

Proposals for a Restructured California State
Electric Service Utility Industry

by

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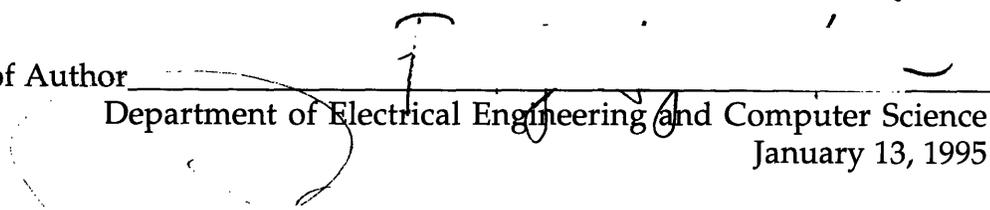
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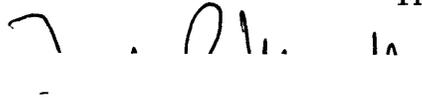
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ABSTRACT

Recent federal legislation has provided the impetus for increasing the role of competition and market forces in California's electric service utilities industry. By evaluating proposals submitted by representatives from interested industry, consumer, and special interest groups, this thesis offers a comprehensive presentation of the ensuing regulatory restructuring forum. It identifies the primary points of contention as:

- Transmission Access vs. Engineering Constraints and Control Requirements
- Cost-of-service vs. Performance-based Regulation
- Direct Retail Access vs. Wholesale Competition Schemes
- Regional Power Pools vs. Bilateral Contracts

In addition, relevant issues include concerns about scheduling, transition costs, power system management, utilities' traditional obligations to provide universal service, jurisdictional authority and reciprocity (for those utilities not subject to California regulation).

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1 Introduction

The United States' electric supply system—which over the past century has become the world's finest—provides light, heat, and power to nearly every American at an exceptional level of reliability, safety, and performance. The system was developed largely as an integrated industry, with local utilities constructing and owning the generation, transmission, and distribution systems needed to meet customer demands. Today, that traditional, vertically-integrated structure is changing, and California is paving the way. If adopted, the California Public Utilities Commission's Order Instituting Rulemaking (OIR) on the regulatory reform of California's electric utilities would result in a dramatic step towards achieving a new industry structure where competition and market forces play greater roles. The main goal of reform is to reduce utility rates in the states by allowing direct customer access to an open number of electricity suppliers ("direct access") and by the restructuring of rates according to a complex system called performance-based ratemaking.

The proposal is motivated by a long-standing national policy to overhaul major industries such as telecommunications, natural gas pipelines, and electric supply. The Public Utility Regulatory Policies Act of 1978 (PURPA) encouraged the development of power plants fueled by renewable resources or by more efficient cogeneration technology. It created a new class of generators, commonly called Qualifying Facilities (QFs). In the fifteen years which have followed, a robust and competitive independent power production industry has emerged. According to the March 1992 report "California's Electric Services Industry: Perspectives on the Past, Strategies for the Future," QF power currently accounts for nearly "20% of investor-owned utility supplies in the state and QFs supplied about 56% of all new generation brought on-line in California since 1982."¹ In addition, consumers are benefiting from lower prices through the competitive wholesale markets that have been facilitated by the Energy Policy Act of 1992 and by various regional pools.

¹"California PUC report sees utility exit from generation as reform option," *Independent Power Report* (February 26, 1993), Section: Rates & Regulation, p. 19.

Nonetheless, the highly differentiated nature of electric services remains mostly obscured by the way utilities and current rate regulation “bundle” and price the services. Regulatory reform must begin by “unbundling” and allowing competitors to find not only new, more efficient ways to provide electricity but also new and different services to meet consumers’ needs. The situation with electric utilities finds analogs in other industries. At the outset of telephone service deregulation, few probably foresaw the level of differentiation which is currently available to consumers in that business. Rates now vary based on time and amount of use. Customers can also choose levels of reliability—buying service on cheaper lines when available in lieu of more expensive routing. Additionally, the airline industry offers a variety of options with respect to reliability (“standby” vs. “reserved” status), quality of service (first class, business class, or coach), timing of travel, and volume discounts for return business (frequent flyer programs).

The OIR envisions a world where all electric power users will be able to purchase electricity directly from competing suppliers. At the same time, it recognizes that the transition to this competitive marketplace will be difficult and must be managed with care in order that many of the benefits of the current system are not lost. There are also fundamental legal, jurisdictional, and public policy issues which will need to be resolved in addition to reconciling the conflicting interests between the various parties involved. Since the April 20, 1994 issuance of the OIR, the California Public Utilities Commission (“Commission” or CPUC) has held five full panel hearings and fourteen statewide hearings to solicit the advice of the public, stakeholders, and industry experts on the subject of the Rulemaking. The discussion has been intense, with numerous parties offering support of the Commission’s proposal and others registering serious concerns about the future described by the CPUC. Rarely has a piece of regulatory policy received such nationwide—even worldwide—attention from utilities, legislators, environmentalists, academic economists, and consumers alike.

1.1 Justifications for reform

In an attempt to meet growing demand without significant rate increases, utilities have resorted to purchasing power instead of building new power plants. Still, at the September 16, 1994 full panel hearing, Commissioner P. Gregory Conlon remarked that California's electric utility rates are currently 150% of the national average.² Although some of this differential might in fact be attributed to QF contracts as well as to state electricity conservation programs, the marginal cost of generating new electricity is still significantly lower than the average cost of today's providers. The present regulatory system offers weak incentives for California's investor-owned utilities (IOUs) to operate and invest efficiently, and it requires costly, administratively burdensome proceedings.³

"Revenues of the state's IOUs exceeded \$18 billion in 1993, representing approximately 2 percent of California's gross state product. The majority of California businesses, which make up the remaining ninety-eight percent of California's almost \$800 billion economy, depend heavily on reliable, safe and competitively-priced electric service."⁴ Needless to say, all consumers would benefit greatly if the electric utility industry was forced to optimize its operations, decrease its costs and share the savings. Lower rates also increase affordability and fewer customers would have reason to be delinquent in their payments. "In a competitive power market, rate differences should be reduced to a level reflecting only the marginal cost differences of producing additional increments of power and the cost associated with its transmission from one location to another."⁵

²Reporter's Transcript, California Public Utilities Commission Proceedings, Volume 5, September 16, 1994, p. 1795.

³In 1991, according to the Energy Information Administration, IOUs provided power to roughly 76% of the 112 million consumers in the United States.

⁴California Public Utilities Commission, *Order Instituting Rulemaking on the Commission's Proposed Policies Governing Restructuring California's Electric Service Industry and Reforming Regulation (OIR)*, R.94-04-031 and companion investigation, I.94-04-032, April 20, 1994, p. 6.

⁵Charles R. Moyer, "The impending restructuring of the electric utility industry: causes and consequences; Applied Economics; Industry Overview," *Business Economics*, Vol. 28, No. 4 (October 1993), p. 40.

According to James Solberg, on behalf of SPURR, School Project for Utility Rate Reduction & Regional Energy Management Coalition: "...if electric rates were at the national average, schools in California would save in excess of \$130 million a year....That amount of money would provide twenty elementary schools, including land. \$130 million would pay the salaries for 4400 teachers. Clearly, we have a lot at stake."⁶ In addition, it is doubtful that "the level of assistance provided to low income ratepayers by a variety of state and federal programs adequately compensates for inflated rates that California utilities charge their residential ratepayers. In other words, low income ratepayers are not made whole by these assistance programs; the assistance programs are helpful, but in the end the ratepayers still pay too much."⁷

In addition to lowering rates, the proposal to restructure the electric services industry would also greatly increase the productivity of that particular sector, and higher productivity stimulates greater economic growth and creates more jobs. Competitive electricity markets would also eliminate regional differences that work to the disadvantage of California's manufacturing plants. Electricity is one of only a few plant inputs that varies by location, while material and labor costs are fairly constant in comparison. The inflated premium has thus handicapped the state's larger, industrial ratepayers in their efforts to be competitive with firms in other states and countries.

For example, Hughes is the biggest private employer in California, with approximately 34,000 employees in the state and 52,000 worldwide. Hughes is also Southern California Edison's largest private consumer. Although electric energy costs represent a relatively small amount of total costs, Hughes would like to be the lowest-cost producer of their products, and "a savings of 30 percent or more on our electric costs, which is what we saved with the deregulation of natural gas, represents a significant improvement to our bottom line and a boost to our ability to compete."⁸

⁶Reporter's Transcript, September 16, 1994, p. 1863.

⁷Second Round Opening Comments of the Electricity Consumers Resource Council (ELCON), June 23, 1994, p. 20.

⁸Reporter's Transcript, September 16, 1994, p. 1861.

Robinsons-May Department Stores owns and operates 52 large department stores in California, Arizona, and Nevada, and they employ approximately 20,000 people. (The majority of the stores are in CA.) Says representative Ken Wilkerson: "...our energy costs average 10.2 cents per kilowatt-hour in California but only 6.7 cents in Nevada and 7.8 cents in Arizona." Lower cost electricity would be an incentive to "utilize better technology in the production process which will result in lower costs to the end user and also accelerate the development of new technologies that will create new jobs and industries for California."⁹

According to the CPUC, the "ills" plaguing California's electric service industry include not only high rates, but: "a regulatory structure that 1) is out of step and often in conflict with a changing, more competitive industry; 2) offers the utility at best weak incentives to operate and invest efficiently; 3) is composed of numerous, costly, and administratively burdensome proceedings; and 4) creates unnecessary barriers to, and therefore threatens the quality of, public participation."¹⁰ When services are unbundled and priced separately, customers can make the most efficient choices about operating procedures and they can select the most logical and reasonable combination of techniques and services that meet their individual circumstances and requirements.

1.2 Benefits of market reliance

Electricity is to "electric services" as food is to "dining services". In the last 15 years, numerous legislative enactments and regulatory decisions have transformed California's electric utilities from mere providers of a commodity called electricity to providers of environmentally-sensitive energy service. Electric services are a highly differentiated group of related services "whose complexity and vast potential variation are mostly obscured by the way utilities and current rate regulation 'bundle' and price electric

⁹*Ibid.*, p. 1870-1871.

¹⁰OIR, p. 7.

service”¹¹ Regulatory reform will allow competitors to find not only new and more efficient ways to provide these services, but to devise new and diverse arrays of services designed specifically for individual consumer markets.

Currently, the electric utilities bear the sole responsibility for developing and purchasing power supplies for sale to their ultimate end-users, and the full benefits of competition will ultimately accrue to customers only if they have the ability to choose among competitive suppliers in the same way that they can today choose among providers of long-distance telephone service or of natural gas. Markets will operate more efficiently when customers can deal directly with suppliers to fashion a transaction that best meets specific requirements at the least cost.

