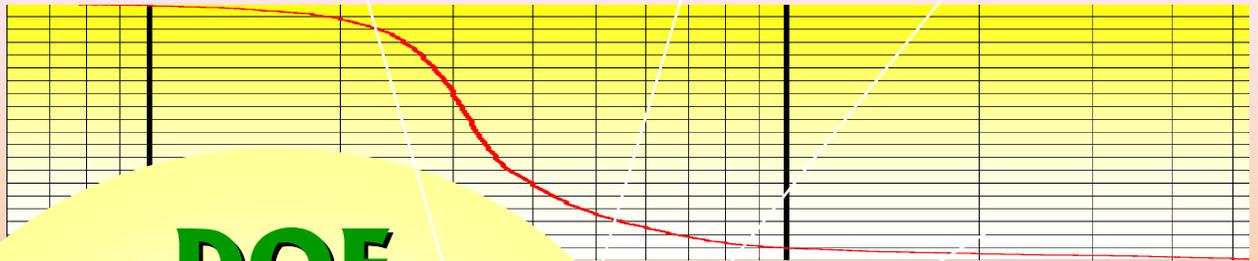


Characterization of the CAISO Region

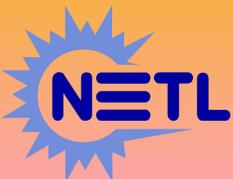


**DOE
GEM-SET**

**Government
Energy
Market
Segment
Evaluation
Tool**



PARSONS



Prepared for the United States Department of Energy
National Energy Technology Laboratory



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Parsons Job 736223 WBS 00100



**Government
Energy
Market
Segment
Evaluation
Tool**

Final Report

GEMSET Regional Segmentation Analysis:

2002 Characterization of the California ISO Region

October 2002

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**The United States Department of Energy
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Technical Report

Abstract

2002 Characterization of the California Independent System Operator

Over the past several years, the California Electric Market has gone through major disruptions; from supply shortages caused by either drought or manipulation by suppliers in the competitive market; to prices ranging from almost \$4,000/MWh to negative \$100/MWh; to the bankruptcy and demise of the California Power Exchange; to massive numbers of lawsuits; to bankruptcy proceedings of the two largest private electric utilities. Overall, the FERC's designation of a "dysfunctional" market seems to be an apt description. With the State takeover in securing electric supplies, in an amount over \$45 billion, electric supplies are still in an uncertain period of time. The State has actually determined that the cost of these contracts appears to be over \$14 billion higher than what could reasonably be expected in an open market, and has filed a complaint with FERC to abrogate these contracts.

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To understand what happened in California is to understand what not to do in developing and establishing a competitive electric market. The California ISO, shown on the map to the left, controls over 85% of the electricity in the State of California. Its primary function is to ensure safe and reliable operation of the electric grid.

This report describes how CAISO operates now. It reviews historical prices, expected load growth, and generation currently in queue. It draws heavily upon public

data and documents found on the California ISO website, and those of the California Energy Commission and the Public Utilities Commission of the State of California, WSSC, NERC, and FERC, as well as other public and private sources. This report is one of a series describing the market conditions that exist, and that are part of the forecast of the Department of Energy's (DOE) Government Energy Market Segment Evaluation Tool (GEMSET) project. GEMSET forecasts for California and other areas will be presented in future reports in the series, where the GEMSET evaluation team makes reasoned conjecture of what might occur in these electric power markets in the future under a range of possible energy price and economic circumstances. Other reports in this GEMSET series then analyze these forecasts, and assess them in the context of several future scenarios of factors influencing demand, generation mix, and price. The discussions in this report are arranged in five sections:

Report No. EJ-2002-09
Report Title:

**GEMSET Regional
Segmentation Analysis:
2002
Characterization of
the California ISO
Region**

Study Region
United States

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- Section 2 describes the California region, responsibilities, generation mix, and timeline of significant events in the CAISO history.
- Sections 3 and 4 describe the chronology of the California electric power market and the historical data required to understand where California was and where it is likely to go for operating and adding generation.
- Section 5 describes the current situation of CAISO's market operations, and reviews recent historical electricity prices and trends.
- Section 6 gives California's forecasts of demand and energy growth, projections of generating capacity, and projected fuel prices in the Pacific region.

It should be understood that the uncertainty of the California electric market and its structure is in a transition period as it struggles to find the right combination of rules and regulations to re-instate its competitive market. Therefore, this report is also in a transition period, updating as much information as it can without knowing the direction that California will actually take.

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Abbreviations and Acronyms

<u>Term</u>	<u>Meaning</u>
AAGC	average automatic generation control
ACAP	available capacity (as in PJM West)
AEO1999	EIA <u>Annual Energy Outlook 1999</u>
AEO2000	EIA <u>Annual Energy Outlook 2000</u>
AEO2001	EIA <u>Annual Energy Outlook 2001</u>
AEO2002	EIA <u>Annual Energy Outlook 2002</u>
AEP	American Electric Power
AGC	automatic generation control
ALM	Active Load Management
ASCC	Alaska Systems Coordinating Council
AVR	automatic voltage regulator
Bcf	billion cubic feet, that is, 10 ⁹ cubic feet
Block Forwards Market	a continuously traded standardized product for month-ahead on-peak energy in blocks of 1 or 25 MW
BME	balancing market evaluation
CAISO	California Independent System Operator
CalPX	California Power Exchange (no longer operating)
Capacity Resource	Generator qualifying as PJM capacity
CARL DATA	control area resource and load data submitted by Control Area Resources to the ISO
CDR	Capacity Deficiency Rate
COE	the cost of electricity, the levelized busbar cost of electric production including amortized capital, operating, and maintenance costs
combustion turbine, CT	a synonym for gas turbine, used interchangeably
ComEd	Commonwealth Edison
CP&L	a Progress Energy company
DAM	day-ahead market
Day-Ahead Market	functions as a physical forwards market and establishes the supply and demand for electric power in California one day in advance of delivery
Day-Of Market	provides for three auction periods daily, 6 a.m., noon, and 4 p.m.
DCA	Department of Community Affairs
DEP	Department of Environmental Protection
DMNC	dependable maximum net capability
DNI	desired net interchange

DOE	United States Department of Energy
DSM	demand side management
ECAR	East Central Area Reliability Coordination Agreement, a NERC region
EDC	Electric Distribution Company
EFORd	demand equivalent forced outage rate
eGADS	electronic generating availability data system; an electronic data system allowing the posting of data regarding a generating unit’s availability record
EIA	the Energy Information Administration of the DOE
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 1992
EPRI	Electric Power Research Institute
ERCOT	Electric Reliability Council of Texas, a NERC region
ERO	industry self-regulatory electric reliability organization
EUE	expected unserved energy
FERC	Federal Energy Regulatory Commission
FGD	flue gas desulfurization, a sulfur emission control device
FGT	Florida Gas Transmission, a natural gas transportation pipeline company
FLOASIS	Peninsular Florida’s OASIS
FPC	Florida Power, a Progress Energy company
FPL	Florida Power & Light Company
FPSC	Florida Public Service Commission
FRCC	Florida Reliability Coordinating Council, a NERC region
FTR	Financial Transmission Right
GADS	generating availability data system; see “eGADS”
gas turbine, GT	a synonym for combustion turbine, used interchangeably
GEMSET	government energy market segment evaluation tool
GNP	gross national product
GT	gas turbine (a synonym for combustion turbine)
GTCC	natural gas fueled gas turbine combined cycle
HAM	hour ahead market
HHV	higher heating value of a fuel including the heat released if all of the water vapor in the combustion products were condensed
HRSG	heat recovery steam generator
ICAP	installed capacity requirement
IOU	investor-owned utility
IPD	implicit price deflator
IPM	the EPA’s integrated planning model
IPP	an independent power producer, an unregulated electric generating company

