at the PBC, this could negatively impact the Energy Commission.

COMPARISON OF PIER ORGANIZATIONAL CONCEPTS

The priorities used to compare the three organizational concepts are:

- Meet legislative intent when establishing the PIER program including retaining strong Energy Commission oversight, linkage with state energy policies and policymakers, and coordination with other state agencies
- Solve problem statements asserted by the IRP report
- Incorporate attributes of a first- class public interest RD&D organization
- Minimize disruption to the PIER Program during transition to a new organizational structure.

A first-class public interest R&D program can be designed and administered under each of the three organizational concepts analyzed in this report. In general, all three organizational concepts retain strong Energy Commission oversight, establish direct linkages state policy, solve problems statements asserted in the IRP report, and incorporate attributes of a first-class public interest RD&D organization. The key differences among the organizational concepts are the implementation issues that would need to be addressed under each option.

Internal Option Concept

The Internal Option Concept has the strongest Energy Commission oversight by keeping the PIER program within the Energy Commission. The Energy Commissioners will also serve to link the program to state energy policy and oversee the program's coordination with other state agencies. The Internal Option Concept addresses all the IRP problem statements and attributes by securing administrative exemptions, and will require various legislative and policy changes that include, at a minimum, an exemption to oversight from the Department of General Services for approving contracts; an exemption from civil service requirements; and new classifications (e.g., responsibilities, supervision ratios, compensation) for PIER staff. These changes are substantive and, in some cases, unique in state service. The Internal Option Concept has the fewest negative impacts on the Energy Commission. It will add staff, responsibility and authority. It will also have administrative processes and procedures that differ from the rest of the Commission.

Implementing the Internal Option Concept as envisioned by the IRP will require obtaining administrative and legislative exemptions. These exemptions apply to three key areas:

- Staffing. Vesting staffing control with the Program Director requires administrative relief from Department of Personnel Administration (DPA), State Personnel Board (SPB), and Public Employment Relations Board (PERB) oversight. Examples of this staffing control include:

- Creating positions outside of the budget change proposal (BCP) process (one year for the BCP, up to an additional year to hire),
- Changing the organizational structure of PIER in response to programmatic changes without regard to staffing ratios.

Creating new civil service classifications and new pay grades can be accomplished with existing administrative processes.

- Budgets. Vesting budget control with the Program Director requires administrative relief from the Resources Agency and Department of Finance oversight. Examples of budget control include:
 - PIER budget no longer subject to Executive Orders or changes in Department of Finance policies
 - Related to staffing above, the Program Director has the authority to shift funds within an approved budget to meet staffing needs, outside of the BCP process
 - PIER travel budget no longer subject to Executive Orders or changes in Department of Finance policies.
- Procurement. Contract approval currently rests with the Commission. Vesting contract approval with the Program Director will require legislated delegation of contract approval authority normally reserved for the Commissioners and control agencies.

Legislative exemptions have the advantage of greater permanency, but the disadvantage of being risky (e.g., undesirable legislative provisions being added). If the control agency has the authority, administrative relief from procedures and rules reduces the risks associated with legislation, but the outcomes are not guaranteed. However, the result may be slower, more incremental solutions to the IRP problems. Also, administrative relief can be reversed by changing interpretations of rules, new agency heads and new policy. Examples of steps to implement the Internal Option Concept could include the following:

- Determine nature of exemptions. For proposed actions to obtain exemptions from control agency oversight, determine which exemptions can be obtained administratively, through legislation, or through executive orders. For exemptions requiring administrative actions, determine which control agencies are involved and establish an agency task force to negotiate with control agencies and establish exemptions. For exemptions requiring legislation, establish an agency task force with stakeholders, establish legislative sponsorship in coordination with the IRP, and draft and enact legislation.
- Implement new PIER structure. It is estimated that fully implementing the Internal Option Concept may take up to a year without legislation (according to Administrative Services staff) and 2 – 3 years with legislation.

PIER JPA Concept

The PIER JPA Concept retains strong Energy Commission oversight and linkages to state energy policies and other agencies by having the Energy Commissioners form a majority of the board. The PIER JPA Concept addresses all the IRP problem statements and attributes; however, this requires that the JPA partner(s) contribute the appropriate capabilities (e.g., technical expertise, research program management, and market connections), as well as flexible contracting and staffing guidelines (i.e., oversight exemption from the Department of General Services, Department of Finance, State Personnel Board, Public Employment Relations Board, and Department of Personnel Administration). The PIER JPA Concept would minimize disruption to the PIER Program during the transition to the JPA as all the services currently supplied by the Administrative Services Division would be contracted for by the PIER JPA and all Energy Commission staff currently working on the PIER program could continue working in civil service via Inter-Jurisdictional Exchanges (IJE). However, if some Energy Commission staff currently working in the PIER Program did not choose to work at the JPA or were not selected to continue working on public interest energy research at the JPA, this could negatively impact the PIER Program during the transition and startup of the JPA. The administrative processes and procedures would differ from the rest of the Commission, many of them based on the policies of the JPA partner(s).

Absent an amendment to the PIER enabling legislation, the PIER JPA Concept would be able to administer most aspects of the PIER program but final responsibility for program decisions would remain with the Energy Commission. There are examples of JPAs that have been formed by state agencies without legislation. The PIER JPA Concept could be implemented without legislation if all funding decisions made by the PIER JPA Concept continued to be approved by the full Commission. Examples of steps to implement a PIER JPA Concept include the following:

- Preliminary approval of the PIER JPA Concept. The Energy Commission would need to obtain preliminary approval and support from the Governor's Office and the Legislature, especially the energy committee chairs, to pursue implementation.
- Development and approval of a PIER JPA Concept Creation Plan. The plan would include a preliminary determination of the extent to which the Energy Commission can delegate authority over the PIER program to another governmental body without legislation, more detailed steps to create a PIER JPA Concept, estimated time to creation, a budget, and a more detailed description of the PIER JPA Concept. PIER JPA Concept Creation Plan would need to be approved by the Energy Commission with instructions to staff to pursue implementation.
- Selection and approval of the JPA partner(s). It would be necessary to select partner(s) that contribute the appropriate capabilities (e.g., technical expertise, research program management, market connections), as well as flexible contracting and staffing guidelines (e.g., oversight exemption from the

Department of General Services, Department of Finance, State Personnel Board, Public Employment Relations Board, Department of Personnel Administration). JPA partner selection would need to be approved by the governing authorities of all partners and by the Governor's Office and the Legislature.

- Development and approval of the PIER JPA Concept charter. Energy Commission staff and JPA partners' staff would develop the charter with cooperation from the Governor's Office and the Legislature. The PIER JPA Concept charter would need to be approved by the Energy Commission and the PIER JPA partner(s). The Department of General Services must authorize the Energy Commission's formation of the PIER JPA Concept.
- Implement the PIER JPA Concept. It is estimated that fully implementing the PIER JPA Concept may take 1 – 2 years without legislation and 2 – 3 years with legislation.

PIER PBC Concept

The PIER PBC Concept retains strong Energy Commission oversight and linkages to state energy policies and other agencies by having the Energy Commissioners form a majority of the board. The PIER PBC Concept also addresses all the IRP problem statements and attributes of a first-class public interest RD&D organization. However, without enabling legislation, the PIER PBC Concept could have a severe impact on the PIER Program during the transition to the PBC. Enabling legislation is required to allow Energy Commission staff currently working in the PIER program to work for the PIER PBC while retaining their rights and benefits under civil service. Legislation is also required to authorize the Administrative Services Division to contract with the PIER PBC to supply services currently supported by the PIER program. However, if some Energy Commission staff currently working in the PIER Program did not choose to work at the PBC or were not selected to continue working on public interest energy research at the PBC, this could negatively impact the PIER Program during the transition and the startup of the PBC.

As with all public benefit corporations, the Energy Commission would need to register the PIER Public Benefit Corporation (PBC) Concept with the Internal Revenue Service and the California Secretary of State to achieve tax-exempt status. It is unclear if new legislation is needed to create the PIER PBC Concept. While a PIER PBC would be able to administer most aspects of the PIER program, final responsibility for program decisions would remain with the Energy Commission, absent an amendment to the PIER enabling legislation. However, the Energy Commission could contract with a PBC to provide specific, selected program implementation responsibilities without delegating its authority for PIER. Examples of steps to implement a PIER PBC Concept include the following:

- Preliminary approval of the PIER PBC Concept. The Energy Commission would need to obtain preliminary approval and support from the Governor's Office and

the Legislature, especially the energy committee chairs, to pursue implementation.

- Development and approval of a PIER PBC Concept Creation Plan. The plan would include a preliminary determination of the extent to which the Energy Commission can delegate authority over the PIER program to a PBC without legislation, more detailed steps to create a PIER PBC Concept, estimated time to creation, a budget, and a more detailed description of the PIER PBC Concept. Significant uncertainties need to be addressed regarding legislation needed to authorize the Energy Commission to contract with the PIER PBC Concept to provide support services and for the Energy Commission staff to work at the PIER PBC Concept while retaining civil service status. The plan would likely call for simultaneously pursuing legislation and continued planning for the creation of the PIER PBC. The PIER PBC Concept Creation Plan would need to be approved by the Energy Commission with instructions to staff to pursue implementation.
- Development and approval of the PIER PBC Concept articles of incorporation and bylaws. Energy Commission staff would develop the articles of incorporation and bylaws with cooperation from the Governor's Office and the Legislature. The PIER PBC Concept articles of incorporation and bylaws would need to be approved by the Energy Commission and filed with the appropriate authorities.
- Development and approval of enabling legislation. The necessary enabling legislation is drafted by the Energy Commission and passed by the Legislature, signed by the Governor, and takes effect.
- Implement the PIER PBC Concept. It is estimated that fully implementing the PIER PBC Concept may take 1 – 2 years without legislation and 2 – 3 years with legislation.

ADMINISTRATION ISSUES AND OPTIONS CONCERNING CALIFORNIA'S PUBLIC INTEREST ENERGY RESEARCH PROGRAMS

Prepared by David Abelson, CEC Senior Staff Counsel
(January 20, 2004)

I. BACKGROUND and ISSUES OF CONCERN

The year 2004 is likely to be extremely important for the future of public interest energy research (PIER) in California. Two significant events are expected to occur during this upcoming year, specifically: (1) an Independent Review Panel (IRP), acting pursuant to Public Resources Code Section 25620.9, will prepare and publicly release in March its preliminary assessment of the California Energy Commission's (CEC) administration of the PIER Program; and (2) the California Public Utilities Commission (CPUC), acting pursuant to Public Utilities Code Section 890 *et seq.*, will select an administrator and determine the annual funding level for the public interest natural gas (PING) research program.

The outcome of both activities is likely to be influenced, in part, by whether the CEC is found to be capable of effectively and efficiently administering these energy research programs, particularly in light of the severe and ongoing budget crisis which the State of California is struggling to address. The ability of the CEC to hire, retain and promote staff to properly manage and implement these important public interest programs is of specific concern at this time for several reasons, including the following:

- **Increasing Program Responsibilities:** Since its inception six years ago (1998), the PIER Program has awarded approximately \$62.5 million *each year* for new research projects. To date, the program has encumbered over \$350 million, through an *increasing* number of contracts for important energy research projects. While the rate of contract/project expansion will slow and eventually level off (e.g. as "new" contracts/projects begin to balance out with "completed" ones), that plateau has not yet been reached for the PIER Program. In addition, the CEC's work-load will increase even further if the CPUC appoints the CEC as program administrator for the PING research program.
- **Decreasing Staffing Resources:** As the State's budget crisis has deepened, numerous PIER-related civil service and/or support contract positions have been "frozen" or eliminated entirely. In addition, the ability to "promote" civil service employees to a level commensurate with their ever-increasing work responsibilities under PIER has been severely limited or prohibited as well.

In short, there is a growing concern about whether the CEC has the ability to effectively administer the existing PIER Program in the years ahead, let alone take on added management and staffing responsibilities for the PING research program now under review at the CPUC.

II. ADMINISTRATIVE OPTIONS FOR THE PIER PROGRAM

The CEC and the IRP are both aware of the resource constraint problems described above, and both entities are now considering various administrative options to ensure that the PIER Program remains efficient, effective and well-managed in the years ahead. To assist in this effort, the CEC's Legal Office has prepared this discussion paper which analyzes several potential administrative options for the PIER program, including (1) creation of a Joint Powers Authority (JPA) and (2) creation of a non profit public benefits corporation.¹

A. Principles For Evaluating Various Administrative Options

Before discussing each of the administrative options listed above in detail, it is useful to consider certain overriding principles or criteria which any public interest research program should achieve, regardless of what "form" the governance/administrative structure takes. These principles and criteria include the following:

1. Assure Smooth Program Continuity

It is important for any future administrative option to "do no harm," nor create any unintended hiatus with existing PIER Program efforts. Therefore, future administrative options for the PIER Program must be: (a) legally authorized; (b) capable of adequate staffing; and (c) capable of starting up operations quickly.

2. Make Efficient Use Of Program Resources

Future administrative options should ensure that PIER Program resources are used efficiently. To do so these options should (a) avoid unnecessary complexity in the overall design of the administrative structure; (b) make use of existing staffing abilities and expertise wherever possible; and (c) ensure that the total financial costs of administering the program (including overhead costs and unintended tax consequences) are minimized.

3. Operate In A Fair and Effective Manner

Future administrative options should ensure that the PIER Program is operated in a fair and effective manner. Accordingly, the structure should be designed to (a) make funding awards based on state energy policy and merit; (b) avoid conflicts of interest; and (c) provide internal "checks and balances" within the PIER Program.

¹ Other administrative options for addressing PIER-related work load issues are conceivable, as well, including: (a) reduction or elimination of future PIER funding and related CEC responsibilities for the program; (b) transfer of some or all PIER responsibilities from the CEC to the investor-owned utilities (IOUs); or (c) transfer of some or all PIER responsibilities from the CEC to some other governmental agency. However, since none of these options is possible without additional action by the Legislature, and since all of these choices could adversely impact the important public benefits which the PIER program is currently providing, they will not be explored further in this paper.

4. Coordinate Effectively With Other Relevant Public Purpose Programs

Future administrative options should ensure that the PIER Program is well coordinated with other public purpose programs and stakeholders (e.g., the Renewables Program, the Energy Efficiency Program, the CPUC's natural gas research program, the federal Department of Energy, etc.), thereby maximizing program synergies and minimizing unnecessary duplication.

5. Provide An Open and Accountable Process To The Public

Future administrative options for the PIER Program should be (a) transparent and understandable to the public; (b) accessible and receptive to public input and concerns; and (c) subject to periodic independent review to ensure objective evaluation and public accountability.

With these principles in mind, the following sections discuss two different administrative options for the PIER Program, namely a Joint Powers Authority and a Public Benefits Corporation.

B. The “Joint Exercise of Powers” Administrative Option

1. Introduction

The “Joint Exercise of Powers Act” or “JEPA” (Government Code Section 6500 *et seq.*) is a collection of statutory laws regulating the joint exercise of powers by two or more public agencies. The basic authorizing provision in the JEPA is contained in Gov. Code Section 6502, which states:

“If authorized by their legislative or other governing bodies, two or more public agencies by agreement may jointly exercise any power common to the contracting parties, even though one or more of the contracting agencies may be located outside this State.” (emphasis added).

The existence of this law has prompted members of the IRP and others to ask whether certain problems which the PIER Program is currently encountering under CEC administration (e.g. staffing constraints, civil service restrictions, etc.) could be overcome if the CEC were to enter into a joint powers agreement (JPA) with another public agency (e.g. the University of California) which was not subject to these same constraints.² Because of this ongoing interest in the JPA option, certain basic legal questions must be addressed, and they fall into two broad categories, to wit: (1) Does the CEC have the legal authority to enter a JPA regarding administration of the PIER Program? and (2) What benefits and costs would result if such a JPA were created?

² In addition to possibly overcoming current state staffing and civil service constraints, the JPA is also seen by some as a possible mechanism for easing otherwise applicable state contracting laws and other restrictions which currently apply to the PIER Program under the CEC's administration.

2. Can The CEC Lawfully Enter A JPA For Administration Of The PIER Program ?

Since the CEC is a “public agency” under the terms of the JEPA,³ there is no question that *broadly* speaking it has legal standing to enter into a JPA with one or more other “public agencies,” such as the University of California (UC), the California Public Utilities Commission (CPUC), etc. By contrast, the CEC has no authority to enter into a JPA with any entity that is not a “public agency” under the JEPA, for example an investor-owned utility such as PG&E or a nonprofit public benefits corporation.⁴

However, simply determining that the CEC has broad legal standing to enter into a JPA with another public agency does not resolve the critical question of whether the CEC can lawfully enter into a JPA for the specific purpose of administering the PIER Program. Recall that Gov. Code Section 6502 only allows a JPA to be entered into by public agencies if “*authorized by their legislative or other governing bodies . . . [concerning] any power common to the contracting parties.*” Thus, the fundamental legal question which must be answered is this: Are the responsibilities which the Legislature has granted to the CEC for administration of the PIER Program powers shared in “common” with any other public agency at this time?

To answer this question, we have sought guidance regarding what is meant by the phrase “common power,” as used in Gov. Code Section 6502. The JEPA itself does not define this term. However, the California Supreme Court has expressly addressed the issue and ruled that the “common powers” requirement contained in the predecessor statutes to the JEPA:

“means nothing if it does not mean that [public agencies] may contract in effect to delegate to [other public agencies] the exercise of a power or the performance of an act on behalf of all of them, and which each independently could have exercised or performed. A statute thus authorizing the joint exercise of powers separately possessed by each [public agency] . . . grants no new powers but merely sets up a new procedure for the exercise of existing powers.”⁵

This precedent-setting *City of Oakland* ruling has been cited repeatedly in numerous subsequent court cases and Attorney General Opinions.⁶ Thus, as the California Attorney General has stated:

³ Gov. Code Section 6500

⁴ 81 Cal. Op. Att. Gen. 213 (1998).

⁵ *City of Oakland v. Williams*, 15 Cal.2nd 542, 549; 103 P. 2nd 168, 171-172 (1940) (emphasis added). In the *City of Oakland* case, the court specifically found that since several adjacent East Bay cities each had broad “police powers” under their respective city charters to protect public health by performing sewer-related work, a JPA could be lawfully entered between those cities assigning sewer survey work to one of the cities on behalf of all.

⁶ See, e.g., *Beckwith v. County of Stanislaus*, 175 Cal.App.2nd 40, 46-48 (1959); 83 Cal. Op. Att. Gen. 8, at p. 9, and the numerous opinions cited therein (2000).

“This [common powers] section requires that each of the public agencies which are parties to an agreement must have the independent power to do the act for which they contract under the Joint Powers Act. The Joint Powers Act grants no new power, it merely sets up new procedures for the exercise of existing powers.”⁷

In the present situation, it is readily apparent that the CEC and certain other public agencies (such as UC) each have broad legal authority to individually carry out certain energy-related research, development and demonstration (RD&D) activities. For example, Public Resources Code Section 25601 provides that:

“The [Energy Commission] shall develop and coordinate a program of research and development in energy supply, consumption, and conservation and the technology of siting facilities and shall give priority to those forms of research and development which are of particular importance to the state”

Thus, a JPA entered into for the purpose of utilizing such *generic* RD&D-related powers as the contracting agencies share in common might reasonably be found to comply with the “common powers” provision of the JEPA.

However, at the present time the Legislature has granted exclusive authority to the CEC to govern, administer and award research contracts specifically utilizing the public goods surcharge funds collected for the PIER Program. *See* Public Utilities Code Section 381, 399.8 and Public Resources Code Section 25620 *et seq.* Thus, Public Resources Code Section 25620.1(a) expressly states that:

“The [Energy Commission] shall develop, implement, and administer the Public Interest Research, Development, and Demonstration Program that is hereby created. The program shall include a full range of research, development, and demonstration activities that, as determined by the commission, are not adequately provided for by competitive and regulated markets. The commission shall administer the program consistent with the policies of Section 399.7 of the Public Utilities Code.” (emphasis added).

No other public agency has been given such legal authority concerning the PIER Program at the present time. Therefore, the CEC Legal Office concludes that under existing statutory law PIER-related governance and administrative activities do not fall within the scope of the “common powers” provision required of parties seeking to enter a JPA under the JEPA.

Our confidence in this legal conclusion regarding the PIER Program is bolstered by two other facts in addition to the discussion and analysis provided above. First, while JPAs have routinely been used by cities, counties, and other public agencies to jointly undertake complex financing, construction or other project-specific activities which each agency could individually undertake, the Legal Office has found no other instance in which a joint powers agreement has been entered

⁷ 30 Cal. Opp. Att. Gen 73, 74 (1957) (emphasis added). *Accord* Beckwith v. County of Stanislaus, 175 Cal.App.2nd 40, 46-48 (1959).

into for the purpose of administering an entire public purpose program otherwise expressly assigned by law *exclusively* to only one of the agencies in question. Indeed, a recent Attorney General's Opinion expressly determined that the public agencies in question could enter a JPA concerning certain personnel examinations, training and management services which they shared in common, but the JPA could not be used for issuing vocational or professional licenses which only one of the agencies was authorized by statute to grant.⁸

Finally, the JEPA expressly requires that any state agency or commission wishing to enter a JPA must first seek and obtain the approval of the Department of General Services (DGS), if such approval is otherwise required by law.⁹ In light of this requirement, the CEC Legal Office contacted the DGS Legal Office to determine DGS's view of whether the PIER Program could be administered through a JPA. DGS informed the Legal Office that it was not aware of any JPA which had delegated such broad programmatic responsibilities through a JPA in the absence of a statute expressly authorizing the agency to do so. While DGS reserved the right to review any specific JPA which the CEC might elect to enter into, its Legal Office was of the present view that since governance and administration of the PIER Program has been assigned by statute exclusively to the CEC, such activities were probably not "common powers" for purposes of the JEPA.¹⁰

In short, absent additional authorization from the Legislature, the Legal Office concludes that the CEC cannot lawfully enter into a JPA for purposes of administration of the PIER Program. If the CEC wishes to pursue a JPA for the PIER Program, we recommend that the current PIER statutes be amended to expressly allow administration of the program through a JPA.

3. What Benefits and Costs Might Result From Using A JPA For The PIER Program?

Assuming the CEC has the legal authority to enter a JPA for administration of the PIER Program, what benefits and costs might result from using this approach to administer the program? There are several factors to consider, including the following.

First, under the JEPA and related cases, if a JPA is properly entered into between public agencies having different rules governing the individual agency's conduct of the otherwise "common powers" in question, then the parties can specify in the JPA which agency's rules will apply to the agreement, or they may expressly assign responsibilities to that agency whose rules are preferred by the parties.¹¹ Thus, for example, in the *City of Oakland* case cited earlier Oakland

⁸ 83 Cal. Op. Att. Gen. 8 (2000).

⁹ Gov. Code Section 6501.

¹⁰ Phone conversations between CEC Senior Staff Counsel David Abelson and DGS's Acting Chief Counsel Gary Ness, DGS Assistant Chief Counsel John Brakke and DGS Staff Counsel Dan Rios, conducted on December 8 and 9, 2003. A similar legal conclusion was reached between CEC Legal Counsel Liz Flores and DGS Counsel Gary Ness when this same JPA issue was considered by the first PIER IRP in 2000. (ROC by CEC attorney Liz Flores with DGS attorney Gary Ness, March 20, 2000).

¹¹ Gov. Code Section 6509.

had certain civil service rules, minimum wage rules and competitive bidding rules which the City of Berkeley did not. The California Supreme Court ruled that none of the City of Oakland's rules applied because the JPA specified that the City of Berkeley would be responsible for doing the sewer surveys, not the City of Oakland.¹²

This suggests that one *possible* benefit of pursuing the JPA option for the PIER Program would be a relaxation or exemption from various state civil service and contracting requirements that now apply to the CEC's administration of the program. However, the extent of this JPA benefit, if any, will hinge on factors which are not presently known, including a determination of the restrictions and requirements of the other public agencies joining the JPA, and a determination by the DGS regarding the extent to which state contracting and civil service laws can be avoided or minimized through this JPA mechanism.

A second potential benefit of the JPA option would be to broaden the number of public agencies with a stake in the ongoing performance of the PIER Program. In addition, a JPA may provide additional expertise by involving other public agencies directly in the governance and administration of the program.

There may be various other benefits in utilizing a JPA for the PIER Program, but there are also some important costs associated with this option, including the following. First, startup and staffing efforts will take substantial time to achieve, particularly since legal authorization for a JPA must be obtained and a contract negotiated before revised administration of the program can be initiated. Second, the efficiency of this JPA administrative option is problematic. For example, the administrative structure of a JPA is likely to be more complex and expensive to maintain than the current CEC administration structure, simply because multiple agencies (some with higher salary schedules than the CEC) will be involved. In addition, how the JPA would make use of staffing expertise now in existence at the CEC is not clear. Third, it will be challenging to ensure that the JPA is properly connected to state energy policy and avoids internal conflicts of interest, particularly if the program is administered by an entity which is also authorized to conduct research and is not responsible for the development of state energy policy (e.g. the University of California). These issues have not been serious problems under the CEC's administration. Finally, it is not clear that a JPA would provide the open and accountable public process that is legally required and currently exists under CEC administration of the PIER Program (e.g. the Bagley-Keene Open Meetings Act).

In short, the benefits of utilizing a JPA for administration of the PIER Program are uncertain at this time, though it is possible that some important benefits *may* exist. However, changing administration from the CEC to a JPA will certainly have a number of serious costs, and the balance in this regard should be carefully weighed by policymakers before any decision to proceed with this option is made.

¹² City of Oakland v. Williams, 15 Cal.2nd 542; 103 P. 2nd 168, 173-174 (1940).

C. The “Public Benefits Corporation” Administrative Option

1. Introduction

As noted in the previous section, a JPA can only be entered into between “public agencies,” so this is not a viable option if policymakers wish to broaden the governance of the PIER Program to include private entities, such as the investor-owned utilities, public interest groups or other non-profit private organizations. If such broadening of governance is a desired outcome for the PIER Program, as UC has proposed for the PING research program now under consideration at the CPUC, then serious thought should be given to the option of creating a non profit “public benefits” corporation to take over administration responsibilities from the CEC.

The use of a non profit public benefits corporation to serve as the administrator for public goods energy programs is not a new or untested idea. For example, in 1996 various public and private entities in the Pacific Northwest region (Washington, Oregon, Idaho and Montana) mutually created a new, non profit corporation to administer a portion of that region’s public interest energy efficiency programs; and in 1998 New York designated an existing, legislatively authorized, non profit entity (the “New York Energy Research and Development Authority” known as “NYSERDA”), to serve as the statewide administrator for that state’s various public goods energy programs. Thereafter, California considered but did not authorize the use of a non-profit corporation to administer this state’s public interest energy efficiency programs.

2. What Benefits Might Result From Using A Non Profit Corporation?

There are a number of possible benefits which might result from using a non profit corporation to administer the PIER Program in the future. These potential benefits include the following.

First, a non profit corporation could be structured to ensure that its Board of Directors represents a wide range of interested stakeholders, including representatives from affected private industries, ratepayer groups, utilities, policymakers, and others. Such shared administrative decision-making would not be possible if responsibility for program administration is vested in either an existing state agency or in a Joint Powers Authority.

Second, a non profit organization may be well suited to administer the PIER Program in a very effective and efficient manner. For example, a non profit entity *may* be able to operate without the restrictions of various laws that constrain state agencies (e.g., the civil service employment system, the Public Contracts Code, the Public Records Act, etc.). Therefore, a non profit organization may be able to recruit highly qualified employees from the private sector, and make internal administrative and program contracting decisions with a degree of speed and flexibility that a state agency simply cannot match. **However, as a following portion of this analysis points out, policymakers should be aware that it is *not certain* that a public benefits corporation would, *ipso facto*, be exempt from various state laws that otherwise apply if a public entity administers the program.**

Third, the “private sector” nature of a non profit corporation is likely to be compatible with the long-range “market connected” policy goals of the PIER Program itself. Thus, a non profit

corporation (whose board and employees are drawn, at least in part, from the private sector) may be particularly well equipped to understand and help ensure that research projects do not fall into the so-called “valley of death” between product research and product commercialization.

3. What Problems Could Result From Using A Non Profit Corporation?

There are several types of problems which could result from deciding to use a non profit corporation to administer the PIER Program in California, including the following concerns.