Under the existing system, the customer can make poor purchase decisions in the wholesale market and the resulting wholesale costs can be layered with inefficiencies. Unless the customer has the choice to leave its utility and take its business elsewhere, the utility has little incentive to ensure that its cost of acquiring generation services and the rates it charges for such services are competitive and reasonable. The utility is at liberty to pass along all of its costs to its customers, and Commission reasonableness reviews are simply no substitute for the motivation provided by a truly competitive market situation to solve the high cost problem. The process of reasonableness reviews is also extremely complex, burdensome, and expensive.

Any externalities in transactions—costs and benefits of production or consumption activities that are not borne by producers or consumers—are not significant enough to justify intervention into free enterprise. People are by nature heterogeneous; businesses produce differing services, have different technologies, and face different markets. Households vary not only in wealth, but also in tastes. Some consumers may prefer short-lived and inexpensive investments to purchases of energy efficient appliances, or incandescent to fluorescent light. When individual customers can contract separately, each bears the degree of risk it is willing to tolerate based on its levels and forms of power use. The closer correlation between risk and benefit results in efficient employment of resources and lower overall costs.

¹¹California Energy Commission, *Regulatory Reform and Electricity Industry Restructuring*, June 1994, p. I-6.

Competition in free markets can also assure the most efficient use of energy resources, in particular. Maximizing competition in retail and wholesale energy markets will help all consumers to efficiently use resources consistent with environmental protection. "Central planning" is not as efficient nor as productive as market forces for cost-effectively achieving the goals of environmental protection and other social policy objectives. [Proposals to use market mechanism to more cost-effectively deliver social services are being considered in several major sectors, e.g., health care, insurance, schools, and penal institutions.]

2 Industry Structure

The industry structure must be compatible with the physical and technical requirements of the electric power system, while optimizing economic investments and operation costs. The key elements of the electric power market are: generation resources, the transmission/distribution network which connects the customer loads with the generation resources, and the dispatch/control centers which operate the system. The existing organization is such that there is overlap in some of these provisions, and costs are subsequently bundled. Separation of charges for distribution, transmission, generation, and system control/dispatch functions will serve as a fundamental step toward more accurate pricing to allow a more accurate appraisal of the extent to which each utility's generation assets are above or below market value. It will also minimize the opportunity for utilities to unilaterally shift part of the cost of uneconomic generation assets to the charges for other services.

A restructuring of the electric industry requires the development of new institutional arrangements to support efficient markets which can be taken advantage of by all customers, large and small. These include arrangements for alternate generation resources (separate from other elements of service), the provision of and payment for control area services, efficient energy trading agreements, and efficient transmission access and pricing. The CPUC proposes a two-track strategy, in which: 1) for "those segments of the electric service business which exhibit natural monopoly attributes, or where market power persists," performance-based regulation would replace traditional cost-of-service regulation, and 2) "in those segments for which competition offers a superior means of organizing the development, delivery and consumption of services," the discipline of market forces would substitute for traditional cost-of-service regulation.¹² In the electricity industry, however, it is difficult to draw a distinct line between those areas that are more efficiently served by a single natural monopoly (or an oligopoly) and those areas which are conducive to workable competition.

¹²OIR, p. 28.

2.1 Power system management

An electric power system converts stored energy (chemical, nuclear, hydro, etc.) into electric energy, transports this energy to a location, and finally converts it again into the form in which it is ultimately needed. For example, electric energy generated by a coal-burning electric power plant is carried miles away through the transmission and distribution systems of one or more electric utilities via 60 Hz electrical currents and voltages to eventually become thermal energy in an electric stove. Electric service customers pay for energy usage (e.g. kilowatt-hours) and not the rate at which it is used (i.e. the power). After the development of the practical transformer, alternating current eliminated the limitations imposed by the low voltage of direct current, and it freed generation from the necessity of being 110 volts transmission distance away from the load. Power stations could be built away from congested load areas, in locations that were closer to fuel sources and water.

The modern power system—which, in most cases, is a consolidation of originally separate operating companies—demands availability of power on demand, high service reliability, and reasonable cost. How will the utility grid and grid operator function in a direct access world? Furthermore, direct access customers will require a wide range of utility services, in addition to the retail wheeling services which are today included in bundled rates. These include: spinning reserve, reactive power, scheduling, frequency control and load dispatching, load following, and various other stand-by and back-up power services. These services are complex and will be difficult to identify, measure, and price. Some of them are transmission-related and fall under federal jurisdiction. Suppliers of incoming power must be able to support these additional services in order to maintain the continued reliability of the system as an increasing percentage of the power supplied into the control area comes from other sources.

2.1.1 The modern power system

A small utility may have only five or fewer generating stations. A large one may have a hundred or more. Each plant may produce from a hundred to many millions of kilowatts, or more. Some utilities may have no generation facilities at all, while others lack sufficient generation to supply all of their customers. They must therefore purchase their requirements from other utilities. Power from the largest and most distant generating stations is usually “transmitted” to the load area over the highest voltage circuits. Interconnections from neighboring utilities, for exchange of economy or emergency power, are made over “transmission” lines.

Circuit breakers are high-voltage switches which are usually automatically operated to disconnect only the selected circuit to preserve system service. There is usually an alternate circuit for power flow to preserve system operation. In switching stations, circuit breakers sectionalize the system by disconnecting the faulty equipment from the system in order to protect it from further damage whenever a short-circuit occurs on a transmission line (or some other equipment like a transformer or a bus). High-voltage transmission lines are usually terminated in substations some distance from the load because they are often not allowed in a populated area and loads are frequently dispersed. At these substations, the voltage is stepped down for the next journey through the subtransmission system.

Modern distribution substations are of small capacity and supply power to a limited area through a few feeders. Primary distribution takes the power from these substations to the final stepdown operations, which, in residential areas, may be a distribution transformer. Power finally reaches a large proportion of the customers, excluding the industrials and other large-use consumers, through the secondary distribution system. Small industrial customers are served directly by the primary feeders, while large customers receive their power from the subtransmission system. Very large industrials may be served from the transmission system itself.

The bulk power supply system—sometimes designated as the “wholesale” part of the business—includes generation, transmission, primary substations, and sometimes also subtransmission and distribution substations. It contains the large steam-turbine generators, the high-voltage

transformers, the water wheel generators, and the power circuit breakers. The system's operation, routine maintenance, and construction of new facilities are all under centralized control. Distribution to residential and commercial customers and some of the smaller industrials is considered the "retail" part of the system.¹³

There are losses associated with all physical processes involving energy transfer and the conversion of energy into various forms. Many of the loss mechanisms are inherent in the process and cannot simply be eliminated by improved design or operation. Electrical efficiency is a physical ratio of the conversion of electricity to useful work (e.g. the ratio of energy output to energy input), where as efficiency in the use of electricity is an economic measure. Electricity efficiency comes at a cost which is determined by the market prices of the resources needed to produce the electricity, and increased electricity efficiency is only worthwhile if it is the most valuable use of these resources.

2.1.2 Control area services

The system load is the sum of all the loads drawn by all of the operating devices, in addition to the system losses. The instantaneous load is determined primarily by the customers. When any energy-consuming device is selected on or off, the system frequency and voltage are affected. The effects of small, household appliances are relatively infinitesimal and are masked by the simultaneous starting and stopping of other devices throughout the entire system. Large rolling mills, on the other hand, can cause large, sudden, and frequent variations in load; in some cases, they can lead to undesirable changes in tie-line load between systems. Sometimes industrial customers such as these can present utilities with major problems of load, voltage, and frequency control; but on most systems, significant changes in load only occur with changes in the pace of activity—at the beginning and end of the morning and afternoon shifts in the factories, and with sunrise, sunset, and bedtime.

¹³"Wholesale" and "retail" markets will be further discussed in Chapter 4.

Nevertheless, power must be available to the consumer in any amount required from minute to minute. The demands for reliability of service increase daily as the industrial and social environment becomes more complex. Control area services are the functions that must be performed continuously and automatically by a control area operator in order to preserve system reliability and stability, balance generation with load, and maintain system frequency and voltage. If customer demand increases, or if a generator fails, the system must respond immediately to compensate for the shortfall and rebalance the amount of generation with the amount of load. To ensure that the amount of power flowing between areas matches the net of all schedules, the operator maintains “spinning” and operating reserves, controls the generation and transmission dispatch within its area, coordinates with the neighboring control areas, and uses an Automatic Generation Control computer system that controls generators automatically to keep the system constantly in balance. In addition, calculating techniques take into account system expansion from the existing pattern, outages for whatever reason, interconnections with other utilities, and load characteristics to provide optimum economic design solutions.

California belongs to the Western System Coordinating Council (WSCC), which is a single synchronized electrical system with 36 control areas encompassing all of the western states plus two Canadian provinces and Baja California. Eight of the 36 control areas in the WSCC belong to California alone. The existence of multiple control areas within the same synchronous system creates numerous potential reliability (e.g., loop flows and scheduling errors) and free rider problems. [It is difficult to unbundle, measure, and allocate the costs of control area services to individual parties and transactions for one control area, but because these services are largely provided by automatic equipment, customers will continue to receive them whether or not they have contracted and fully paid for them.] To minimize these problems, utilities depend on many bilateral and multilateral interconnection and coordination agreements and on voluntary WSCC reliability criteria. These arrangements rely heavily on cooperation among interconnected utilities to refrain from exploiting system imperfections.

2.2 Generation vs. transmission

According to the large industrial companies that make up the Electricity Consumers Resource Council (ELCON): "Generation is no longer a natural monopoly. Generation markets are increasingly becoming more competitive and subject to market discipline. Thus, in the short run, regulated utilities should be required to competitively procure all their resources. If one type of resource is procured in competitive markets, other resources offered as substitutes should be selected in the same manner. The planning and operation of the electric utility industry can be made more efficient by increasing the role of competition as a disciplining factor, not by continuing or expanding the central planning model of traditional regulation."¹⁴

San Diego Gas & Electric (SDG&E) adds: "A major justification for treating electricity supply as a monopoly has been the impossibility of coordinating the actions of competitors by using prices to match supply to demand instantaneously at each of hundreds of locations, as required on an interconnected grid. Recent advances in information technology make it practical now to use competitive markets much more extensively in managing an electricity system, but only by carefully integrating market processes into the still-essential central control and coordination functions."¹⁵ On the other hand, "Because the transmission/distribution and control/dispatch functions are monopoly services, they must continue to be regulated in order to ensure that their rates are cost-based and that the services they provide are available on a nondiscriminatory basis."¹⁶ Some have also posited that transmission is a common carrier and therefore should be regulated.

¹⁴ELCON, 2nd round opening, p. 11.

¹⁵Third Round Opening Comments of San Diego Gas & Electric Company (SDG&E) on Competitive Wholesale Electric Markets and Market Institutions in the Restructured Electric Industry, July 31, 1994.

¹⁶Third Round Opening Comments of the Federal Executive Agencies (FEA), July 26, 1994, p. 7.