IRM	installed reserve margin
IRP	integrated resource plan
ISO	independent system operator; a regulated body that dispatches all competitive electric generation on the high voltage transmission grid within its service region; they operate the grid, administer the power pools power transfers, select the lower cost generation bid into the pool according to the pool's operating rules, and maintain the integrity of the electric transmission grid
ISONE	New England ISO
ITC	Independent Transmission Company
JEA	Jacksonville Electric Authority
KUA	Kissimmee Utility Authority
LAK	City of Lakeland
LBMP	locational-based marginal pricing
LCC	local control center
LHV	lower heating value of a fuel, the heat released if all of the water vapor in the combustion products remained as steam
LMP	locational marginal price
LOC	lost opportunity cost
LOLE	loss of load expectation
LOLP	loss of load probability
LSE	load-serving entity
MAAC	Mid-Atlantic Area Council, a reliability council, a NERC region
MAIN	Mid-America Interconnected Network, a NERC region
MAPP	Mid-Continent Area Power Pool, a NERC region
MCP	market clearing price
MCR	maximum continuous rating
MISO	Midwest Independent System Operator
MMC	market monitoring committee
MMU	Market Monitoring Unit
MOU	Memorandum of Understanding
MVA	megavolt amperes
MVAR	megavolt-ampere-reactive
MWe	electrical megawatts
MWth	thermal megawatts
NAERO	the North American Electric Reliability Organization; NERC is in the process of transforming itself into NAERO, whose principal mission will be to develop, implement, and enforce standards for a reliable North American bulk electric system. (NERC has no enforcement capability.)
NEL	net energy for load
NEMS	the EIA's national energy modeling system

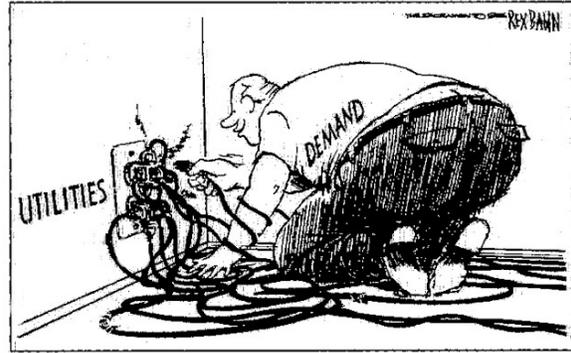
NERC	North American Electric Reliability Council; soon, NERC, without enforcement authority, will become NAERO with that authority
NERTO	North East Regional Transmission Owner
NETL	the U.S. Department of Energy's National Energy Technology Laboratory
NOPR	notice of proposed rulemaking
NOx	nitrogen oxides, types of air pollutant, mainly NO and NO ₂
NPCC	Northeast Power Coordinating Council, a NERC region
NUG	non-utility generator, a competitive, unregulated independent electric power producer
NYCA	New York Control Area
NYISO	New York Independent System Operator
NYISO	the New York State independent system operator, a NERC region
NYMEX	New York Mercantile Exchange
NYPA	New York Power Authority
NYPP	New York Power Pool
NYSRC	New York State Reliability Council
O&M	operation and maintenance
OASIS	open-access same-time information system
OATT	open access transmission tariff
OI	PJM Office of the Interconnection, LLC
OTAG	Ozone Transport Assessment Group
OTR	Northeast Ozone Transport Region
OUC	Orlando Utilities Commission
P.E.	licensed professional engineer
PCD	particulate emission control device
PECO	Philadelphia Electric Company
PJM	Pennsylvania, New Jersey, Maryland, or PJM Interconnection LLC, an ISO/RTO
PPL	Pennsylvania Power & Light Company
PRL	price responsive load
PSC	local state Public Service Commission
PSE&G	Public Service Electric & Gas Company
PUHCA	Public Utilities Holding Company Act
PURPA	Public Utility Regulatory Policy Act of 1978
RACT	reasonably available control technology (pollution control)
RAG	Reliability Assessment Group
RMCP	regulation market clearing price
RTEM	real-time energy marketplace
RTO	regional transmission operator

RWG	Resource Working Group
SAS	Statement on Auditing Standards
SCD	security-constrained dispatch
SCNG	Strategic Center for Natural Gas
SCUC	security-constrained utility commitment
SERC	Southeast Electric Reliability Council, a NERC region
SMCP	spinning market clearing price
SMD	FERC's Standard Market Design for competitive electric markets
SOx	sulfur oxides, types of air pollutant, mainly SO ₂
SPP	Southwest Power Pool, a NERC region
SRE	supplemental resources evaluation
State Estimator	PJM system model
SWG	Stability Working Group
TCC	Transmission Congestion Contracts
TECO	Tampa Electric Company
TWG	Transmission Working Group
TYSP	10-year site plan
UDI	Utility Data Institute
VAR	volt-ampere-reactive
WECC	Western Electricity Coordinating Council (formerly WSCC), a NERC region

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1. Summary

California has experienced dramatic changes to its electric market over the past year as a result of a complete breakdown in its competitive market experiment. Reeling from a period of astronomically high electric prices, wild price swings, accusations of corruption, bankruptcy of its two largest power distribution companies, and power shortages during peak time periods, the State has basically taken over the role of the California Power Exchange (CalPX) as the provider of electric service.



The demise of the CalPX has resulted in the California Independent System Operator (CAISO) being the prime operator of the California power grid. Overall, demand for electricity experienced a decrease as consumers reacted to the emergencies and increased cost of electricity. Now that some semblance of order has returned, demand is once again rising. While the summer of 2002 has not resulted in any major disruptions to the system, California remains an uncertain field for generation development on the scale necessary to provide adequate service into the future.

To demonstrate the impact of the market changes in the past 22 months, the average price in California over several distinct time periods dramatically shows the changes in electricity supply conditions. These are used as examples of the California market as it relates to generator perception. During the first six months of 2001, the average day-ahead price in California was \$105/MWh, while during the first six months of 2002 it was \$27/MWh. A further example is the last four months of 2000 compared with the last four months of 2001, where the corresponding prices were \$192/MWh versus \$32/MWh. This dramatic reduction in price clearly indicates the change in both attitude by generators and the impact of government intervention in the market place. This lower price, however, has a hidden toll: if it is too low, it stifles the installation of much-needed new generation in the state. The State, while politically popular due to clamping down on the price, has exacerbated the problem of adequate supply, because reducing price also tends to reduce the start of new generation projects in the long term.

Currently, the California electric market could be viewed as being in another transition period as it tries to sort out the effects of an ill-designed competitive market, a take-over by the State, and an uncertain future. Part of the problem lies in how the market will operate, and how new generation projects find the prospects of siting generation that would supply that region with electricity for the future.