First, as discussed previously concerning the JPA option, legal responsibility for administering the PIER Program is currently assigned by statute *exclusively* to the Energy Commission. See Public Resources Code Section 25620 *et seq.* It is a basic maxim of administrative law that an agency cannot abdicate or delegate its statutory responsibilities to another entity in the absence of a statute authorizing it to do so. Thus, the California Supreme Court has stated:

“As a general rule, powers conferred upon public agencies . . . which involve the exercise of judgment or discretion . . . are in the nature of public trusts and cannot be surrendered or delegated to [other entities] in the absence of statutory authorization.”¹³

In short, the many discretionary responsibilities which the CEC currently exercises concerning the PIER Program cannot be legally reassigned to a non-profit corporation without the express authorization of the Legislature.

Second, since a qualified non profit organization does not currently exist to administer California’s PIER Program (as was the case with NYSERDA in New York), there will certainly be additional delays and other “start up” costs associated with creating, staffing and organizing such a new, non profit organization. Among the more obvious “start up” difficulties will be the challenge of identifying the proper number and mix for the “stakeholder board,” locating and hiring an executive director and staff, and insuring that the new organization fully qualifies for federal tax-exempt status under the Internal Revenue Code. None of these particular problems would exist if program administration remains within the CEC.

Third, as mentioned above, it is legally uncertain whether assigning all administration responsibilities for the PIER Program to a non profit corporation would automatically exempt such an organization from various state laws that would otherwise apply if a state agency were to administer the program instead (e.g., the civil service employment system, the Public Contracts Code, the Public Records Act, etc.). As the U.S. Supreme Court has stated:

“When private individuals or groups are endowed by the State with powers or functions governmental in nature, they become agencies or instrumentalities of the State subject to its [legal] limitations.”¹⁴

¹³ California School Employees Association v. Personnel Commission, 3 Cal. 3rd 139, 144; 89 Cal.Rptr. 620, 623 (1970).

Thus, for example, in determining whether the state's civil service laws contained in Article VII of the California Constitution apply to particular activities performed by non governmental entities, the courts have developed what is called a "nature of the service" test. Under this test, "the court inquires as to whether the nature of the contracted service could have been performed by a civil servant. If so, the state must proceed under the civil service mandate."¹⁵ However, activities determined to be "new state functions" not previously performed by state employees have been exempted from this rule.¹⁶

Similarly, the California Attorney General's Office has issued an opinion concerning a non profit corporation created to carry out certain functions of a local redevelopment agency. There, the redevelopment agency created a non profit corporation to assist it in administering the agency's housing activities, staffed the non profit corporation with the agency's employees, and retained approval power over the corporation's budget. The Attorney General concluded that *the agency "may not circumvent legislative requirements through the device of assigning administrative responsibilities to a nonprofit corporation which is subject to its control. When [an] agency is using a nonprofit corporation to carry out its governmental responsibilities, the corporation must comply with acquisition and relocation requirements, and public bidding and prevailing wage statutes."*¹⁷

Thus, if a non profit public benefits corporation were to be created to administer the PIER Program, it would need authorization to (1) receive the public goods funds (which are collected from ratepayers pursuant to Legislative direction), (2) create the selection criteria for "passing the funds through" to implement the program, and then (3) solicit and award these funds to third parties for program implementation. Under these circumstances, it might be successfully argued in court that the non profit organization is actually performing many, if not all of the functions traditionally reserved to a public agency such as the CEC. At best, this would create substantial uncertainty as to whether various laws governing state agencies would apply or not.

Finally, an important issue of public trust and confidence may arise if too much of the PIER Program is administered by a non profit corporation, without the traditional governmental "safeguards" that assure public access, accountability and fairness. This research program involves the surcharge and expenditure of a great deal of ratepayer funds (currently over \$63 million per year) to achieve certain "public goods" that might otherwise be lost if left to the private or regulated sectors alone. However, if much or all of the program's administration is taken out of the public arena, support for this important public interest energy research program may dwindle before the program has an adequate chance to succeed.

¹⁴ Evans v Newton, 382 U.S. 296, 299; 86 S. Ct. 486, 488 (1966). Accord San Francisco Unified School District v Johnson, 3 Cal.3rd 937; 92 Cal. Rptr. 309 at 318 (1971).

¹⁵ Professional Engineers In California Government v Department of Transportation, et al., 13 Cal. App.4th 585; 16 Cal. Rptr.2nd 599 at 603 (1993).

¹⁶ California State Employees Association v Williams, 7 Cal. App.3rd 390; 86 Cal Rptr 305 at 313 (1970).

¹⁷ 81 Cal.Ops.Atty.Gen. 281 at 291 (August 1998).

III. SUMMARY AND CONCLUSION

California's public interest energy research programs are currently undergoing critical review by both the PIER Independent Review Panel and the California Public Utilities Commission. The CEC's ability to effectively run these research programs is at issue due to the expanding nature of the programs at a time when state budgets and employment are "frozen" because of the ongoing state budget crisis. This paper has examined administrative options for addressing this concern, and reaches the following conclusions:

- **The "JPA" Option:** A "Joint Powers Agreement" (JPA) cannot be lawfully used to administer the PIER Program without additional statutory authority. Moreover, while a JPA may have certain benefits *vis a vis* the CEC's continued administration of the program, there are a number of serious costs associated with this option that must be carefully weighed as well.
- **The "Public Benefits Corporation" Option:** A non profit "Public Benefits Corporation" cannot be lawfully used to administer the PIER Program without additional statutory authority. Moreover, while this option may have certain benefits *vis a vis* the CEC's continued administration of the program, there are a number of serious costs associated with this approach that must be carefully weighed as well.

CALIFORNIA
ENERGY
COMMISSION

**PUBLIC INTEREST ENERGY RESEARCH
(PIER) PROGRAM**

**2007 – 2011 MANAGEMENT AND
STAFFING PLAN**

FINAL STAFF REPORT

JULY 2006
CEC-500-2006-020-SF



Arnold Schwarzenegger, *Governor*

**CALIFORNIA
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ABSTRACT

The California Public Utilities Code 384.1 states that by March 15, 2006, the California Energy Commission must provide to the appropriate Legislative policy and fiscal committees a report describing a long-term research priority, program management, and staffing plan for the Public Interest Energy Research (PIER) Program. PIER is part of the Public Interest Research, Development and Demonstration Program established by Section 25620.1 of the Public Resources Code and funded through the Public Interest Research, Development, and Demonstration Fund. Combined with the *PIER 2007-2011 Electricity Research Investment Plan*, this report complies with the requirements established in the California Public Utilities (Codes 384.1 and 399.7).

The planning process for developing this five-year management and staffing plan is integrated with the electricity and natural gas five-year plans that are simultaneously being developed. The team developing the plans is divided into three task forces: Electricity, Natural Gas, and Program Management. Each task force received additional input and perspective from key stakeholders, both within and outside the Energy Commission, by conducting hundreds of interviews and holding multiple public workshops. This document is a culmination of those interviews and workshops. It reflects the feedback received from multiple stakeholder groups.

KEYWORDS

Public Interest Energy Research, PIER, Public Interest Energy Research Development and Demonstration, Program Management, Staffing

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EXECUTIVE SUMMARY

In 1996, the Legislature established the Public Interest Energy Research (PIER) program at the California Energy Commission. This program was funded with payments from Investor Owned Utilities' (IOU) ratepayers. To support the present and future directives of the PIER program, the Legislature later required the Energy Commission to provide a plan describing the long-term research priorities, program management and staffing needs. The majority of PIER program research is currently managed by permanent staff. However, PIER has supplemented permanent staff with contract consultants to effectively manage work demands. PIER's staffing and administrative budget is substantially less than that of other organizations engaged in energy research.

PIER intends to maintain the current level of contract staff members, and will continue to require specialized staff in the research, development and demonstration (RD & D) program for expertise not adequately provided for under civil service classifications. Furthermore, PIER continues to contract 15 to 20 percent of the research funds to other research organizations. This practice allows PIER to leverage technical expertise in areas new to the program.

Historically, PIER staffing needs have been driven by the increasing number of projects developed and managed each year. However, the program staff expect that, by 2008, the number of new research projects each year will be balanced by the number of completed projects. Even as the number of active projects stabilizes, four major issues will cause PIER's workload to increase. These are:

- A number of completed projects that require technology transfer support and connections to the energy market.
- A need to help implement and support aggressive California energy goals.
- The expectation for PIER to lead and coordinate industry stakeholders.
- The scope of programmatic responsibilities.

As projected work requirements materialize over the next five years, future resources may be needed to effectively manage the program. Compared to other options, increasing permanent staff would cost less, provide the greatest control, allow the program to realize its strategic objectives, and help the state meet aggressive energy policy goals. The need for additional PIER resources will be evaluated during the Governor's annual budget process, in consultation with the Department of Finance.

Currently, the interest generated in the PIER account by funds not yet invested in RD & D projects pays for staff and administrative costs for the program. This allows most of the ratepayer funds to be used for RD & D projects – a practice expected to be continued by the PIER program.

INTRODUCTION

PIER Overview

Before the deregulation of its electric services industry, California led the nation in a wide variety of energy-related research, development and demonstration (RD & D) activities. These activities developed and deployed some of the cleanest and most efficient energy technologies in the world. This RD & D achievement was accomplished through a collaborative effort among government, the private sector, and the state's regulated energy utilities, and ensured that both public and private goods were produced for the benefit of California's citizens.

As the state transitioned to a deregulated market, the California Public Utilities Commission (CPUC) observed that, "the need for activities performed in the public interest will continue in the future, but the role of electric utilities as providers of these services is less clear" (Decision. 95-12-063). To prepare for competition, the state's major investor-owned electric utilities (IOUs) reduced their RD & D budgets from nearly \$135 million in 1991 to less than \$62 million by 1996. The CPUC indicated that only those utility RD & D activities that continue to support "regulated functions" should be funded through rates in the future (Decision. 95-12-023).

The CPUC also stated that those RD & D activities that serve a "broader public interest...should not be lost in the transition to a more competitive environment." To address this concern, the California Energy Commission recommended that a surcharge on retail electricity sales be collected to provide for future public goods RD & D efforts. The Energy Commission also emphasized that this public goods charge "should collect funds only for public goods research, not...for regulated or competitive research functions."

As a consequence, the Legislature, in 1996, established the Public Interest Energy Research (PIER) Program at the Energy Commission, and funded the program with payments from IOU ratepayers. AB1890 (Sher), Chapter 854, Statutes of 1996, was enacted to ensure that the benefits from important programs such as public interest energy RD & D would not be lost in the newly deregulated environment. Beginning January 1, 1998, California's IOUs started collecting \$62.5 million annually to fund energy-related RD & D activities. On January 1, 2002, the IOUs were directed to continue collecting from ratepayers, but starting January 1, 2003, to adjust this amount annually at a rate equal to the lesser of their annual growth in electricity sales, or the annual gross domestic product deflator. Over the last eight years, PIER has invested \$488 million in projects related to buildings' end-use efficiency, industrial agriculture and water end-use efficiency, renewables, environmentally preferred advanced generation, energy systems integration, and environmental impacts of energy.

Requirement for Management and Staffing Plan

At the direction of SB 71 (Chapter 81, Statutes of 2005, Section 384.1 to the Public Utilities Code), the Energy Commission must provide to the appropriate legislative policy and fiscal committees a report describing a long-term research priority, program management, and staffing plan for the Public Interest Energy Research (PIER) Program. PIER is part of the Public Interest Research, Development and Demonstration Program established by Section 25620.1 of the Public Resources Code and funded through the Public Interest Research, Development, and Demonstration Fund. The report will:

- (1) Designate, in priority order, between 5 and 10 areas of research.
- (2) Evaluate the current and projected funding and workload through 2011.
- (3) Identify, based on the priorities established by the Energy Commission, an effective and efficient program management structure, staffing, and funding requirements to adequately manage the projected workload.
- (4) Consider the appropriate mix of contract consultants and state employees, considering required technical expertise and overall costs.

This report addresses each of these legislative directives as well as the concerns identified by the Independent Review Panel's June 2005 report.

Combined with the *2007-2011 Electricity Research Investment Plan*, this staffing and management report complies with the requirements established in the Public Utilities Code (Sections 384.1 and 399.7).

RESEARCH PRIORITIES

As directed by current state energy policy described in the *2006 Integrated Energy Policy Report*, the *Energy Action Plan*, and other state policy initiatives, and after incorporating emerging issues from major trends and drivers, the PIER program has identified five research areas. Listed in priority order, these research areas are:

- Efficiency and demand response.
- Renewables, clean fossil, and distributed generation.
- Transportation.
- Energy systems and infrastructure.
- Environmental analysis.

The *2007-2011 Electricity Research Investment Plan*, submitted to the Legislature on March 30, 2006, details the PIER program research plan for the next five years in these five targeted research areas. For each area, the research investment plan defines the state energy policies that are supported by this research, the major trends and drivers, the strategic objectives, and the corresponding research solutions.

PROJECTED FUNDING AND WORKLOAD

As stated earlier in the **PIER Overview** section of this report, the current funding level totals \$62.5 million per year. In the next five years, the PIER program's projected funding is anticipated to continue at the level of \$62.5 million per year, totaling \$312.5 million by 2011. These projected funds will be used for RD & D projects in the priority research areas, as well as potential new areas based on future direction from the Legislature and the administration.

Although the number of active projects is expected to stabilize, four major issues will cause PIER's workload to increase.

- A number of completed projects that require technology transfer support and connections to the energy market.
- A need to help implement and support aggressive California energy goals.
- The expectation for PIER to lead and coordinate industry stakeholders.
- The scope of programmatic responsibilities.

If work increases as expected over the next five years, future resources may be necessary to effectively manage the program. Currently, the earnings from interest on funds not yet invested in PIER's RD & D projects are used to pay for staff and administrative costs. This allows most of the funds from the ratepayers to be used for RD & D projects. The PIER program expects to continue this practice.

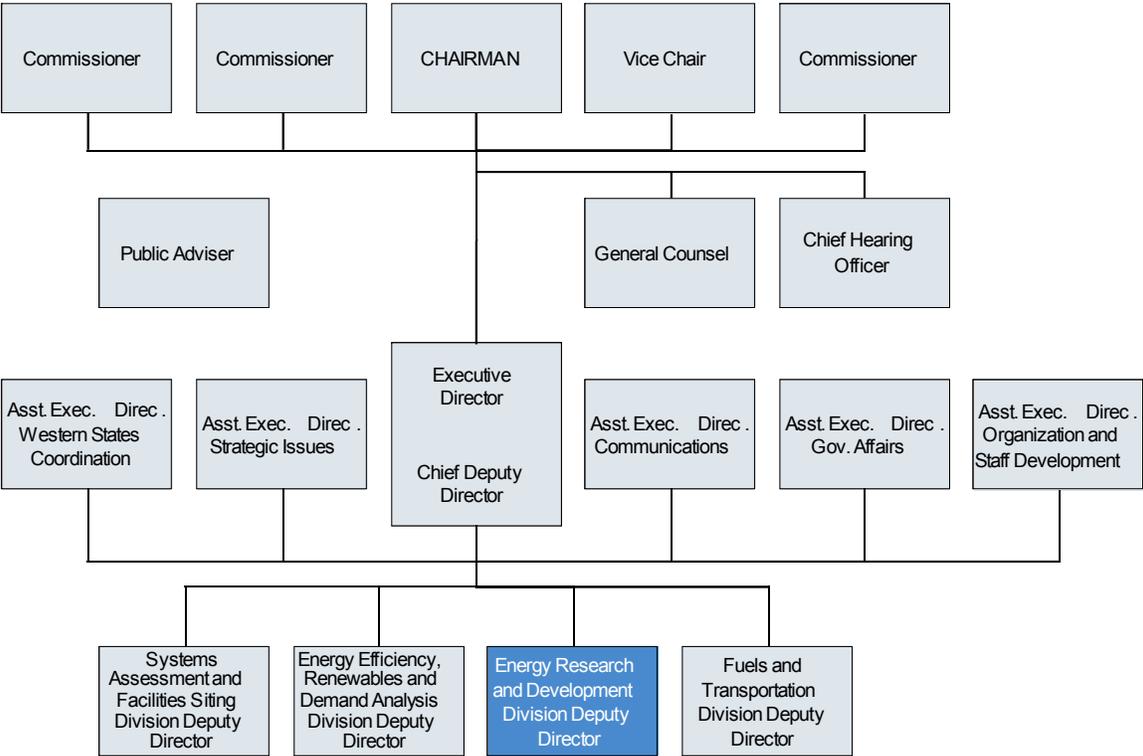
PROGRAM MANAGEMENT

Organizational Structure

In its June 2005 report to the Legislature, the Independent Review Panel (IRP) noted the challenges of applying the principles of superior research and development management skills at the Energy Commission, an organization governed by civil service rules. The IRP questioned whether the management flexibility and risk-taking required for a first class research and development program could be implemented within the Energy Commission, or if an external option for PIER would be required. PIER and the Energy Commission continue to analyze the implications of operating within the Energy Commission or forming a Joint Powers Authority to administer PIER.

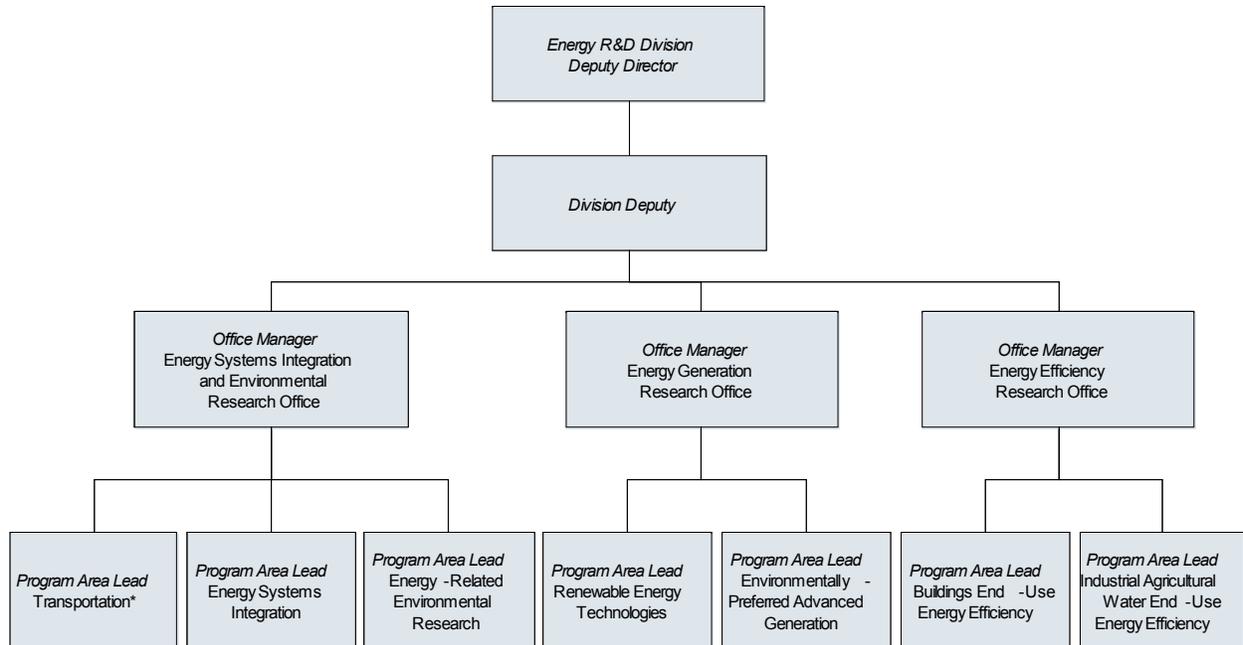
Responding to the IRP’s comments, the Energy Commission revised the organizational structure of the PIER program to address specific issues. The PIER Director position was elevated to a Deputy Director (Figure 1) to allow increased influence by interacting with Commission leadership. The new position gives the program increased visibility, independence and flexibility, and improved access to support services like contracting and personnel.

Figure 1: Energy Commission Organizational Structure



PIER's leadership is currently composed of the Energy Research and Development division deputy director, the division deputy, three office managers, and six program area leads (Figure 2). In addition, the PIER leadership is in the process of developing a transportation program area and hiring a transportation program area lead as directed in the Governor's 2005 budget. This new structure provides a strong framework for internal collaboration at the senior level where opportunities can be more readily identified.

Figure 2: Internal PIER Organizational Structure



* New position

Key Operating Processes

Since the beginning of the program, PIER management and Energy Commission support staff (for example, Contracts, Personnel, Legal) have worked together to improve the program. However, the IRP found that the program still has cumbersome administrative practices in some areas, such as preparing contracts. The need to address the IRP findings, combined with the drive for continuous improvement, led PIER to reassess its performance. A task force composed of staff from PIER and Energy Commission support functions - Contracts, Legal, Human Resources, and Audit - defined the key operating processes, assessed past performance, defined objectives (Figure 3), and developed a plan of detailed actions that allows for program objectives to be reached.

Figure 3: Objectives for Key Operating Processes

Key Operating Process	PIER Objectives
Stakeholder Coordination and Outreach	<ul style="list-style-type: none"> PIER will have a consistent external communications strategy for key stakeholder groups, including policymakers, energy industry, and consumers. PIER will have a strong working relationship with other divisions at the Energy Commission.
Contracting	<ul style="list-style-type: none"> PIER and support functions will work toward common goals in an efficient and effective manner.
Human Resources	<ul style="list-style-type: none"> PIER will be staffed with highly motivated and capable research project managers who collaborate across program areas. PIER will access a diverse range of experts for extended periods to support its research and program management objectives.
Research Planning	<ul style="list-style-type: none"> Research will reflect current concerns and find solutions to future needs. Coordinated research planning will take place across PIER program areas and fit into an overall PIER-wide research plan with little additional work. Resource allocation will be coordinated into the overall PIER budget.
Research Implementation	<ul style="list-style-type: none"> PIER will continuously increase the amount of public interest benefits achieved through funded projects. Research across all program areas will be consistent and logical, easily explained and defensible.

STAFFING PLAN

Current Program Research Resources

The PIER Program is staffed by permanent state employees and contract consultants. The majority of PIER funded research is managed by permanent staff. However, current permanent staff resources alone are not enough to meet the total work needs. The program has therefore supplemented permanent staff with contract consultants.

Permanent Staff

The PIER Program currently has 59 permanent staff positions (PY's) to manage the program. They are organized as follows:

- 6 administrative positions, including 1 division chief, 3 office managers, 1 clerical position, and 1 administrative specialist position.
- 11 positions for supervisors and program area leads.
- 37 positions for staff research project managers.
- 5 administrative support positions located in the following Energy Commission offices: Contracts Office (3), Legal Office (1), and the Accounting Unit (1).

Staff research project managers comprise the majority of the program staff. The work done by staff research project managers includes:

- Identifying and evaluating research opportunities to meet policy objectives.
- Analyzing complex energy issues.
- Serving as subject-matter experts on energy-related technologies.
- Developing and managing research projects and contracts.
- Coordinating with utilities, industry, and other stakeholders to connect public interest energy research programs and studies with market actions.
- Implementing research project results through technology transfer and marketing activities after the project is completed.
- Helping the subject area team leads develop research and development program goals and objectives.
- Supporting the development of energy policy by providing subject-matter expertise to the Energy Commission, the Governor, Legislators, and other governmental agencies.
- Capturing attractive partnering opportunities and leveraging federal funding to be regionally and nationally recognized as a leader in electricity research and development.

In its June 2005 report, the IRP noted the challenge to meet work requirements with permanent staff. "Although the PIER program is not funded by state general funds, because it is housed within the CEC (Energy Commission), it is subject to the staffing

and budget freezes that have been imposed on state agencies over the past few years. The combination of these two circumstances has resulted in a chronic understaffing of PIER.” PIER management addressed this concern by hiring contractors, usually in areas requiring specific, technical expertise.

Additionally, PIER’s program administration budget - as a proportion of the overall program funding allocation - is substantially less than that of other organizations engaged in energy research (Figure 4). PIER’s administrative allocation for Fiscal Year (FY) 2005-06 is 20 percent less than the New York State Energy Research and Development Authority (NYSERDA) and 30 percent less than the U.S. Department of Energy Office of Electricity Delivery & Energy Reliability (DOE OE). Compared to the Electric Power Research Institute (EPRI) or the pre-deregulation Southern California Edison and San Diego Gas & Electric research organizations, PIER’s administrative burden is 50 percent less. Compared to the pre-deregulation Pacific Gas & Electric research organization and Gas Technology Institute, PIER’s administrative allocation is 60 percent less. PIER’s costs for permanent PY’s per \$1 million in research and development funding are still less than all of the organizations except DOE.

Figure 4: Program Administration Budgets of Other Research Entities

Research Entity	Total Allocation	Program Administration	% of Allocation	PY per \$1MM in Core Activity Funding
PIER (FY'05-'06)	\$80,080	\$7,580	9.5%	0.8
NYSERDA ¹	\$190,291	\$22,810	12.0%	1.3
U.S. DOE OE ²	\$125,641	\$17,996	14.3%	0.7
SCE ³	\$27,000	\$5,000	18.5%	1.7
SDG&E ⁴	\$7,200	\$1,352	18.8%	2.2
EPRI ⁵	\$260,900	\$51,200	19.6%	2.6
PG&E ⁶	\$37,000	\$8,400	22.7%	2.3
GTI ⁷	\$115,051	\$26,976	23.5%	2.7

Financial figures are in \$ thousands.

Contract Consultants

PIER uses three types of contract consultants: technical support staff, inter-jurisdictional exchanges, and contract research organizations. The PIER Program’s selective use of

¹ FY 2004-2005 NY State Energy Research and Development Authority (NYSERDA) Annual Report.
² FY 2007 Proposed DOE Budget as applicable to the Office of Electricity Delivery & Energy Reliability with prorated Departmental Administration figures.
³ 1995 Historical data on regulated research and development unit used by CPUC RD & D Working Group.
⁴ 1995 Historical data on regulated research and development unit used by CPUC RD & D Working Group.
⁵ 2005 figures as provided by EPRI Financial Manager.
⁶ 1995 Historical data on regulated research and development unit used by CPUC RD & D Working Group.
⁷ 2003 Consolidated Statement of Financial Position

contract consultants follows the Government Code Section 19130(b) when “the services contracted are not available within civil service, cannot be performed satisfactorily by civil service employees, or are of such a highly specialized or technical nature that the necessary expert knowledge, experience, and ability are not available through the civil service system.”

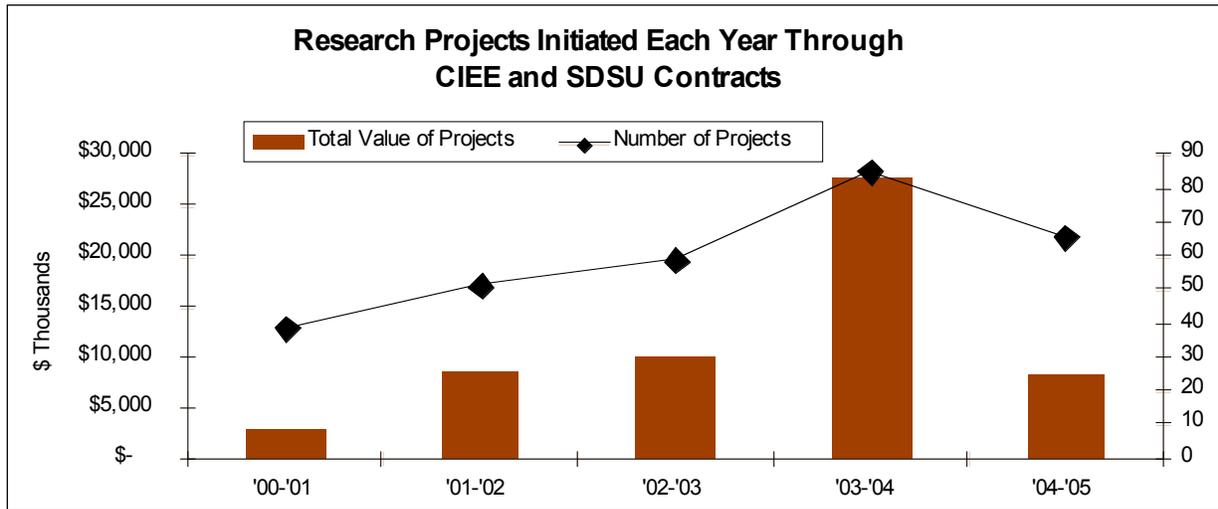
Six technical support staff members currently work for the PIER program. Working through the technical support contracts, they are critical to the operation of the PIER program, helping to fill gaps in resources and expertise critical to PIER’s mission. These contractors support project administration, within statutory limits, in all PIER program areas. Technical support staff with database management expertise is responsible for the creation and maintenance of the PIER Information Management System (PIMS) database.