The CPUC proposal defers any significant industrial restructuring, including some divestiture of utility assets, implying that while greater generation competition seems both desirable as well as feasible, preserving the utilities as integrated firms may still be economically efficient. Nevertheless, some interested parties maintain the necessity for a clear distinction of generation from transmission and distribution. The California Large Energy Consumers Association (CLECA) insists: "...ownership of transmission facilities, which are generally agreed to be monopoly facilities, should be separated from ownership of generation resources in order to reduce incentives for the joint owner of transmission and generation facilities to use its monopoly power to discriminate against other generators."¹⁷ In their third round comments, the Federal Executive Agencies (FEA) concur: "Currently, the largest market for each utility's generation is its own transmission and distribution system; and each transmission and distribution system's largest supplier is its own generation division. It is no wonder that there has been a lack of competitive cost-cutting behavior by the utility companies who also operate in an expensive regulatory environment."¹⁸

CLECA believes that in order to achieve "an electric power market that is truly fair and competitive," operational and financial divestiture of the current generation, transmission, and distribution systems and a "greater horizontal integration of the transmission system" are essential. CLECA foresees a competitive generation market with "no party having undue market power, a fully integrated and regulated transmission system (initially state-wide but ultimately regional), and desegregated, regulated distribution systems that are closer to the end-use customer."¹⁹

Southern California Gas Company also supports in unbundling transmission and generation costs at the wholesale level to deny companies that provide vertically integrated electric services the potential to exclude or

¹⁷Third Round Opening Comments of the California Large Energy Consumers Association (CLECA), July 26, 1994, p. 6.

¹⁸FEA, 3rd round opening, p. 11.

¹⁹CLECA, 3rd round opening, p. 5.

to discriminate against third-party transmission users. “Also, after unbundling, a vertically integrated utility will lack the ability to subsidize its higher priced generation by charging itself lower transmission rates. Making transmission rates transparent to all users and unbundling control area services make generation costs more visible, thereby promoting healthy competition.”²⁰ Furthermore, for transmission and distribution, “it will be impractical for multiple suppliers to provide these services.”²¹ Thus, contends the FEA, the Commission should retain its full regulatory jurisdiction over the noncompetitive services. According to the CLECA, “RTG’s [Regional Transmission Groups] have been envisioned as a means of achieving coordination of transmission service and investment in transmission system additions. They are also expected to coordinate transmission pricing within a region.”²²

Despite such commonly-held views that generation is clearly competitive, while transmission and distribution are sure natural monopolies, this boundary is actually not clear. To varying degrees, transmission, distribution, and generation are interchangeable. New generation capacity in one area can be covered or be avoided by transmission upgrades in another area of the interconnected grid. Within the same area, solar photovoltaic and other emerging distributed technologies can increasingly displace the need for new distribution lines and capacity upgrades, and competition then occurs in connection with voltage support and energy. In addition, grid operators must have some control over generation in order to follow loads, maintain voltage and frequency, and provide reactive power.²³

It may well be that the many decisions needed to coordinate the complex substitutions and integrations between generation, transmission, and distribution are more efficiently made within a firm rather than through

²⁰Third Round Opening Comments of the Southern California Gas Company, July 26, 1994, p. 16.

²¹FEA, 3rd round opening, p. 15.

²²CLECA, 3rd round opening, p. 7.

²³The California Energy Commission, p. I-24.

market exchanges between multiple connecting firms. States the California Energy Commission: "At best, there is evidence to prove that bulk power generation can be supplied through a competitive market, but there is less evidence to prove that this is true for dispatchable peaking and intermediate load-following generation, let alone the more precise generation system control required by today's modern electricity systems."²⁴ The complex interrelationships between transmission, distribution, and generation reflect basic principles of both economics and engineering, and optimal industrial structure will likely change over time in response to changes in economic factors (prices) as well as technology. Because of the difficulties inherent in predicting the optimal delineation between competitive and monopolistic components of the electricity business, regulators should allow the most economically efficient industrial structure to evolve from market forces.

²⁴*Ibid.*, p. I-17.

3 Ratemaking reform

Rates in California are currently set by a complicated system of balancing accounts and retrospective “reasonableness” reviews. Each of these mechanisms was developed to address very real problems encountered by the electric utilities in the past. However, the conditions that necessitated them are now largely dissipated or have been accommodated by the utilities. The OIR therefore proposes to replace existing cost-of-service regulation with performance-based regulation as the means by which reasonable rates are ensured. Traditional cost-of-service regulation has resulted in unintended consequences, including distorted price signals to customers and inaccurate investment incentives for utilities.

An allocation of risks and benefits consistent with utility performance relative to the market would provide new, potentially beneficial, incentives and could serve as an excellent substitute for the existing regulatory structure. As a result, many of the interested parties participating the restructuring debate favor performance-based ratemaking, arguing that this pricing scheme severs the link between increased earnings and ratebase additions. It can balance risk between shareholders and ratepayers far better than balancing accounts and with far less regulatory burden than reasonableness reviews. Performance-based ratemaking also lends itself to integration with other efforts to reduce uneconomic costs.

3.1 Cost-of-service regulation

The driving force behind cost-of-service regulation is ensuring a fair return on undepreciated capital. Supporters of cost-of-service regulation maintain that it offers balance and stability and assures that customers pay no more than the utility’s costs. Cost-of-service pricing is also an important component in reconciling resource planning with a competitive electric services industry. In order to make informed decisions regarding purchases and investments, participants and non-participants of utility demand-side management programs (DSM) need to know the true cost of each utility DSM offering. According to ELCON, “DSM products and services provided by

regulated utilities should be priced based on the cost of service and the utility should be allowed the opportunity to earn a fair rate-of-return on only actual costs prudently incurred and in rate base. Participants should pay the full cost incurred to provide the service.”²⁵

However, the tie to DSM may become a moot argument for continuing cost of service regulation as utility-funded energy efficiency programs like DSM face possibility of elimination under the new market-oriented regime.²⁶ In any case, cost-of-service regulation engenders criticism of its own. Detractors maintain that this system does not give utilities sufficiently strong incentives to provide high-quality service at the lowest reasonable price over time. The current cost-of-service ratemaking is also costly and burdensome. It has resulted in the creation of inappropriate incentives which have encouraged investment in ratebase whether or not such investment has been efficient. Cost-of-service regulation has forced utilities to ignore customer needs and demands in service structures and instead offer a limited range of inflexible cost-based services.

CLECA asserts that the current utility regulatory process is broken. “There is no zero-based budgeting and there is no assessment of the utility’s costs against an independent benchmark. A fundamental weakness of the system is that the utility’s own costs are the point of reference in determining what these costs should be in the future.”²⁷ The California Energy Commission believes the CPUC should relax its traditional cost-of-service regulation for not only utility service customers, but for direct access customers as well. In addition to enhancing consumer choice, this modification could encourage all electricity consumers to seek out, and allow competing service providers to offer, a larger array of services using distributed energy, telecommunications, and end-use energy efficiency technologies.

²⁵ELCON, 2nd round opening, p. 14.

²⁶See chapter 5.

²⁷First Round Reply Comments of the California Large Energy Consumers Association (CLECA), June 21, 1994.

3.2 Performance-based ratemaking

Performance-based ratemaking (PBR) proposals adjust utility returns from present levels established by cost-of-service ratemaking based on the ability of the utility to reduce its costs relative to various established productivity targets or other objective benchmarks. This would eliminate the relationship between increased earnings and ratebase additions. For example, new generation plants constructed by a utility would produce income based entirely upon the plant's output, as opposed to the traditional method of tying earnings to a percentage of investment in the plant. This form of ratemaking provides a direct incentive for efficient investment and gives the utility a reason to emphasize cost-effective demand-side management and environmental programs, as well as customer-preferred service structures.

Performance-based ratemaking can thus balance risk between shareholders and ratepayers far better than balancing accounts and with far less regulatory burden than traditional reasonableness reviews. According to Southern California Edison Company (Edison), "PBR provides powerful incentives to increase the efficiencies with which existing assets are utilized. Adoption of PBR will provide a transitional bridge to a more competitive, long-run industry structure."²⁸ Pacific Gas & Electric (PG&E) also favors performance-based ratemaking over cost-of-service regulation and intends to competitively sell unbundled electric power to direct access customers in a way that protects full service customers from responsibility for any lost contribution to margin, whether due to reduced prices or lost sales.

In August 1994, the CPUC approved SDG&E's five-year experiment with a base-rate incentive plan, which rewards shareholders for holding down rates, but also penalize them if rates and earnings do not meet targets. SDG&E, who was the first utility in California to propose PBR, is already operating under incentive plans for gas procurement and generation/dispatch.²⁹ "Under the base rate plan, SDG&E shareholders will retain all earnings up to 1% above the authorized rate of return, which now stands at 9.03%, but which the utility has asked to increase to 9.95%. Earnings

²⁸Edison, 8/24/94, p. 24.

²⁹PG&E and Edison have PBR plans pending at the Commission, but neither of those have yet been approved.

between 1% and 1.5% above ROR will be allocated 75% to shareholders and 25% to ratepayers, and earnings between 1.5% and 3% above ROR will be split equally between the two groups...On the downside, shareholders will absorb any shortfall below ROR. And if earnings exceed 3% above ROR, the commission may open up the PBR for investigation, under the assumption that the mechanism needs correcting.” To prevent SDG&E from raising earnings and cutting rates at the expense of quality, the plan also measures reliability, safety and customer satisfaction.³⁰

Still, CLECA believes implementation of PBR is not enough. “There is considerable evidence that regulation, even incentive regulation, will never apply the downward pressure on rates that competition can and does apply. When industrial customers, like the members of CLECA, secure supplies of the inputs to their production processes, they negotiate with multiple suppliers for the best price and terms. If they are unhappy with a given supplier, they can go elsewhere.”³¹ Methods to phase competition into the electric services industry will be discussed in the next chapter.

³⁰“California PUC okays SDG&E incentive plan; EEI rate index one of several measures,” *Electric Utility Week*, August 8, 1994, p. 1.

³¹CLECA, 1st round reply.

4 Competition

In the electric utility industry, the terms “wholesale” and “retail” have traditionally applied to two easily distinguishable kinds of transactions. Under the OIR, customers of California utilities who rely solely upon their franchised utilities for electric service are making “retail purchases”, while electric utilities acquire a portion of the electricity needed to serve this load by purchasing power from other suppliers in “wholesale transactions.” “Direct access customers” are those who choose to manage their own electricity supply in the competitive generation market. The power they purchase at retail may have been supplied by the same source by which a utility secured power in a wholesale transaction.

Options for introducing competition to the electric services industry vary in scope and manner of implementation. Some advocate only wholesale reform, in which utilities would most likely transact business through a mandatory pool and retail consumers would continue to purchase from their present utility providers. Others support a direct access environment where retail customers are able to choose power from whichever entity they prefer, either through a pool scenario—with the option of entering into financial contracts for differences outside the pool—or through multilateral contracts and market mechanisms only.