Right now, the structure of the competitive electric market in California is under review. The unfortunate present operation of this region is an important indicator of how competitive electric markets in the U.S. might operate in the future, should they become short on generation; indeed, there are many important lessons here. Their approach to supplying demand, and their structuring of their return to power generating companies will serve as an example, good or bad, to other regions with competitive electric sales structures, in how (or how *not*) to establish the market signals for new generation construction.

This report describes the competitive electric market in this one region of the United States, which has experienced considerable growing pains during the transition period between a former regulated market and, now, a struggling competitive market. It discusses the responsibilities of that State's independent system operator (CAISO), which is responsible for the electric integrity and unit dispatch in the State of California, and the roles of the California Public Utility Commission and the California Energy Commission. This report also describes electric generation supply and demand, and the price implications as the competitive market for electricity in California adjusts itself to changing rules.

This report is one of the important keystones of the DOE GEMSET market model. It provides one of the regional segmentation elements necessary to project the market prospects of fossil power technologies in one of the nation's largest competitive electric markets. As delineated in this report, California operates in a specific manner for the purchase and sale of electricity in a wholesale market. It is different in many respects from the other three ISOs currently in operation in the United States (PJM, NYISO, New England), and different from FERC's vision of the standard market design (SMD) for competitive electric markets.

This report provides a detailed description of the California power situation and operation from a state that implemented a competitive market, suffered under that market design and its flaws, and is now once again in a transition period, attempting to re-discover the best way to sell electricity in the state.

2. California Region

This section discusses the California regional segmentation used in the DOE GEMSET market analysis model. The California Independent System Operator (CAISO) is now responsible for administrating the competitive market. CAISO is significantly different from a regulated utility market where new generation options are approved by a commission or regulatory body. Under a competitive market, new generation is at more of a risk than a regulated market, as demonstrated by the happenings in California.

2.1 The Independent System Operator: CAISO Interconnection

The competitive electric power system once included the California Independent System Operator (CAISO) and the California Power Exchange (CalPX). Now, however, CalPX has been eliminated. The competitive electricity market has been operating in California since March 31, 1998. During that first year, 231,400 GWh of electric power were traded in the CalPX Day-Ahead Market and the CAISO Ancillary Services and Real-Time markets, involving \$12 billion of transactions on the buy and sell sides. This established a market totaling \$6 billion in dollar volume. The number of generating company participants in the Day-Ahead Market increased from 39 at the start to 68 participants by July 1999. The market system was working. It is, however, now in a state of transition. The state in a very short time period has made several wrenching changes: from fully regulated markets, to unregulated competition, to a point where few know exactly what will happen in the future. Until the state settles on a stable market structure, the state's generation suppliers and customers both have faced, and will continue to face, many challenges.

2.2 Territory

With the bankruptcy of the CalPX, the California ISO is now responsible for the day-to-day operation of one of the largest centrally dispatched electric systems in North America. As shown in Exhibit 2-1, the CAISO is responsible for the administration of the bulk of electricity sales in the State. Over 85% of California's electric needs are handled by the ISO, ensuring that safe and adequate resources are available.

Exhibit 2-1 Territory of the California ISO



Source: www.caiso.com, information kit

The state regulatory commission and the Federal Energy Regulatory Commission (FERC) have jurisdiction within the CAISO control area. The FERC, as part of its approval of California's electric industry restructuring, ordered both CAISO and CalPX, when it was operating, to maintain ongoing surveillance of their respective markets. The FERC also ordered the monitoring functions of each institution to cooperate, recognizing the integrated character of the CAISO and the CalPX markets. Since the shutdown of the CalPX, the CAISO has taken over much of the responsibilities previously handled by the CalPX. The California Public Utility Commission and the California Energy Commission are also major players in the structuring of the California electricity market.

2.3 CAISO Responsibilities

California's restructured electricity industry is complex, with traditional utilities, private generating companies, and state agencies each playing a variety of roles and carrying different responsibilities. The California ISO, a not-for-profit public benefit corporation, is one link in this chain, but an important link. The CAISO is the impartial operator of the state's wholesale power grid – maintaining reliability and directing the electron traffic on the transmission superhighway that connects energy suppliers with the utilities that serve 30 million Californians.

For consumers, the California ISO makes sure the electrical needs of all customers are met around the clock – and that reasonable wholesale costs are fostered. For energy companies, the California ISO ensures equal access to 25,526 circuit miles of transmission lines and conducts open and fair markets that are used as a last resort to balance the system.

The Folsom-based California ISO assumed computerized command of California's wholesale power grid on March 31, 1998, directing the flow of electricity along long-distance, high-voltage power lines that connect California with neighboring states as well as Mexico and British Columbia. The ISO manages the transmission lines and supervises maintenance, but the transmission systems are still owned and maintained by individual regulated utilities. The ISO also acts as a transmission planner, identifying and approving the enhancements that transmission owners make to the grid to meet high standards for reliability.

Most electric sales in California are bi-lateral agreements between electricity generators and the state. The ISO operates a small fraction (less than 10%) of the total wholesale electricity marketplace – using markets only to allocate transmission space, maintain operating reserves, and match supply with demand. Those markets are watched closely by economists with the ISO's Department of Market Analysis, who keep a constant eye on wholesale prices, policing any market power abuse. In addition, the ISO's Compliance Department ensures that market participants meet their obligations by monitoring responses to dispatch instructions and imposing penalties for non-compliance.

The core functions of the California ISO:

- Provide open and nondiscriminatory transmission service.

- Ensure safe and reliable operation of the grid.
- Operate energy and reliability markets in a responsive, flexible, and transparent manner.
- Foster reasonable energy costs for California consumers.

3. Chronology of the California Electric Power Market

Before today's structure of the California electric market can be addressed, it is important to review how this structure came into being. This section describes how the former system worked. Later sections then detail how the future structure may work.

3.1 Introduction

Since California restructured its utility industry through a complex stakeholder process that brought diverse interests together to build a consensus vision of the future electricity industry, the resulting competitive market that was brought into being proved to be flawed in many areas. Electric prices skyrocketed; some suppliers were accused of market manipulation and fraud. Fixed low sales price tariffs with uncontrolled high purchased power prices bankrupted two of the distribution companies. This resulted in the State takeover of the electric supply market that has been under extreme scrutiny for the past year. This section analyzes the market structure that currently exists. It must be understood that this will change over the next several years. The California market is in the midst of dramatic change.

This section provides the historical demands and prices for several time periods in the past. These data serve as the basis for further discussions in an attempt to describe what happened, and to assess the likely consequences of the actions taken by various state agencies.

As mentioned earlier in this characterization, the CalPX has gone bankrupt, and no longer exists to run the market as previously envisioned. The California ISO has taken over the operation of the system to ensure stability and provide a balancing market for minor amounts of electric sales. The bulk of the electricity supplied in California has been obtained through a number of long- and short-term contracts administered by the California Department of Water Resources (CDWR).

The California ISO has also been actively changing key aspects of system operations. The changes made thus far and those changes contemplated for the future are discussed in this and following sections.