Aside from the technical support staff, five Inter-jurisdictional exchange (IJE) staff members are currently working for the PIER program. IJEs bring unique expertise into PIER from other public organizations, both state and federal. Since IJE staff work on fixed-term contracts with limited renewability, they provide only temporary staffing solutions for PIER.

Contract research organizations used by the PIER Program - such as the California Institute for Energy and Environment (CIEE) - supplement the program management resources and capabilities available to PIER. CIEE plays a critical role in managing research areas, including Transmission Research, Demand Response Enabling Technologies Development, and Environmental Exploratory Grants. In addition, the San Diego State University (SDSU) Foundation manages the day-to-day operation of the highly regarded Energy Innovations Small Grant Program, for which the PIER program area lead is the only permanently assigned Energy Commission staff member.

PIER projects established by contract research organizations during the last five years have ranged between 38 and 84 projects a year, with funding between \$3 million and \$28 million (Figure 5, page 11). Total funding over the last five years represents close to 20 percent of the funds.

Figure 5: Contract Research Organizations Funding/Projects



Balance of Research Resources

The PIER program maintains an appropriate balance of resources with two key ratios - the ratio of permanent staff to contract staff (technical support and IJE staff) and the percentage of research managed through contract research organizations.

At present, PIER's 59 permanent positions are augmented by 11 contract staff (six technical support and five IJE staff members). That corresponds to 5.4 permanent positions per contract staff member – a reasonable ratio given the fast pace of change and high degree of technical expertise required in public interest energy research. The program intends to keep a similar number of contract staff members, because there continues to be a need for specialized staff in an RD & D program not adequately provided for under civil service classifications.

PIER will continue to allocate 15 to 20 percent of its research funds to contract research organizations. Such a practice allows PIER to leverage the technical expertise of other research organizations in areas new to the program. It is reasonable to expect new areas of research to emerge where PIER will need to work with contract research organizations.

Projected Work

Historically, the need for PIER staffing has been driven by the increasing number of projects developed and managed each year. As of June 2005, PIER electricity program staff managed 510 active projects totaling \$248.8 million – an increase of 107 active projects in just the past year, and an increase of 224 active projects since 2001. The program expects that by 2008 the number of new research projects each year will be balanced by the number of completed projects. As the number of active projects stabilizes, the PIER work is projected to increase every year.

Technology Transfer and Connections to Market

Based on PIER's experience, a research project typically takes one year to develop, two or three years to conduct, and two years of post-research time for technology transfer, including policy implementation, market adoption (work with the private sector and other agencies commercialize the technologies) and intellectual property repayment.

Examples of post-research technology transfer activities include:

- Incorporating PIER efficiency research into the Title 24 standards' requirements for non-residential buildings and non-residential duct sealing and insulation.
- Integrating PIER Distributed Energy Resources research into the CPUC rulemaking on the costs and benefits of distributed generation to the electric system.
- Working with the Emerging Technologies Coordinating Council of the Investor Owned Utilities and the Los Angeles Unified School District (LAUSD) to install the PIER-funded Integrated Classroom Lighting System across LAUSD classrooms.
- Incorporating PIER renewable energy technology research into the state's Renewable Portfolio Standard.

By 2008, the number of active projects will equal the number of completed projects. Many of these completed projects will require technology transfer.

Support Aggressive California Energy Goals

As observed during the 2001 California energy crisis, energy policy is extremely complex. Moreover, several new energy policy documents have been developed in recent years.

In 2003, the *Integrated Energy Policy Report* (IEPR) was introduced as the main source of energy policy in California. The IEPR explained the need for energy related public interest energy research and called on PIER to identify emerging issues in future policy. This report will be developed every two years, with annual updates. Each subsequent IEPR is meant to build on the policy of the previous reports, thus increasing the base of energy policy every year.

Another policy document introduced in 2003 and again in 2005 is the *Energy Action Plan* (EAP). The EAP defines requirements for public interest energy research.

In addition to the IEPR and EAP, there are several energy-related Governor's Executive Orders and Legislative initiatives that the PIER program must support. The urgency of the issues addressed by state energy policy is increasing. Some of the key state policy goals that require PIER support include:

- CPUC's cumulative goals of nearly 27,000 gigawatt-hours of electricity savings and nearly 7,000 megawatts of peak demand reduction for 2004 – 2013 (CPUC D04-09-060) from a 2004 baseline of 218,000 gigawatt-hours and 45,000 megawatts, respectively (*Energy Commission Staff Energy Forecast 2006-2016*, September 2006).
- A 20 percent reduction in energy consumption in state buildings by 2015 (Executive Order S-20-04).
- A goal of 20 percent renewables by 2010, 33 percent renewables by 2020 (2003 and 2004 IEPR).
- One million solar roofs by 2018 (CPUC Rulemaking 04-03-017).
- 30,000 megawatts of clean and diverse resources in the West by 2015 (Western Governors' Policy Resolution 04-14).
- A reduction of gasoline and diesel fuel demand to 15 percent below 2003 demand by 2020 (Joint Energy Commission/California Air Resources Board Goal in response to Assembly Bill 2076 directive).
- An increase of non-petroleum fuel use to 20 percent by 2020 and 30 percent by 2030 (*2003 Integrated Energy Policy Report*).
- A reduction of greenhouse gas emissions by 2010, 2020, and 2050 to 2000 levels, 1990 level, and 80 percent below 1990 levels, respectively (Governor Executive Order S-3-05)

Coordination of Industry Stakeholders

As PIER builds a knowledge base from its research activities, California energy stakeholders increasingly look for PIER to guide and lead collaborative initiatives. A recent example is the Rule 21 Working Group. In this working group, PIER's leadership is standardizing the process to interconnect distributed generation equipment to the electricity distribution system, reducing the time and the cost to interconnect. Another example is the Emerging Technologies Coordinating Council, where PIER is working with representatives from the IOUs to support adoption of attractive emerging energy efficiency technologies. These activities strengthen PIER's leadership position in public interest energy RD & D, helping the program to exert national influence and to receive federal funding to help address California energy issues.

Scope of Programmatic Responsibilities

As PIER receives additional programmatic responsibilities (for example, natural gas and transportation energy RD & D), its staff must work with a broader group of stakeholders and increase the amount of time spent coordinating research. A current example is the

need for PIER staff to coordinate transportation related research with the California Air Resources Board.

Options to Meet Projected Work Requirements

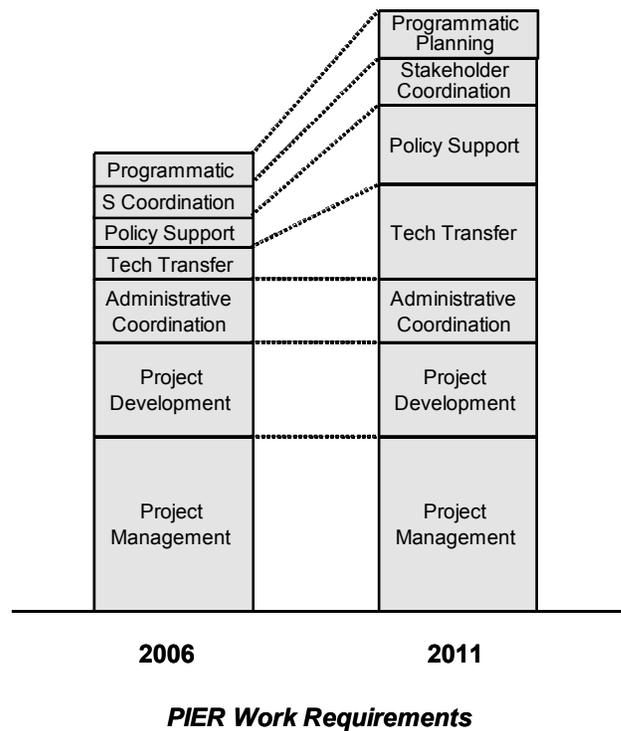
Several options were considered for the PIER program (Figure 6) to meet the projected work requirements. If additional resources are necessary, increasing permanent staff should be considered. Compared to other options, increasing permanent staff would lower costs, provide the greatest control, offer the opportunity for the program to realize its strategic objectives, and help the state to meet aggressive energy policy goals.

Figure 6: Comparison Summary of Options to Meet Projected Work Requirements

Option	Pros	Cons
Increase Permanent Staff	Lower cost, greater control over research projects and technology transfer activities.	Need to recruit new staff.
Increase Use of Contract Consultants	Simpler process to adding staff. Increased access to emerging research capabilities.	Higher costs, limited contracting periods and limited authority. Reduced control over research planning, management, execution and technology transfer. Issues of confidentiality.
Fund Larger Projects	Smaller number of projects and contracts to manage.	Larger projects are more complex and time consuming to manage, there is reduced control over the research, and there is decreased diversity and effectiveness.
Limit Program to Current Resources	No need to manage additional staff or process change.	Diminished technology transfer and stakeholder coordination, reduced value from research; lower probability of state meeting energy policy goals (see list on page 13) in a timely manner.

PIER is expected to become more active as it manages technology transfer implements aggressive policy goals, coordinates industry stakeholders, and manages the increasing number of programs responsibilities (Figure 7). As projected work materializes over the next five years, future resources may be needed to effectively manage the program. The need for any additional resources will be evaluated during the Governor’s annual budget process, in consultation with the Department of Finance.

Figure 7: Illustration of Projected Work Requirements



CONCLUSION

Since its inception, PIER has invested \$488 million in projects related to buildings' end-use efficiency, industrial agriculture and water end-use efficiency, renewables, environmentally preferred advanced generation, energy systems integration, and environmental impacts of energy. PIER research has contributed to addressing key energy issues in each of these areas.

California cannot rely solely on federal government public interest energy research, nor can it rely solely on research developed by industry or utilities. The state has unique demographic and geographic profiles and commercial sector and industrial sector mixes – as well as unique vulnerabilities to natural and man-made disasters – that require California-focused energy solutions. Policy makers in California require unbiased, accurate, and timely information to drive effective energy policies. Moreover, technology and scientific research investment decisions, that have a clear public benefit, need to be made with minimum bias.

California continues to lead other states in the development of energy policy and advanced technology. Only New York and, recently, Texas have programs comparable to PIER. Benefits PIER brings to Californians include:

- Lower energy costs, achieved through the more efficient use of energy and the improved use and performance of the delivery system.
- A clean and environmentally friendly energy system based on renewable energy sources that are cost-competitive with traditional oil- and gas-fueled generation technologies.
- Reduced dependence on out-of-state/international resources and reduced volatility of energy prices.
- Reduced cost of electricity that will result from reduced volatility of transportation fuel prices and reduced dependence on foreign oil.
- Increased reliability of electricity service resulting from a modernized and secure electric transmission and distribution system.
- Reduced health risk from poor indoor and outdoor air quality, reduced footprint from energy infrastructure, increased availability and quality of water resources, reduced biological impacts, and reduced impact from climate change.

PIER has improved its program management and stakeholder outreach in recent years. Issues identified by the IRP are being addressed, and organizational options recommended by the IRP are being explored. The PIER program works continuously to improve its performance and, through its presence, to support a secure energy future for California.

PIER JPA

David Abelson - Fwd: PIER letter

From: Anzell Loufas <aloufas@ccst.us>
To: <btherkel@energy.state.ca.us>, <rkukulka@energy.state.ca.us>
Date: 8/6/2004 3:34 PM
Subject: Fwd: PIER letter
CC: <nlibonat@energy.state.ca.us>

Bob, Ron, FYI, This letter went to the Commissioners and will be followed up Tuesday, August 10 with panel members meeting with the Commissioners and with Joe Desmond. Anzell

August 4, 2004

William J. Keese, Chairman
California Energy Commission
1516 9th Street
Sacramento, CA 95814

Dear Chairman Keese:

As you know, in March 2004 the Independent Review Panel (IRP) submitted a preliminary report on the Public Interest Energy Research (PIER) program to the Legislature and the California Energy Commission regarding program design and implementation, as well as the degree to which the recommendations of the 1999-2001 IRP have been implemented. A final report will be submitted by January 2005.

The preliminary report emphasized the organizational challenges facing PIER and requested that CEC look more closely into solving the perceived structural problems. In response, CEC staff produced a thoughtful document that outlines three possible solutions. The first strategy gives PIER greater operational independence and authority within CEC (the "Internal Option"), the second involves a Joint

Powers Authority arrangement, and the third contemplates a Public Benefit Corporation. As a result of a two-day deliberation with CEC staff, the IRP now wishes to provide the CEC Commissioners with observations and recommendations as further work proceeds.

We first want to commend Bob Therkelsen and Ron Kukulka and the staff that were part of the team that provided the response to the IRP on organizational options. This has provided an excellent foundation on which to consider next steps. We greatly appreciate the effort of the group. Their discussions of the options on how to strengthen the PIER program provided valuable input to the work of the IRP.

The IRP also would like to reiterate that we consider the PIER program to be a vital component of the energy future California seeks. This requires that PIER becomes a world-class program and that it is provided with the environment that provides for stability and growth.

We urge the CEC to pursue the actions outlined in the Internal Option. Potential reorganization of state government as a consequence of the California Performance Review should not delay action. Under any conceivable scenario the flexibility sought for PIER operation will be needed to attract the leadership necessary for an outstanding program.

For the long-term health of the PIER program, we also recommend that the CEC move expeditiously and with due diligence toward creating a Joint Powers Authority (JPA) for PIER with the University of California Office of the President (UCOP) or other appropriate research-oriented partner under the existing authority of CEC.

Since PIER was established, CEC and UCOP have developed a beneficial collaboration in managing PIER research by bringing together the research culture and experience of the University and the policy creation and implementation functions of CEC. If UCOP is

determined to be the most appropriate partner, a JPA would formalize this relationship and improve it by bringing to PIER the best capabilities and administrative relief available from both partners. A prompt decision by the CEC to pursue both internal action and the JPA should aid in recruiting a new PIER director of highest quality.

The IRP is planning its next meeting in October and has requested that a progress report is made to the Panel at this meeting.

We would be happy to discuss these issues and further observations with you in more detail and look forward to working with you and the CEC staff to ensure that the PIER program achieves its goals and continues to develop into the outstanding R&D organization that California needs and deserves.

Sincerely,

Carl Weinberg, Chair Linda Cohen, Vice Chair
PIER Independent Review Panel PIER Independent Review Panel

cc: CEC Commissioners
 PIER IRP Members

--

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PIER Program Evaluation

Bob Therkelsen

California Energy Commission



Topics

- **Context**
- **Organization options**
- **Current Activities**
- **Discussion**



California Performance Review

- Released following budget
- Review by “Blue Ribbon” Committee
- Revision?
- Submit to Little Hoover Commission
- Revision?
- Submit to Legislature



Natural Gas R&D Program

- **CPUC Originated**
- **\$12 to 24 million/year for 5 years**
- **Options for administration**
 - **Gas Utilities**
 - **University of California**
 - **Energy Commission**
- **CEC/UC - joint recommendation**



Approach (Page 10)

- **Understand options**
 - **Internal (CEC)**
 - **Joint Power Authority**
 - **Public Benefits Corporation**
- **Develop concept**
 - **Fully viable**
 - **Fully satisfy IRP concerns**
- **Evaluate using criteria**
- **List advantages / disadvantages**



Evaluation Criteria

- **Legislative Intent**
- **IRP problem statements**
- **Guiding principles**
- **Desired attributes**



Problems (Page 9)

- **Organizational culture**
- **Structure and organization**
- **Resources**
- **Outsourcing approach**
- **Administrative processes**
- **Recruitment and hiring**
- **Operations budget (travel)**
- **Management (authority/accountability)**



Guiding Principles (Page 11)

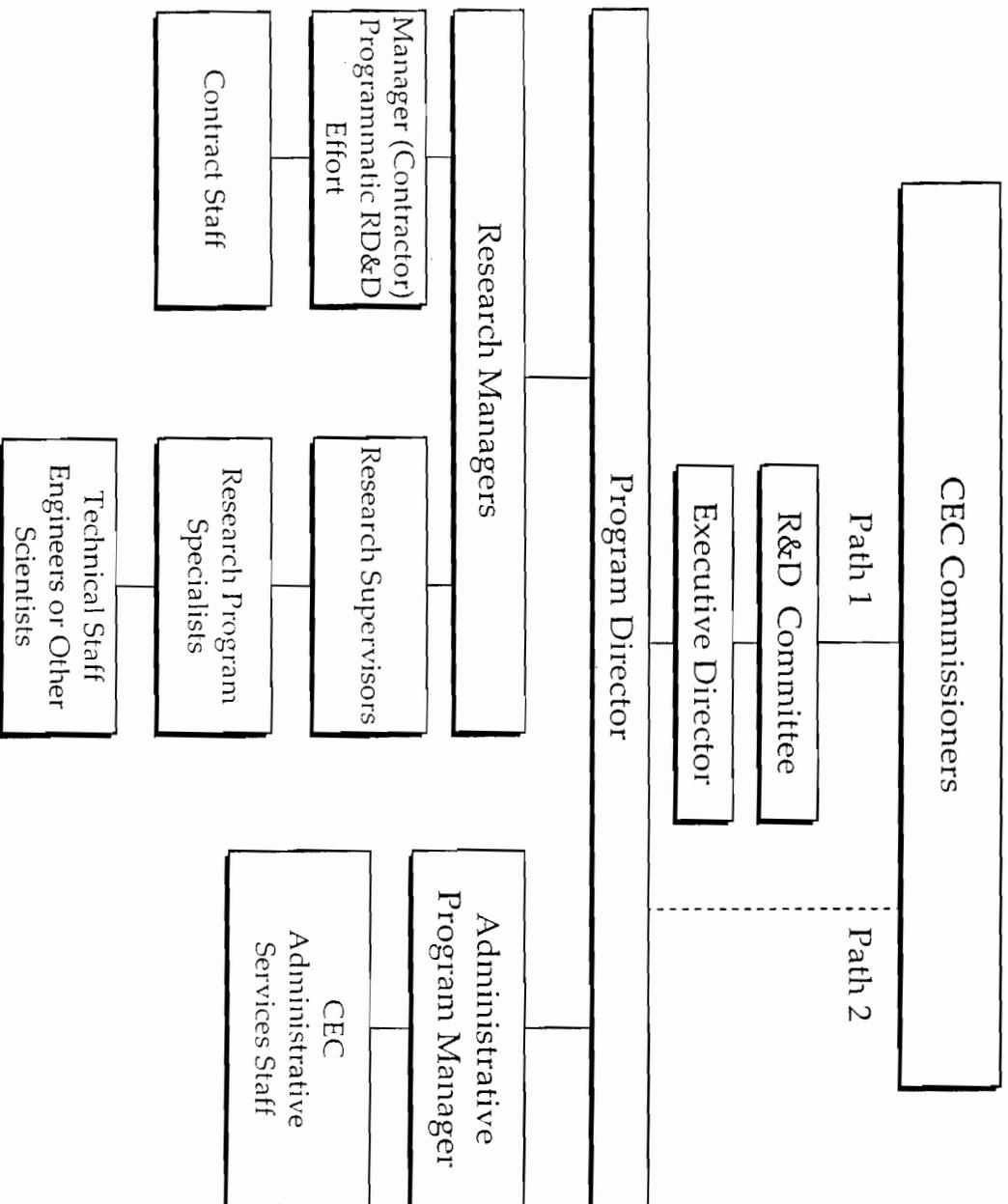
- **Integrated with state energy policy**
- **Focused on public interest energy R&D**
- **Complements other R&D and state implementation programs**
- **Doesn't duplicate private R&D**
- **Clear mission, vision, objectives**
- **High impact information for decisions**

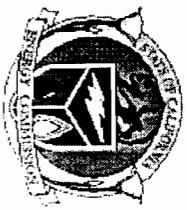


Attributes (Page 11-12)

- **Program and policy synergy**
- **Flexibility in funding and contracting**
- **Risk taking culture**
- **Effective collaboration**
- **Meaningful program plan**
- **Clear budgeting process**
- **Monitor value**
- **Flexible resources**
- **Management authority**
- **Ability to attract and retain staff**

Internal Option Concept





Internal Option

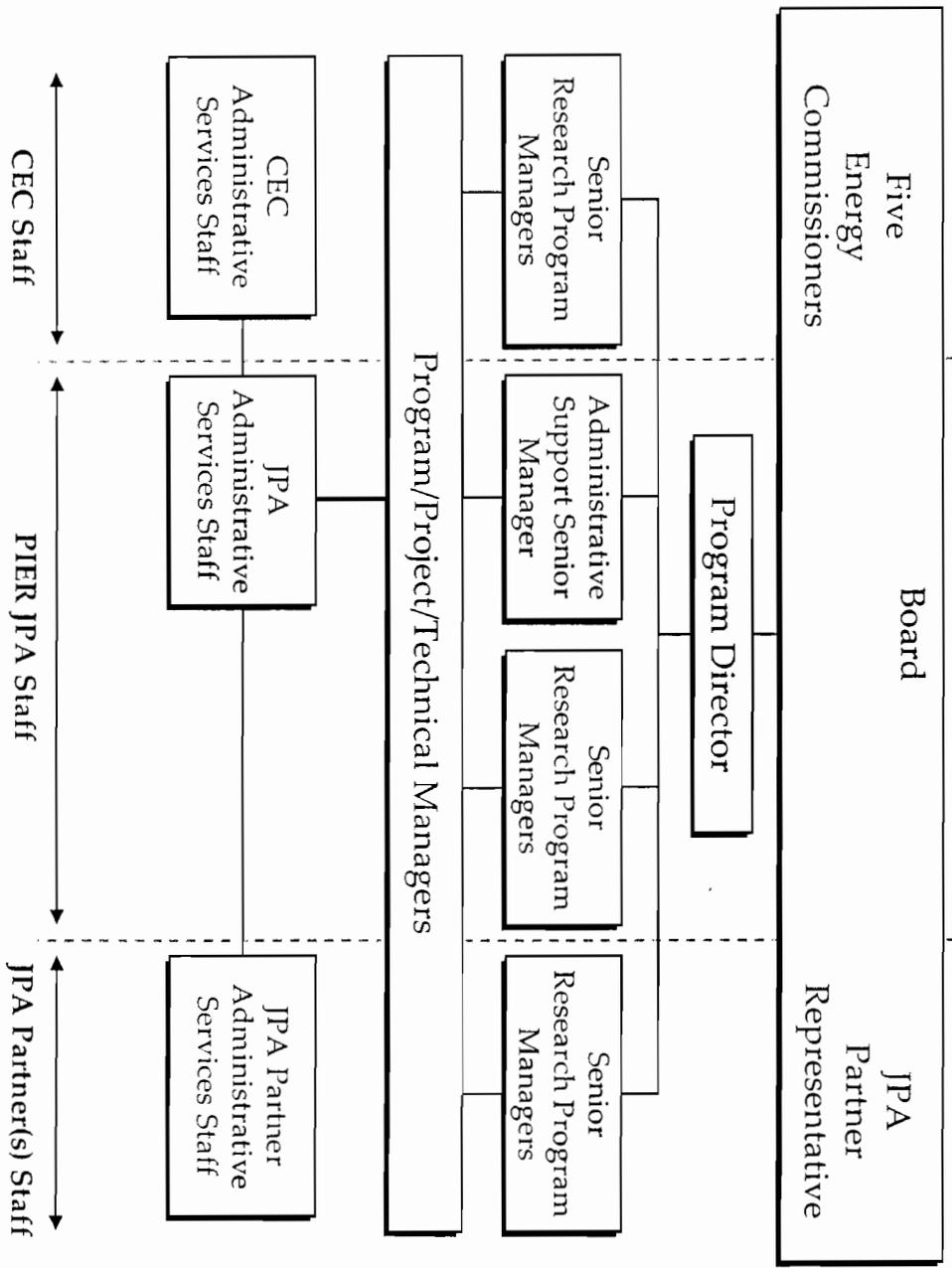
- **Strongest link to the state energy policy**
- **Closest coordination with state programs**
- **Least program disruption**
- **Requires significant exemptions**
 - **Staffing: DPA, SPB and PERB**
 - **Budgeting: Resources Agency and DOF**
 - **Procurement: Legislated delegation**



Internal Option Approach

- **Existing Administrative Processes**
 - Limited likelihood for some provisions
 - Exemptions can be reversed
 - 1-2 years
- **Legislation**
 - Risk of elimination
 - Risk of undesirable provisions
 - 2-3 years

PIER JPA Concept





JPA Option

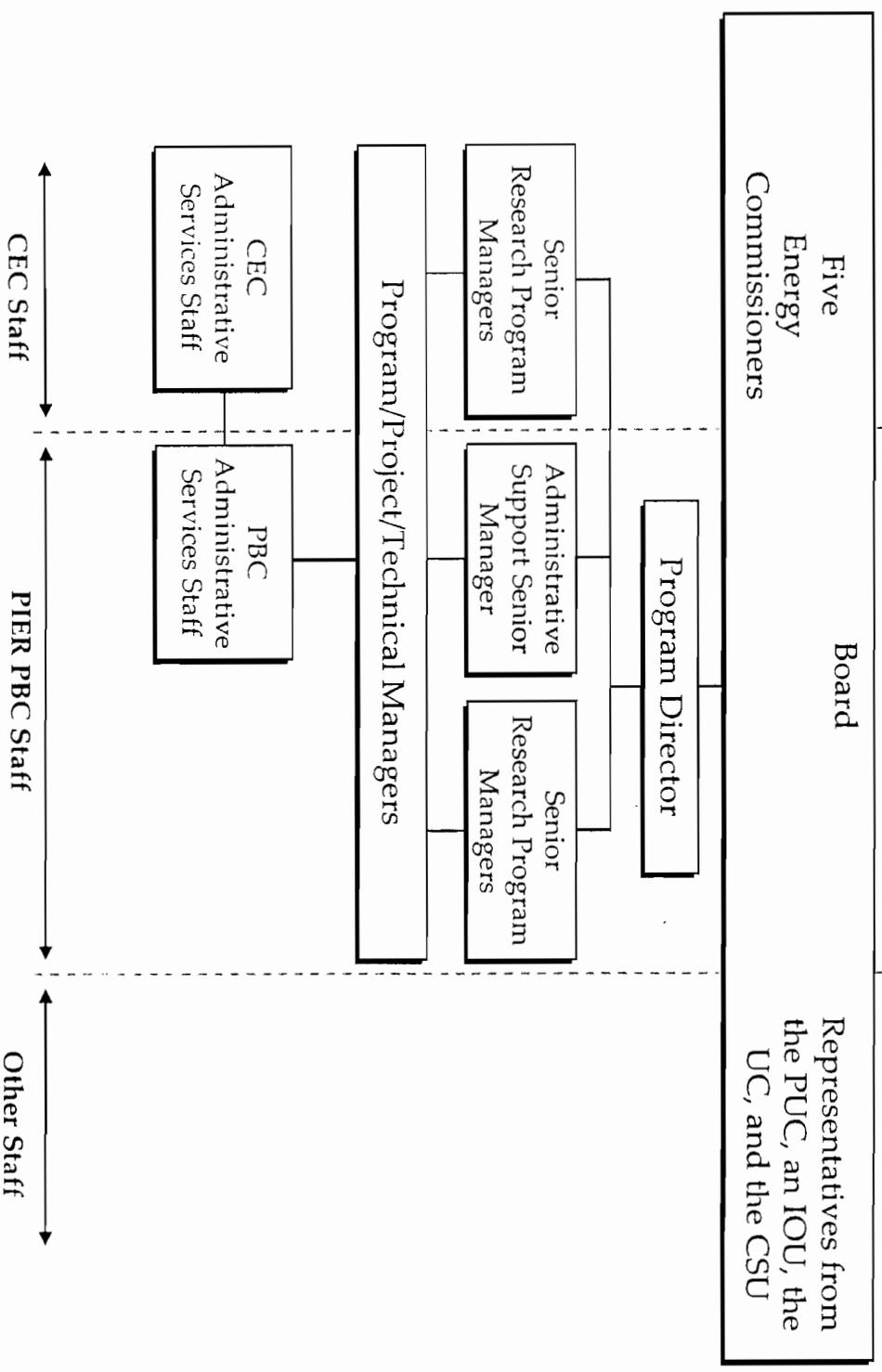
- **Strong CEC oversight**
- **Linkage to state energy policies**
- **Linkage to implementation programs**
- **Partners contribute capabilities**
- **Partners contribute authorities**
- **May have minimal disruption**



JPA Option Approach

- **Legislation**
 - Delegation of entire PIER program
 - JPA approve all funding agreements
 - 2-3 years for implementation
- **Without legislation**
 - Delegating of program administration
 - CEC contract with JPA for administration
 - CEC must approve all funding agreements
- *To establish, the JPA partners would need approval by governing authorities of all partners, the Governor and Legislature*

PIER PBC Concept





PBC Option

- **Highest degree of flexibility**
- **Potential disconnect with state policy**
- **Potential disconnect with state programs**
- **Potential for non-public interest R&D**
- **Potential for transition program impact**
- **Legislation required**
 - **to establish**
 - **to provide support services**
 - **to allow civil service staff to work**



PBC Option Approach

- **Legislation**
 - Full delegation of PIER Program
 - 2-3 years to implement
- **Without legislation**
 - Administer most program aspects
 - Program decisions remain with CEC
 - 1-2 years to fully implement



Actions

- **Redefined program focus**
- **Submitted BCP to add 15 staff**
- **Obtained management authority**
- **Fill program director position**
- **Prepare for natural gas program**
- **Create an R&D Division**
- **Seek more administrative changes**
- **Revise classifications**



Important Points

- **Respond to and influence state policy**
- **Respond to and influence programs**
- **Focus on public interest R&D**
- **Complement private and academic R&D**
- **Viable regardless of outside influences**
- **Sufficient, quality staff & contractors**
- **Clear management structure**
- ***Stress importance of state-funded R&D***



Next Steps?