4.1 Scope

Opinions differ on whether competition should be first introduced at the wholesale level and then gradually phased into retail sales, or should direct access be implemented immediately for all customers. A wholesale market for electric services currently exists and continues to develop. With respect to institutional arrangements, California’s utilities have long relied on external power purchases to provide retail service. A predominantly voluntary development of interconnected transmission networks has enhanced beneficial wholesale energy transactions and facilitated the creation of sophisticated contractual agreements and financial mechanisms. Direct access would be extended to customers through “retail wheeling”. Wheeling

usually involves changes in energy flows over a transmission system, and retail wheeling would ideally occur between a private generator and a private user. In this way, the consumer would be able to buy electric power from whom he or she chooses.

Advocates of direct access on the retail level believe it is inherently inefficient for a utility to procure resources for a large and diverse set of customers and argue that different customers desire different levels of service reliability and different types of financial arrangements. They claim that an adequate level of product differentiation cannot be provided efficiently by a single utility, so resource development needs to be decentralized and made more customer-driven. With retail direct access, customers would have the opportunity to be their own portfolio managers, and direct access supporters believe this will result in greater economic efficiency and freedom of choice. Opponents, on the other hand, contend that end-use efficiency will be harmed by direct access and decentralized development. They maintain that the utility performs a valuable role as a portfolio manager and that the total costs of electricity-related services will not be minimized on a system-wide basis if resource development is purely customer-driven. Skeptics envision distribution utilities continuing to act as portfolio managers on behalf of ultimate consumers and shopping for required generation in a wholesale market.

4.1.1 Wholesale markets

Current markets can be most easily expanded and their competitiveness increased by focusing first on wholesale transactions, since the existing market has primarily developed on that basis. Competition among suppliers at the wholesale level can benefit all electricity consumers by driving down electricity prices and introducing additional choices and options. If some consumers eligible for direct access elect to continue relying on the utility to procure their power, these customers will still benefit from wholesale competition because of the indirect reduced costs.

In the OIR, the Commission observed that high transaction costs, limited access to information, and barriers to access and efficient use of the transmission infrastructure hinder the competitiveness of the existing wholesale market. SDG&E adds: "...it [the wholesale market] has not achieved equality among competing suppliers, and, as presently structured, it cannot maximize efficiencies."³² Wholesale competition therefore depends largely on transmission access, which must be available to all potential suppliers on a nondiscriminatory basis and under reasonable terms and conditions at cost-based rates. In order to maximize the number of potential transactions, all potential suppliers must have reasonable access to all potential purchasers.

The greatest degree of competition would occur if there were a separation of ownership for generation assets, transmission and distribution assets, and the assets used to dispatch and control the electric system. "When the owner of the transmission/distribution system (to which the customers are attached) also owns a substantial amount of generation, there may be a natural tendency to want to maximize the use of that owned or controlled generation by employing it to supply service to its customers. This may manifest itself in a number of actions such as resistance to shopping the market for more economical power supplies, high prices and restrictive terms and conditions for transmission service, and restricted access to and/or overpricing of system control, dispatch and other ancillary services," warns the FEA.³³

Commissioner Conlon advocates accounting rules that would separate transmission and generation assets, so that utilities could not use transmission rates to subsidize their generation—which would be under increasing competitive pressure. Accounting rules are not enough for Californians for Competitive Electricity (CaCE)³⁴, which urges utilities to divest their generation assets and states: "Ideally, the most effective method of achieving open and fair competition would be to remove the regulated

³²SDG&E, 3rd round opening.

³³FEA, 3rd round opening, p. 11.

³⁴A group which includes non-utility generators and the influential, 800-member California Manufacturers Association.

utilities entirely from the generation market, leaving them to operate as transmission and distribution service providers.” According to CaCE, this would require utilities to sell or spin off existing generation assets so they are economically indifferent to the power that they transmit to customers, and could not favor their own resources.³⁵

SDG&E believes that with a competitive wholesale market in place, retail wheeling is not essential for market access by consumers. It maintains that “effective customer choice does not depend on retail wheeling from individual generators any more than consumer choice for vegetables requires buyers to be able to shop directly with farmers....Retail wheeling without wholesale market reforms simply preserves the inefficiencies of the existing system in order for a select few to make power sales to the customers with the best load patterns, creating inequities among customers that may increase the costs to customers that are not able to take advantage of ‘retail wheeling’.”³⁶

To illustrate their point, SDG&E offers an example. In order to help keep its rates low, the utility currently purchases substantial amounts of power in the market, buying as much as the market and system reliability will allow. Under the common definition of “retail wheeling”, SDG&E expects that those currently selling to SDG&E at wholesale at a low price will seek to sell directly to those SDG&E customers with the best load profile, at a higher price. If such a sale occurs, SDG&E’s remaining customers would no longer receive the benefits of the low-cost power, and their rates would increase. “This same result will occur even if all customers are given the opportunity to take advantage of ‘retail wheeling’ because only the customers with the best load characteristics will be attractive enough to be able to take advantage of this opportunity.”³⁷ Therefore, contends SDG&E, instead of providing benefits to all customers, retail wheeling would provide benefits to a few, at the expense of others. Under this system, the only customers with a true “choice” are the ones with the most attractive load characteristics. Edison agrees the direct access customer would be unprepared to deal with (in real

³⁵Ray Pospisil, “The California Aftershock,” *Electrical World*, Vol. 208, No. 9 (September 1994), p. 29.

³⁶SDG&E, 3rd round opening.

³⁷*Ibid.*

time) complex arrangements for scheduling of power and energy, regulation of generation to follow loads, as well as with those contracts for adjusting operations in response to operating contingencies. Consequently, these individuals would pose a significant threat to reliable operations.

4.1.2 Retail wheeling

What benefits can be derived from retail competition that are not available from a highly-competitive wholesale power market? Some argue that wholesale-only competition limits the size and scope of the market and consequently restricts opportunities for innovation and market entry. In addition, the Coalition for Choice in Electricity (CCE) maintains direct access has environmental benefits. "If green resources truly are cost-effective they will be adopted more quickly under direct access, where people can deal directly with green suppliers....With direct access, packagers of green resources will be further able to differentiate their products."³⁸

It may also take many years for efficiency gains associated with improvements in the wholesale markets to benefit end-users, since wholesale transactions, where the utility acts as an agent for all end-users, impose a single purchasing strategy and risk management approach on all customers. One of the alleged advantages of retail competition is that customers can create their own portfolios of power and make their own decisions about their needs. The FEA points: "A competitive wholesale market alone means that choice exists only when a monopoly utility purchases power from another utility, QF, IPP, etc. for resale; not when an end-use customer purchases power..."³⁹ CLECA further notes: "Serving an industrial customer is no different from serving a municipal utility at a node in the transmission system. There is no inherent reason to distinguish these types of customers by delaying introduction of retail direct access."⁴⁰

³⁸Second Round Opening Comments of the Coalition for Choice in Electricity (CCE), April 20, 1994, p. 21.

³⁹FEA, 3rd round opening, p. 6.

⁴⁰CLECA, 3rd round opening.

CCE is also confident that the retail direct access customer will be able to best arrange its own power supplies to meet its individual objectives. "They might place different values on reliability, on-peak service, or flexibility of their takes. Insisting that a single portfolio of resources must serve all customers regardless of their individual objectives forecloses the choices of those who value different types of power supplies. Such insistence makes no more sense than does requiring all investors to hold the same mix of stocks and bonds. In an uncertain world, there is no choice but to bear some risks. Direct access customers will not only have access to their own power supplies. They will also have access to baskets of risk of their own choosing, rather than of the utility's choosing."⁴¹ A direct access program creates the value of competitive pressure, which allows customers to choose their own preferred portfolios of power, with whatever combination of price and service risk they prefer.

4.2 Implementation

Significant savings can frequently be achieved by extending and consolidating economic dispatch over large areas because multiple utilities can take advantage of load and resource diversity to equalize short-run marginal generating cost between control areas. Utilities in some regions have formed power pools, in which the aggregate generating capacity of a pool's members is centrally dispatched by a privately owned company independent of the utilities and other generation suppliers as if the members were a single utility. There is disagreement, however, about whether or not such regional power pools are necessary in order for efficient, competitive, "direct access" electric industry. According to some, without a regional power pool, direct access would simply reallocate power already being generated from one buyer to another. Others maintain that pools would create serious implementation problems, while the existing arrangement of bilateral and multilateral contracts better provide for a wide array of products and service offerings.

⁴¹CCE, 2nd round opening, p. 23.

4.2.1 Power pools

It is the pool's job to dispatch the electric power system optimally, determine how existing transmission is to be used, balance loads and resources on a real-time basis, and ensure the safe and reliable operation of the grid. By definition, a pool ensures that operation and dispatch of the system is completely unbiased and based solely on what is the optimal dispatch, determined from prices that suppliers bid. This is achieved because the pool is completely independent of any buyer or seller of power or transmission.

Edison has proposed a model for a regional "POOLCO" which would be operated by an independent entity who would be paid fees assessed against all market participants in return for operating the regional system reliably and for purchasing and allocating the costs of control area services—e.g. dispatch, spinning reserve, and frequency and voltage control—in an equitable manner to market participants. POOLCO would operate on a regional basis co-extensive with the relevant generation market, and it would ensure efficient dispatch of generation by balancing loads and resources in real-time. Membership would be open to all power sellers and transmitters on a non-discriminatory basis. Regional transmission groups (RTGs) would establish transmission access and pricing rules, and the "Independent Power System Operator" (IPSO) would make all transmission access decisions based on a prefiled open-access tariff.⁴²

According to SDG&E, "the objective of a pool-based wholesale market is to reduce the costs of electricity by increasing competition in those parts of the electricity system where market forces can be effective and efficient, while legislative and regulatory attention focuses on the remaining monopoly parts of the industry and on the environmental and social goals that competitive markets cannot be expected to handle."⁴³ In the wholesale

⁴²The extent of this operator's role and responsibilities is under debate. PG&E wants the integrated utility to continue performing transmission and system operation functions. SDG&E believes continued involvement invites disputes and continued regulatory involvement in what should be a competitive market. (See Fourth Round Reply Comments of SDG&E, September 30, 1994, p. 11.)