3.2 The Former Structure of California's Electric System

3.2.1 The Previous Institutional Framework

The California wholesale electricity marketplace had two principal components – a market of contracts executed directly between buyers and sellers (referred to as the *bilateral market*) and buy-sell transactions executed through organized commodity-exchange type markets (referred to as *exchange-based markets*).

During the mandated transition period from regulated to competitive market in California, investor-owned utilities (IOUs) were required by law to buy and sell their electricity through the CalPX. The CalPX was a commodity exchange for electricity; it ran a Day-Ahead Market, a Day-Of Market, and a Block-Forwards Market. The Day-Ahead Market was an auction system of essentially 24 hourly markets, bid for simultaneously and cleared at the same time. The Day-Of Market was composed of 24 auctions conducted in three batches over the course of a day. These allowed buyers and sellers to adapt to unexpected circumstances occurring the day in which power is being delivered based on the preceding Day-Ahead auction. The Block-Forwards Market began operating June 10, 1999, and consisted of a forward contract of 16 on-peak hours, traded in multiples of 1 or 25 MW. It allowed participants to realize the benefits of forward contracts while also participating in the efficient and transparent CalPX Day-Ahead and Day-Of markets where delivery and settlement are arranged.

The CalPX was also a Scheduling Coordinator (SC). SCs were established as part of the California system to manage the transmission assets of California's IOUs. SCs are qualified by the CAISO to submit balanced schedules of electricity supply and demand for use of the transmission network the CAISO administers. Access to the CAISO transmission network is restricted to SCs.

The CAISO manages the transmission network in real time. Its mission was, and continues to be one that ensures at least as high reliability as the transmission owners provided prior to its formation. Market mechanisms are used to ensure continuously high reliability. To this end, the CAISO runs a Real-Time Market, an auction that runs every 10 minutes around the clock, but is settled hourly. This auction's purpose is to enable the CAISO to acquire the power needed to ensure that the system stays in balance and operates reliably.

System reliability is derived from various forms of reserves as well. These are obtained through acquisition of capacity in four markets that are referred to generically as the Ancillary Services (AS) Markets, and through contractual sourcing of system regulation and system reliability power supply. The four generic Ancillary Services Markets are: (1) Spinning Reserves, (2) Non-Spinning Reserves, (3) Regulation, and (4) Replacement. In addition, the CAISO obtains local reliability-related resources through "Reliability Must-Run" contracts.

Both the CalPX and the CAISO were created by the California Legislature and operated as not-for-profit public benefit corporations under California law. The Governing Board of each institution is made up of stakeholders. Board members were asked to function as true corporate board members, not as representatives of their constituents.

Assembly Bill 1890 established the Electricity Oversight Board so that the State of California could retain an ongoing involvement in the new electric market system. The Governor appointed the initial Electricity Oversight Board, which then elected the original slates of Governing Board members for both the CAISO and the CalPX.

3.2.2 Characteristics of California's Market System (Prior to State Takeover)

The California energy auction process had two characteristics. First, the CalPX, the CAISO, and other Scheduling Coordinators interacted closely in matching participants' generation and loads and transmission needs. Second, the adjustment process follows the bidding process. The CalPX participants allocated their generation capacity according to their perceived opportunity costs. The CalPX Market Monitoring Committee has described the consequence of this sequencing:

“Most participants will be eligible to bid in several of the markets. The exact sequence of bids and market responses affects how they will bid. Bids in the day-ahead energy market are accepted before bids in the AS markets need to be placed. If generators want to offer a larger quantity in any AS market, they must offer a smaller amount of their given capacity in the day-ahead market. They can implement this directly, or they can offer the smaller quantity at “reasonable” prices, and then offer the rest at very high prices. Once the day-ahead market results are revealed at 7:15 a.m., the generators know how much capacity they actually can offer to the AS markets.”

By bidding for some of its capacity at a price sufficiently higher than the predicted market-clearing price, a generation participant can be assured that this capacity will not be awarded in the Day-Ahead Market. The capacity was then available for bidding in the later markets as the participant follows the auction sequence. Holding capacity for this later bid had the effect of reducing supply and therefore increasing price in the Day-Ahead Market. This created an inherent linkage among the markets: capacity sold in an earlier-closing market is not available for a later-closing market, and capacity held back to be bid later is not available in an earlier market.

As noted in the first Compliance report, California restructured its utility industry through a complex stakeholder process that brought diverse interests together to build a consensus vision of the future electricity industry. The core structure and operation of the CalPX was largely unchanged in the second year of market operations. However, in the second year of operations, several key developments occurred in the CalPX markets, including:

- Steady growth in valid hours of operation of the Day-Of Market.

- Remarkable growth in participation and in volumes in the CalPX Block-Forwards Market.
- Introduction of the Post-Close Quantity Match.

The CalPX role in the Competition Transition Charge (CTC) was changing. The first investor-owned utility, San Diego Gas & Electric (SDG&E), recovered its CTC earlier than expected and terminated its rate freeze as of July 1999. The other IOUs might have recovered CTC early because IOU generation plants were selling at higher-than-expected multiples of book value, but the market gyrations, beginning in May of 2000, caused prices to skyrocket, and eventually drove PG&E and Southern Cal Edison to file for bankruptcy.

In the first two years since the opening of the CalPX markets, power trading in the western states was thought to have evolved to adapt to the establishment and effective operation of a deep and liquid commodity exchange for electric power. The events of 2000-2001 showed that to be a less than desirable situation.

Prior to the restructuring in California, the Western Systems Coordinating Council (WSCC) power markets were exclusively bilateral – i.e., transactions took place between buyers and sellers without the involvement of intermediaries, or multi-party transactions were organized through a power-marketing intermediary, but not executed on a formal commodity exchange.

In those two years, exchange-based markets were integrated into the broader western states system in several ways:

- Northwest and Southwest buyers made use of CalPX markets not only as demand centers offering opportunities for the sale of power, but as a ready supply center during periods of high demand in their own regions. Also these regions, in particular the Northwest, relied on CalPX markets for unexpected supply needs.
- Power marketers were using CalPX prices as reference or index prices for their bilateral contracts throughout the West. CalPX markets also influenced, through contracts that used CalPX prices as reference points, electricity prices throughout the western United States, a power market of approximately 742,000 GWh.
- Bilateral traders were using all CalPX markets, and associated liquidity, coupled with systematic exploitation of congestion patterns in California (fully risk hedged through various financial instruments) in the development and management of their portfolios.

While CalPX prices were having an impact throughout the western United States, the Must-Buy/Must-Sell provisions of AB 1890 focused most of the trading activity in California. Creating the CAISO placed an additional institution between out-of-state users of California transmission and California generators and buyers. Nevertheless, California was firmly linked

financially, as evidenced by the aforementioned indexing to CalPX prices and the presence of marketers who traded in CalPX markets as well as actively throughout the West.