- **Prioritize problems?**
- **Prioritize attributes?**
- **Discussion?**

Decision 04-08-010 August 19, 2004

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the
Establishment of a Public Purpose Program
Surcharge Pursuant to Assembly Bill (AB) 1002.

Rulemaking 02-10-001
(Filed October 3, 2002)

(See Appendix A for List of Appearances)

**OPINION REGARDING IMPLEMENTATION OF
ASSEMBLY BILL 1002, ESTABLISHING A
NATURAL GAS SURCHARGE**

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**OPINION REGARDING IMPLEMENTATION OF
ASSEMBLY BILL 1002, ESTABLISHING A
NATURAL GAS SURCHARGE**

Summary

In this decision, we implement Assembly Bill (AB) 1002 (stats. 2000, Ch. 932), establishing a natural gas surcharge to fund gas related public purpose programs (PPP) such as low-income customer assistance, energy efficiency and public interest research and development (R&D).¹ We adopt the Energy Division's AB 1002 Workshop Report (Workshop Report) and address and resolve Workshop Report implementation issues raised by parties. Many of these implementation issues involve the State Board of Equalization (BOE), which is charged under AB 1002 with collecting surcharge revenues for deposit in the gas surcharge fund (Fund). This decision also initiates a public interest R&D program, and appoints an administrator, the California Energy Commission (CEC), to improve gas energy efficiency and environmental quality, develop renewable technologies, and otherwise provide benefits to the public.

Our decision resolves issues concerning the exemption of certain customers as required by AB 1002. We also establish procedures to improve the efficiency of the surcharge collection and remittance process, and increase the dollars available for PPP by requiring that interest is paid on customer revenues in the possession of utilities.

Our adopted R&D program establishes project criteria and provides an opportunity for other parties to suggest beneficial R&D projects to the

¹ AB 1002 is codified in Public Utilities Code Sections 890 *et seq.*

administrator, subject to approval by the Commission. We adopt a zero-based budget for 2005 capped at \$12 million for the first year, and provide flexibility to increase funding thereafter. We also provide that any commercial benefits resulting from public interest R&D accrue to ratepayers.

Procedural Background

The Commission issued Order Instituting Rulemaking (R.) 02-10-001 on October 3, 2002, to determine broad policy issues and adopt a long-term framework to implement AB 1002 (Stats 2000, Ch. 932). R.02-10-001 divided the proceeding into two parts: Gas Surcharge Determination and Program Administration. In each area, questions were posed addressing accounting, documentation, customer exemptions, cash flow and R&D. The Commission preliminarily determined that R.02-10-001 is a quasi-legislative proceeding, as that term is defined in Rule 5(d) of the Commission's Rules of Practice and Procedure (Rules).

Respondent parties² submitted comments and reply comments to the questions posed in R.02-10-001 on November 12 and 27, 2002, respectively.

² R.02-10-001 names Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas), San Diego Gas and Electric Company (SDG&E), Avista Utilities (Avista), Alpine Natural Gas Operating Company (Alpine), Southern California Edison Company (Edison) Southwest Gas Corporation (Southwest) West Coast Gas Company (West Coast) and Mountain Utilities as Respondents. SoCalGas and SDG&E are jointly represented by Sempra Energy Utilities (Sempra).

On October 16, 2002, Mountain Utilities requested by letter that it be excused from participation in the proceeding as it only sells propane, and that as provided in Sections 222, 216, and 221 of the Public Utilities Code, propane companies are not considered natural gas corporations. In letters dated October 31, 2002, and November 21, 2002, Edison requested that it be excused as a respondent in the proceeding since it only provides liquefied petroleum gas and propane to Santa Catalina Island customers. On February 10, 2003, West Coast requested by letter that it be excused from participation

Footnote continued on next page

A prehearing conference (PHC) was held February 5, 2003 to establish a service list, and address procedural issues and scheduling matters. Parties at the PHC agreed that issues concerning the policy and implementation of AB 1002 could be resolved through workshops and data requests. Two parties recommended that evidentiary hearings be held to address R&D issues.

On April 22, 2003, the Assigned Commissioner, Loretta M. Lynch, issued an Assigned Commissioner's Ruling (ACR) determining the category, need for hearing, scope and schedule of the proceeding. The ACR divided R.02-10-001 into two phases. The First Phase addresses issues concerning policy and implementation of AB 1002 through a workshop. The ACR attached a list of questions and issues to be resolved in the Phase One workshop. A workshop on Phase One issues was held from May 7, 2003, through May 9, 2003, led by the Energy Division.³

in the proceeding due to a lack of resources, and because the costs of participation are significant relative to the small number of customers served by West Coast. On February 12, 2003, Avista filed a motion for exemption from in-person participation in the R&D portion of the proceeding. Avista explains that it has limited R&D activities and that the costs of participation may be significant relative to the small number of customers served by Avista. On March 7, 2003, Alpine filed a motion to be excused from participation in this proceeding due to a lack of resources that may negatively impact its service to customers. On April 14, 2003, Southwest filed a motion requesting that it be excused from participation in the R&D phase of this proceeding. Southwest explains that it does not conduct any R&D, and that its customers will best be served if Southwest's participation is limited to monitoring the R&D portion of the proceeding. These requests and motions are unopposed, and for the reasons stated by these utilities, the requests and motions from further participation are granted.

³ On May 7, 2003, Sempra filed a motion to modify the ACR to provide issuance of an interim decision on Phase One issues after parties file comments on the Workshop Report. However, the Workshop Report was not filed until December 9, 2003, and comments were not received until January 12, 2004. As a matter of efficiency,

Footnote continued on next page

Phase Two addresses R&D issues, including defining public interest R&D, project identification and evaluation, and establishing funding levels. On June 3, 2003, a ruling by the assigned Administrative Law Judge (ALJ) established a schedule, and posed questions for parties to be addressed in Phase Two of the proceeding.⁴ PG&E, Sempra, The University of California, California Institute for Energy Efficiency (UC), CEC and Southern California Generation Coalition (SCGC) submitted opening testimony on August 15, 2003. PG&E, Sempra, UC and CEC submitted reply testimony on September 5, 2003. Evidentiary hearings were held September 25 and 26, 2003. Opening and reply briefs were filed on October 22 and November 5, 2003, respectively. The matter was deemed submitted on November 5, 2003.

On December 9, 2003, the Energy Division filed its Workshop Report on Phase One issues. PG&E, Sempra, Avista and Southwest⁵ filed comments on the Workshop Report on January 12, 2004.

Phase One Issues – Policy and Implementation of AB 1002

We adopt the following unopposed Workshop Report recommendations requiring the utilities to:

- a. Identify all customers exempt from paying the surcharge and establish procedures to prevent surcharge billing of exempt customers.

Phase One and Phase Two issues are combined in this decision and Sempra's motion is denied.

⁴ See ALJ Ruling, Attachment A.

⁵ Southwest filed a motion to accept its comments one day late on January 13, 2004. That motion is unopposed and is granted.

- b. Recompense exempt customers who previously paid the surcharge. Amounts returned to exempt customers should include applicable balancing account interest.⁶
- c. Publish the approved surcharge by customer class, including exemptions, in a separate tariff rate schedule.
- d. Present the surcharge as a separate line item on customers' invoices with a description of the surcharge purpose.⁷
- e. Submit annual advice letters (AL) by October 31 with proposed surcharge rates.⁸ ALs shall include workpapers showing the derivation of the surcharge rates, supporting documentation for any forecasts, and citations identifying commission decisions authorizing each element of the proposed rates (*e.g.*, authorized PPP costs, split between gas and electric operations, etc.)
- f. Use the most recently adopted PPP budgets for the calculation of proposed surcharge rates. If a current program year budget for California Alternative Rates for Energy (CARE) subsidy costs has not been adopted by the Commission, utilities may use forecasts of expected CARE subsidy costs based on a reasonable estimate of future gas prices (using a credible, published source) and CARE customer penetration rates. Balancing account amortization shall be in accordance with prevailing Commission policy (*e.g.* whether over-collections should be carried-over, etc.).
- g. Return exempt customer surcharge revenue collected between January 1, 2001, and July 1, 2001, including interest. Amounts will be returned from utilities to the affected exempt customers.⁹

⁶ Prior to issuing refunds, the utilities should confer with BOE to ensure payments were not previously made by the Board, in which case the refunds shall not be made.

⁷ We will allow utilities to make required billing system changes, along with regular monthly changes, following the six-month deadline for this modification.

⁸ Annual ALs will calculate proposed surcharge rates to be effective January 1. This date is changed from September 30, as approval will be by Energy Division, without need for a Commission resolution.

⁹ Prior to issuing refunds, the utilities should confer with BOE to ensure payments were not previously made by the Board, in which case the refunds shall not be made.

- h. Modify balancing and memorandum accounts, if necessary, to implement the unbundling of PPP costs from rates. Requested revisions should not seek to change the nature of any account currently authorized by the Commission (*e.g.*, one-way or two-way balancing account, carry forward of over collections, etc.). Any requested accounting changes shall be made via an AL within 30 days of the effective date of this decision.
- i. Each balancing account shall specify that while the surcharge collections are in the possession of the State, the applicable interest that applies is the actual amount of interest that accrued while the remittances were on deposit in the Fund.

In addition, we adopt the following unopposed Workshop Report recommendations for implementing AB 1002:

- a. The use of the default rate will be discontinued. All utilities should calculate surcharge rates based on their specific PPP costs.¹⁰
- b. Utilities may request a change in surcharge rates during the year. Such rate changes are only justified if failure to make the rate change would result in a forecasted total rate increase of 10% or more on January 1 of the next year. Requested rate changes will be through the AL process. The AL must include justification for the rate change and be filed at least 40 days prior to the beginning of the next quarter with an effective date to be determined by the Energy Division in consultation with BOE.¹¹
- c. Non-exempt interstate pipeline customer remittances to BOE, including applicable interest, are to be returned to the public utility in whose service territory the customer resides, and recorded in the appropriate PPP balancing accounts.

¹⁰ Utilities subject to the default rate shall file an AL October 31, 2004, with a requested effective date of January 1, 2005, containing their proposed cost based PPP surcharge rates according to the formula adopted herein which will be used for remittances to BOE and customer collections including associated tariff pages.

¹¹ Energy Division shall notify BOE of surcharge rate changes.

- d. Utilities should receive interest accrued in the Fund, and credit this interest to PPP balancing accounts. Interest on R&D funds shall be held in the Fund until applied for future R&D activities.

Below we discuss Workshop Report proposals of the Energy Division, which parties contested in their comments, or which require clarification.

Is the Gas Surcharge a Tax or a Fee?

PG&E and Sempra believe that the surcharge is a tax. PG&E argues that there are accounting and franchise fee issues that depend on this determination. Alternatively, Avista and Southwest contend the surcharge is a fee. Southwest notes that there are administrative problems in identifying exempt customers if it is determined that the surcharge is a tax.

We find that it is unnecessary to determine whether the surcharge is a tax or fee in order to address the issues we actually need to decide in order to implement this program. For example, Sections 890(b) and 898,¹² clearly specify those customers who pay the surcharge and those customers that are exempt. Therefore, we decline to find whether the surcharge is a tax or a fee, and instead we will direct utilities in those matters not addressed by AB 1002, including accounting and franchise fees.

Remittances to Utilities

The Workshop Report recommends that BOE return remittances to utilities after a year-end review of surplus amounts in the Fund. However, the utilities¹³ recommend that BOE remittances be returned in full to utilities during the year, so that over-collections may be retained by utility customers.

¹² All references are to the Public Utilities Code unless otherwise noted.

¹³ PG&E, Avista, Sempra and Southwest.

Sempra argues that when the non-remitted funds remain at BOE, ratepayers do not receive associated interest. Furthermore, leaving excess funds at BOE introduces too much uncertainty into excess fund balances that could result in cross-subsidization between utilities or loss of the funds to the California General Fund. Sempra prefers that funds are returned within 30 to 45 days of remittance to BOE.

PG&E recommends returning funds to utilities on at least a quarterly basis. PG&E points out that the recommended policy of the Workshop Report¹⁴ would result in an additional administrative layer, and potential funding of PPP by the utility, or payment of an excess surcharge by ratepayers. PG&E points out that funds remitted from BOE to the utilities remain in balancing accounts fully subject to the Commission's jurisdiction.

Southwest asserts that customer surcharge revenue must be returned in full to utilities in order that shareholders not pay for certain PPP costs. Southwest explains that because the Low-Income Energy Efficiency (LIEE) program is a one-way balancing account, if LIEE program costs in any year exceed reimbursements from the surcharge, and the excess revenues are not remitted to the utilities, then shareholders pay for any excess costs. Southwest also notes that to the extent CARE costs are less than CARE revenues, customers funding CARE costs should receive the benefit of any overcollection.

¹⁴ The Workshop Report recommends the filing of an annual AL requesting return from BOE of excess funds; however it is unclear whether all of the excess funds would be returned to utilities.

We agree with the utilities that all funds remitted to BOE should be returned to the utilities in a timely manner, except for R&D funds,¹⁵ BOE and Commission administration costs, and deductions for any refunds issued by BOE.¹⁶ Since remittances to BOE are done quarterly, dispersals from the Fund shall be conducted on a quarterly basis as well. Energy Division will administer disbursements from the Fund to the utilities, R&D Administrator and other entities as necessary. (*See* Section 895(a).) We share the utilities' concerns regarding excess funds, and desire that all collected funds be available to the utilities for PPP costs. Therefore, the Energy Division should work with BOE, other appropriate state agencies and the utilities¹⁷ to accomplish the timely return of surcharge remittances, including interest accrued in the Fund, to the utilities.¹⁸ These funds are to be recorded to the appropriate PPP balancing accounts. Interest should be apportioned to utilities according to the amount of remittances and the length of time remittances were held in the Fund and invested from the implementation of AB 1002 on January 1, 2001. ¹⁹Energy

¹⁵ R&D funds will be provided to reimburse utilities for R&D activities conducted in 2004.

¹⁶ BOE should inform the Energy Division of refund payments which BOE issues.

¹⁷ Remittances from a municipality, district or public agency should be fully returned to the municipality, district or public agency, including applicable interest, less any BOE refunds paid to these customers. (*See* Section 898.)

¹⁸ BOE should provide Energy Division copies of Natural Gas Surcharge Returns quarterly from all accounts, and information showing amounts remitted.

¹⁹ Energy Division will develop interest allocation methods and procedures in consultation with the utilities and other entities, as necessary, and make periodic distribution to the utilities.

Division shall also work with BOE or other appropriate state agency to establish utility specific accounts in the Fund, if feasible.

PG&E AL 2440-G

PG&E filed AL 2440-G on January 27, 2003, and AL 2440-G-A on May 26, 2004, to separately identify PPP revenue requirements from other base revenue and establish a new memorandum account to track surcharge collections remitted to BOE. PG&E's AL 2440-G and AL 2440 - G - A is approved subject to the following modifications:

1. The proposed preliminary statement referred to as "PPP-EE/LIEE/RDD" describing the accounting treatment of energy efficiency, LIEE, and R&D must be structured so that each PPP has a separate and distinct balancing account, and maintains the authorized treatment and amortization of any balances. (*e.g.*, one-way balancing account, etc.)
2. Each balancing account shall specify that the amortization of any balance is in accordance with the policies established by the Commission for the treatment of these funds.
3. Each balancing account shall specify that while the surcharge collections are in the possession of the State, the applicable interest that applies is the actual amount of interest that accrued while the remittances were on deposit in the Fund.

PG&E shall file a supplement to AL 2440-G - A within 30 days of the effective date of this decision reflecting these modifications.

Gas Volumes Used to Set Surcharge Rates

Although the Workshop Report recommends using past gas usage to calculate the surcharge, PG&E and Sempra recommend the continued use of

Biennial Cost Allocation Proceeding (BCAP) estimates for “throughput” volumes of gas.²⁰

Sempra points out that BCAP volumes are more accurate estimates since they are weather adjusted, and thus will reduce potential interim rate changes. Sempra also notes that BCAP estimates have been reviewed and approved by the Commission.

PG&E argues that there is nothing in the language in AB 1002 to prohibit the use of BCAP estimates. PG&E also recommends that the Energy Division provide the utilities with exempt gas volumes, and interstate gas pipeline volumes so that utilities can adjust their estimated surcharge rates. In order to file timely ALs, so that surcharge rates can be effective January 1 for each surcharge year, PG&E believes information should be supplied by the Energy Division to the utilities. PG&E recommends that this information be provided by August 31 of the year prior to the January 1 effective date.

Southwest, which does not have a BCAP, recommends use of test year gas volumes to calculate the most accurate surcharge rate.

We agree with the utilities that BCAP estimated throughput volumes, or recent test year estimates are the most accurate gas volume projections for calculating the surcharge. However, we are concerned that BCAP estimates may not be timely available for surcharge calculations due to delays in BCAP proceedings. In addition, for the smaller gas utilities, there are no BCAP proceedings to provide gas estimates, and the use of test year estimates, as proposed by Southwest, is of limited use in the years between test years.

²⁰ BCAPs usually are held every two years for PG&E, SoCalGas, and SDG&E. There are no BCAPs for the other gas utilities.

Therefore, we will adopt a method that uses BCAP estimates when these are available and are less than three-years old, and have been adopted by the Commission. In all other instances utilities should use a three-year average (consecutive 36 month period) based upon the most recently available billed gas volumes. Utilities should state in their surcharge calculations, which of these two estimating methods are used. Energy Division should also obtain interstate pipeline customer gas volumes,²¹ and provide these to the appropriate utilities for determining surcharge rates.

Formulas for Calculating Surcharge Rates

Surcharge rates should continue to be segregated by customer class based on CARE participation. Thus, two formulas are necessary to determine surcharge rates for CARE and non-CARE customers.

Derivation of the cost components of the PPP surcharge rates are:

CARE cost surcharge component = [CARE administration expenses + CARE subsidy + authorized CARE balancing account amortization]²² / [non-CARE, non-exempt utility + non-CARE, non-exempt interstate pipeline gas volumes by customer class]

LIEE + EE + R&D cost surcharge component = [Energy efficiency + LIEE + R&D expenses + authorized PPP non-CARE balancing account amortization²³ + administrative

²¹ We expect BOE to provide copies of natural gas surcharge returns showing gas volumes used for remittances to the Energy Division by August 31 of each year.

²² Balancing Account amortization shall be in accordance with authorized PPP accounting methods.

²³ Balancing Account amortization shall be in accordance with authorized PPP accounting methods.

costs]²⁴/ [non-exempt utility + non-exempt interstate pipeline gas volumes by customer class]

Thus, the PPP surcharge rates are:

- 1) **CARE customer surcharge rate** = LIEE +EE + R&D cost surcharge component
- 2) **Non-CARE customer surcharge rate** = [LIEE +EE +R&D cost surcharge component] + [CARE cost surcharge component]

Utilities shall provide workpapers showing these calculations with citations identifying Commission authorization for program expenses and customer class cost allocations included in AL filings for proposed surcharge rates and related information. PPP expenses to be included in surcharge rates are those described under unopposed workshop report recommendations paragraph (f). Pipeline gas volumes to be used in the calculation are as described in this decision.

Utilities shall allocate PPP costs to customer classes pursuant to authorized procedures as updated in Commission allocation proceedings, except for R&D, and BOE and Commission administrative costs as discussed herein.

Customer Surcharge Exemptions

PG&E recommends that BOE or the Commission issue regulations defining exempt customers. PG&E would refund any surcharges paid by exempt customers, including applicable credit interest,²⁵ directly to exempt customers. PG&E also recommends that BOE require interstate pipeline companies to identify non-exempt customers consistent with the status notification requirement under Section 891(d).

²⁴ Commission and BOE administrative costs.

²⁵ PG&E requests that BOE calculate earned credit interest and the timing for the utility to make refunds.

Sempra believes its current tariff procedures have identified exempt customers, and that current processes are sufficient to return any surcharges paid by exempt customers. Sempra requests that the Commission order a return of any surcharges collected from exempt customers paid during the first half of calendar year 2001. Sempra also recommends that the utilities return collected surcharges to exempt customers, and not BOE.

We note that Section 890(h) requires BOE to collect surcharges from non-exempt customers on interstate pipelines that might otherwise avoid surcharge payments, while Section 896 exempts certain customers from surcharge payments. In addition, exemptions include customer consumption of natural gas which this state is prohibited from taxing under the United States (U.S.) Constitution or the California Constitution.²⁶ It is apparent from the Workshop Report, that adopting procedures implementing these two provisions has proven difficult.

In order to identify non-exempt customers on interstate pipelines, we request BOE to query all interstate pipeline companies²⁷ for lists of customers and determine whether the customer qualifies for exemption under Section 896. The Energy Division should assist BOE in this effort, and utilities are directed to provide the names and address of interstate pipeline customers to BOE, if known. We also recognize California Energy Resources Surcharge Regulations 2315 and 2316, as identifying exempt customers under the California or U.S. Constitutions.

²⁶ See California Energy Resources Surcharge Regulations, Regulations 2315 and 2316, Workshop Report, Appendix D.

²⁷ See Section 891(d).

In order to identify all exempt customers, utilities are directed to review customer lists within six months of the effective date of this decision. Following this initial review, the utilities are directed to conduct an annual review of their customer accounts to identify any exempt customers. Questions regarding exemptions should be directed to BOE. All exempt customers should receive any past surcharges that have been paid, plus applicable balancing account interest. The utilities are responsible for these refunds in the event BOE has not made previous payments to these customers and shall notify BOE to prevent duplicate refunds.²⁸ PG&E requests that language qualifying customers for exemption be included in the appropriate tariff, rather than on individual customer bills. As tariffs are intended to provide qualifications for service, this proposal is acceptable.

Franchise Fees and Uncollectibles (F&U)

Southwest recommends that F&U be included in the surcharge rate. Southwest explains that it pays franchise fees on all revenue, including surcharge revenue. Thus, Southwest believes excluding franchise fees in surcharge calculations results in a mismatch between surcharge revenues paid to BOE and surcharge amounts collected from customers. Similarly, Southwest asserts that excluding uncollectibles from the surcharge also results in a mismatch between amounts paid and amounts collected from customers. Southwest points out that although uncollected amounts for CARE are recovered through the CARE

²⁸ We note BOE administers the surcharge in accordance with Section 893. Therefore, should a utility fail to issue a corrected billing, the customer should have the right to file a claim for refund with BOE. In order that duplicate refunds not occur, BOE should exchange information on customer refunds with the appropriate utility, for past and any future refunds.

balancing account, this is not true for LIEE uncollectibles. Southwest contends that since LIEE is a one-way balancing account, excluding uncollectibles from LIEE results in shareholders absorbing LIEE uncollectibles amounts.

PG&E agrees with the Workshop Report recommendation that F&U expenses are not directly related to PPP and therefore should not be included in the surcharge.

As explained in the Workshop Report, interstate pipeline customers are not obligated to pay franchise fees. In addition, franchise fees are not directly related to the PPP, and for these reasons no franchise fees should be paid on surcharge revenues. All utilities are directed to exclude surcharges in calculating franchise fee payments.

Although some surcharges will not be paid due to uncollectible customer revenues, Section 890 (2) addresses the problem of worthless accounts.²⁹

As these two provisions provide for F&U, we determine that F&U should not be included in the calculation of the surcharge.

Re-Allocating PPP Costs from Exempt Customers to Non-Exempt Customers

As a result of implementing AB 1002, newly exempt customers are no longer required to pay the surcharge, resulting in a shortfall in surcharge revenues. Sempra states that for SDG&E the shortfall amounts to \$1 million

²⁹ Section 890(2) states, in part, “that a public utility is relieved from liability to collect the surcharge insofar as the base upon which the surcharge is imposed is represented by accounts which have been found worthless and charged off in accordance with generally accepted accounting principles. If the public utility gas corporation has previously paid the amount of the surcharge it may, under regulations prescribed by the State Board of Equalization, take as a deduction on its return the amount found to be worthless and charged off.”

per year. Sempra recommends that the re-allocation of the shortfall to non-exempt customers occur as part of this proceeding. Sempra argues that resolving this matter now minimizes future revenue shortfalls, and minimizes rate shock. Sempra also notes that its exempt customers paid the surcharge between January 1, 2001, and July 1, 2001, when the surcharge was included in Sempra's gas rates. As a result Sempra overcollected surcharge revenues in 2001.

The Energy Division recommends that this allocation of costs occur in the next BCAP, a position supported by PG&E.

R.02-10-001 is a quasi-legislative proceeding. Accordingly, some parties representing customer classes that might otherwise be interested in ratemaking have not participated in this proceeding. Therefore, although costs paid by exempt customers must be re-allocated to other customers, that re-allocation should occur in either a BCAP, or other appropriate ratemaking proceeding. Utilities that do not have BCAPs may file an AL to accomplish the re-allocation of PPP costs.

Interest Bearing Account for Surcharge Collections

The Energy Division recommends that surcharge collections be deposited in an interest bearing account prior to remittance to BOE, a position supported by PG&E³⁰ and other utilities, except Sempra. Sempra opposes this recommendation for two reasons. First, Sempra argues that the surcharge is a tax, and therefore is not revenue. Sempra asserts that taxes should not be recorded in interest bearing accounts. Secondly, Sempra contends that the Energy Division's proposal would require the addition of interest *before* the surcharge funds are received. In its comments, Sempra provides an illustration showing how revenue lags in customer payments result in the use of shareholder monies to fund shortfalls in revenue collections. Simply stated, Sempra remits approximately 3% of its billed revenues to BOE before these revenues are received. Although the revenue shortfall is eventually received, final receipt is many days after Sempra has made its remittances to BOE.

³⁰ PG&E states that all PG&E surcharge revenues accrue interest regardless of when amounts are remitted to BOE.

We have generally held that ratepayers should receive interest on deposited revenues in balancing accounts held by utilities. Typically, the interest on these accounts accrues at the three-month commercial paper rate. Although we have not determined whether the surcharge is a tax or a fee, we find no reason that the surcharge balancing accounts should not also accrue interest. Therefore, we will direct that interest be paid on surcharge amounts in the possession of utilities prior to remittance to BOE, and be credited to the appropriate PPP balancing accounts. In order to address Sempra's problem resulting from a timing difference between payments and collections, we note that utilities are provided a "working cash allowance," an adjustment to rate base in general rate cases (GRC).³¹ The need for a working cash allowance compensates investors for funds provided by them for the purpose of paying expenses in advance of receipt of offsetting revenues. As Sempra's problem appears to be a result of a delay in customer revenues, Sempra may pursue this matter in its next GRC.

Allocation of Commission and BOE Administrative Costs

The Energy Division recommends that Commission and BOE administrative costs be allocated to utilities according to the number of utilities remitting into the surcharge fund. Sempra and Avista recommend the allocation be based on gas volumes or a similar method. Avista points out that allocating administrative costs based on the number of utilities would result in Avista customers paying over 200 times the administrative costs paid by PG&E customers.

³¹ See Commission Standard Practice U-16, Determination of Working Cash Allowance, September 13, 1968.