⁴³SDG&E, 3rd round opening.

pool SDG&E recommends, sellers bid a price, location, and amount of power to be delivered into the grid and retailers bid a price, quantity and location of power they seek to purchase. The pool operator dispatches the system optimally and establishes a market clearing price at different locations that reflect the scarcity or abundance of transmission at those locations. Ideally, this gives price signals that will stimulate interest in building new transmission where there is scarcity, and encourage new generation where transmission is abundant. Sellers that are dispatched receive this clearing price; buyers pay the clearing price plus an additional payment to reflect other costs of the grid, such as voltage support.⁴⁴

A pool does not necessarily preclude bilateral contracting to allocate risks and rewards. In fact, says SDG&E, it helps these transactions to occur by, among other things, “(i) making market information available to the participants, (ii) providing for transmission, and (iii) providing a structure in which back-up energy is automatically available at the pool price, so buyers do not need to bargain this out separately...One convenience of the pool is that it automatically sells all contracting parties back-up energy at the local pool price whenever they need it, and purchases any excess power at the local pool price. This system helps to encourage bilateral contracts that might otherwise not occur because, for example, one of the parties is concerned about the need for backup energy.”⁴⁵ Edison also insists there are valuable benefits unique to the pool system.⁴⁶ They are:

- 1) assurance that the region’s electric system will be operated in a least-cost manner.
- 2) assurance that contract disputes will not disrupt the continuity of service or interfere with the system’s economic dispatch.

⁴⁴*Ibid.*

⁴⁵*Ibid.*

⁴⁶Third Round Opening Comments of Southern California Edison Company (Edison), July 26, 1994, p. 6.

- 3) elimination of market power resulting from lack of information and high transaction costs and establishment of a level playing field so that small users and residential customers could enjoy the benefits of competition.
- 4) elimination of self-dealing concerns by placing control over transmission service decisions into the hands of an independent entity that is unaffiliated with any market participant.
- 5) assurance of access to the market for all generators through creation of an open access transmission network and a mechanism for integrated planning and expansion of the network.
- 6) mechanisms for assuring that costs associated with appropriate state regulatory and legislative policies cannot be bypassed.
- 7) potential resolution of reciprocity concerns by requiring all market participants to play by the same rules.

In contrast, bilateral trading would necessitate further regulatory intervention in the form of approving scheduling of retail transactions, transmitting power along contract paths, and addressing control area services. SDG&E purports: "A pool will involve less government intrusion than the current bilateral system which involves multiple agreements, and under which every contract is subject to regulatory oversight and the continually changing regulatory environment."⁴⁷

⁴⁷*Ibid.*

4.2.1.1 Economic Efficiency

Once an efficient wholesale pool has been established, consumers can obtain market access through retail utility prices that unbundle the pool price from the balance of utility costs. This will make it possible for consumers to make their own contract arrangements for longer-term price stability and portfolio diversity, with the utility's obligation to supply redefined as the obligation to provide access to the wholesale market. SDG&E is confident that retail access to the market and redefinition of utility obligations can proceed as quickly as the pooling institutions and technical facilities (e.g., metering) are put in place.

Edison insists a pool would provide a transparent market mechanism so that both buyers and generation suppliers would receive proper price signals. Since transmitting utilities would not be able to favor their own generation, all generators can compete fairly in the regional market. In addition, Edison claims a regional pool potentially solves the problem of unfair competition by out-of-state and/or publicly subsidized utilities since all parties that join the pool would be required to transfer control over the use of their transmission facilities to the IPSO, which would then make those facilities available on a non-discriminatory basis to all market participants and allow all competitors equal competitive opportunities. The pool would thus promote fair and open competition.

Transaction costs also would be avoided since sellers can simply bid into the pool. Generation would be purchased through the pool on the basis of bid prices in order to acquire rights to sufficient generation for control area services, and the pool would then collect from all customers a share of the costs of providing the services based on their individual usage. In this way, the market will determine the appropriate price for control area services and all users of the system will thus be required to bear their fair share of the costs. This system avoids free-riders because all customers and generators would be bound by the pool rules and obligated to pay for the control area services needed to serve them. Profits would come from producing power at low cost rather than by cornering market information or acquiring facility in negotiating transmission and control area services arrangements. IPSO would decide when new transmission is needed based upon economic and

operational constraints and would dispatch all generation and transmission resources brought to the pool on an economic basis. Because POOLCO would be an independent company, Edison contends it should encourage new transmission pricing principles that have economic efficiency and fair cost recovery as their primary objectives and free utilities to market their generation.

Furthermore, Edison believes "...POOLCO would provide an open and highly visible market accessible to all sellers and buyers that sign the POOLCO connection agreement (which specifies the pool rules), and would provide hourly market clearing pool spot prices to all participants. It is contemplated that the day-ahead 24 hourly pool spot prices could be published in electronic form on a bulletin board, and in printed form in the next day's newspaper."⁴⁸ The pool spot price would include components for both the bid price of energy and the hourly shortage value of power (the equivalent of the value of capacity). It would be low when capacity is in surplus, but rise as the need for new capacity increases. Customers would have the option of either buying power directly from the pool at the spot market price, or entering into individually-tailored financial contracts with suppliers for a fixed term to hedge against market uncertainty or to provide for any particular conditions of service. These contracts would not, however, detract from the actual operation of the pool.

Similarly, SDG&E's wholesale pool would establish different prices for generation delivered at locations affected by transmission congestion to provide the market with the necessary price for determining signals if new generation or new transmission is needed. "A short-term electricity spot market is needed to assure long-run competition." The grid would then be expanded when users that would benefit from that expansion through reduced energy prices agreed to do so. Additionally, if no coalition of grid users can be formed, regulatory procedures, similar to those in use now, would decide whether additional transmission projects are appropriate.

⁴⁸Edison, 3rd round opening, p. 15.

Because the pool is designed to provide the market clearing price to all end-users, it spreads the benefits of low cost power equitably among all consumers. “In contrast,” states SDG&E, “various forms of bilateral trading, which reduce to retail wheeling, preserve the inefficiencies of the existing system and strive to take advantage of those inefficiencies to create inequities among customer classes.”⁴⁹ Unlike with the bilateral trading model, power pool customers do not need to make a commitment to market access in order to enjoy the advantages of market-based prices, and they retain the option to purchase at the pool’s spot price or to take the average monthly price from their local distribution company.

4.2.1.2 Operational Efficiency

The current bulk power markets in the western region of the U.S. are characterized by numerous market and regulatory imperfections, and control area operators will have much less control over system operation as the market becomes more crowded and numerous direct access customers are purchasing load following services or spinning reserves from outside utilities, non-utility generators, or marketers. Edison itself has encountered numerous problems in the past in applying the current bilateral contract structure to the wholesale customers located within its control area. “Capacity responsibility requirements have been difficult to obtain, monitor, and enforce. Methods for identifying, measuring, accounting and compensating for mis-scheduling have been very imprecise. Adequate methods for allocating responsibility for curtailments attendant to loop flow have not been developed. Uneconomic bypass, free-riding and extensive litigation have accompanied these imperfect relationships.” Unless there are arrangements in place to deal with these issues, there will be tremendous opportunities for free riding on, for example, the spinning reserves of others, and this would inequitably shift costs to either the utility or other customers buying control area services from that utility.⁵⁰

⁴⁹SDG&E, 3rd round opening.

⁵⁰Edison, 3rd round opening, p. 12.

These problems arise especially in electricity markets because “the running costs of generating units vary significantly, according to function and type of unit, from low variable cost nuclear and coal units to higher cost peaking units, and very low cost hydro units. Unless the market institutions in place provide a working mechanism for low cost sellers to match up with buyers in a particular hour or half-hour, units that are not the most efficient will be run. Without the creation of a region-wide power pool having some of the characteristics of the England-Wales pool, the efficiencies sought by the Commission will have no realistic opportunity to arise.”⁵¹ To support a direct access market, the existing structure for providing control area services needs to be replaced with a new arrangement that properly aligns financial incentives with prudent operating guidelines.

According to Edison, there is no practical way to achieve a balance in the production and consumption of electricity in a market in which a large number of buyers are purchasing from a large number of remote sellers except through a power pool. The bilateral and multilateral arrangements between utilities were not designed to accommodate retail customers and did not envision neighboring utilities competing aggressively with each other for retail loads. They depend heavily on the cooperation of these utilities to maintain reliable and safe operation. These relationships will break down as competition to serve direct access customers intensifies.

Edison argues its POOLCO approach deals directly and comprehensively with the difficult issues involving coordination and control area services. The single IPSO would “avoid the complications inherent in coordinating transactions among multiple control areas, the associated free-rider problems, and the potential that a control area operator would favor the dispatch of its own generation.”⁵² In addition, because the system would be operated on an integrated basis, there would no longer be a need for concerns regarding loop flow and other transmission related property rights. The pool would provide a guaranteed source of power in case a contracted-for supplier failed to perform or the customer chose to exceed its contract supply. Edison maintains that under the pool system, power would be consumed more

⁵¹First Round Opening Comments of Southern California Edison Company, June 8, 1994, p. 27-28.

⁵²Edison, 3rd round opening, p. 14.

efficiently, and investment decisions would be made in response to market forces instead of regulation.

CLECA adds: "The importance of a pooled arrangement for electric power markets can be explained in terms of the nature of networked systems. Due to the physics of electrical energy flows, decisions made about any one component of the power system affect all other parts of the system. Thus one cannot isolate individual transactions in a network system as one can in other systems such as natural gas. This aspect tends to limit the usefulness of bilateral contracting, in isolation, for electricity supplies. A power pool in conjunction with hedging contracts (contracts for differences) provides the best long term vehicle for a competitive market."⁵³

In contrast, Enron Power Marketing, Inc. (ENRON) firmly believes the Commission should not mandate the establishment of a centralized pool and states that a robust and reliable cash market will develop in the absence of a centrally dispatched pool, while efficiencies would be lost through such an approach. It believes that one of the shortcomings of a centralized pool is its inflexibility with respect to service terms relating to physical delivery. Transactions are crammed into one-size-fits-all templates, and "even a matrix of service options falls short of the diversity and ingenuity of products designed in bilateral transactions in an open market."⁵⁴ It cites the gas delivery system as an example in comparison.

In response, SDG&E maintains that the gas analogy is not appropriate. "In contrast to gas, the short term costs of power varies substantially by location and time of day depending on what power plants are operating and what the demand is at a given time. Different plants at different locations can have dramatically different costs. Power is not immediately interchangeable. One obvious result of this is that the cost of so-called 'imbalances' are extremely time and location sensitive."⁵⁵ According to SDG&E, these differences explain the need for central market dispatch and locational spot market pricing, whereas the bilateral trading models do not explain how they would address this issue.

⁵³CLECA, 1st round opening, p. 6.

⁵⁴First Round Opening Comments of Enron Power Marketing, Inc. (Enron), June 8, 1994, p. 18.

⁵⁵SDG&E, 4th round reply, p. 18.

SDG&E also asserts that control requirements for electricity are more complex than those for gas. "Operating conditions require close monitoring and control over short time horizons, and operators must be able to anticipate emergencies. Demand and supply balances change instantaneously, and the system operator must be able to respond to these changes promptly....Perhaps the most obvious difference between gas and electricity is that electricity is delivered over an interconnected network in which every power plant and every load affects the power flow, the congestion on the transmission lines, and, accordingly, the commercial desirability as well as the physical ability of generators to deliver into the system. This impact cannot be ignored because to do so imposes both potential reliability costs and economic costs on many other parties."⁵⁶ These factors, assert SDG&E, make it difficult to specify and use decentralized information and allow decentralized trades in a strictly bilateral contract system.