3.3 The Value of California Electricity Commodity Markets

The competitive market structure in California was composed of seven distinct active markets interacting in varying degrees under different circumstances. Exhibit 3-1 summarizes the size of the markets early in the competitive market process. That amount stayed around \$7 billion for the first several years. Then beginning in 2000, prices started to increase dramatically, reaching a level of about \$27 billion

Exhibit 3-1 California's Wholesale Electricity Markets: April 1998 – March 1999

Market	Annual Volume (GWh)	Annual Average Price	Annual \$ Value (\$ million)
CalPX Day-Ahead	189,000	\$24.44 /MWh	\$5,033
CalPX Day-of/Hour Ahead	400	\$29.34 /MWh	\$21
CAISO Real-Time	10,000	\$25.62 /MWh (NP-15) \$23.54 /MWh (SP-15)	\$296
CAISO AS – Spin	6,700	\$13.43 /MW	\$90
CAISO AS – Non-Spin	5,500	\$7.27 /MW	\$40
CAISO AS – Regulation	14,800	\$34.00 /MW	\$500
CAISO AS – Replacement	5,000	\$13.80 /MW	\$69
TOTAL	231,400	--	\$6,049

Source: Electricity Markets of the California Power Exchange, Annual Report to FERC

In addition to these markets, CalPX added four new markets and services in 1999:

- (1) Block-Forwards Market
- (2) Green Exchange Service
- (3) Post-Close Quantity Match
- (4) Book-Out Services

The total administrative fees received by the CalPX for the period April 1, 1998 through March 31, 1999 were \$59.7 million.

Beginning in the summer of 2000, the market began its trek through the nightmare of all proponents of a free market, rising to levels requiring price caps of \$250/MWh, which were later increased to \$750/MWh to ensure adequacy of supply. It was then that drastic steps were

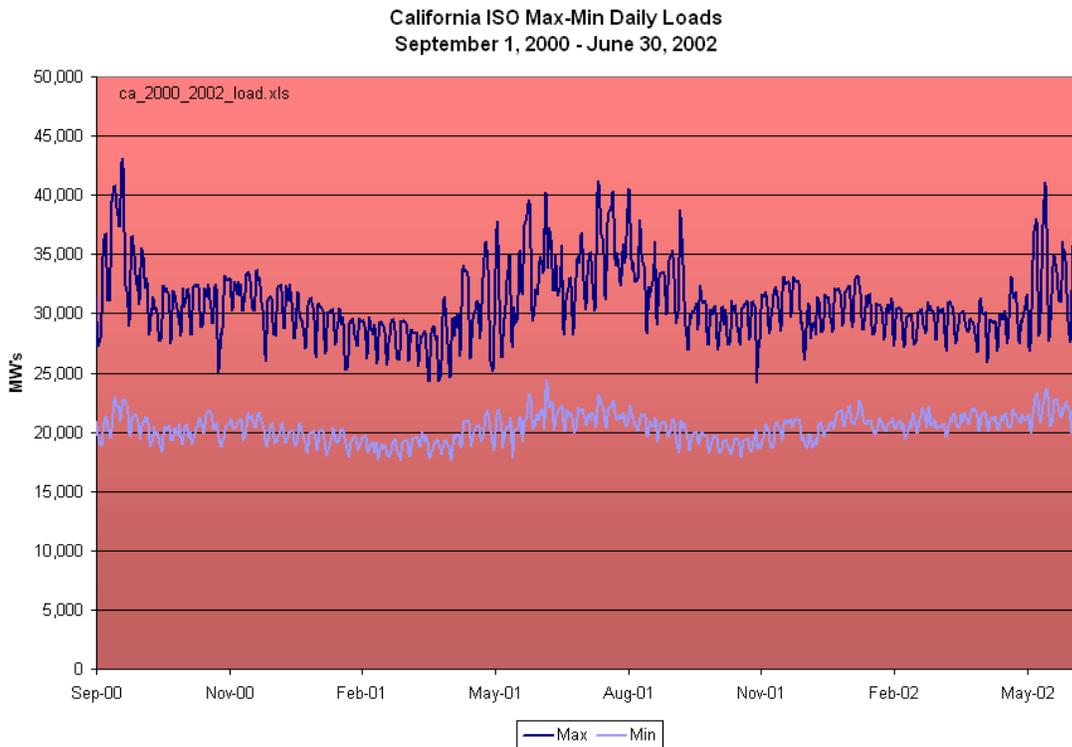
initiated by the State of California to mitigate these huge price increases. At the same time, two of the three private utilities in the State filed for bankruptcy since they had to buy the electricity at exorbitant prices, but could only sell it at predetermined prices set by the state. Furthermore, the state undertook the responsibility of securing electricity supply and signed long-term contracts worth many times what was considered normal several years in the past. Those long-term contracts are now before the FERC under Section 206 of the Federal Power Act and Rule 206 of the rules of practice and procedure of FERC. This complaint seeks to abrogate 44 transactions embodied in 32 contracts with 22 sellers. Further detail on these contracts will be provided in Section 5.1.

4. Historical Data

4.1 Demand

As an indicator of the level of demand on the CAISO grid, Exhibit 4-1 shows the maximum and minimum daily loads from September 2000 to June 2002. Basically, the demand in California did not increase over the past two years primarily due to the high prices and a much slower economy. It also shows that the minimum baseload requirement of the system is around 20,000 MW, and the need for peakers is about 10,000 MW.

Exhibit 4-1 CAISO Max-Min Daily Loads



For the past 12 months (year ending June 30, 2002), Exhibit 4-2 provides the hourly demands for that period. As indicated, California had few hours where load exceeded 35,000 MW. In Exhibit 4-3 the California load duration curve shows that less than 240 hours were above the 35,000 MW level.