It would be unfair to small utility customers to allocate administrative costs based on the number of utilities paying into the Fund. We believe Sempra's and Avista's alternative administrative cost allocation method based on utility gas volumes is reasonable. Therefore, BOE and Commission administrative costs allocated to each utility shall be based upon each utility's proportion of the total amount of throughput reported to BOE used to calculate remittances for the prior calendar year. Costs to be included in the surcharge will be any uncollected amounts for prior year (s) expenses and expected costs for the upcoming year, adjusted for any previous overcollections. In order to include administrative costs in the January 1 surcharge rates, we will direct the Energy Division to obtain BOE and Commission administrative costs by September 30 of the prior year, and provide these costs to the utilities for their October 31 surcharge filings. Administrative costs shall be allocated to customer classes on an equal-cents-per-therm basis. We direct the utilities to identify Commission and BOE administrative cost amounts in their quarterly remittances to BOE. Utilities shall send copies of the quarterly remittances to the Energy Division showing the amounts collected for these costs, following filing with BOE.

Interstate Pipeline Customers Outside of Service Territories

Although parties have not identified any current interstate pipeline customers outside of existing utility service territories, identification of all interstate pipeline customers continues. Southwest hypothesizes the existence of non-exempt interstate pipeline customers who do not reside in any current utility service territory. If any interstate pipeline customers outside of existing utility service territories are identified, the surcharge rate of the nearest utility service territory should be applied to such customers. Accordingly, any

surcharge amounts remitted to BOE from such customers should go to the utility whose service territory is nearest the customer.

Intrastate Pipeline Customers Served by a Utility Different from the Utility Operating that Service Territory

Southwest explains that several customers in its Southern California division take all or most of their service from PG&E through PG&E's intrastate pipeline, although these customers are located in Southwest's service territory.³² Southwest argues that the surcharges paid by these customers should benefit customers in Southwest's service territory and not PG&E customers.

AB 1002 does not specifically address the disposition of surcharge funds when non-exempt interstate pipeline customers are served by one utility, but are located in the service territory of a different utility. However, Section 890(e) states "The Commission shall annually establish a surcharge rate for each class of customer for the service territory of each public utility gas corporation. A customer of an interstate gas pipeline, as defined in Section 891 shall pay the same surcharge rate as the customer would pay if the customer received service from the public utility gas corporation in whose service territory the customer is located. The Commission shall determine the total volume of retail natural gas transported within the service territory of a utility gas provider, that is not subject to exemption pursuant to Section 896, for the purpose of establishing the surcharge rate."

³² PG&E's intrastate pipeline runs through Southwest's service territory. PG&E is certificated to serve these customers.

As this issue concerns intrastate pipeline customers, and we have previously determined that these are certificated PG&E customers,³³ surcharge amounts should be collected by PG&E and used for PG&E PPP purposes.

Third Party Gas Storage Providers³⁴

Sempra and PG&E recommend that third party gas storage providers be required to provide lists of their non-utility end use customers in an effort to identify all non-exempt customers.

AB 1002 does not exempt customers of third party gas storage providers unless the customer qualifies for exemption under Section 896. Thus, third party gas storage non-exempt customers should be expected to pay the surcharge. In order that such customers may be identified, we will direct third party gas storage providers to provide customer lists to BOE and the Commission. Non-exempt customers of third party gas storage providers should be assessed the surcharge rate for the utility service territory in which they reside.³⁵ Remittances from non-exempt third party gas storage customers should be returned to the utilities in whose service territory the third party gas storage customer resides.

Research and Development

Definition of Public Interest Research and Development

The definition of public interest R&D is important as it delineates the types of projects that will qualify as public interest gas R&D.

³³ See D.88-12-090.

³⁴ Third party gas storage providers are regulated by the Commission as public utilities. (See Decision (D.) 03-04-038.)

³⁵ Third party gas storage providers may be instructed by the Commission to bill these non-exempt customers.

CEC and UC recommend adoption of the definition of public interest R&D contained in the 1996 “Working Group Report on Public Interest RD&D activities”³⁶ which is: “Public Interest RD&D activities are directed towards developing science or technology, 1) the benefits of which [sic] accrue to California citizens, and 2) are not adequately addressed by competitive or regulated entities.” SCGC also supports this definition if it is interpreted to remove certain existing R&D programs from rates. We address SCGC’s request separately in our discussion of R&D funding.

PG&E believes that the definition used in the Working Group Report is too general, and that there is no “bright line boundary” between public interest R&D and regulated and competitive R&D.³⁷ As an alternative, PG&E believes that the definition of public interest R&D should evolve through an oversight committee representing key stakeholders. PG&E offers that the oversight committee should evaluate R&D projects individually based on four criteria:

1. R&D projects that are *not funded* through the competitive market, and consistent with the gas objectives of Section 740 would be considered as public interest R&D.
2. R&D projects that are consistent with the gas objectives of Section 740 and *should not be funded* by the competitive market would also be considered as public interest R&D.

³⁶ Item A by reference, Working Group Report on Public Interest RD&D Activities, September 6, 1996, submitted in R.94-04-031, pp. ES-2 and 2-7.

³⁷ Competitive R&D activities are directed toward developing science or technology, the benefits of which can be appropriated by the private-sector entity making the investment. Regulated R&D activities are directed toward developing science or technology, the benefits of which are related to the regulated functions of the entity making the investment. (Working Group Report, p. ES-2.)

3. The type of research conducted. R&D that is fundamental, higher risk, long-term, basic research, and oriented towards public policy would be considered public interest R&D.
4. Ownership of the R&D product. Whether the results of particular R&D projects are be owned by the public, by the utility for the benefit of the utility and its ratepayers, or by a competitive entity for potential licensing and profit, would be another factor in determining if the R&D is public interest.

We agree with UC and CEC that the definition contained in the 1996 Working Group Report on Public Interest RD&D activities is appropriate to define gas public interest R&D. This definition is relatively simple, although applying the definition to particular projects may be more difficult. Thus, our adopted definition is:

Public interest gas R&D activities are directed towards developing science or technology, 1) the benefits of which [sic] accrue to California citizens and 2) are not adequately addressed by competitive or regulated entities.

We appreciate PG&E's concern that a bright line may not always be apparent between competitive and public interest projects, and that an oversight committee should be appointed to help evolve the definition. In consideration of this concern, our adopted R&D program will include Commission oversight through our Energy Division. This oversight will ensure that all R&D projects funded through the gas surcharge meet the definition of public interest, and additional criteria adopted herein.

Additional Project Criteria

The June 3, 2003 ALJ ruling requested parties to provide criteria useful to identifying and choosing gas public interest R&D projects.³⁸ PG&E recommends that any project meet the requirements of Sections 740.1 and 890(a), and supplemental objectives established by the Commission.³⁹ Sempra also offers Section 740.1 as a guide, as well as the following criteria for project selection:

³⁸ ALJ Ruling, Attachment A.

³⁹ See D.90-09-045, Appendix C, 37 CPUC 2d 390, pp. 397-398.

A. More than 50% of potential benefits target the general public.

B. The project/technology provides one or more of the following public benefits:

- 1) Improvements to environmental quality
- 2) Enhanced transmission and distribution system reliability or integrity
- 3) Increased overall energy efficiency, and
- 4) Improved safety.

C. Other R&D funding sources would not otherwise provide adequate funding for the proposed project due to the fact that:

- 1) The project is too long in duration (5 years or greater)
- 2) The project is very risky from a technical perspective
- 3) Technology and/or product is projected to be too costly, and
- 4) Technology is either at too early a stage or is considered a radical breakthrough.

UC and CEC do not state specific criteria, but provide a list of potential areas for study including energy efficiency, load management, insulation, indoor air quality, heating ducts, building commissioning, distillation, development of biomass and landfill gas, and technologies to reduce environmental impacts of gas use. CEC adds that projects should be prioritized through development of an R&D action plan that reflects energy policy, detailed R&D plans, use of R&D subject areas to develop specific projects and a merit review process with peer experts. CEC recommends that the administrator make decisions for funding.

We agree criteria should be established for the selection of projects, and to provide guidance to the administrator. However, we also want to provide flexibility to the administrator, so that worthwhile projects will not be excluded, including those that may involve collaboration with other entities. Section 740.1

provides guidance; however this section is intended for R&D proposed by electric and gas utilities, and includes certain criteria pertaining to corporate operations. Therefore, in addition to meeting the adopted definition of public interest R&D, we expect that approved gas R&D projects will meet the following criteria:

- 1) Focus on energy efficiency, renewable technologies, conservation and environmental issues
- 2) Support State Energy policy
- 3) Offer a reasonable probability of providing benefits to the general public, and
- 4) Consider opportunities for collaboration and co-funding opportunities with other entities.

Our adoption of an annual gas R&D program, proposed by the administrator, and approved through the Commission, does not mean we are excluding the input of other parties to the list of potential gas R&D projects. Both the utilities, and other parties, have unique knowledge regarding particular energy problems that may help define worthwhile R&D projects. Therefore, we request that the utilities, and other parties, provide potential gas R&D projects to the administrator and the Commission for consideration and inclusion in annual gas R&D programs. In order to minimize potential delay in adopting annual gas R&D programs, we request that any potential projects be provided to the administrator and the Energy Division by July 31 of the year preceding the year for adopting the next annual gas R&D program.⁴⁰ Submitted gas R&D projects should explain how the project meets our adopted criteria, including the

definition of public interest gas R&D, and include expected project costs and benefits. We expect that the administrator in coordination with the Commission will consider these projects in developing annual gas R&D programs. Annual gas R&D programs will be approved by the Commission.

Administration

The administrator of public interest R&D has the responsibility to offer public interest projects for approval, and provide oversight so that projects are performed in a timely manner, within a budget, and at a reasonable cost.

Sempra recommends that the utilities administer the gas program, or in the alternative, Sempra through SoCalGas should be selected as a statewide administrator. If utilities elect not to manage their own R&D programs, Sempra states that its experience, resources, and relations with R&D organizations qualify SoCalGas to act as administrator. Sempra provides a detailed proposal for administering the R&D program including Commission jurisdiction, program funding, and the role of the California Utility Research Council (CURC)⁴¹ as an advisory body.

PG&E recommends that an oversight committee of interested and qualified stakeholders should serve as administrator. PG&E believes that the oversight committee should include both utilities and other interested parties, including state agencies. Although PG&E would serve on an oversight committee, PG&E does not want to act as sole administrator.

⁴⁰ In recognition of the effective date of this decision, potential projects should be provided to the administrator and Energy Division by September 30, 2004 for the 2005 R&D program.

⁴¹ CURC was established in 1984 to coordinate gas and electric R&D programs in California. (See Sections 9202-03.)

UC sets out criteria for choosing an administrator, and explains why UC best meets these criteria. UC submits that an administrator must have a public interest focus, coordinate an R&D program with other energy goals and research programs in the state, and manage the R&D program efficiently and cost-effectively. UC argues that the public interest focus should be administered by an entity devoted to the public interest, and not by an entity with conflicting interests, such as the utilities. UC believes the administrator should not be involved in the actual research, but should focus on management of the R&D program. UC asserts that a single statewide administrator provides a single point of contact and thus the most efficient coordination. UC further contends that efficient administration requires an existing research management structure.

UC applies its recommended criteria to the utilities, and concludes that the utilities are unsuitable to serve as an administrator. UC argues the utilities represent multiple entities, do not respect the boundary between public interest R&D and competitive R&D, and do not have a public interest focus. Furthermore, UC points out that utilities focus on their service territories, and except for Sempra, show little interest in acting as a statewide administrator. UC also notes that CURC is not a current functioning organization, and its structure appears to prohibit inclusion of UC or CEC, although in reply, Sempra states that UC and CEC could be included in CURC.

CEC believes there is substantial agreement between the parties regarding the appropriate criteria for administration. Agreed upon criteria include administration on a statewide basis, a single administrator, a program that supports state energy policies, Commission review and approval of the overall R&D program and budget, appointment of a capable and experienced administrator, efficient and publicly accountable, avoidance of conflict of

interest, and ability to coordinate with other energy programs. CEC argues that application of these criteria lead to the conclusion that CEC should be the administrator. CEC asserts it already administers an electric research program,⁴² and develops and enforces statewide energy policies. CEC states it has extensive, ongoing experience in research management, and would be the most efficient administrator. CEC points out that internal Public Interest Energy Research (PIER) oversight and administration is already housed in the CEC, and as a result, overhead costs of administering the gas R&D program would be minimal.⁴³ CEC believes it has the highest degree of public accountability as it is subject to the Bagley-Keene Open Meeting Act and the Public Records Act.⁴⁴ CEC contends that unlike the utilities that conduct competitive R&D, and UC that conducts publicly-funded energy R&D, CEC is without any similar conflicts of interest. Finally, CEC argues that it is best qualified to coordinate public interest R&D due to its current administration of the PIER program, and its participation and knowledge of R&D in state and federal organizations.

In choosing an administrator for public purpose gas R&D programs, we have considered the arguments, qualifications, and experience of Sempra, UC and CEC. As a starting point, we look to D.95-12-063 addressing electric restructuring,⁴⁵ in which we stated “We do not intend for the surcharge to collect funds to pursue research that the competitive market will provide on its own.

⁴² The PIER program is codified in Section 399.7.

⁴³ CEC states that administrative overhead for the PIER program ranged from 4% to 12 % annually, while the utilities administrative costs have ranged between 17% to 23% annually, and UC estimates its administrative costs at 15% to 20% annually.

⁴⁴ Government Code Sections 11120 *et seq.* and 6250, *et seq.*

⁴⁵ D.95-12-063, as modified by D.96-01-009, pp. 112-113.

After a transition period, perhaps by January 1, 1998, the funds collected through a surcharge for public goods research should be administered by an independent, non-utility entity.” The application of this language to gas R&D leads us to conclude that the administrator should be a non-utility entity.

Eliminating the utilities means that either UC or CEC could act as administrator. Both UC and CEC have a public interest focus, could implement an R&D program on a statewide basis, and have R&D program experience. However, between these two entities, CEC currently manages the PIER program, and central to its mission is the development of public energy policy. In addition, CEC is subject to the Bagley-Keene Open Meeting Act and the Public Records Act requirements that help ensure public accountability. Consequently we believe CEC is best suited to act as administrator for the gas R&D program. In the event that CEC chooses not to act as administrator, we believe that UC could serve as an alternate administrator. Consistent with our conclusion that the administrator should be a non-utility entity, the administrator should not sub-contract with investor-owned utilities for the administration of any R&D programs.

Commission R&D Program Oversight

We agree with the parties that there is a need for an oversight role by this Commission. We are responsible for adopting the R&D program, and for setting the surcharge to fund the R&D program; therefore, we must necessarily approve and resolve administration, funding, project approval, or other matters, and make a final decision. In this instance, the Energy Division, serving as the Commission’s advisor, will assist us in this role. Any request for approval or changes in the adopted R&D program should be by letter, directed to the administrator, with a copy to the Commission’s Energy Division. Proposed

program changes should include an explanation of the reasons for the proposed changes. Changes proposed by the administrator should be brought to the Energy Division for approval. The annual proposed R&D program should be provided by the administrator to the Energy Division by August 31.⁴⁶

At this time we will not establish any additional committees, boards or other entities to oversee the administrator. We are concerned that an oversight committee will add an unnecessary layer of administration, and may delay projects. We agree with CEC that the administrator should manage daily activities and R&D projects, including planning, project procurement, project accounting and program evaluation. The Commission will review and approve the annual plans for R&D projects to be funded.

R&D Funding Level

There is wide variation in the parties' recommended funding levels. Sempra recommends that R&D spending remain at the current annual level of approximately \$4.5 million. PG&E recommends a similar level of initial spending, although PG&E would allow this amount to increase to approximately \$11 million, if worthwhile R&D projects can be identified. UC recommends spending at least \$15 million annually, while CEC recommends funding be at least \$24 million. Sempra argues that the intent of the Legislature in adopting AB 1002 was to limit R&D spending to the current level of about \$4.5 million.⁴⁷

⁴⁶ The project list should explain how each project meets our adopted criteria, the estimated cost of each project, the administrator shall also include a list of projects that have been rejected.

In recognition of the effective date of this decision, the proposed R&D program for 2005 should be provided by the administrator to the Energy Division by October 31, 2004.

⁴⁷ The Legislative Counsel's Digest for AB 1002, Section 1, states:

Footnote continued on next page

Sempra derives this figure from an assessment reflecting 20 years of experience, and asserts that no party demonstrated that \$4.5 million is an unreasonable funding level. Sempra contends that CEC's funding recommendation, based on parity with electric public interest R&D, is not appropriate as the electric R&D funding level was established under separate legislation without an analysis of needs. PG&E supports Sempra's contention that the legislature intended to limit R&D spending to current levels. Alternatively, PG&E recommends that any increase in R&D spending above \$4.5 million should be justified by a zero-based budgeting approach.⁴⁸

UC argues that a zero-based budgeting approach should not be used to determine additional R&D spending. UC contends zero-based budgeting would unnecessarily delay research work, and may result in rejecting worthwhile R&D projects that are not as cost effective as other projects. UC also rejects limiting R&D spending to current levels. UC argues that current gas R&D funding is insufficient to make a significant contribution to overall energy change. Thus,

"It is the intent of the Legislature to continue public policy programs in an equitable manner that will ensure that all gas consumers will provide a fair share of adequate funding for these programs without increasing the current funding levels for these programs." (Item by Reference B, p. 1.)

⁴⁸ Under zero-based budgeting, projects that qualify would be identified, including cost and benefit analysis, and then summed. The Commission would determine the total appropriate funding, and include this amount in determining a surcharge. In the event a zero based budget has not been set in time for January 1 surcharge rate updates, the surcharge will be set using the amount of the annual program spending cap. Over or under collections (including balances in excess of project costs) of R&D costs will be adjusted for in the following January 1 surcharge rates.

UC recommends an annual funding amount of at least \$15 million, based on UC's professional judgment.⁴⁹

CEC argues that gas R&D funding levels have declined dramatically over the past 10 years, despite the availability of many public interest cost-effective projects with benefit-to-cost ratios between 2/1 and 9/1. CEC states that this significant decline in R&D funding occurred during a period when the consumption of gas continued to substantially increase. CEC estimates its recommended funding level of \$24 million using an average of three methodologies, "social investment," "historic gap," and "parity." The social investment methodology estimates R&D funding as equal to 1% of the gross operating gas revenues in California, or \$30 million. The gap methodology uses CEC's estimate of public interest R&D funding by utilities in the early 1990s to estimate current R&D needs of \$22 million. The parity methodology estimates gas R&D based on establishing funding equivalent to electric funding in the PIER program, resulting in an estimate of \$20 million. The average of these three methodologies is \$24 million, CEC's recommended funding level. CEC further contends that funding at the much lower level proposed by Sempra would continue the inequity of "free-ridership" and "unfair competition" between the electricity funded PIER program and gas R&D funding.

SCGC's testimony focuses on one issue. SCGC advocates removal of Low Emission Vehicle (LEV) program costs from gas rates, and funding this program through the PPP surcharge. In D.03-10-086⁵⁰ adopted October 30, 2003, we

⁴⁹ TR 2, p. 135.

⁵⁰ See D.03-10-086, p. 48, in Application 02-03-047, a SoCalGas and SDG&E application for authority to continue funding of LEV programs.

denied the same request by SCGC. We find no reason to change this policy, and therefore will not adopt SCGC's request.

The R&D funding level must provide adequate R&D funding for worthwhile public interest programs and the opportunity for reasonable program growth. Gas is a vital resource in the economic future of California, and nationwide. Clearly, as a matter of important public policy, we must adopt the means to maximize the effectiveness and efficiency of our gas resources.

Therefore, we reject Sempra's recommendation to limit future R&D funding to current levels, as well as Sempra's contention that the Commission has no authority to set the R&D budget. We cannot conclude that the Legislature, in enacting AB 1002, intended that R&D spending would not increase above current levels. As CEC notes, in determining legislative intent the courts require statutes to be read as a whole, harmonizing the various elements by considering each clause and section in the context of the overall statutory framework.⁵¹ AB 1002, which grants the Commission authority and discretion to determine appropriate natural gas funding levels for low-income, energy efficiency and public interest R&D activities, is consistent and in harmony with Public Utilities Code Sections 890(a) and 890(d), because these statutes direct the Commission to establish a natural gas surcharge for certain specified public policy programs and annually determine the amounts "required" to administer and fund these programs for each utility. If we accepted Sempra's interpretation, the Commission would be restricted from determining the gas surcharge to fund these programs, including the R&D program. Thus, an interpretation of Legislative intent that freezes these

⁵¹ *People v. Jenkins*, 10 Cal.4th 234, 246; 40 Cal. Rptr. 2nd 903, 910 (1995).

amounts cannot be harmonized with these statutory provisions. This restrictive interpretation would make the Commission's determination of annual funding meaningless surplusage, a conclusion we reject.

Furthermore, it is unreasonable to conclude that the Legislature intended to ignore the factors that cause PPP costs to increase. These factors include significant increases in the cost of gas, general inflation, and the number of customers that qualify for these programs. If we accepted Sempra's restrictive interpretation, the value of these programs would diminish as the costs of the programs increased and the funding level remained unchanged.⁵² No party, including the utilities, has asserted that this outcome is reasonable.

Although we assert our authority to set a reasonable gas R&D budget, we will not adopt a specific level of R&D funding. We are beginning a new R&D program, under a new administrator, along with Commission oversight. In order to allow the R&D program to develop, we will adopt a zero-based budget subject to approval by the Commission. We shall request that the administrator provide a prioritized list of projects that meet our adopted project criteria,⁵³ to the Commission by August 31 of each year,⁵⁴ prior to the January 1 R&D program effective date. The projects will be reviewed and approved by the

⁵² See for example D.02-09-021, Attachment 2, which increases the CARE, budgets for SDG&E and SoCalGas by \$11.7 million, and \$4.5 million, respectively. Under Sempra's interpretation of AB 1002 these increases would be illegal resulting in some combination of restricting the number of CARE customers or reducing the subsidy per customer provided by the CARE program.

⁵³ The project list should explain how each project meets our adopted criteria, and the estimated cost of each project. The administrator shall also include a list of projects that have been rejected.

⁵⁴ Except for R&D program year 2005, that should be provided by October 31, 2004.

Commission. We also agree with PG&E that, at least initially, there should be a cap on first year R&D program costs. In consideration of the parties recommended funding levels, we will adopt a first year cap of \$12 million beginning January 1, 2005.⁵⁵ We will further provide that this initial cap can be increased by up to \$3 million annually pending identification and approval of additional R&D projects, to a maximum cap of \$24 million after four years; these amounts shall include all necessary R&D administrative costs. After four years, we will assess the reasonableness of the funding level, and the overall R&D program.

As recommended by both CEC and UC, we will order the utilities to continue their public interest research, although we will direct them to provide updated R&D plans to the Commission within 60 days of the effective date of this decision. These updated plans should detail how the utilities will end current public interest R&D projects or transfer these projects to the administrator by December 31, 2004. Utilities shall report any unspent R&D funds to the Energy Division as of December 31, 2004. Any unspent R&D funds shall be used for future R&D programs.

Allocating R&D Costs and Remittances

R&D costs shall be allocated among utilities on the basis of throughput gas volumes as discussed in Allocation of Commission and BOE administrative

⁵⁵ We will allow CEC to access up to \$1 million in the Fund during 2004 if necessary to begin their administration of the R&D program. We note that PG&E has collected approximately \$5.5 million of unspent R&D funds through the surcharge on deposit in the Fund. The start-up funds for CEC will come from these PG&E collections and an adjustment will be made to future surcharge rates so that these costs are apportioned to all the utilities. The start-up funds are to be included in the R&D spending cap for program year 2005.

costs. The Energy Division will then notify each utility of its R&D costs so that utility specific R&D costs may be included in the October 31 surcharge ALs.

We will also direct utilities to identify R&D amounts in quarterly remittances to BOE. Utilities shall send copies of the quarterly remittances to the Energy Division and the R&D administrator that show the dollar amount of the remittance representing R&D funding following filing with BOE.⁵⁶ Returns are to be held on a confidential basis.

Other Issues

In addition to a definition of public interest R&D, determining an administrator, and funding levels, parties make other recommendations for implementing an R&D program. Sempra recommends that the Commission require annual reports concerning program administration. PG&E recommends that the R&D program costs be remitted quarterly to the BOE, with reimbursement within 30 days of the date a claim is submitted. PG&E also agrees with CEC's proposal that R&D funds be deposited into a separate fund to assume timely payments to contractors. Furthermore, PG&E recommends that the annual authorized amount for R&D funding, including administrative overhead, would be added to other surcharge costs, collected quarterly, and retained in a BOE fund for distribution to the R&D project administrator to cover R&D project costs. PG&E advocates allocation of R&D revenue and costs through a separate rate component to non-exempt customer classes based on equal-percent-of-marginal-cost. CEC recommends that following initiation of the

⁵⁶ PG&E estimates that it has already collected and remitted about \$5.5 million to BOE between 2001-2003. We agree with PG&E that these funds be made available as a part of PG&E's contribution to R&D on behalf of its customers. Future PG&E PPP surcharges should reflect this contribution.

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R&D program, funding should be implemented on a five-year funding cycle beginning in January 2005.

We direct the Energy Division to work with appropriate state agencies to establish a separate R&D account in the Fund, if feasible. Additionally, the utilities should amend their balancing accounts via an AL, if necessary, to reflect the collection of revenues for public interest R&D through the PPP surcharge, remittances to BOE and disbursements from the Fund to a non-utility administrator. The utilities shall also report to BOE the amounts collected from the surcharge for R&D with their quarterly remittances and furnish a copy to the Energy Division. The utilities should maintain existing authorized R&D cost allocation procedures. Proposed allocation of R&D costs to customers using equal-percent-of-marginal-cost is an issue for BCAP or other ratemaking proceedings.⁵⁷ However, we note initiating an R&D program, collecting R&D surcharge revenues, and establishing accounting procedures, may cause some initial problems in paying contractors while the fund is being established. We expect the administrator to address any R&D funding, project financing, or payment problems that may evolve as a result of the difference between quarterly deposits by utilities to the Fund, remittances from the Fund, and payments to contractors. Disbursements from the Fund to the R&D administrator shall not exceed the adopted zero-based R&D budget. Energy Division will issue instructions for Fund disbursements to CEC.

⁵⁷ Utilities that currently do not have R&D costs and thus do not use an allocation procedure for R&D costs, should allocate R&D costs to customer classes using equal-cents-per-therm.

We also will adopt Sempra's recommendation for annual reports by the administrator. We expect that the annual reports will provide information on costs, balances of approved project budgets and expenses, benefits and progress of R&D projects. The reports should be filed annually with the Energy Division by March 31.

Commercialization of R&D Benefits

In embarking on a public interest R&D program, parties have noted the potential for commercial benefits from R&D projects. Clearly, if any commercial benefits result, we expect that these benefits would accrue to the ratepayers who are funding the program through the gas surcharge. Accordingly, we expect the administrator to inform the Energy Division if and when any commercial benefits result from the gas R&D projects funded through the gas surcharge. Commercial benefits may be used to offset future R&D costs, reduce the gas surcharge, or be returned to ratepayers, upon determination of the Commission.

Implementing Annual Surcharge Rates

After the filing of appropriate ALs, utility surcharge rates for 2001, 2002, 2003 and 2004 were adopted by Commission resolutions. In order to increase the efficiency of approving surcharge rate changes, we will allow future surcharge rate changes to be approved by the Energy Division.⁵⁸ This change in policy assumes that ALs requesting surcharge rate changes are unopposed. ALs that are protested and not subsequently corrected will continue to be approved only through Commission resolution.

⁵⁸ As discussed in R&D Funding Level, the R&D budget will be authorized by Commission resolution.

We also direct the Energy Division to furnish BOE with a listing of authorized surcharge rates by public utility service territory, customer class, and effective surcharge dates.

No party opposed the filing of separate tariff rate schedules to reflect the adopted surcharge, although this issue was not resolved in the Workshop Report. Therefore, we will direct utilities to file separate tariff rate schedules reflecting the surcharge rates in their October 31 AL filings, and when changes are requested at other times.

Comments on Proposed Decision

The proposed decision of the Assigned Commissioner in this matter was mailed to the parties in accordance with Pub. Util. Code § 311(d) and Rule 77.1 of the Rules of Practice and Procedure. Comments were received from CEC and UC, filing jointly, and PG&E, Sempra, BOE, SCGC, and The Utility Reform Network.

We have carefully considered the comments on the issues addressed in today's decision. In response to comments, we have modified the draft decision to clarify certain accounting and implementation instructions, and provided R&D definitions. We have also carefully considered parties' comments regarding the R&D program, and concluded that CEC should act as administrator, although we have not modified the R&D funding mechanism or oversight by this Commission.