4.2.2 Bilateral contracts

A market based approach to the electric market benefits consumers through the combined effect of two forces: 1) choice of service, which enables a consumer to bargain for the terms of service which best fit his/her needs; and 2) choice of supplier, which allows the consumer to get the best price for the service he/she chooses. According to Enron, a centrally controlled market offers the hope of multiple suppliers but not the choice among services which is required for consumers to get the full benefit of an efficient market. In a centralized market system, the government, the grid owner(s) or some other organization would decide what types of physical delivery services the market demands. On the other hand, the more participants engaging in bilateral negotiations, the closer the product will meet the customers' needs.

In addition, argues Enron, the electric industry is susceptible to product differentiation, and it is the power purchasers, particularly large industrials freely operating in the marketplace, who can best distinguish between suppliers based upon price and perceived reliability or ability to

⁵⁶*Ibid.*, p. 18.

perform. Since these purchasers acquire virtually all of their raw materials and energy under similar structures, they know which risks they are willing to assume, what degree of reliability they require, and what they are willing to pay for it. They can anticipate and prepare for supplier non-performance. "To subject them to the decisions of central planners who do not possess knowledge of their willingness and ability to assume risk is to rob them of the ability to exercise their own informed judgment," states Enron.⁵⁷ Furthermore, the company believes a centrally dispatched system wrongly assumes all buyers and sellers have one philosophy, one set of needs, one management, and one purpose.

Bilateral transactions, on the other hand, can offer additional operational flexibility and can provide very rapid price convergence and a high level of price transparency. Pacific Power is inclined to prefer implementing retail competition with bilateral contracts because they provide a means for a wide array of products and service offerings. With a spot-market pool, there is competition to produce only a single commodity (even in the presence of hedging contracts). Enron also insists that a mandatory centralized pool will delay the introduction of market forces. A bilateral market is already in place today and enormous quantities of firm and economy energy are traded every day. In a decentralized model based on bilateral arrangements, individual companies can take their existing contractual commitments into account when they enter into new contracts. The current system needs only more flexibility and more participants to become more efficient and competitive. Enron maintains the centralized pool approach "presents staggering implementation problems." It asks, "What would the borders of the pool be? How would the Commission exercise jurisdiction over the interstate phenomenon of grid operation? How would existing sources under long-term, customer-specific contracts be incorporated into the pool? How would existing interconnection arrangements, interchange agreements, and pooling agreements be taken into account?"⁵⁸

⁵⁷Enron, 1st round opening, p. 22.

⁵⁸*Ibid.*, p. 23.

According to the FEA, all of the operational functions of a pool, with the exception of “centralized dispatch” are currently provided by existing control area operations and inter-control area coordination. A pool with centralized dispatch would therefore not add anything to system reliability. Many of the financial aspects are provided by utility control areas, by the Western Systems Power Pool,⁵⁹ or they could be provided by a separately functioning futures market. “Thus, a centralized pool dispatch would not be necessary to the development and performance of these aspects of market operation.” Though it acknowledges that the pool system provides some economic benefits to consumers, the FEA believes “the ability of parties to execute bilateral contracts outside of a pre-defined market structure is extremely important in developing free and open competition and in minimizing prices charged to customers.”⁶⁰

Many of the arguments against power pools are similar to those against limiting competition to the wholesale level. According to the CLECA, under POOLCO and the other “improved wholesale market” proposals, the existing utility would continue to be the sole and exclusive supplier of electricity to the end use customer. The utility could perhaps buy electricity from additional suppliers at wholesale and while the functioning of the wholesale market might be improved, the end use customer would still have no choice as to his or her electricity supplier.

4.3 Compromise and “efficient direct access”

The CLECA believes direct access is dependent on neither bilateral contracts nor pools. “In a transmission grid a node representing a municipal utility is not distinguishable from a node representing a large industrial customer. Either can be served under one or more bilateral agreements or through a pool with contracts for differences...” It suggests that RTGs “will

⁵⁹The WSPP functions as a regional power market, where individual transactions are bilateral.

⁶⁰FEA, 3rd round opening, p. 9.

provide a framework for transmission access for bilateral arrangements and also ultimately facilitate the development of a regional power pool.”⁶¹ PG&E believes that initial phases of direct access can be incorporated into the utility’s existing framework for grid operations. Bilateral agreements between a direct access customer and the generator or marketer from which it is purchasing electric power would be integrated into the utility’s existing dispatch procedure so that utility operators would be able to apply their experience from bilateral wholesale transactions to the first retail bilateral transactions. However, by the time all customers are eligible for direct access, says PG&E, some kind of pool arrangement will be necessary to handle the multitude of transactions that might occur.

According to Pacific Power, it is currently not possible to predict the extent to which end users will have an interest in direct access or whether they can do a better job of meeting their electricity requirements than utilities. Pacific Power does not perceive a wholesale market to be separate from, or a precursor to, the retail market that would be created by direct access. During the transition period, utilities and some ultimate consumers would be carrying on portfolio management activities in parallel and essentially “shopping” in the same bulk power market. Assuming adequate protection against cross-subsidization is in place, Pacific Power asserts that there does not seem to be anything inherently unacceptable about a system in which some classes of retail customers pursue direct access while others continue to receive traditional utility service.

The Department of Energy (DOE) feels the debate between power pools vs. bilateral contracts is “inappropriate because electric generation supplied to an integrated transmission network is unavoidably pooled, regardless of the extent of wholesale trade or the method by which parties compensate each other for transactions. Thus, it is not a question of having a pool or not having a pool; the question is whether there will be efficient (least-cost) pooling or less efficient pooling.”⁶² DOE contends that market-based pools would achieve greater savings than centrally dispatched power

⁶¹CLECA, 3rd round opening, p. 10

⁶²Fourth Round Opening Comments of the United States Department of Energy (DOE), August 24, 1994, p. 11.

pools because dispatch would be based on price bids rather than on plant cost information given to the control area operator. Generators would have a stronger incentive than they currently do to minimize their operating costs because recovery of their fixed costs would depend on the margin between the pool spot price and the plant's average variable cost. Since the pool would be open to all potential generators within the affected geographic area, spot prices would decrease.

To DOE, it is not clear a priori whether direct access or wholesale competition would provide the greatest benefits, but it says the CPUC does not need to decide this question. It maintains that direct access as traditionally conceived is essentially fictional. Except in rare circumstances, no end-user could literally contract with an "alternative supplier" for its electricity. Unless the customer were connected to a dedicated transmission line to a single generating unit, the electricity delivered to the customer would be drawn from some form of a pool, and the ultimate source of electricity would be unknown. Further, unless the customer were to move to another service area, he or she would remain linked to the local distribution company as the means of obtaining electricity in a physical sense.

Instead, DOE relies on Dr. William Hogan's theory of "efficient direct access", where customers can obtain the functional equivalent of direct access if they can buy spot-priced electricity. A spot market can make the contract market operate more efficiently by providing a financial mechanism for reconciling differences in supply and demand in individual contracts. The spot market supplies and sets prices for replacement power for any generator that cannot meet its contractual obligations. It also facilitates transactions that are not well suited to contractual arrangements, such as short-term supply. The spot market also provides market signals for new capacity, as well as allows the creation of secondary markets such as futures trading.

Once a pool is established, the spot price seen by wholesale sellers and wholesale buyers can also be provided to all retail customers. The customer would have a two-part tariff. One part would be the pool-derived spot price for electricity and the other part would reflect the local utility's fixed costs of providing service. Once customers have access to a real-time spot price, they can continue to buy electricity at that price, or enter into a hedging

contract or contract for the difference with anyone they wish. According to DOE, a customer could use a contract for differences to obtain the equivalent of insurance coverage against unexpected fluctuations in the spot price. These benefits could become available to even the smallest retail customers through the development of standard contracts or service packages offered to broad groups or associations of customers.⁶³

⁶³*Ibid.*, p. 14.

5 Issues

Implementation of the Commission's direct access programs may encounter difficulties in light of the Federal Energy Regulatory Commission's (FERCs) jurisdiction over retail wheeling and the Energy Policy Act's prohibition against FERC-ordered retail wheeling. In addition, competition will inevitably require some form of rate increase during the transition period. However, with the FERC's exclusive jurisdiction over transmission rates, it is doubtful that the CPUC has power to impose a surcharge on service rates. In addition, restructuring must take into account not only the technical and organizational complexities inherent in the electric services industry, but it must also ensure fair opportunity for all utilities to compete and ample mechanisms for recovery of utility investments incurred under the existing regulatory structure. At the same time, it must also satisfy such public policy objectives as environmentally responsible energy conservation programs and equity of benefit distribution among all consumer classes.

5.1 Regulatory authority

California cannot develop an unprecedented direct access program without the FERC's active approval. The delineation of exactly which unbundled services will be federally regulated and the allocation of costs between federal and state rates must be determined. The Energy Policy Act of 1992 (EPAct) expressly precludes the FERC from requiring utilities to provide transmission service to an ultimate customer and constrains the FERC's authority to mandate retail wheeling from affecting the authority of any state or local government to do so. Still, not everyone agrees that these restrictions are an affirmative grant of state power to order retail wheeling.

Christine Alvarez, Commissioner of the Colorado Public Utilities Commission observes: "The Federal Power Act (FPA) grants the FERC jurisdiction to regulate transmission of electric energy in interstate commerce, and several Supreme Court decisions have made it clear that all transmission of electric energy by utilities connected to the interstate

transmission grid is transmission in interstate commerce.”⁶⁴ Even if states are eventually found to have jurisdiction over retail wheeling, virtually all wheeling is an interstate transaction because, except for a part of Texas, the country’s power grid is so interconnected that even transmission from a utility to an end-user in the same state is considered to affect the nationwide grid, and the FPA grants the FERC authority to determine just and reasonable rates for the transmission of electricity in interstate commerce.⁶⁵

DOE notes other federal constraints in addition to the FPA that hinder the CPUC’s proposals. For example, while the EPCRA exempted wholesale generators from the Public Utility Holding Company Act, it did not extend the same immunity to generators making retail sales. “As a result,” says DOE, “there will likely be fewer sellers in the retail market envisioned by the Commission than there are in the wholesale market.” Another federal statute that might conflict with the CPUC proposal, according to DOE, is PURPA. “Under the California proposal, investor-owned utilities would be operating under the pressures of a competitive retail market but continue to have an obligation to purchase under PURPA. In addition, new entrants to the California retail market would also be subject to PURPA’s obligation to purchase power from qualifying facilities. The California proposal does not appear to have considered how these requirements will be implemented.”⁶⁶

In response to suggestions that the Commission may have misinterpreted Congress’ intentions, CPUC President Daniel Fessler says, “Lamentably, it may ultimately require litigation to discern the proper construction of what Congress did and did not say. We believe that there is strong support for the position that the [CPUC] has the legal authority to order direct access to retail customers.” He maintains, “Even if a court were to find that the savings clause is not an affirmative grant of authority, it would likely view the savings clause as evidence of congressional intent to preserve state

⁶⁴Christine Alvarez, “1994 State Regulations’ Forum,” *Public Utilities Fortnightly*, November 15, 1994, p. 55.