Exhibit 4-2 Hourly Load Curve

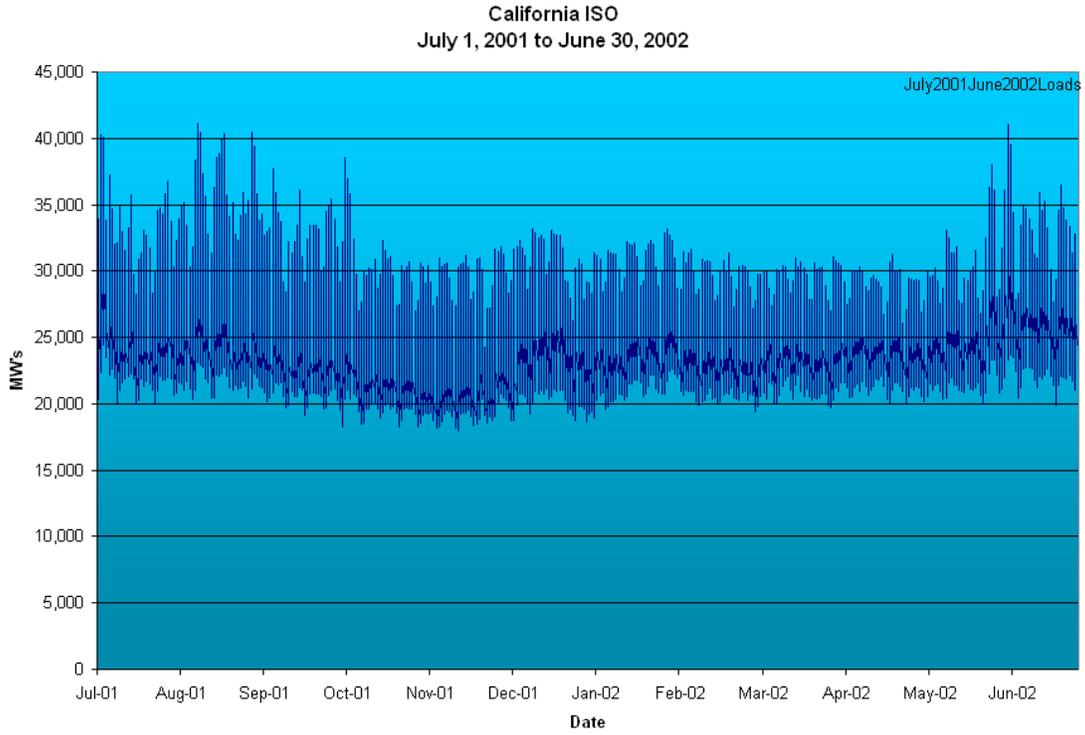
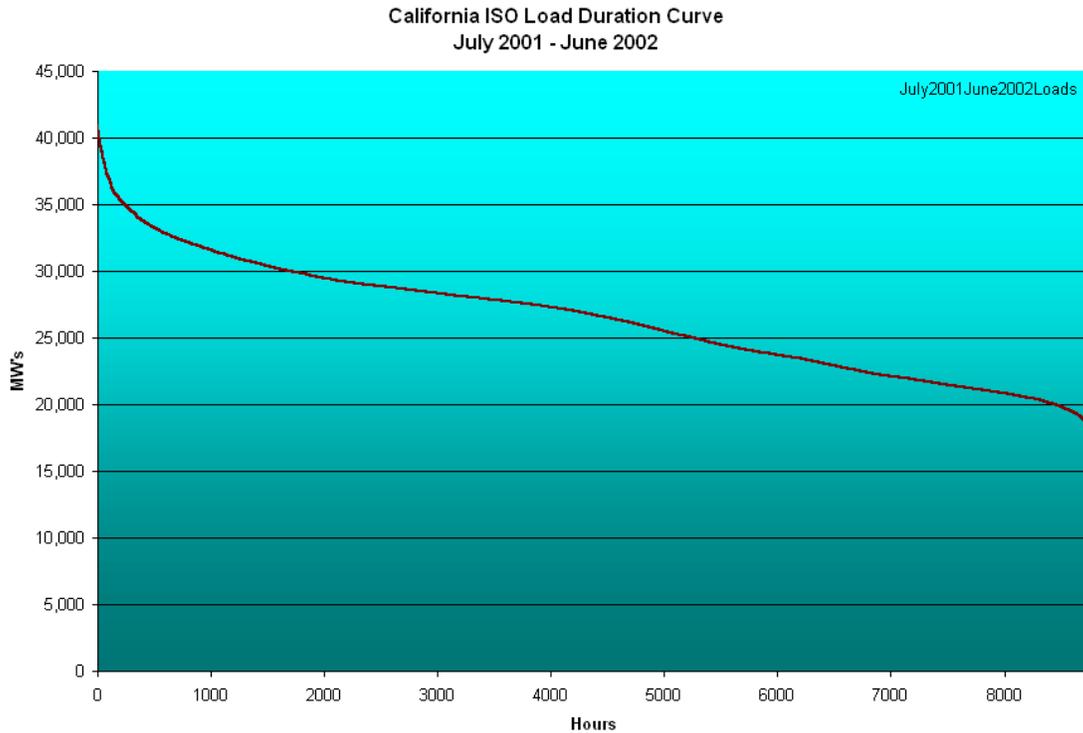
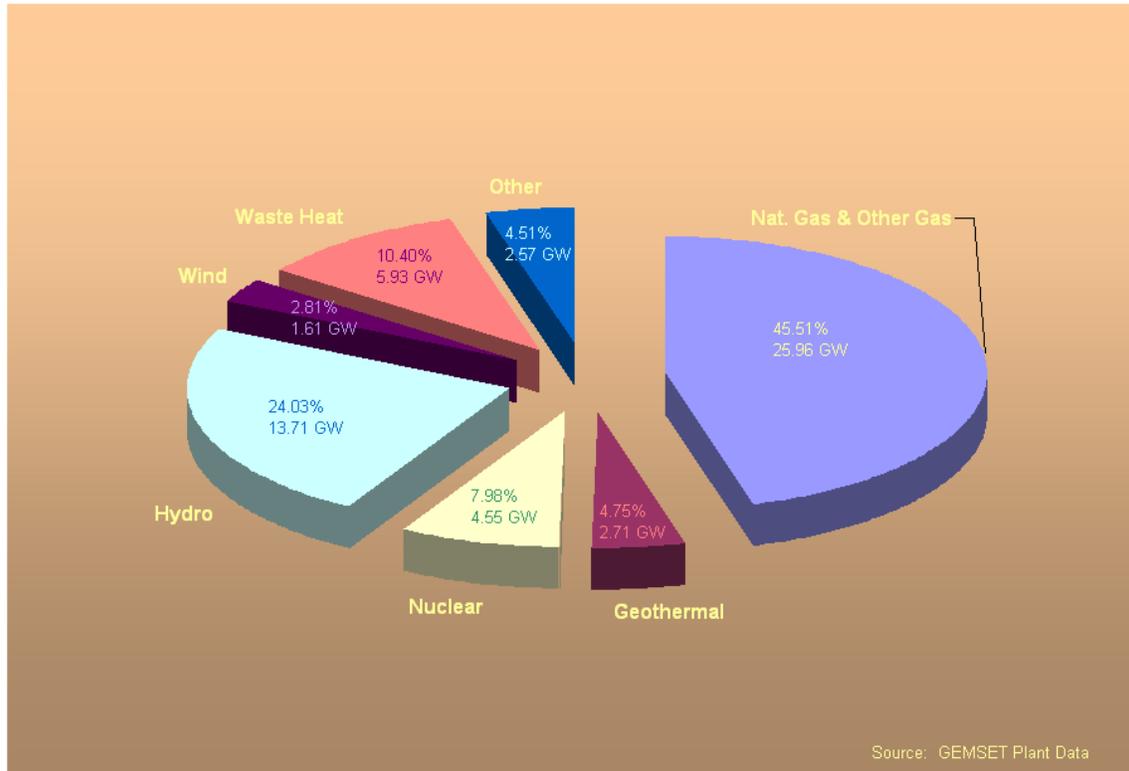


Exhibit 4-3 Load Duration Curve



4.2 Resource Availability

California has a unique mix of generation resources, unlike every other region in the U.S. With less than 1% coal-fired generating units, California relies heavily on natural gas and hydro units for the bulk of its power. It also has significant exotic resources such as wind, solar, geothermal, and waste heat resources. Exhibit 4-4 shows the generation mix of resources by category as of 2001. This database of resources in the GEMSET program currently consists of 1,424 units and slightly more than 58,000 MW. Each unit is identified by size, fuel type, heat rate, and other information such as name and owner. The units are then stacked by production cost (low to high) to assist in the development of pricing scenarios in the GEMSET Desktop Model. A listing of all generating units in the database is provided in the Appendix at the end of this characterization.