Due Dates for AB 1002 Implementation Program

The following table summarizes certain dates and deadlines actions are to be undertaken on an ongoing basis. Refer to the discussion in the decision and ordering paragraphs for further details on the instructions to be followed.

Due Date:	Party responsible:	Action:
Quarterly	Energy Division	Disperse remittances deposited in the Fund to utilities less adjustments for Commission and BOE administrative costs, R&D funding and BOE refunds.
Quarterly	BOE	Provide Energy Division with copies of Natural Gas Surcharge Returns from utilities and consumers and identify amounts paid.
Quarterly	Utilities	Provide Energy Division and R&D Administrator copies of BOE returns showing amounts collected and remitted for R&D program funding.
Quarterly	Utilities	Provide Energy Division copies of BOE returns showing amounts collected and remitted for Commission and BOE administrative expenses.
March 31	R&D Administrator	Provide Energy Division with Annual Report on R&D activities and spending.
July 31 (except for program Year 2005)	R&D project developers	Provide descriptions of potential R&D projects to Energy Division and R&D Administrator for consideration in upcoming year.
August 31	BOE	Unless previously submitted, provide copies of Natural Gas Surcharge Returns for utilities and consumers showing gas volumes used to calculate remittances.
August 31 (except for program Year 2005)	R&D Administrator	Provide proposed annual R&D program to the Energy Division.
September 30	Energy Division	Obtain Commission and BOE costs for administering AB 1002 recoverable through the surcharge.
Prior to October 31	Energy Division	Provide utilities with allocation of R&D, Commission and BOE administrative costs, and interstate pipeline customer gas volumes used for setting surcharge rates.
October 31	Utilities	File ALs with proposed surcharge rates with requested effective date of January 1. Energy Division to promptly notify BOE of approved surcharge rates.
Annually	Utilities	Review customer accounts for collections received from exempt customers and issue refunds according to instructions discussed in decision.
Annually	Third Party Gas Storage	Submit customer lists to BOE and the Commission.

Assignment of Proceeding

Loretta M. Lynch is the Assigned Commissioner and Bruce DeBerry is the assigned ALJ in this proceeding.

Findings of Fact

1. The surcharge supports low-income programs that embody public policy goals not directly related to the provision for gas service.
2. All funds remitted to BOE should be returned to the utilities in a timely manner to fund PPP.
3. BCAP estimated throughput gas volumes, or recent test year estimates, are the most accurate gas volume projections for calculating the surcharge.
4. Utility tariffs are intended to provide qualifications for service.
5. Interstate pipeline customers are not obligated to pay franchise fees.
6. AB 1002 was passed into law by more than a two-thirds vote of the Legislature.
7. As a result of implementing AB 1002, newly exempt customers are no longer required to pay the surcharge resulting in a shortfall in surcharge revenues.
8. This is a quasi-legislative proceeding; thus, some parties interested in ratemaking may not have participated.
9. Ratepayers should receive interest on deposited amounts in balancing accounts held by utilities.
10. A working cash allowance compensates investors for funds provided by them for the purpose of paying expenses in advance of receipt of offsetting revenues.
11. It would be unfair to small utility customers to allocate administrative costs based on the number of utilities paying into the Fund.

12. Allocating administrative costs based on utility gas volumes is reasonable.
13. Utility surcharge rates should reflect utility specific PPP costs.
14. If past default rates exceeded utility specific surcharge rates, then the over-remitted funds should be returned to the utilities, and applied to appropriate surcharge-related accounts.
15. A reasonable surcharge rate for non-exempt customers residing outside of any utility service territory is the rate used in the service territory in closest proximity to the customer.
16. Customer surcharges should be remitted to the utility in whose service territory the customer resides regardless of the utility serving the customer.
17. Third party gas storage non-exempt customers should pay the surcharge to the utility that operates in the utility service territory in which the customer resides.
18. The adopted definition of public interest R&D defines the types of projects that qualify as public interest gas R&D.
19. Public interest R&D activities are those directed towards developing science or technology, the benefits of which accrue to California citizens and are not adequately addressed by competitive or regulated entities.
20. The R&D administrator shall provide a list of recommended R&D projects to the Commission by August 31, prior to the January 1 effective R&D program date.
21. CURC is not currently functioning as an organization.
22. Parties agree that R&D administration should be conducted on a statewide basis, support state energy policy, include Commission review and approval of R&D programs and budgets, avoid conflicts of interest, utilize an efficient and

capable administrator, coordinate with other energy programs, and consist of a single administrator.

23. CEC currently administers the PIER program, and develops and enforces statewide energy policies under legislative authority.

24. UC currently administers several energy programs.

25. Public interest gas R&D funding levels have declined over the past 10 years.

26. Gas is a vital resource in the economic future of California and the nation.

27. Adopting an R&D funding level equivalent to current amounts, and without opportunity to increase, would diminish the value of R&D programs.

28. A zero-based R&D budget with a cap of \$12 million beginning in 2005 is a reasonable approach for funding gas R&D.

29. It is reasonable to allow the R&D funding level to increase in future years in order to maintain the value of R&D programs.

30. The Commission should have a role in overseeing gas R&D programs and budgets.

31. Section 740.1 provides a guide for determining the selection of R&D projects.

32. Reasonable criteria for R&D project selection include a focus on energy efficiency, renewable technologies, conservation and environmental issues, support of State energy policy, a reasonable probability of providing benefits to the general public, and opportunities for collaboration and co-funding with other entities.

Conclusions of Law

1. Section 890(h) authorizes BOE to collect the gas surcharge from interstate non-exempt pipeline customers who might otherwise avoid surcharge payments.

2. Section 896, and California Energy Resources Surcharge Regulations 2315 and 2316, exempt certain gas customers from surcharge payments.
3. Section 890(2) provides utilities with a solution to the problem of worthless customer accounts.
4. AB 1002 does not state that R&D funding levels must be maintained at current levels.
5. Sections 890(a) and (d) direct the Commission to establish a natural gas surcharge for certain specified PPPs and annually determine the amounts required to administer and fund these programs for each utility.

O R D E R

IT IS ORDERED that:

1. Assembly Bill (AB) 1002 shall be implemented in accordance with the Energy Division's Workshop Report as filed on December 9, 2003, except as otherwise addressed in this decision.
2. Pacific Gas and Electric Company's (PG&E) Advice letters (AL) 2440-G and 2440 - G - A are approved subject to the modifications discussed in this decision. PG&E shall file a supplement to AL 2440-G-A within 30 days of the effective date of this decision reflecting these modifications, subject to Energy Division approval.
3. Respondent utilities shall identify the gas surcharge as a separate line item on customers' bills within six months of the effective date of this decision. Required billing system changes can be implemented along with regular monthly rate changes immediately following the six-month deadline.
4. Respondent utilities shall identify all exempt customers who they serve within six months of the effective date of this decision.

5. Respondent utilities shall annually review their customer accounts, and refund surcharge revenues received from exempt customers, or any over-payments plus applicable interest and return these amounts within 30 days after identification, unless previously refunded by State Board of Equalization (BOE).

6. Respondent utilities shall inform the BOE of any refunds issued.

7. Respondent utilities shall refund any surcharge amounts received from exempt interstate pipeline customers or over-payments from non-exempt interstate pipeline customers, plus applicable interest, within 30 days after identification, unless previously refunded by BOE.

8. Respondent utilities shall return with accrued interest, any surcharge amount that was collected from exempt customers, within 60 days following the implementation of system changes required in Ordering Paragraph 3, unless previously refunded by BOE.

9. Respondent utilities shall provide the BOE with the names and addresses of all known California interstate pipeline customers.

10. Respondent utilities shall calculate surcharge rates using the surcharge formulas provided in this decision.

11. Respondent utilities shall exclude gas surcharge amounts in determining franchise payments.

12. Respondent utilities shall pay interest at the three-month commercial paper rate on surcharge amounts in the possession of utilities before remittance to BOE and credit this interest to the appropriate PPP balancing accounts.

13. Respondent utilities shall file ALs to establish or modify their balancing and/or memorandum accounts to facilitate the unbundling of public purpose program costs from their rates, treatment of interest accrued in the Fund, and to

account for the adopted research and development (R&D) procedures, within 30 days of the effective date of this decision.

14. Commission and BOE administrative costs, and public interest R&D incurred as a result of implementing AB 1002, shall be allocated to utilities based on gas volumes used by the utilities in calculating remittances to BOE.

15. Third party gas storage providers shall provide annual customer lists to BOE and the Commission.

16. Non-exempt third party gas storage customers shall pay gas surcharges to the utility in whose service territory the customer resides. The surcharge shall be based on the appropriate surcharge for the service territory in which the customer resides.

17. Approved R&D projects shall meet the criteria discussed in this decision.

18. The California Energy Commission is appointed as administrator of the gas R&D program until further action by the Commission.

19. The funding level, including administration, for R&D in 2005 will be determined upon review and approval by the Commission, subject to a cap of \$12 million, to be funded by the gas PPP surcharge. Additional increases in annual gas R&D budgets after 2005 will be considered and approved as discussed in this opinion.

20. R&D funds shall be remitted by the utilities quarterly to BOE used for distribution to the administrator to cover R&D project and administration costs consistent with the zero based budget and spending cap.

21. Any commercial benefits that result from the expenditures authorized in this opinion shall be brought to the Commission by the administrator to the Energy Division, and the Commission shall determine the disposition of such commercial benefits.

22. Respondent utilities shall file annual ALs, with proposed surcharge rates, by October 31, with a requested effective date of January 1 of the next year.

23. Respondent utilities shall provide copies of quarterly BOE remittances, including R&D amounts, to the Energy Division and the R&D administrator with returns held on a confidential basis.

24. Respondent utilities shall continue public interest R&D and end, or transfer, projects to the administrator by December 31, 2004 and report any unspent R&D funds to the Energy Division for use in future R&D programs. (*See p. 36, supra.*)

25. Respondent utilities shall file separate tariff rate schedules that reflect the adopted surcharge rates no later than January 1, 2005.

26. The administrator shall file an R&D report by March 31 each year. (*See p. 39, supra.*)

27. Rulemaking 02-10-001 is closed.

This order is effective today.

Dated August 19, 2004, at San Francisco, California.

MICHAEL R. PEEVEY
President
CARL W. WOOD
LORETTA M. LYNCH
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APPENDIX A

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(END OF APPENDIX A)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF
CALIFORNIA

Order Instituting Rulemaking on the Establishment of
a Public Purpose Program Surcharge Pursuant to
Assembly Bill (AB) 1002.

Rulemaking 02-10-001

TESTIMONY OF MICHAEL DeANGELIS ON BEHALF OF THE
CALIFORNIA ENERGY COMMISSION CONCERNING THE FUNDING
AND ADMINISTRATION OF A NATURAL GAS PUBLIC INTEREST R&D
PROGRAM



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1 BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

2
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4 a Public Purpose Program Surcharge Pursuant to
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Rulemaking 02-10-001

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7 **TESTIMONY OF MICHAEL DeANGELIS ON BEHALF OF THE CALIFORNIA**
8 **ENERGY COMMISSION CONCERNING THE FUNDING AND ADMINISTRATION OF**
9 **A NATURAL GAS PUBLIC INTEREST RD&D PROGRAM**
10

11 Pursuant to the June 3, 2003, ruling by Administrative Law Judge Bruce DeBerry
12 of the California Public Utilities Commission (Commission), the California Energy
13 Commission (CEC) respectfully offers the following comments and responses related to
14 the public interest research and development (RD&D) issues identified in the ruling.

15 This testimony presents a Summary and an Overview of Natural Gas Research
16 Trends in California. The CEC's responses to the questions raised in Attachment A of
17 the June 3 ruling begin at Section III, Discussion of Public Interest Natural Gas RD&D
18 Issues.

19 Most of the issues addressed in this testimony were also considered in 1996 by
20 the RD&D Working Group in response to the Commission's Rulemaking (R.)94-04-031
21 and Order Instituting Investigation (I.)94-04-032. The Working Group findings and
22 conclusions are documented in the *Working Group Report on Public Interest RD&D*
23 *Activities*, which was submitted to the Commission on September 6, 1996. This
24 testimony draws heavily on information included in that report.
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1 **I. Summary and Recommendations**

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Current issues related to the reliability and price of natural gas combined with the drastic decline in RD&D funding both in California and nationally create a public policy crisis that needs to be addressed by the California Public Utilities Commission. RD&D can develop advanced technologies that, when commercialized, will reduce energy consumption, reduce or shift peak load, increase supplies and improve environmental quality.

A. Trends in Natural Gas Supply and Demand

Over the past decade, natural gas use for the generation of electricity has grown significantly nationwide, and especially in California, where stringent environmental requirements have virtually precluded the use of other fossil fuels. This increase in the use of gas for power generation has, at times, strained the gas industry's ability to deliver gas and has changed the pattern of gas demand from a winter peak to both a winter peak and a secondary summer peak. The gas industry has traditionally filled storage reservoirs during the low summer demand period to augment supplies during the winter peak periods. However, the development of the secondary summer peak has hampered the industry's ability to fill storage during the summer and has caused higher summer prices than before, raising the costs of stored gas. The increase in gas use for power generation in California is expected to continue through the next decade.

1 **B. Shrinking National, State, and Investor-Owned Gas Utility RD&D**
2 **Budgets**

3 During the same period when the demand for gas was growing and supplies
4 growing tighter, public interest RD&D programs related to natural gas were shrinking at
5 the national, state, and California gas utility levels. At the national level, the federal
6 Department of Energy (DOE) natural gas RD&D program budget was reduced from
7 about \$125 million per year in the mid 1990s to less than \$50 million per year today.
8 The research program at the Gas Research Institute (GRI, now the Gas Technology
9 Institute), funded by a surcharge on interstate gas pipeline deliveries of natural gas, had
10 a budget of over \$200 million per year in the early 1990s that has declined to \$60 million
11 per year today. The GRI research program will be eliminated after 2004. Over half of
12 the research undertaken by GRI is estimated to have been public interest research.
13 GRI funding costs were passed on to local distribution companies by pipelines in the
14 form of a surcharge on the pipeline rates. The California investor-owned utilities (IOUs)
15 provided over \$25 million per year for GRI research in the mid 1990s through this
16 pipeline rate surcharge, approximately \$14 million of which was for public interest
17 research. These payments from California IOUs will go to zero in 2005 as GRI closes
18 its doors. In total, the declines in funding for gas RD&D at DOE and GRI during the
19 1990s amount to nearly \$160 million per year for public interest research. The benefits
20 of that research have been lost to California at a time when research is most needed to
21 address the natural gas problems discussed above.

22 Funding for internal public interest research by California IOUs has also declined
23 significantly over the past decade, from an estimated \$15 million per year in the early
24 1990s to about \$1.7 million in 2003.

25 Funding for natural gas efficiency programs in California has also declined during
26 the 1990s, from approximately \$120 million per year in the early 1990s to about \$40
27
28

1 million per year today. These programs are designed to increase the efficiency of gas
2 use and reduce the demand for gas in California.

3
4 **C. Recommended Level of Funding for a Public Interest Natural Gas
5 Research Program in California**

6 Substantial public benefits exceeding costs will result from a well-funded RD&D
7 program, including improved energy efficiency, reduced or shifted peak loads, increased
8 supplies and improved environmental quality. We recommend an annual budget of \$26
9 million per year for gas public interest RD&D budget for California. Three different
10 methods were used to estimate an appropriate level of funding for a public interest
11 RD&D program for natural gas for California. (See comments on funding level methods
12 in the Appendix B.) First, a socially desirable level of public interest research has been
13 estimated to be about one per cent of gas utility revenues by the National Association of
14 Regulatory Commissions as reported in by the RD&D Working Group¹. Applied to the
15 revenues of California gas IOUs, this approach yields an annual funding level of about
16 \$30 million. Second, assuming that a reasonable target for a public interest research
17 budget is the sum of early 1990s internal public interest RD&D funding by the California
18 gas IOUs plus the utilities' payments to GRI for public interest RD&D, an estimate of
19 \$28 million per year is obtained. Third, assuming that the gas public interest RD&D
20 budget should be the same percentage of gas utility operating revenues as the
21 percentage of PIER electric public interest funding compared to electric utility revenues,
22 we obtain a budget target of \$20 million per year for a gas public interest budget. The
23 average of the three target budget estimates is \$26 million per year, our recommended
24 budget for the gas public interest RD&D program.

25
26
27 ¹ *Working Group Report on Public Interest RD&D Activities*, California Energy Commission submission to
28 the California Public Utilities Commission as part of Rulemakings R.94-04-031 and I.94-04-032,
September 6, 1996.

1 **D. Recommended Administrator for California Gas Public Interest RD&D**
2 **Program**

3 We recommend that the California Energy Commission be named the
4 Administrator of the public interest RD&D program for natural gas in California. The
5 CEC has a proven track record in the administration of the current PIER program for
6 electricity. An evaluation of the PIER program showed that, on the basis of projected
7 sales of PIER RD&D products just beginning to enter the market, that the program will
8 generate approximately two to five dollars in ratepayer benefits for every dollar spent.²
9 Further, the CEC would be an efficient administrator for the gas program by using the
10 existing PIER program management infrastructure and systems, thus keeping overhead
11 costs to a minimum. Although we have made no dollar estimate of the savings in
12 overhead costs from using the existing PIER management infrastructure and systems
13 for a new gas program as well, we note particularly that project management staff,
14 contract negotiators and administrators, human resources, auditing, and technology
15 transfer functions could handle the added load of a gas research program with modest
16 increases in staff. The staff increases required would be much smaller than would be
17 case if these capabilities had to be built from scratch in another organization. Public
18 interests and not competitive pressure between gas and electricity industries will be
19 used by the CEC for program funding decisions. The management of both the electricity
20 and gas public interest RD&D programs by the CEC also would facilitate the integration
21 of research programs that benefit both electricity and gas ratepayers and minimize the
22 duplication of research. Finally, management of the gas program by the CEC would
23 ensure that the research program is closely linked to state energy policies and that
24 public processes are used to plan, solicit, conduct, and evaluate public interest energy
25 research in California.

26
27 _____
28 ² *Evaluation of the Benefits to California Electric Ratepayers From the Public Interest Energy Research (PIER) Program, 1998-2002*, California Energy Commission, 500-03-024F, May, 2003.

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E. Recommended Increase in Funding of Regulated Research by California Gas Investor-Owned Utilities

Although regulated research is beyond the scope of this proceeding, the observations and arguments that apply to public interest RD&D apply equally to regulated RD&D. We recommend that the Commission encourage the gas utilities to rebuild their regulated RD&D programs to at least early 1990s levels using the traditional utility ratemaking process.

II. Overview of Natural Gas Research Trends in California

A. Natural Gas Research Trends Nationally and California

Gas RD&D has decreased substantially over the past decade nationally. Figure 1 shows a decline from about \$125 million annually for DOE in the mid 1990s to about \$25-50 million today for gas research in the DOE Fossil Energy Program. Gas research performed by the Gas Research Institute (GRI) has also decreased from about \$250 million in the early 1990s to \$60 million today. Furthermore, the GRI budget will go to zero in 2005, when its operation will cease. As shown in the Figure 2, more than half of the GRI budget funded public interest projects (about \$150 million in 1991), and the remainder funded projects related to the operation of the gas industry and to increasing gas markets. Virtually all of the DOE and GRI research results were available for application in California. California IOUs funded approximately \$25 million per year of the GRI budget in the mid 90s of which about \$14 million reflected public interest research. This amount has decreased to about \$5 million per year as shown in Figure 3. In addition California's utilities funding of public interest projects at the Gas

1 Technology Institute, GRI's successor, is expected to be reserved only for regulated
2 projects after 2005.

3 Funding of internally-performed RD&D and contracted RD&D (separate from
4 payments to GRI) by California investor-owned gas utilities has also decreased over the
5 past decade. Figure 4 shows the decline in total RD&D funding (electricity and gas) for
6 the three California investor-owned gas utilities. Also shown in the figure is a CEC
7 estimate of the gas-related public interest R&D funding for the three utilities over the
8 period 1991-2000 and the total funding for gas public interest for 2001 and 2002 as
9 reported to the CEC by the three utilities. The funding gas-related public interest RD&D
10 by the IOUs for the years 2001 and 2002 is approximately \$600,000 per year, rising to
11 about \$1.7 million in 2003 (not shown in the figure). In constant dollar terms, the
12 combined decline in funding of public interest RD&D for the three utilities has been
13 about \$13 million, from an estimated average of about \$15 million in the 1991-94 period
14 to about \$1.7 million in 2003.

15 DOE's electricity research expenditures have grown at the same time that gas
16 expenditures have fallen. Research expenditures at EPRI have decreased during the
17 past decade, but not nearly as precipitously as have those for research at GRI.

18 California also has programs dedicated to deploying projects to increase end-
19 use efficiency. Funding for the gas efficiency public benefit program, shown in Figure 5,
20 has decreased from about \$120 million per year in the early 90s to about \$40 million per
21 year today. Over the same period, expenditures for electricity efficiency public benefit
22 programs in California have increased from about \$200 million to about \$300 million per
23 year, as illustrated by Figure 6. The decrease in RD&D budgets together with the
24 decrease in efficiency program budgets puts gas ratepayers at a significant
25 disadvantage compared to electricity ratepayers.

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Figure 1. DOE Spending on Fossil Energy RD&D³

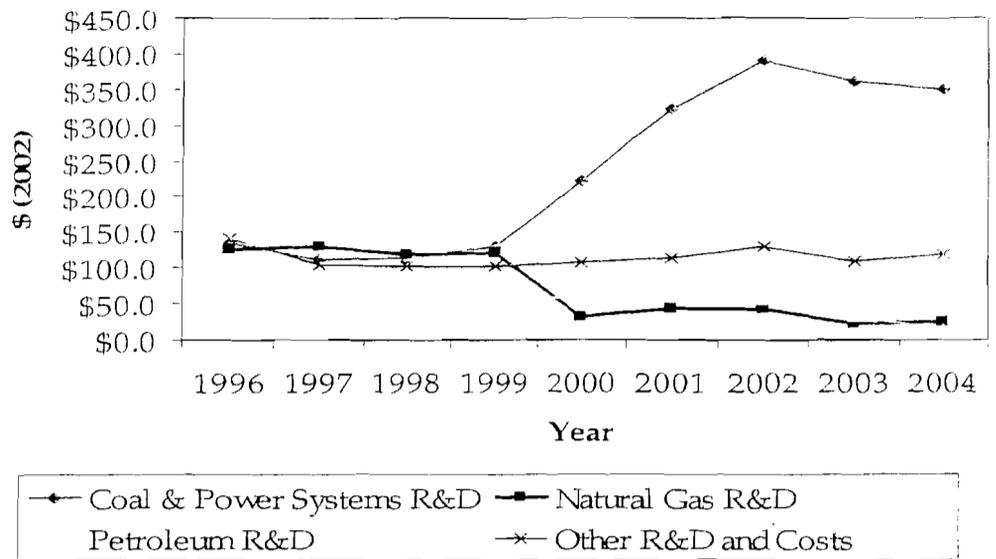
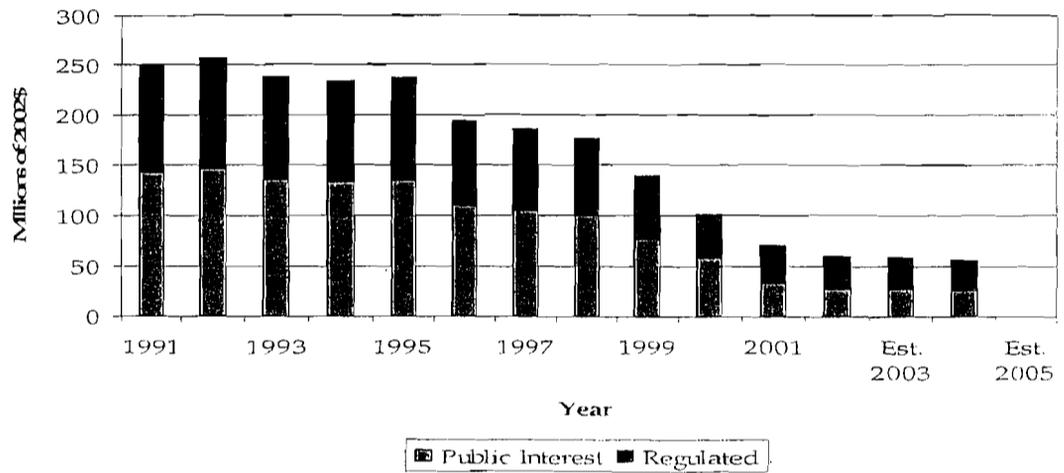


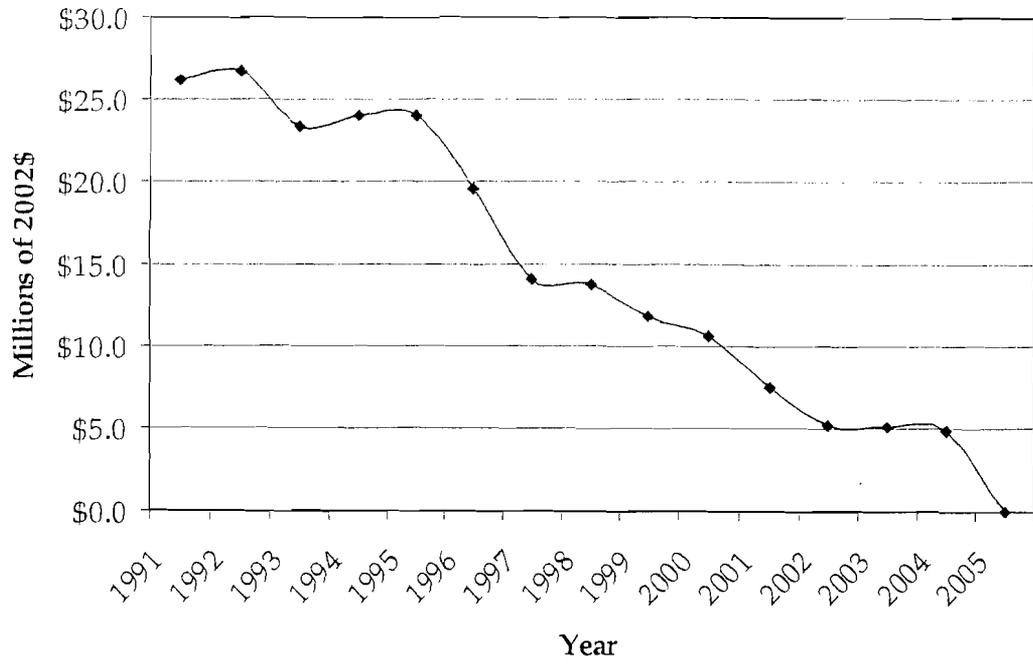
Figure 2. GRI Funding of Public and Regulated RD&D⁴



³ United States Department of Energy, (PIER) Program, 1998-2002, California Energy Commission, 500-03-024F, May, 2003. <http://www.fossil.energy.gov/budget>

⁴ GRI

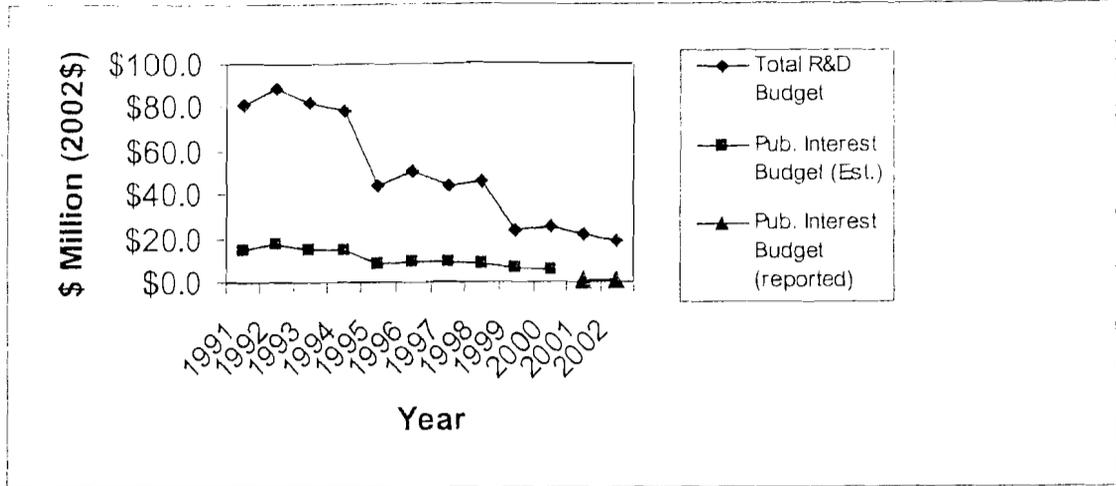
Figure 3. California Natural Gas Investor Owned Utilities Payments to GRI⁵