⁶⁵Frank Bryant, “EPACT aftermath: states begin to test waters of retail wheeling; Comprehensive National Energy Policy Act of 1992,” *Energy User News*, Vol. 19, No. 1 (January 1994), p. 1.

⁶⁶“DOE urges California panel to defer part of electricity rulemaking,” *Inside Energy/with Federal Lands*, June 13, 1994, p. 2.

authority over retail wheeling.”⁶⁷ Nonetheless, According to FERC Commissioner William Massey: “States that move ahead on retail wheeling do so with full knowledge that they will almost certainly face court challenges to their jurisdiction.”⁶⁸

Critics are concerned that non-utility and other generators not currently regulated by the Commission will have the advantage of being able to compete for retail customers currently served by California’s investor-owned utilities without opening their markets to equal competition. Still, utilities are primarily worried that unilateral state action on retail wheeling could put them at a competitive disadvantage with utilities from other jurisdictions since these other utilities might not have to meet California’s demanding air pollution or energy diversity standards at generating facilities in their home states.

For the most robust possible electric power market, “reciprocity” requires that no utility or generator be allowed to directly or indirectly sell to a customer in a CPUC-jurisdictional utility’s service territory unless customers in the selling utility’s entire service territory, or in the territory in which a non-utility generator is located, are likewise allowed to purchase and receive electric power from a CPUC-jurisdictional utility if they so choose. Otherwise, for example, a Nevada utility might be able to “cherry-pick California customers with no opportunity for the California utility to do the same in Nevada....That is an argument for federal regulation of the wires,” acknowledges Massey.⁶⁹ Commissioner Fessler suggests that, since outside utilities will need transmission and distribution access into the California systems, the California utilities might condition that access on reciprocal rights. Still, it is possible that a state program could be found to interfere with interstate commerce—thus implicating FERC jurisdiction.

Although the FPA allows creation of joint boards or joint hearings between state and federal regulators to work out jurisdictional disputes, neither approach is popular among the regulatory agencies, which generally fear loss of jurisdictional control. Commissioner Fessler’s request to DOE to

⁶⁷“CPUC’S Fessler returns fire in dispute over retail-wheeling authority,” *Inside F.E.R.C.*, June 27, 1994, p. 3.

⁶⁸“Massey frowns on moves to stunt growth of retail wheeling programs,” *Inside F.E.R.C.*, June 6, 1994, p. 1.

⁶⁹*Ibid.*, p. 1.

suggest a mechanism along the lines of the FPA's joint hearings clause for bringing federal regulators together with regulators in the California marketplace was declined. Said DOE Assistant Secretary for Policy, Planning and Program Evaluation Susan Tierney: "While saying that we share your desire to cooperate and communicate regionally, we are still not sure what is the right place for such a dialogue." In discussions with FERC and state regulators, Tierney said she did not find anyone interested in the formal meeting concept.⁷⁰

5.2 Uneconomic investment

Transition to a more competitive market structure inevitably raises the potential for uneconomic or "stranded" utility investment. Who will pay the cost of the power plants that were constructed to serve all who require service, but which now appear uneconomic when compared to competing supplies? A significant amount of the power provided under existing agreements with QFs will also be uneconomic throughout the agreements' terms. For example, "...because both the purchases and the prices of existing power purchase agreements were Commission-mandated, the above-market cost of power purchases under these agreements must be included in a transition charge borne by all customers connected to PG&E's system."⁷¹

Utility company investors complain that the Commission, and even the utilities, have completely ignored the rights and needs of investors. At a September 1994 public hearing in San Diego, Henry Fuchs commented, "It's a strange proposal indeed when stockholders oppose management." Speaking on behalf of a group of local investors, Vera Jewell explained that many conservative older people had their nest eggs invested in utilities and were counting on dividends to meet their daily needs. "We are not wealthy individuals who can afford to lose our money," Jewell said.⁷²

⁷⁰Mary O'Driscoll, "Fessler, Moler Look To Bridge Regulatory Gap, But Directions Differ," *The Energy Daily*, October 20, 1994.

⁷¹First Round Opening Comments of Pacific Gas and Electric Company (PG&E), June 7, 1994, p. 11.

⁷²Janet Lowe, "Utility revamp evoking fears," *San Diego Daily Transcript*, September 9, 1994, Sec. A, p 1.

In addressing this issue, the Commission first relies on the fact that a utility will be free to compete to retain its direct access customers under the new unbundled tariffs. It can negotiate prices for generation services as long as the rates do not exceed current tariffs or fall below marginal costs. In addition, the Commission proposes a ratemaking device to distribute the financial burden of increased competition and bypass between shareholders and ratepayers. This device would identify the uneconomic portion of any plant asset and allow the utility to recover that portion from all customers, including direct access users, in the form of a “competition transition charge.”

To measure the uneconomic portion of a plant asset, the Commission suggests using the system marginal cost of generation as a determinant of market value. “If the net difference between the utility's stock of economic and uneconomic assets is positive, then there is a gain to be distributed between consumers and shareholders. If the net difference is negative, those losses would be reflected in the ‘competition transition charge’ assessed to each customer’s demand charge.”⁷³ In addition, the Commission promises to account for any incremental risk that the direct access proposal imposes on the utility in the next cost of capital proceeding. The industrials have reacted disapprovingly to this plan, warning that utilities would “lowball their system average costs in order to dump more of the cost on wheelers. They prefer a market approach, in which a power plant is ‘uneconomic’ if no one in the open market wants to buy power from it.”⁷⁴

5.3 Public policy objectives

In a competitive market, the price of energy would be determined from the negotiations of buyers and sellers, and not from any assumption that services offered by renewable resources are more costly than other services. Nevertheless, the aggregate investment in renewable technologies that would occur in a more competitive setting might potentially be insufficient to meet important public policy objectives such as maintaining diversity of supply resources and technologies and minimizing aggregate

⁷³OIR, p. 45.

⁷⁴Pospisil, p. 29.

emissions from electricity supply sources. Is it possible to have greater competition and subsequently reduced rates while preserving the State's aggressive pursuit of cost-effective demand-side management and important public policy programs like low income ratepayer protection and environmental preservation? Implementation of restructuring proposals will necessarily require a delicate balancing of competing interests.

In addition, a major uncertainty in the debate over direct access is the future of utilities' obligation to serve, which has been part of the long-standing regulatory compact under traditional cost-of-service regulation. The duty to serve currently requires a utility to provide service on demand under rates, terms, and conditions approved by the Commission. Should utilities retain this duty to serve consumers who have competitive alternatives? Is access to electricity a universal necessity, and not a merely a commodity to be bought and sold?

5.3.1 Environmental considerations

For the electric services industry, environmental objectives include the promotion of fuel diversity, demand-side management, energy conservation and renewable resources. In particular, demand-side management (DSM) involves managing energy use on the customer side of the meter. DSM activities can range from conservation measures to shifting electricity use from peak to off-peak times and providing incentives for customers to switch fuels (i.e., from electric heat to a gas-fired furnace). These tactics can minimize total economic and environmental costs, while allowing utilities to reliably meet their customers' energy service needs. Currently, both participating and nonparticipating customers are surcharged in their utility rates to fund energy efficiency and DSM programs. There has, however, recently been some notable movement toward increased responsibility for funding of these programs by the individual participants.

While wholesale and retail wheeling may boost efficiency and lower prices, utility-sponsored DSM programs may not survive in an environment where the lowest rate—opposed to the lowest cost service—is the ultimate goal. In a planning paper, the Northwest Power Planning Council warns, “[I]n competitive markets, wholesale or retail, suppliers will

have little incentive to account for non-market or unregulated environmental costs if doing so will make their near-term costs less competitive relative to other suppliers who might be able to avoid accounting for such costs.”⁷⁵ Rep. Edward Markey (D-Mass.), who wrote provisions in the EPAct to expand wholesale access to utility transmission systems echoes the Natural Resources Defense Council and other environmental groups: “Because DSM programs boost energy efficiency, consumers often enjoy smaller monthly bills despite facing the higher rates made necessary to cover the programs’ cost....Retail wheeling would unravel the efficiency gains resulting from IRP because the emphasis would shift to rates alone, rather than efficiency and least cost planning.”⁷⁶

In response, free enterprise advocates insist that the marketplace can be relied upon to produce incentives for energy efficient behavior on the part of end-use consumers as well as the producers themselves. ELCON questions the utilities’ ability to cost-effectively measure and verify the level and persistence of any real savings achieved with energy efficiency and DSM programs. It states: “Domestic and global competition is an extremely powerful and effective motivator to maximize the efficient use of all resources—not just energy. Many ELCON members also produce and market products that enable other end-users to use energy more efficiently.”⁷⁷ In fact, contends ELCON, end-users are discouraged from investing in energy efficiency improvements because of such imperfections as “inappropriate rate designs, billing practices that disguise the price signal, abuses associated with fuel adjustment mechanisms, cross-class subsidies, ineffective utility marketing programs, and the corporate culture of a regulated industry.”⁷⁸

The market could instead create powerful incentives for the development of new technologies that maximize the throughput of the grid and thus avoid the siting of new transmission corridors. A competitive market could also encourage utilities to repower existing generating facilities

⁷⁵Daniel Kaplan, “Northwest Planning Council Sees Bleak Future For Renewables, Conservation,” *The Energy Daily*, February 16, 1994.

⁷⁶“Rep. Markey: California wheeling plan will recreate environmental ‘dark ages,’” *Utility Environment Report*, p. 6.

⁷⁷ELCON, 2nd round opening, p. 3.

⁷⁸*Ibid.*, p. 15

to extend the economic lives of those units. ELCON believes competition can eliminate all “barriers” to cost-effective energy improvements. “In general, a competitive electric services industry will more efficiently determine the appropriate level of fuel and technology diversity because markets do a better job identifying and managing risks and costs....There is greater compatibility between market-based mechanisms for environmental control and a competitive electric services industry, and therefore, more cost-effective compliance strategies can be achieved by a restructured industry. Competition forces the most cost-effective compliance with environmental laws because shareholders, as opposed to captive ratepayers, assume all risk associated with noncompliance.”⁷⁹

5.3.2 Social interests

Consumer advocates are apprehensive that if the Commission’s plan is implemented as proposed, it will give an unfair head start to larger consumers of electricity, who will have the opportunity to lock in the lowest-priced electricity for themselves, leaving the smaller consumers—primarily residential consumers—with the highest-priced electricity. A competitive wholesale power pool could alleviate this concern by offering equal and immediate access to all customer segments, but this solution has its advantages and disadvantages, as discussed in chapter 4.