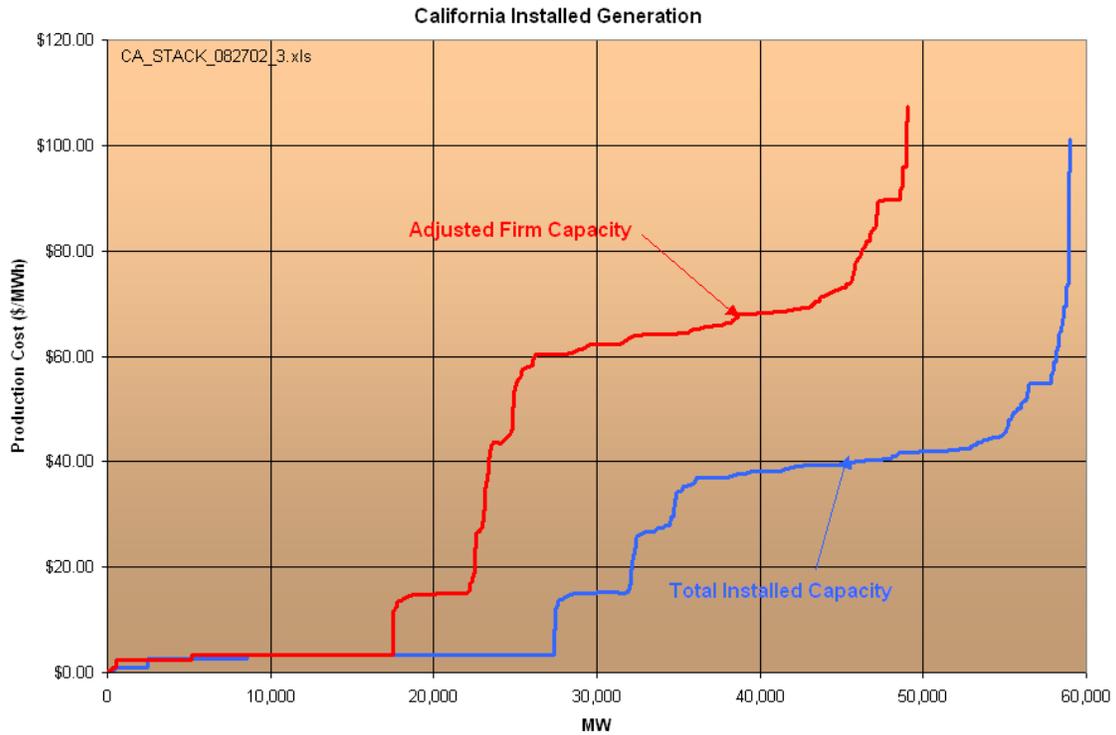
Exhibit 4-4 Generation Resource Mix by Type

Even though California has installed capacity much greater than its demand for electricity, this must be tempered with the realization that many of their generating units cannot be considered firm capacity. Many of the wind units and a significant portion of the hydro units are considered to be energy-only type generation. Therefore, an adjustment was made to the total installed capacity to reflect reasonable assumptions for firm capacity. Exhibit 4-5 shows the total capacity (approximately 58,000 MW), and then shows the adjusted firm capacity calculated based on the following assumptions:

- Landfill Gas – 50% of nameplate rating;
- Wind & Solar – 10% of nameplate;
- Hydro – 60% of nameplate; and
- Waste Heat – 75% of nameplate.

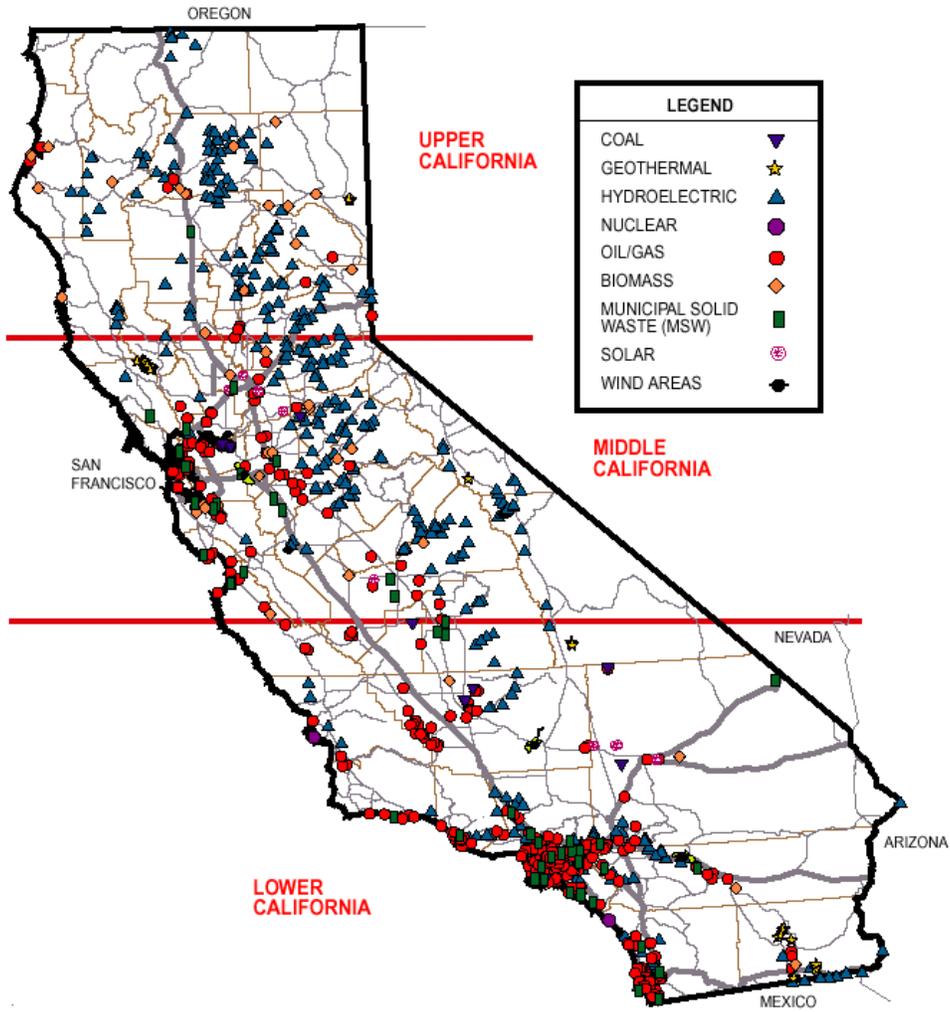
This reduces the firm capacity to a level of about 49,000 MW.

Exhibit 4-5 Installed and Adjusted Capacity



The adjusted firm capacity is the basis for pricing scenarios into the future. In Exhibit 4-6 the map displays the type and location of the major sources of generation in California. The map in Exhibit 4-7 shows the area of the Western Systems Coordinating Council, which includes California as a member.

Exhibit 4-6 California Power Plants



Source: www.caiso.com; PPSTATE.pdf

Exhibit 4-7 WSCC Power Areas



4.2.1 California Transmission Import and Export Capabilities

In addition to its own in-state generating resources, California does maintain significant transmission capabilities with its neighboring states in order to both import and export power.