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⁵ 1991 – 1996 California Energy Commission Working Group Appendix, R.94-04-031, I.94-04-032; 1997 – 2002 from GRI; 2003 – 2005 Estimated

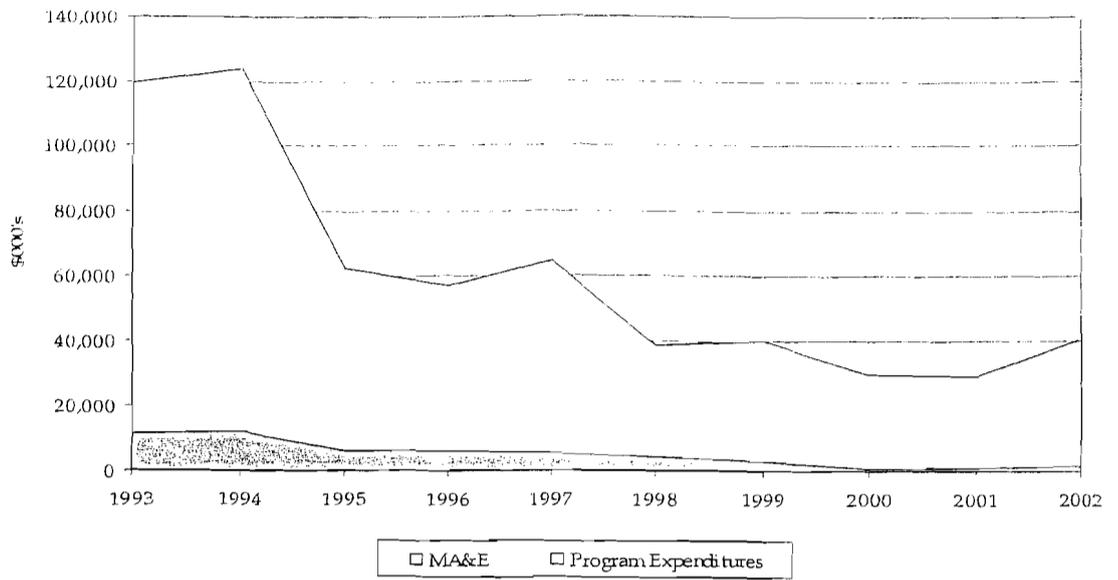
Figure 4. Decline in California Investor-Owned Gas Utility RD&D Budgets⁶



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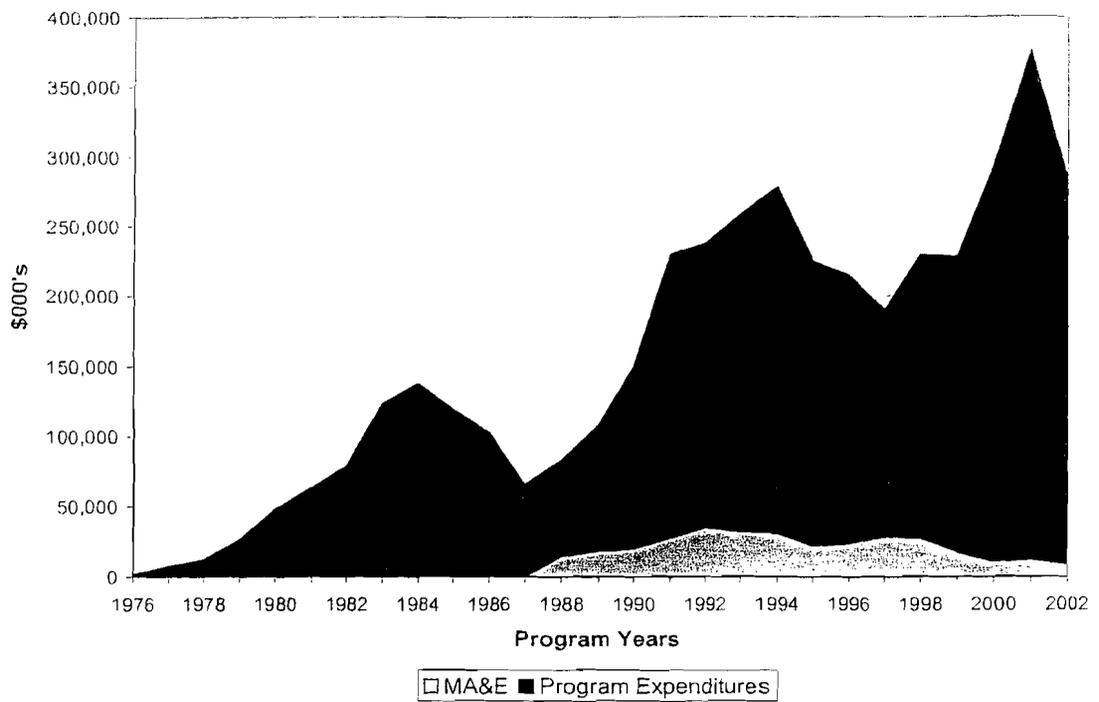
⁶ 1991 – 1996 California Energy Commission Working Group Appendix. R.94-04-031, I.94-04-032; 1997-2002 total RD&D funding from gas IOU annual reports; 1991-2000 estimate of public interest funding are Energy Commission estimates; 2001 and 2002 public interest R&D funding from gas IOU responses to Energy Commission data request.

Figure 5. Annual Spending by California on Natural Gas Efficiency Programs 1993 – 2002⁷



⁷ Public Interest Energy Strategies Report, California Energy Commission, Staff Report Draft 100-03-012SD, July 29, 2003.

Figure 6. Annual Spending by California on Electric Efficiency Programs 1976 – 2002⁸



B. Expected Benefits to California Ratepayers from a Gas Public Interest RD&D Program

The CEC reviewed benefits evaluations undertaken by the gas research program at GRI and the PIER Program for electricity being managed by the CEC.

The Gas Research Institute began operation in 1978 and has conducted annual benefits assessments of its RD&D program since 1985. GRI collects sales data and performance data for products that have been placed into commercial use, and these data are updated annually for five years after commercial introduction of the products⁹. Benefits are calculated by comparing the cash flow for users of the new products to the cash flow for the most likely competing product over the economic lifetimes of the

⁸ Public Interest Energy Strategies Report, California Energy Commission, Staff Report Draft 100-03-012SD, July 29, 2003.

⁹ Products as defined by GRI include hardware and software, information products, and improved processes and techniques.

1 products, and benefits are expressed as the net present value of the resultant cash flow
2 savings. Incremental costs of implementing the new products are subtracted from
3 annual operating cost savings. The net present values are calculated using constant
4 dollars for the year in which the evaluation is done, and a five percent discount rate is
5 used for present value calculations. The sum of the net present values of user benefits
6 are compared to the present value of the GRI program costs for the previous five years.
7 The GRI evaluations for the years 1991 through 2002 were reviewed. Benefit to cost
8 ratios ranged from 4.1 to 1 to 9.4 to 1.

9 In early 2003, the GRI benefits evaluation methodology was applied to the PIER
10 program. The PIER program had just completed its fifth full year of operation, so many
11 products were just beginning to enter commercial use. The PIER evaluation estimated
12 that PIER products placed into commercial use by early 2003 would, over their
13 economic lifetimes, return between two and five times the costs to operate the PIER
14 program during its first five years. The projected PIER RD&D benefits come primarily
15 from technologies that increase the efficiency of electricity end-use, reducing customer
16 electricity bills and reducing the demand for electricity. Economic theory tells us that
17 additional benefits will accrue to ratepayers in general as a result of the decreased
18 demand for electricity through downward pressure on the variable cost component of
19 electricity prices. Some of the downward pressure on electricity prices may be lost
20 because of increases in the fixed cost component as utilities strive to maintain their
21 returns, but we are confident that the overall result will be lower costs for ratepayers.
22 PIER has not yet attempted to calculate the net savings to ratepayers through this
23 mechanism, however. As the PIER program matures and additional products enter into
24 commercial use, there is every reason to expect that the benefit to cost ratio for the
25 program will approach that of GRI.

26 Based on the success of the GRI and PIER programs, we can project with
27 confidence that an expanded public interest RD&D program for gas will more than
28

1 return the ratepayer investment in RD&D after its first five years of operation and will
2 return between four and nine dollars to California ratepayers for every dollar invested
3 after the program matures.

4
5
6 **III. Discussion of Public Interest Gas RD&D Issues**

7
8 This section responds to the questions posed in ALJ DeBerry's June 3 ruling.

9
10 **A. Definition**

11
12 **1. What is the appropriate definition of "public interest research and**
13 **development authorized by Section 740 and not adequately provided**
14 **by the competitive and regulated market," specified in Pub. Util.**
15 **Code 890(a)?**

16 Drawing from previous work done in the areas of electric and renewable energy
17 public interest research and development the CEC feels that the following definition
18 should be used for now in this proceeding.

19 Public interest RD&D activities *are directed toward developing science or*
20 *technology, 1) the benefit of which accrue to California citizens and 2) that are not*
21 *adequately addressed by competitive or regulated entities.*

22 However, the CEC believes that there are not "bright line" boundaries between
23 public interest RD&D, regulated RD&D, and competitive RD&D. We recommend for
24 now that the definitions in the collaborative "Working Group Report on Public Interest
25 RD&D Activities"¹⁰ should be used for all three definitions. We believe that all three
26 types of RD&D need to exist and be healthy for full California benefits to accrue over
27 time, and collaborative "match" funding should be required for projects addressing

28 ¹⁰ *Working Group Report on Public Interest RD&D Activities*, Submitted to the CPUC by the RD&D
Working Group on September 6, 1996.

1 overlapping interests between the three types of RD&D. In addition, operational criteria
2 also need to be established and applied to the RD&D definition for practical application
3 of the definition during program administration.

4
5 **2. Does the definition of “public interest” research and development**
6 **presented in the Working Group Report meet the definition of “public**
7 **interest” under Pub. Util. Code 890(a)?**

8 Yes. See the response to question A. 1.

9 **B. Administration**

10
11 **1. Should the utilities administer R&D?**

12 No, they should not administer the public interest RD&D program, but they
13 should fund and administer a healthy regulated RD&D program.

14
15 **2. Should a non-utility entity administer R&D?**

16 Yes, a non-utility entity should administer the public interest RD&D program.

17
18 **3. What criteria should be used by the Commission to select an**
19 **administrator for R&D?**

20 An important step in establishing a natural gas public interest RD&D program is
21 for the Commission to select an administrative body that will be in charge of the day to
22 day operations of the program. The following administrator qualities should be used by
23 the Commission in selecting an administrator for public interest RD&D. Many of these
24 criteria were developed in the "Working Group Report on Public Interest RD&D
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1 Activities¹¹." The Public Interest RD&D administrator should be the most capable
2 organization in the state to:

- 3 • Serve the statewide public interest;
- 4 • Support state energy policies;
- 5 • Address needs of California end use consumers;
- 6 • Maintain public accountability and provide an open, public process in planning,
7 projects selection, management and evaluation;
- 8 • Provide effective and efficient program administration at reasonable cost;
- 9 • Support collaboration and enhancement of RD&D capabilities;
- 10 • Consist of experienced and qualified staff in managing RD&D programs;
- 11 • Provide a successful track record for RD&D management.
- 12 • Support the fair selection of outside RD&D performers without internal conflicts in
13 interests.

14
15 **4. What criteria should the R&D administrator use to select projects to
16 undertake?**

17 Criteria for projects selection should reflect the specific subject(s) in the
18 solicitation. However, the following selection criteria were developed and published in
19 the Strategic Plan for Implementing the RD&D Provisions of AB 1890, published by the
20 California Energy Commission in 1997 (Report P500-97-007). They are still appropriate
21 as generic selection criteria.

22 Public Benefits: Evaluate the level of public and private benefits in comparison
23 with the proposal costs to be funded by the RD&D program and collaborative
24 participants. Public benefits can include improvements to the quality of the environment
25 above and beyond current legal requirements, beneficial utilization of indigenous and/or
26

27 ¹¹ *Working Group Report on Public Interest RD&D Activities*, Submitted to the CPUC by the RD&D
28 Working Group on September 6, 1996.

1 renewable sources of energy, reduction in statewide energy requirements, increases in
2 the overall efficiency and reliability of generation or end-use of energy, and positive
3 impacts on the economies at the regional or statewide levels through, for example,
4 consumer cost savings and creation of jobs.

5 Quality of Proposal: Determine the degree to which the proposal helps to
6 advance the objectives of one or more of the program's focus or strategic areas.
7 Evaluate the quality of the proposal to determine if the goals, objectives and work
8 statement represent technically viable means to resolve the major barriers. Evaluate
9 whether the proposal describes the relationship of related RD&D efforts to ensure the
10 proposal represents a synergistic approach without duplication of effort. Evaluate
11 whether there is a realistic technical and financial vision for transferring results of the
12 proposal into the marketplace within a defined timeframe, and the proposed level of
13 cost-sharing appropriate to the type of proposal being considered. Evaluate the size of
14 the applicable niche and/or mass markets and gauge the likelihood for commercial
15 success. Evaluate whether the budget and timeframe for the proposal are sufficient to
16 achieve the desired results.

17 Qualifications of Research Team: Gauge the strength and
18 viability of the proposer's team based on: (1) the knowledge, qualifications and
19 experience of key individuals; (2) the past performance, financial stability and level of
20 commitment; (3) the plans for, and track record of, transferring research results into the
21 marketplace; and (4) the plans for collaboration and/or an alliance path to the market
22 where appropriate.

23 Policy Consistency: Assess the technical, market and financial risks of the
24 proposal and the likelihood of and timeframe for success. Weigh the results of these
25 evaluations with the degree to which the proposal advances the objectives of one or
26 more focus areas, and is consistent with State energy policy.

27
28

1 Preferences: Evaluate all preferences or other considerations required by law or
2 specified in the program's operational plan(s) (e.g., California public policy provide a
3 contracting preference for disabled veterans businesses).

4
5 **5. How should the R&D administrator evaluate the completion of
6 selected R&D projects?**

7 There are a variety of ways in which project completion can be assessed and
8 evaluated. Project completion evaluation should be interconnected with project reviews
9 during the term of project performance and also with reviews of program area(s) and the
10 overall RD&D program. In defining the process for project evaluation, the Commission
11 should ensure that projects are assessed by the administrator for both specific public
12 benefits and contribution to achieving California energy policy objectives. The overall
13 RD&D program should also be reviewed by an independent review committee. The
14 following examples illustrate four independent processes that, if used together, will
15 provide a cohesive project completion (and program) evaluation structure. These
16 processes are currently used by the CEC for the PIER program.

17 Interim critical project reviews: On-going critical project reviews (developed as
18 part of a scheduled list of milestones before the RD&D project begins) provide an
19 effective way for the program administrator to track project progress and provides a
20 solid foundation for adjusting project direction, terminating the project early, and
21 providing fair project evaluations after the project is completed.

22 Evaluations by the contract manager: Final project evaluation by specific contract
23 managers who are familiar with the project's scope of work will provide the most
24 accurate assessment of project completion. These evaluations can be used to help
25 make future program funding decisions.

26 Program subject area reviews: Program subject area reviews by a peer review
27 committee will provide quality feedback to improve each subject area RD&D program. A
28

1 review process of this type is described in the Public Interest Energy Research Annual
2 Report 2002, P500-02-076F, pp. ES5-ES6.

3 Overall public interest reviews: An independent third-party review process of the
4 full program, which can include project reviews, should be conducted periodically. An
5 example of this process is the independent review panel that reports to the Legislature
6 on the CEC's PIER Program.

7

8 **6. How should the R&D administrator determine that funds have been**
9 **spent appropriately and in a cost-effective manner?**

10 The qualitative measurement of appropriate funding and spending should be
11 conducted through the integrated, four-step project and program evaluation process
12 outlined in the response to section B question 5. In addition to the qualitative analysis
13 done by project contract managers the administrator must also take into account the
14 nature of RD&D investment. There are many qualitative benefits to the public at large
15 associated with science and technology RD&D not directly associated with the specific
16 project objectives and their direct economic impacts. For example, the pulse
17 combustion gas furnace, introduced into the home heating market by Lennox in the
18 1980's, stimulated advances by competing gas furnace manufacturers and helped to
19 bring about an increase in gas space heating efficiency well beyond the impacts of the
20 original Lennox pulse furnace. Another common occurrence is the use of RD&D results
21 in applications quite different from the intended one, resulting in 'spin-off' benefits to
22 society.

23 In addition, periodic evaluations of program commercial successes should be
24 undertaken to measure the extent to which projected benefits are being realized and to
25 determine whether program benefits to ratepayers exceed program costs.

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7. What are the public benefits of allowing the utilities to oversee RD&D projects?

Addressing the needs of end use consumers. Natural gas utilities are close to market and end use consumers in their service territories, providing them with a competitive advantage in addressing the needs of those customers by targeting and identifying RD&D projects that have a high likelihood of being widely adopted in their service areas. In addition, utilities administer public benefit efficiency deployment programs in California. Thus, they have the opportunity to achieve added benefits for customers by coordinating the public interest RD&D and the efficiency programs.

8. What are the disadvantages of allowing the utilities to oversee R&D projects?

Support State Energy Policies. Utilities are necessarily focused on their service areas rather than the entire state. This discrepancy could lead to conflicts of interest between utility objectives and state wide energy policy objectives. In addition, utilities have little incentive to encourage the success of RD&D products outside their own service areas. Benefits realized from the research will likely be greater if the administrator has a motivation to encourage the widest possible application of the research results in the state, and to clearly address statewide energy policy issues through RD&D actions.

Public accountability and use of public processes. The desire to maintain a competitive advantage and to protect information that may be beneficial to a competitor make it difficult for a utility to maintain public accountability and an open, public process in planning, soliciting projects, managing, and evaluating a public interest RD&D program. There is little evidence that public availability of RD&D results and public processes consistently have been used in the past for IOU RD&D programs.

1 Effective and efficient program administration. RD&D departments in IOUs have
2 been eliminated in the past decade and key staff have left the companies. Distributing
3 RD&D activities throughout a company is not an effective or efficient method of RD&D
4 program administration for many reasons, such as the lack of overall program planning,
5 cohesiveness, and standards for the performance of RD&D.

6 Experienced and qualified staff. In the 1980s to the mid-90s, IOUs had many
7 experienced and qualified staff performing public interest RD&D activities. Today, most
8 qualified RD&D staff have either left the IOUs for work in other RD&D institutions or
9 changed jobs because of a steady decline in RD&D programs in IOUs.

10 Successful track record for RD&D management. Similar to the comment above,
11 the IOUs track record for RD&D management in recent years has declined with
12 declining funding. Clearly, public interest RD&D program management has not been an
13 important priority for IOUs in California in the past decade.

14 Fair selection of RD&D performers without conflicts in interests. There currently
15 is a large and qualified RD&D industry in California that has the experience and
16 qualifications to perform public interest energy RD&D to benefit California. In the past,
17 IOUs would fund RD&D projects that were performed internally by IOU staff and use
18 funds to construct RD&D facilities owned by the IOU. Funding of internal RD&D
19 projects may create a conflict of interest in fairly considering the RD&D community
20 outside of the IOU to perform RD&D.

21
22 **9. What are the public benefits of allowing a non-utility administrator to**
23 **oversee R&D projects?**

24 A non-utility administrator can be selected by the CPUC that effectively meets all
25 of the criteria in the response to question B. 3.

26
27 **10. What are the disadvantages of allowing a non-utility administrator to**
28 **oversee RD&D projects?**

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The only apparent disadvantage may be that a non-utility administrator may not be as closely connected to the end use ratepayers in a service territory market as a utility, increasing the risk that some research products will not meet local market needs in the service territory.

11. How should the administrator's overheads and other expenses be recovered (e.g., by utility ratepayers funded through the Natural Gas Public Purpose Program Surcharge, etc.)?

The administrator's overhead and other non-specific project costs should be recovered using the Natural Gas Public Purpose Program Surcharge fund, refer to section B question 15 for more about administrator's overhead cost recovery.

12. How should the Commission evaluate the performance of a R&D administrator?

Annual reports from the administrator outlining the past year accomplishments of the program should be provided to the Commission. In addition, project evaluations discussed in section B question 5, will give the Commission adequate information for assessing the success of various RD&D projects as well as the overall program's performance. Specifically, the establishment of an independent third party review process would also help the Commission in evaluating the administrator's performance.

13. Should the administrator have the discretion to determine what projects should be funded?

Yes

14. Should the Commission or Energy Division approve R&D projects for funding?

1 The Commission and the Energy Division should not become involved in
2 individual project selection. The job of project selection and funding is properly the role
3 of an administrator. However, the Commission should approve the overall program
4 direction and funding priorities of an administrator, e.g., through approval of an RD&D
5 plan.

6
7 **15. What levels of R&D overhead or administrative costs are reasonable**
8 **and should such costs be recoverable through the Gas Consumption**
9 **Surcharge Fund?**

10 Overhead and administrative costs are very difficult to fairly evaluate because of
11 a lack of standardized definitions and a widely varying scope of RD&D work in different
12 organizations (e.g., is the organization an RD&D administrator only, an RD&D performer
13 only, or both?). This assessment should be done by independent evaluation as briefly
14 described in the response to question B. 5.

15 In order to assess an appropriate level of overhead and administration costs a
16 clear definition of overhead and administrative costs needs to be set forth and agreed
17 upon by all parties. After definitions have been decided upon a benchmark of costs
18 may be established based on other similar RD&D programs with a similar scope of work
19 (e.g., select from PIER, GRI, EPRI, Prior IOU programs, NYSERDA, and National
20 Laboratories). Once these benchmarks have been set the program should be
21 structured such that it's overhead and administrative costs fall within these excepted
22 industry benchmarks.

23 **16. What type of accounting procedures should be established to track**
24 **R&D spending (e.g. project specific, etc.) and overhead?**

25 Before project approval by the public interest RD&D administrator, contracts
26 should be prepared that include (at a minimum) project goals, work tasks, budget,
27 deliverables, and a milestones schedule. In general, contractors should be paid by the
28

1 RD&D administrator on a cost-reimbursement basis for the deliverables provided in
2 accordance with the milestones established in the contract. Accounting practices for
3 Public interest RD&D should be based on established government accounting principles
4 and procedures.

5
6 **17. How can the Commission ensure that R&D funds are being spent to
7 achieve their maximum benefit at minimum cost?**

8 The Commission should seek outside expertise to fairly and effectively evaluate
9 the public interest RD&D program. An independent third party evaluation as briefly
10 described in the response to question B.5 and previous questions offers an unbiased
11 review of project successes by industry experts not closely tied to specific projects.
12 This has been an effective approach used by the Legislature and the Energy
13 Commission in the evaluation of the PIER program. Internal benefit-to-cost analysis
14 work similar to that done by GRI and PIER also offers a good evaluation of achievable
15 benefits. However, the measurement of benefits needs to include environmental and
16 other non-monetary public goods well as economic benefits.

17
18 **C. Proposed R&D Projects**

19 **1. How should R&D funding levels be determined?**

20
21 The appropriate funding level determination should be estimated in multiple ways
22 to insure accuracy and consistency with other similar RD&D programs. The following
23 three methods are all justifiable analytical methods to determine the appropriate level of
24 funding for this program.

- 1 • Social Investment Approach. A desirable level of investment based on utility
2 revenues recommended by NARUC¹² about 1% of revenues. This percentage
3 can be applied to the revenues of California investor-owned natural gas utilities
4 to determine an appropriate funding level.
- 5 • Gap Method. If RD&D outlays have been declining over a period of time and it is
6 judged that the previous, higher level of expenditures is the optimum level, then
7 the appropriate level of funding can be estimated as that necessary to fill the
8 funding "gap" and restore RD&D funding to previous levels.
- 9 • Market Parity Method. The ratio of gas public interest RD&D program funding to
10 California gas utility operating revenues can be made equal to the ratio of PIER
11 program funding to California electricity utility operating revenues.

12

13 **2. What specific R&D projects should be undertaken and funded**
14 **through the Natural Gas Public Purpose Program Surcharge?**
15 **Describe proposed project in detail including objectives, benefits,**
16 **etc. (Identify if project is under consideration in another Commission**
17 **proceeding.) Explain why it is in the "public interest." What is the**
18 **approximate cost of each project, including overhead?**

19 Project selection within a public interest RD&D program requires very careful
20 program planning and subprogram planning. Special consideration also should be
21 given to the consistency of the program with state energy and environmental policies
22 and connection of the RD&D to the market. After targeting the RD&D subprograms,
23 careful consideration must be made to determine the best possible performers of the
24 planned RD&D work. Usually, competitive public processes with a merit review of
25 proposals should be used to select the best performers and projects. Specific, high
26 quality projects will be identified after going through this process.

27 _____

28 ¹² Ibid. Working Group Report

1 Recent trends in gas supply and demand and the recent emergence of significant
2 problems in serving customers suggest several areas in which RD&D could contribute.

3 A few possible focus areas for a gas public interest RD&D program might include:
4

- 5 • Creation of more efficient end-use technologies for buildings and industrial
6 customers.
- 7 • Load management and storage technologies and strategies to shift loads from
8 peak to off-peak periods.
- 9 • Energy efficient, advanced production technologies for California gas supplies
10 and the development of substitutes for natural gas (e.g., biogas and hydrogen).
- 11 • Technologies to reduce the environmental impacts of gas supply, distribution,
12 and use.

13
14 In addition, a regulated RD&D program should be conducted by IOUs that
15 addresses the regulated functions of the utility (e.g., distribution system, O&M, meeting
16 laws and regulations, etc.). When there is overlap between the public interest and
17 regulated RD&D programs in high priority areas, joint projects planning and funding
18 should occur.

19 20 **3. How should R&D projects be prioritized for funding?**

21
22 A five-step process should be used to target RD&D and set priorities for funding,
23 including: 1) Development of an RD&D action plan that respond directly to overall state
24 energy policy direction (e.g., as determined through the "Energy Action Plan"¹³ of the
25

26
27 ¹³ *State of California Energy Action Plan*, Adopted by the Consumer Power and Conservation Financing
28 Authority, the Energy Resources Conservation and Development Commission, and the Public Utilities
Commission, May 8, 2003.

1 CPUC & CEC & CPA, and the upcoming "Integrated Energy Policy Report¹⁴" of the
2 California Energy Commission). 2) This state energy policy guidance and action plan is
3 then used to help develop more detailed plans in each of the subject areas of the Gas
4 Public Interest RD&D program. 3) These plans should then be used by the
5 administrator in a budgeting process to allocate annual funds to each RD&D subject
6 area in the program. 4) The RD&D subject areas would then procure specific RD&D
7 projects, typically by the public release of competitive solicitations that identify the
8 proposed RD&D work that is eligible for funding, including specific topics for research,
9 eligibility requirements, evaluation criteria, and the selection and scoring process. 5) A
10 merit review process with peer experts should then be used to evaluate and rank
11 proposals for the RD&D administrator, who would then make decisions for funding.

12
13 **4. Should the Commission establish an authorized annual budget for**
14 **R&D projects, if so, how should it be established (e.g., based upon**
15 **proposed R&D projects, percentage of revenues, etc.)?**

16 The Commission should establish a stable annual funding level for a minimum of
17 five years as the Legislature has done for the PIER program. The stability and
18 predictability of funding are essential for effective planning and management of an
19 RD&D program. Most RD&D programs will require longer than one year for completion.
20 If project expenses are to be reimbursed based on actual contractor expenses (See
21 response to question C.12), then the administrator must have a stable and predictable
22 funding source that will be there to pay the contractor when he has completed contract
23 tasks. Further, the completion of a comprehensive RD&D program will generally require
24 multiple contractors and multiple contracts over a period of years. The funding source
25 must be stable and predictable in order to effectively plan such a long-term effort. See
26 response to C.1 for a discussion about how to establish the funding level. The

27 _____
28 ¹⁴ Integrated Energy Policy Report, draft CEC report in preparation.

1 administrator should develop and manage an RD&D program to stay within the
2 authorized budget limits.

3 The Commission should provide high-level oversight of the RD&D program
4 proposed by the administrator based on the Independent Review process discussed
5 earlier. The Commission should not be involved in project selection or day-to-day
6 management of the program. Program management and implementation should be left
7 to the discretion of the administrator.