There are also objections that only consumers—and not utility shareholders—are called on to pay for expensive nuclear power plants and other investments that would become uneconomical in a competitive retail power market. At the September public hearing, Edward Dunean of San Diego said, “The big users will walk away with all the benefits.” Bruce Patton, a small-business operator from Vista, agreed and used telephone company destructuring as an example. “I’m still trying to figure out what I’m paying for (on my telephone bill), but I do know it’s a lot more than I paid before.” Another man held up copies of his one-page electric bill and his eight-page telephone bill and defied the commissioner to tell him what the various

⁷⁹*Ibid.*, p. 17, 22.

telephone charges represented and which moneysaving “plan” he should use.⁸⁰

Greater competition in the electric industry also implies that, as utilities are forced to unbundle their product, the customers will face more complex choices and more complex bills than they may be ready for. At the September hearing, “several individuals expressed fear that the quality of service may deteriorate with a confusing array of providers and a more complex method of delivery. In addition, some feared that by introducing out-of-state, low-cost providers, California may stop producing its own electricity and could lose its self-sufficiency.” Fuchs described as “laughable” the concept that individual consumers should go shopping for electricity the way they might buy clothing or groceries. “He cautioned the commissioners to remember that electricity is a commodity that people can't do without and yet even under ideal circumstances, have little control over. Citizens rely on the PUC, he said, to ensure that society has access to electric power.”⁸¹

Furthermore, the possibility of retail wheeling changes the long-standing pact between utilities and their regulators. In exchange for accepting a specified rate of return on investment, electric utilities had agreed to serve all customers in their territory at approved rates. Under the restructuring, utilities would retain their traditional obligation to serve customers who continue to receive bundled, tariffed utility service. With respect to direct access customers, however, the duty would be modified to avoid seriously hampering a utility's ability to plan for and reliably serve its remaining customers. “Accordingly, the Commission proposes that utilities be permitted to require a 12-month notice period for direct access customers who wish to return to bundled service status. The utility must provide generation service in less than 12 months, but may charge the full cost of arranging incremental supplies to serve the customer. Finally, the returning customer must also provide the utility with 12 months' notice before it can once again return to direct access status.”⁸²

⁸⁰Lowe, Sec. A, p 1.

⁸¹*Ibid.*, Sec. A, p. 1.

⁸²Phillip S. Cross, “Retail Wheeling—Happy Motoring for State Regulators?” *Public Utilities Fortnightly*, Vol. 132, No. 12 (June 15, 1994), p. 46.

Increased competition should not affect lifeline rates for the economically disadvantaged, economic development programs for businesses, and development of zero-emission vehicles. The question is whether or not the utilities should be the principal agents charged with designing, implementing, and funding these programs. Instead, the costs could be transferred to the state's general fund or a combination of tax revenues and special fees applicable to all consumers of electric services, such as an "end user surcharge." "To address this concern immediately, the Commission proposes to establish a separate line item reflecting such costs as part of each consumer's demand charge."⁸³ Other possibilities include government-mandated efficiency programs, regulatory incentives offered to utilities who assist their customers with DSM and private sector programs, such as the already existent energy efficient mortgage.

⁸³*Ibid.*, p. 46.

6 Conclusions

At this point in the restructuring debate, many important questions remain unanswered. In addition to the disagreement concerning the scope of competition appropriate for the electric services industry, there are varied opinions as to the most effective implementation. Issues of regulatory jurisdiction and public policy also need to be resolved. Furthermore, the role of municipal utilities is ambiguous. Although the CPUC does not regulate municipals, these utilities transmit much of their power on IOU lines and are interested in the impact of the OIR on wholesale-power and debt markets. “Some also fear their customers will clamor for open-access rights, stranding the supply portfolios that they have carefully assembled.”⁸⁴

Various IOUs have already offered plans to reduce the cost of their generation to market levels over a defined period. If distributed systems become successful and economically competitive market options, electricity suppliers of the future may be offering a package of energy services—a combination of kWh and end-use efficiency optimized for a particular end-user. Although the final manifestation of a competitive electric services industry is unknown at the moment, it is almost certain that “high cost utilities will face dramatic challenges that may cost some of them their independence. Either consolidations or bankruptcies will be the outcome for those high-cost producers that cannot quickly restructure into lower cost suppliers of services.”⁸⁵

Nonetheless, one of the most consistent arguments throughout this entire restructuring debate has been the need for an industry that can accommodate individualized needs with an array of differentiated electric services. Perhaps an answer lies in identifying like concerns and then tailoring specific solutions to address them. Physical constraints prevent the complete decentralization of the electric service utility industry. Some sort of pooling is currently in place and, from necessity, will continue to exist. The critical question is whether or not the independent system operator will function only in a managerial capacity, or as a market for measuring costs and determining prices.

⁸⁴Pospisil, p. 29.

⁸⁵Moyer, p. 40.

The strengths and weaknesses of the various proposals have been described in detail, and the task now lies in matching strengths with particular needs in such a way as to compensate for the weaknesses as well as reply to the relevant issues involved. The electric service utility industrial structure will continue to be shaped by a combination of market and technological forces. Nevertheless, for purposes of this discussion, generation will be assumed to be largely competitive, while transmission and distribution will be understood to remain as monopoly systems subject to government regulation.

Although all consumers, regardless of size, have a stake in seeing reduced electricity rates, large industrial customers in particular complain that the high cost of energy significantly affects operations, sales, and productivity. These customers—because of their comparatively greater magnitude of investment as well as advanced degree of sophistication and experience in dealing with the market—might be better able to embrace competitive retail direct access than average residential users. Their load characteristics and transmission requirements also give industrials the leverage to essentially participate at the “wholesale” level, along with small utilities. Since this sector of consumers is wary of the loss of autonomy associated with power pools, operational flexibility and product differentiation could be preserved through an improved system of bilateral and multilateral contracts. Still, technical limitations demand that there still be some third party system operator to manage control area services, and with an increasing number of independent transactions, some kind of pool arrangement might become necessary in the future.

As for the residential sector, critics worry about the possibility of an unmanageably complex system of obtaining electric service, and rightly so. While large firms might be able to create “power portfolios” and monitor locational spot prices for electricity in order to find the best rates, it is impractical as well as unreasonable to impose the same demands on small businesses and individual consumers. People may be able to choose whether or not to become direct access customers, but for those who opt to continue receiving bundled, tariffed utility service, who will protect their interests and ensure that they are not lost in the restructuring process? For this class of consumers, wholesale competition executed through a power pool may be

more appropriate. Just as cable TV viewers contract with companies for transmission service of a particular array of programs—and not with each individual programmer—homeowners and storekeepers should be able to rely on some middle-ground service provider to arrange for their electricity needs. Other than perhaps a schedule of rates based on time-of-use, all of the detailed issues concerning load flows and pricing schemes should be completely transparent to these end-users.

Amidst all of the dialogue on restructuring and deregulation, it is also interesting to step back and consider the participants. Utilities want less government intervention and more competition to cut their costs, expand their customer base, and potentially increase their profits. Consumers hope that market forces will drive down inflated energy prices and make power more affordable. Special interest groups want to safeguard the public welfare as well as the environment. In addition to these expected players, however, there is another class of parties that has been watching the debate very closely. It is composed of the marketers or “power brokers” who hope to get a foothold in the business of facilitating transactions and customizing electric services. Although some might accuse and subsequently condemn them for seeking to capitalize on the restructuring debate, these individuals will in fact be necessary intermediaries between energy buyers and sellers in the case of a contract environment. In a more aggregated pool scenario, their roles might still be significant, albeit likely diminished.

In any case, the OIR proposes that direct access begin as soon as January 1, 1996 for large industrial customers (those with transmission levels above 50 kilovolts). Other customer segments, including the residential sectors, would then be phased in through 2002. Although the three major California IOUs are less optimistic about the CPUC schedule, the necessary duration for the transition period is unclear. Edison would simply like to go more slowly. SDG&E would like to lengthen the transition period to 2005, and PG&E suggests a target year of 2008—primarily to deal with costs of accelerating the depreciation of its stranded investments.

As understanding of the relevant issues improves through the further clarification and assessment of policies, the schedule for regulatory reform should be adjusted accordingly. The Commission needs to seriously reevaluate its goals for a competitive electricity market and examine who the

beneficiaries of "direct access" in its current form will actually be. The benefits of reduced power rates must be weighed against the possibilities of undermining energy conservation efforts, of crippling emergency power services, and of further disenfranchising the economically disadvantaged. All of the concerned organizations participating in the electric services restructuring forum must continue to invest the time and effort required to develop the market arrangements required for efficient and effective competition. In order for competition to accomplish the objective of reducing costs to consumers, progress should advance on an incremental basis and incorporate into the process any knowledge gained as it becomes available.

7 Sources

Many of the Electricity Restructuring Forum documents used in preparing this thesis were accessed via a gopher site on the Internet. The relevant gopher item information follows:

Name: 'Electric Restructuring Forum'
Type: 1 (directory)
Host: 'nic.cpuc.ca.gov'
(Computer where information is maintained)
Port: 70
(Network connection port)
Path: '1/ERF'
(Tells host where to find the information)

Note: Not all of the electronically formatted documents included page numbers. Therefore, throughout the course of the thesis, references to those papers are listed without such citations.

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Reporter's Transcript, California Public Utilities Commission Proceedings, September 16, 1994, Volume 5, pp. 1792-2080.

7.2.2 Comments

First Round

Opening Comments:

- Enron Power Marketing, Inc., June 8, 1994.
- Pacific Gas and Electric Company, June 7, 1994
- Southern California Edison Company, June 8, 1994.

Reply Comments:

- California Large Energy Consumers Association, June 21, 1994.

Second Round

Opening Comments:

- California Large Energy Consumers Association, June 24, 1994.
- Coalition for Choice in Electricity, April 20, 1994.
- Electricity Consumers Resource Council, June 23, 1994.
- Federal Executive Agencies, June 24, 1994.

Third Round

Opening Comments:

- California Large Energy Consumers Association, July 26, 1994.
- Federal Executive Agencies, July 26, 1994.
- Pacific Gas and Electric Company, July 26, 1994.
- Pacific Power & Light Company, July 25, 1994.
- San Diego Gas & Electric Company, July 31, 1994.
- Southern California Edison Company, July 26, 1994.
- Southern California Gas Company, July 26, 1994.

Reply Comments:

- California Municipal Utilities Association, August 18, 1994.

Fourth Round

Opening Comments:

- California Large Energy Consumers Association, August 24, 1994.
- Electricity Consumers Resource Council, August 23, 1994.
- Federal Executive Agencies, August 24, 1994.
- Southern California Gas Company, August 24, 1994.
- The United States Department of Energy, August 24, 1994.

Reply Comments:

- San Diego Gas & Electric Company, September 30, 1994.