8

9 **5. What type of cost/benefit analysis should be conducted to determine
10 whether a R&D project should be funded; how can the benefit be
measured?**

11 A quantitative cost-benefit analysis is one aspect of project selection, but it alone
12 is not sufficient to determine whether a proposed project should be funded. Criteria (see
13 response to question B. 4) and a merit review scoring process should be used to
14 evaluate and rank RD&D proposals.

15

16 **6. [No question included in Attachment A questions.]**

17

18 **7. How can the Commission determine if the proposed benefits of the
19 R&D project were achieved?**

20 Please see the response to question B. 5 for an integrated, multi-step review and
21 evaluation process to determine the benefits of an RD&D program and projects. In
22 addition, there should be annual RD&D reports by the administrator that should be
23 submitted to the Commission.

24

25 **8. Under what grounds should spending for R&D projects be
26 disallowed (e.g., project exceeds authorized budget, cost/benefit
analysis, etc.)?**

27

28

1 Prior to funding, RD&D projects should have clear goals, work tasks, budget,
2 deliverables and a schedule of milestones in a contract between the RD&D program
3 administrator and the RD&D performer. The administrator will then have the ability to
4 discontinue project funding if project goals are not being met, based mainly on critical
5 project reviews and the other project assessment criteria discussed in section B
6 question 5.

7
8 **9. What policy should the Commission adopt for R&D projects which**
9 **have commercial applications?**

10 The public interest RD&D program should not provide funding to subsidize the
11 installation of commercially-available products. This RD&D program should provide
12 funding to advance science or technology not adequately provided by competitive and
13 regulated markets. Other public programs are available to support commercial
14 applications. For example, energy efficiency, low income and renewables deployment
15 programs established through AB 1890 provide market incentives to deploy
16 commercially available products.

17 However, the Commission should encourage RD&D projects that have a high
18 potential for commercialization. Usually a project's benefits, especially to the California
19 public, are not fully realized until it has been fully commercialized and is in wide spread
20 use. Thus, the public interest RD&D program should also address the "valley of death"
21 issues in bridging the market introduction of successful public interest RD&D projects.

22
23 **10. How can the Commission ensure that R&D projects are not**
24 **duplicative or being undertaken by other entities?**

25 There are a variety of ways the Commission can ensure that RD&D projects are
26 not duplicative, most of which should be standard operating procedure for the
27 administrator. One important approach would be for the Commission to select a single
28

1 statewide administrator for the public interest RD&D program. This approach will
2 simplify the responsibility for eliminating needless redundancy in RD&D funding. In
3 addition, a good administrator should be aware of the industry parties involved in gas
4 RD&D as well as the pertinent issues facing the state of California and the gas industry.
5 Peer and technical reviews allow for industry experts to give feedback on current and
6 future projects. The administrator must also be aware that an alternative path to similar
7 results does not automatically signify duplicative RD&D. In some cases pursuing
8 parallel paths may increase the likelihood of success and best serve the public interest.

9
10 **11. What type of R&D coordination activities should the Commission**
11 **employ to prevent duplicative activities?**

12 Refer to section C question 10.

13
14 **12. What procedures should be in place if expense for an R&D project**
15 **exceeds its budget or authorized spending limit?**

16 Clear procedures should be established by the public interest RD&D
17 administrator to control project expenditures. For example, through project monthly
18 progress and expenditure reports and through critical project reviews (see the response
19 to question B. 5) at key project stages project managers should be alerted to potential
20 project budget overruns and should be able to continue, cancel, or redirect the projects
21 as appropriate. In general, project expenses should be reimbursed to contractors
22 based on actual contractor expenses. In addition all contracts should have an
23 authorized spending limit, and costs in excess of this limit should not be billable without
24 a prior contract modification.

25
26 **13. Is there a clear distinction between gas-related R&D and electric**
27 **public purpose R&D (i.e., can gas related R&D projects impact**
28 **electric related activities)? If not, does this raise issues that the**
Commission should be concerned about?

1
2 Very few RD&D projects will impact only the gas system or only the electric
3 system. First, gas is a major fuel for electricity generation in California. Therefore,
4 projects that affect the availability, reliability, or price of gas will affect electric utility
5 operations and the availability, reliability, and price of electricity. Second, a consumer
6 may choose to provide energy services for most end uses with either electricity- or gas-
7 fueled equipment. Therefore, a new gas (electric) end-use technology that succeeds in
8 the market will generally do so at the expense of a competing electric (gas) technology.
9 Still other technologies can impact both gas and electricity markets, e.g., combined heat
10 and power systems. This is a very important consideration for the Commission in this
11 proceeding. The distinction between gas and electric RD&D can only be done on a
12 project by project basis.

13
14 **D. Reimbursements for the Gas Consumption Surcharge Fund**

15
16 **1. What types of procedures should be in place for administrators**
17 **(utility or 3rd party) to be reimbursed from the Fund?**

18 A minimum of five years of funds should be made available to the administrator
19 immediately after approval of a five-year RD&D plan by the Commission (i.e., CPUC).
20 The collected funds should be deposited into a fund every quarter for the administrator.
21 If the administrator is a state agency such as the CEC, legislative authority does not
22 exist to advance payments to a contractor and later to request reimbursement from the
23 CPUC or the Board of Equalization. Also, if the gas public interest administrator is state
24 agency, an annual appropriation out of the fund may be required. The administrator
25 should then be free to implement the RD&D program and obligate funds to contractors
26 as the program proceeds, and to pay recipients as milestones and deliverables are
27 provided to the administrator. A state agency such as the CEC would have access to
28

1 the appropriated funds throughout the life of the appropriated funds so that timely cost-
2 reimbursement payments are made for valid invoices from the contractor.

3
4 **2. When should administrators be reimbursed from the Fund (e.g., at
5 the completion of the R&D project)?**

6 See the response to question D. 1. The state-wide administrator should not be
7 reimbursed by the Commission. Funds should be deposited in a special account for
8 public interest RD&D on a quarterly basis for statewide administration, as is done for the
9 CEC PIER program. In general, RD&D contractors should be reimbursed by the
10 administrator based on performance.

11
12 **E. R&D Program Costs**

13
14 **1. Have the utilities removed public interest R&D costs from their
15 rates?**

16 From the information provided to the CEC, it appears that only Southern
17 California Gas and San Diego Gas and Electric Company currently have public interest
18 RD&D programs, which were funded at approximately \$0.7 million in 2002 and \$1.7
19 million in 2003.

20
21 **2. How should R&D costs be treated in the development of the
22 surcharge rate?**

23 The rate surcharge should be established at a level adequate to fund all four
24 public benefit programs required by AB 1002. This funding should be stable and
25 provided for at least a five year time period, as is done by the Legislature for the three
26 electricity public purpose programs created by AB 1890. A minimum annual funding
27 level needs to be established for the gas public purpose RD&D program. Several
28

1 methods can be used to determine this funding level. Three methods are described in
2 Appendix B. The Energy Commission recommends a funding level of at least \$26
3 million per year for gas public interest RD&D.

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5 This concludes the direct testimony of the CEC.

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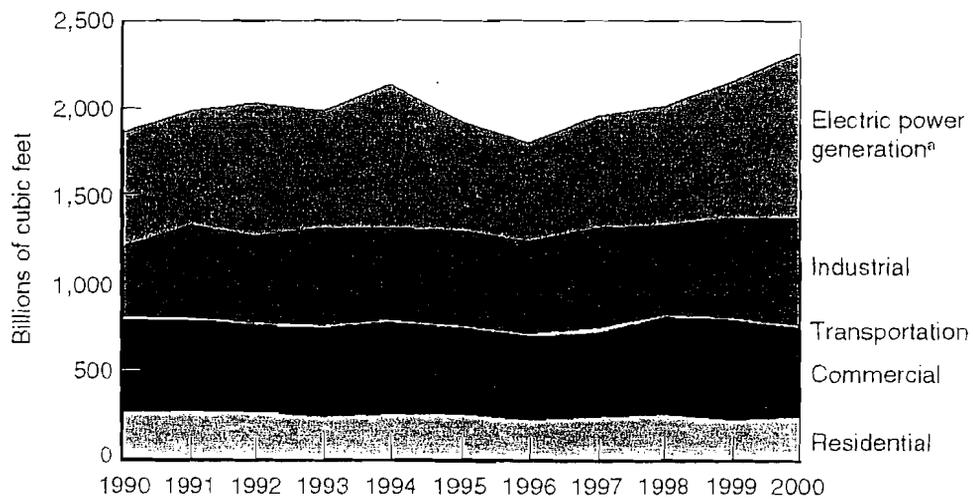
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1 Appendix A

2
3 Relevant trends in gas consumption, prices, and customer costs in
4 California

5 Gas demand has grown steadily in California during the past decade with most of
6 the growth occurring in the electricity generation sector (see Figure A-1). While growth
7 in the electricity generation sector has grown significantly because of the stringent
8 environmental regulations, there has been a decrease in the residential and commercial
9 sectors due to efficiency improvements. As shown in Figure A-2, this growth is
10 expected to continue in the future.

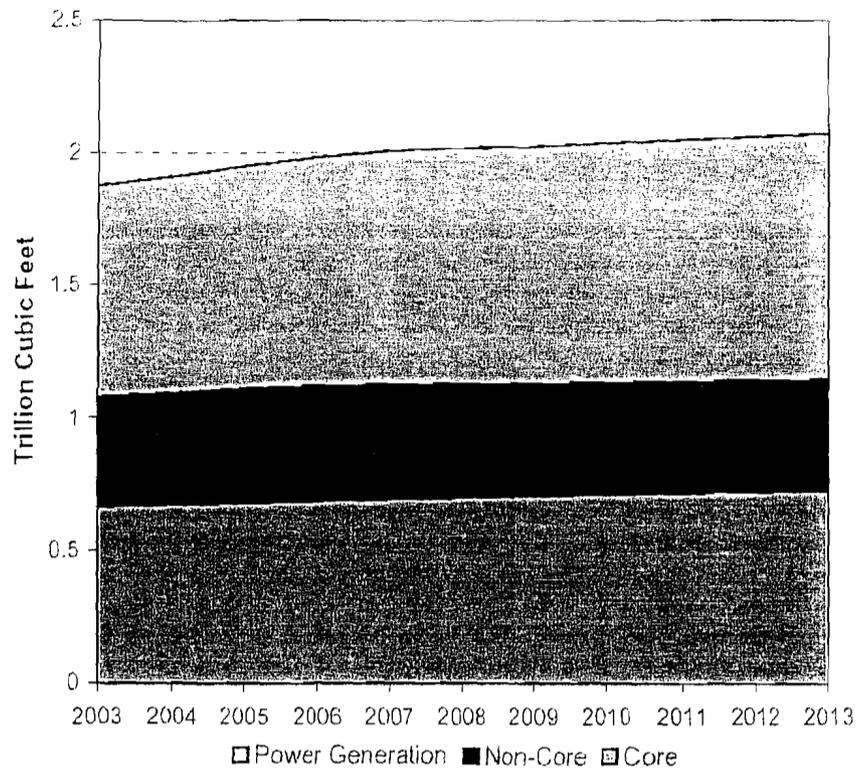
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12 **Figure A-1. Growth of Electricity Use in California by End-Use¹⁵**



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21 ^aIncludes gas consumed by utilities, merchant and cogenerators in the commercial and industrial sectors.

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27 ¹⁵ RAND Science and Technology, "Implications and Policy Options of California's Reliance on Natural Gas", M.A. Bernstein, Page 7

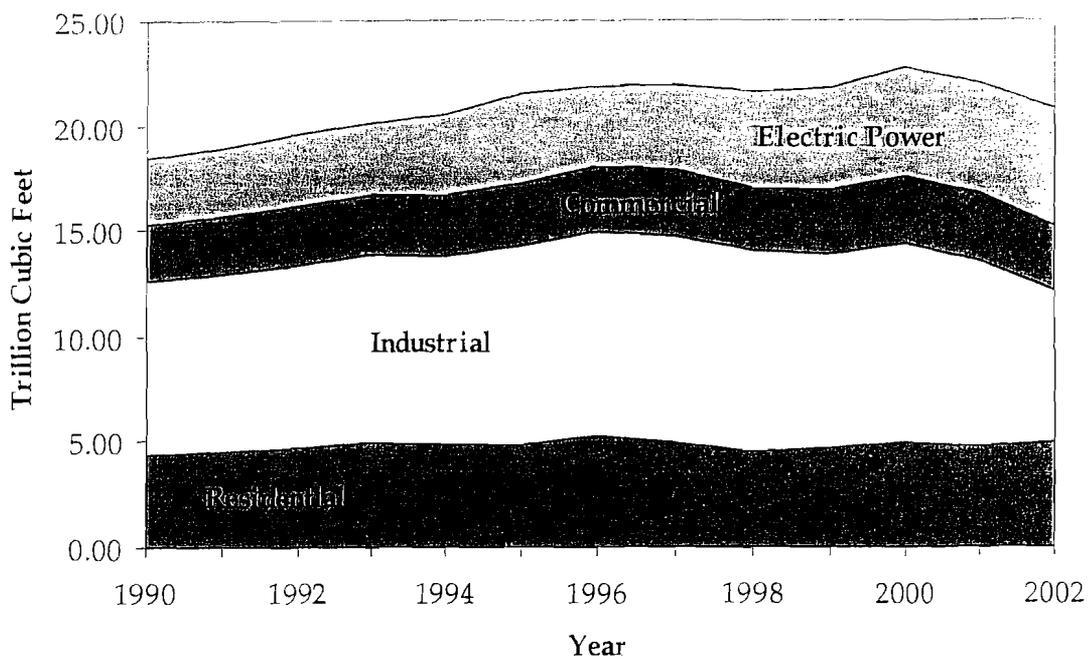
1 Figure A-2. Projected Natural Gas Demand in California by Sector¹⁶



15 Gas has shown similar growth nationally although to a somewhat lesser extent in
16 the electricity generation sector than for California. Figure A-3 shows the nation's gas
17 consumption on a similar trend to that of California.

27 ¹⁶ California Energy Commission, "Preliminary Natural Gas Market Assessment", May 27, 2003, 100-03-
28 006SR, page 13

Figure A-3. Natural Gas End Use by Sector for U. S. (1990-2002)¹⁷

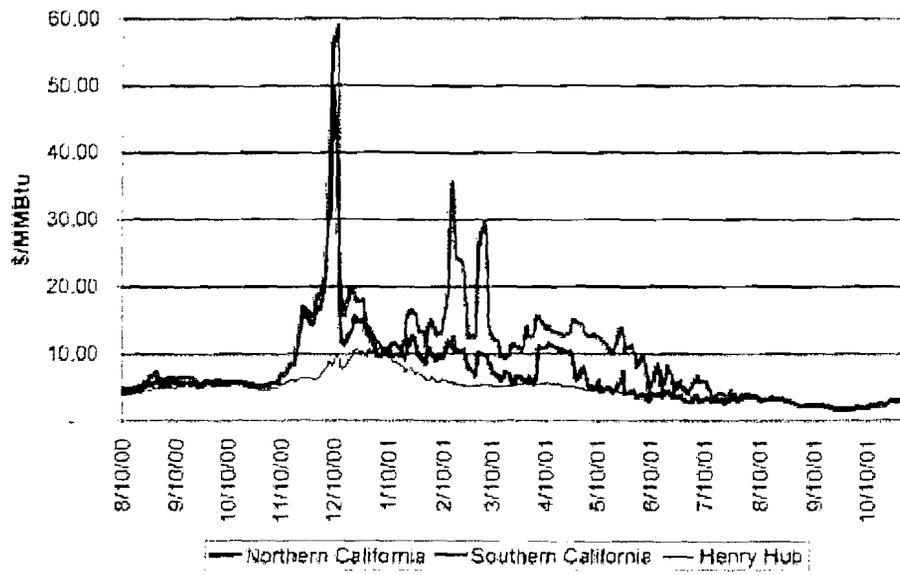


Gas prices in California have been relatively stable in all sectors until 2000, when prices rose substantially because of tightening gas supplies. Figure A-4 shows gas prices were highly volatile during 2000 and 2001 when spot prices rose to almost \$50 per million Btus for short periods. The increases in gas price and the volatility during 2000 and 2001 had major economic impacts for all sectors, but particularly for the electricity generation and industrial sectors.

¹⁷ Energy Information Administration

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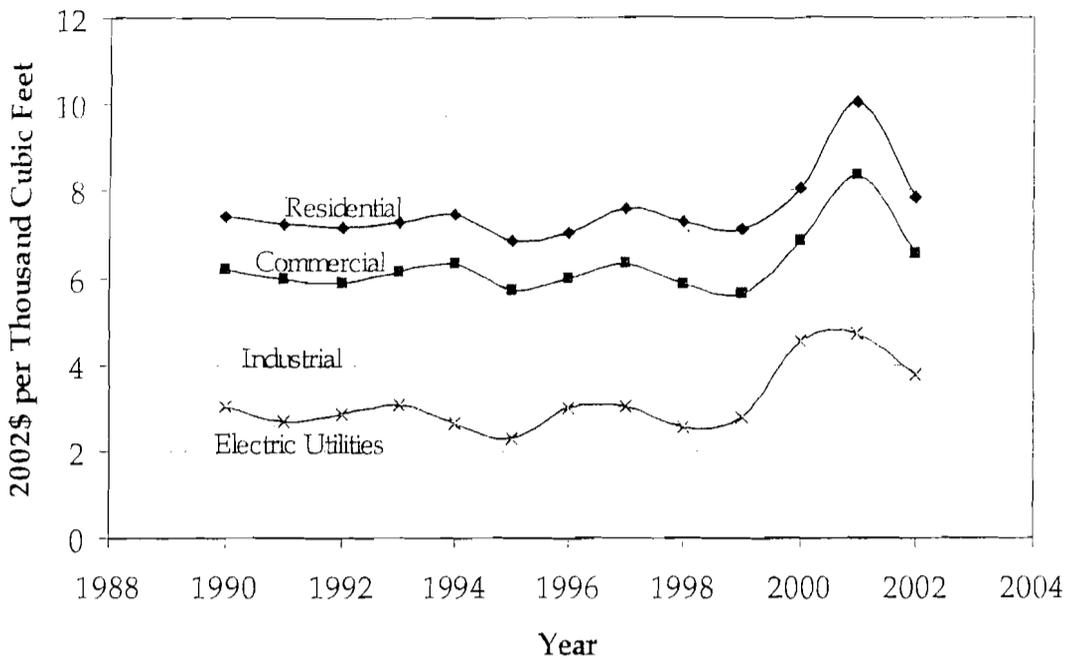
Figure A-4. Example of Natural Gas Spot Prices during 2000-2001¹⁸



The nation as a whole reflected the price increase seen in California. Figure A-5 shows the price jump seen during 2000 – 2001 period on the national level.

¹⁸ CEC, http://www.energy.ca.gov/naturalgas/2001_weekly_updates/

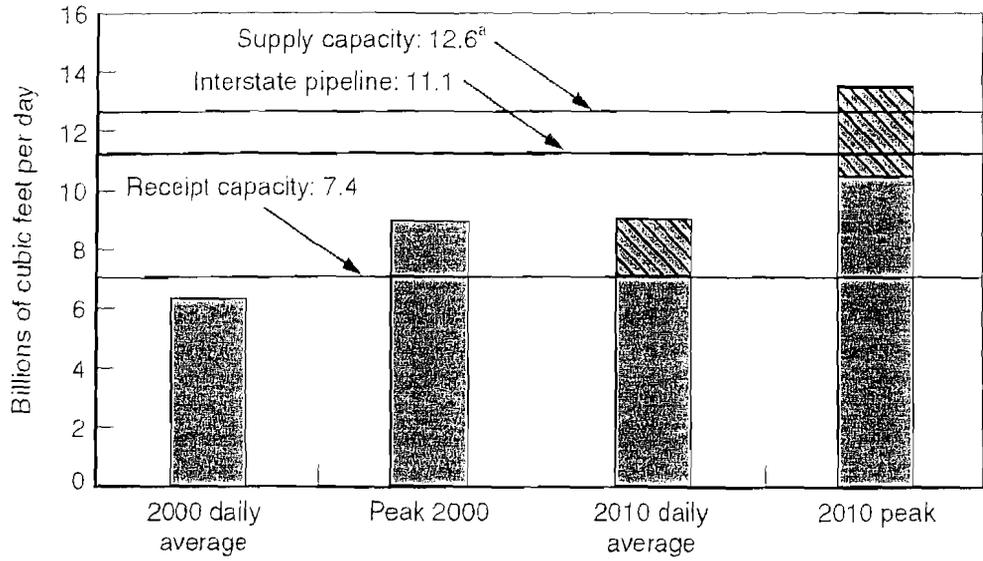
Figure A-5. Increase in Gas Prices for U. S. (1990 – 2002)¹⁹



The growth in gas demand in California is still within pipeline delivery capacity limits for California today, but more pipeline capacity will be required before 2010. As shown in the Figure A-6, however, demand exceeded pipeline capacity within California during the peak period in 2000. Normally, gas storage is used to provide local supplies during the winter period when the peak load occurs. However, the growth in gas use for electricity generation resulted in a secondary peak during the summer when storage is normally replenished. The summer demand for gas plus the accompanying higher than historic summer prices caused the gas industry to delay filling storage to normal levels during the summer of 2000 as shown below in Figure A-7. This exacerbated the supply problems and gas price volatility during the winter of 2000-2001. The change in the shape of gas demand from a winter peak and a summer lull to a two peak shape will get more pronounced as gas demand for electricity generation grows and will cause major changes in the operation of the gas system.

¹⁹ Energy Information Administration

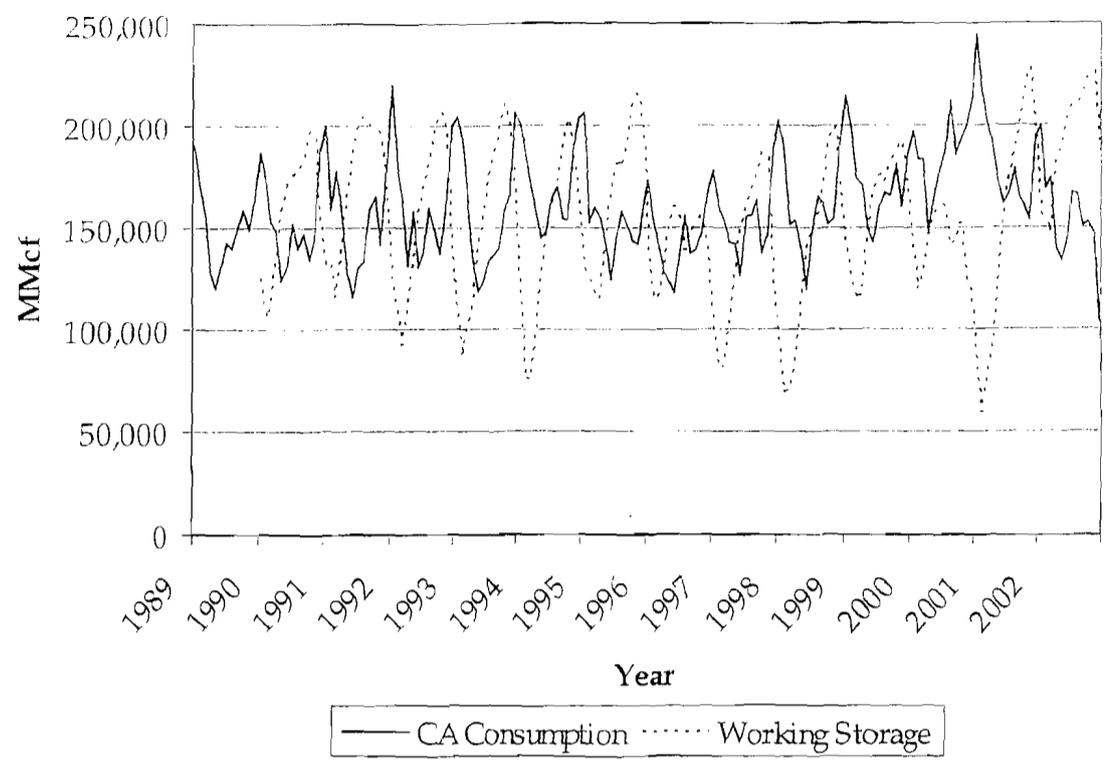
1 **Figure A-6. Future Gas Pipeline System Capacity in California vs. Projected**
 2 **Demand²⁰**



11 ^aCalifornia production + interstate pipeline capacity to California border + storage withdrawal capacity.
 12 NOTE: Cross-hatched portion of bar represents uncertainty in the forecast.

26 _____
 27 ²⁰RAND Science and Technology, "Implications and Policy Options of California's Reliance on Natural
 28 Gas", M.A. Bernstein, Page xxi

1 **Figure A-7. California's gas consumption and storage levels 1990-2002²¹**



²¹ Energy Information Administration

1 **Appendix B**

2

3 **Approaches Used to Estimate Appropriate RD&D Funding Level**

4

5 **A. Funding Levels**

6

7 The CEC used several approaches in determining the appropriate size of the
8 public goods charge to be used in support of a public interest natural gas RD&D
9 program. A listing of the approaches used and the resulting funding levels is included in
10 Table B-1.

11

12 **Table B-1. Possible Alternative Funding Levels for Public Interest Gas RD&D
13 Program for California**

14

Approach	Funding Level (\$ in millions)
Social Investment Approach	\$30.1
Gap Method	\$28.0
Market Parity Method	\$20.0

15

16

17

18 **B. Approaches Used to Evaluate Appropriate Funding Level**

19

20 The three funding level approaches mentioned within the testimony each use
21 different assumptions, criteria, and data to arrive at a reasonable level of funding.

22 Social Investment Approach: This approach is based on the assumption that 1%
23 of California's gas utilities operating revenues is a desirable funding level for all
24 California gas RD&D. This assumption is described in the Public Interest RD&D
25 Activities Working Group Report²² and is based on a resolution by the National
26 Association of Regulatory Utility Commission. Once this total RD&D funding level is

27

28 ²² "Working Group Report on Public Interest RD&D Activities". Submitted to the Public Utilities
Commission of the State of California on April 20, 1994, R.94-04031, I.94-04-032

1 established the amount of public interest RD&D in relation to regulated RD&D within the
2 total amount must be established. Based on historical data from GRI and California
3 utilities an average ratio between public interest and regulated RD&D funding was found
4 to be approximately 50%. Using this rational for total California gas RD&D and the
5 relationship between public interest and regulated RD&D the following formula was
6 constructed to calculate the Gas Public Interest RD&D funding level.

$$\text{Gas Public Interest Funding} = (\text{Gas Operating Revenue}) \times 1\% \times 50\%$$

7
8
9
10 Gap Method: This method attempts to quantify the funding gap that has become
11 apparent between early 90s and today's gas public interest RD&D funding levels. This
12 gap is made up by two different funding sources, California's funding of GRI and
13 California's gas utilities own internal RD&D funding. Data provided by GRI shows a
14 sharp decline in GRI total RD&D Expenditures after the early 90s. The relationship
15 between this sudden decline and the anticipated elimination of GRI operation in 2005
16 lends credibility to this methods assumption. This approach uses the entire GRI public
17 interest funds from California as the GRI gap. California IOUs' internal public interest
18 RD&D spending was estimated using their total RD&D budgets and historical ratios
19 between gas and electricity RD&D. Adding the GRI gap and IOU's gap together yields
20 total annual gas public interest funding gap for California.

21
22 Market Parity Method: This approach attempts to establish a surcharge funding
23 level for natural gas that is proportional to the current surcharge funding for electricity.
24 This approach uses the reasoning that an equitable way to establish funding levels for
25 electricity and gas public interest RD&D is to set the funding so that electricity and gas
26 utilities pay the same percentage of operating revenues. This ratio was then multiplied

1 by the PIER surcharge funding of \$62.5 million to find a comparable gas surcharge
2 level.

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CERTIFICATION OF SERVICE

I, **CHESTER HONG**, certify that I have served copies of the “**TESTIMONY OF MICHAEL DeANGELIS ON BEHALF OF THE CALIFORNIA ENERGY COMMISSION CONCERNING THE FUNDING AND ADMINISTRATION OF A NATURAL GAS PUBLIC INTEREST RD&D PROGRAM**” on service list **R.02-10-001** on all parties by e-mailing/mailling a properly addressed copies, by first class mail with postage prepaid, on or before **August 14, 2003**, to all parties identified on the service list provided by the California Public Utilities Commission.

Dated: August 14, 2003, at Sacramento, California.

DECLARANT
(Service Lists attached to original only)