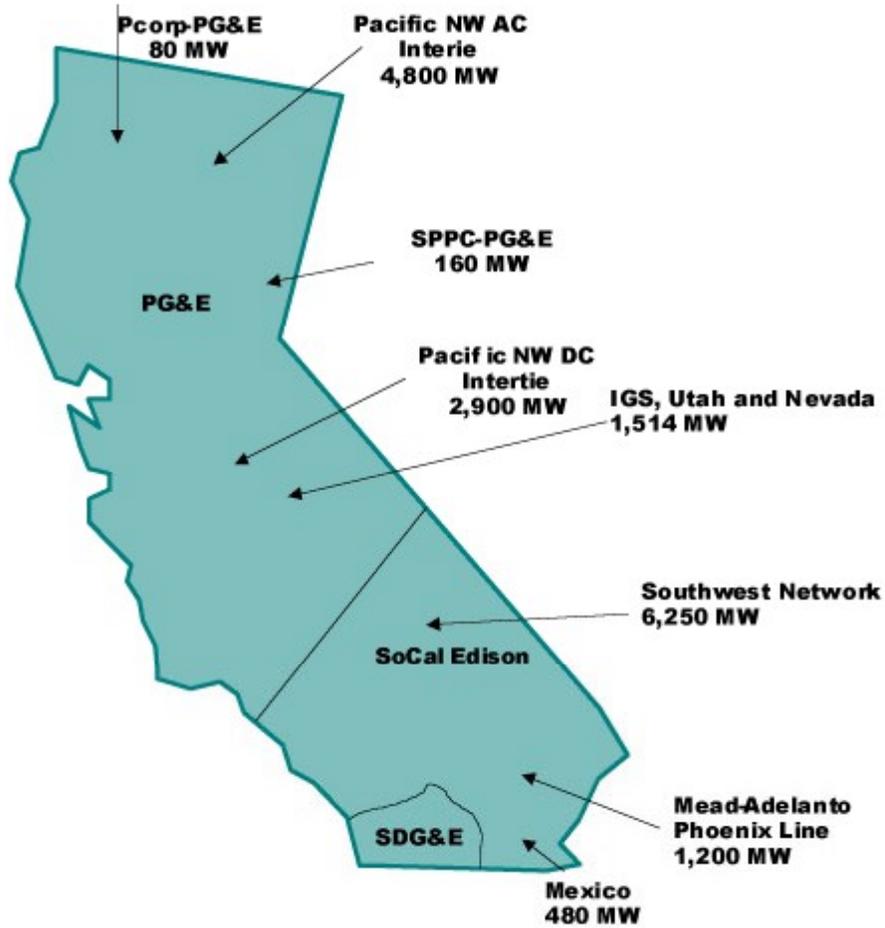
The import of electricity to California over natural gas and electricity imports are used more during periods of drought, when hydroelectric generation is lower.

The Pacific Northwest, which is winter peaking, has a large hydroelectric generating capacity that can be exported to California during late spring and summer. California, in turn, provides power to the Northwest to meet winter heating loads.

Coal-fired plants in the Southwest also produce excess capacity that can be exported to the West.

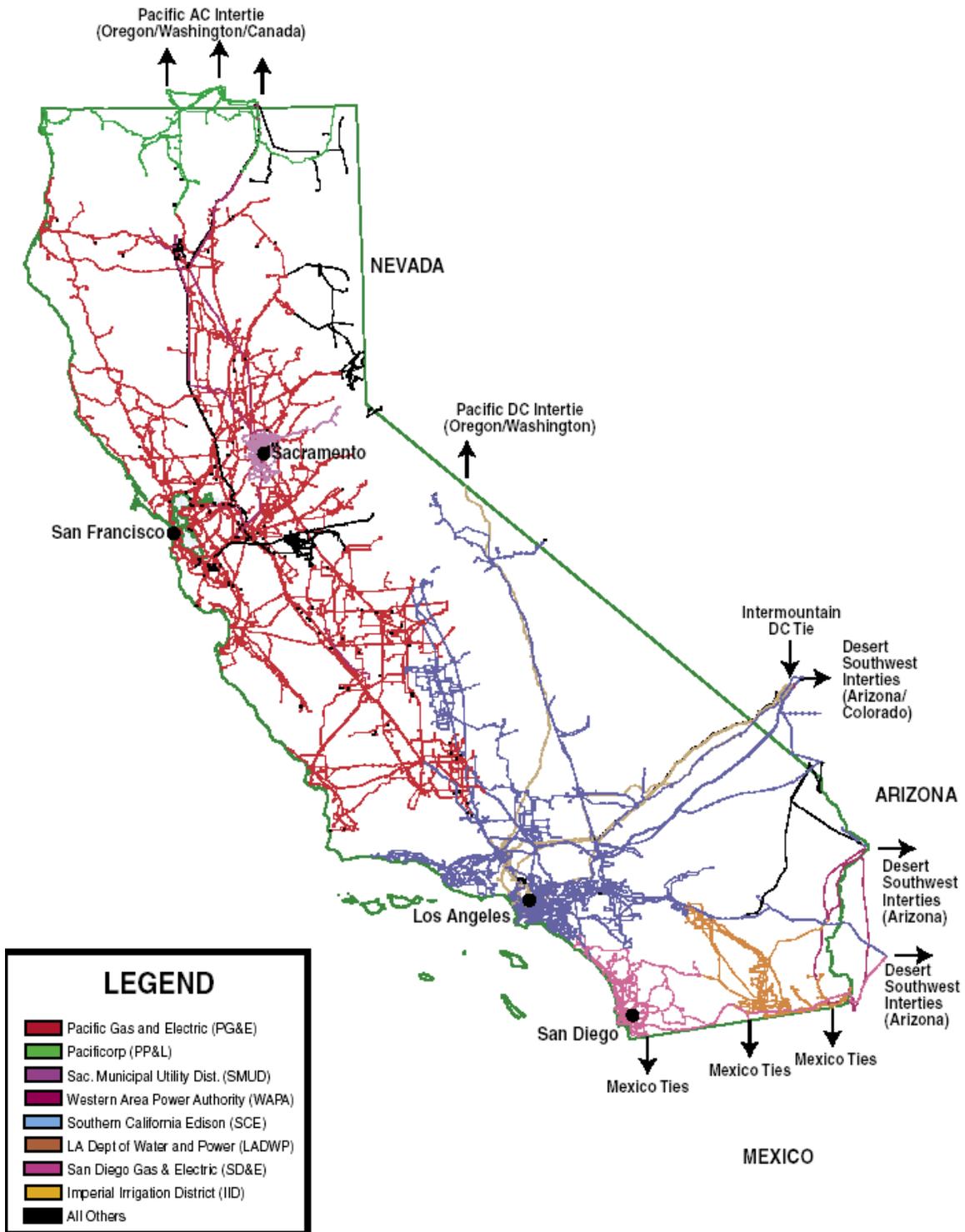
Exhibit 4-8 shows the major electric power import and export transmission capabilities to the region, while Exhibit 4-9 provides the details of the transmission network in California.

Exhibit 4-8 The Capability of California Transmission to Import and Export Electric Power



Source: California Energy Commission

Exhibit 4-9 Transmission Network in California



Source: www.caiso.com; TRANSMISSION_LINES.pdf

4.3 Update on Energy Commission's Review of California Power Projects

In the early 1990s before the State's electricity industry was restructured, the California Energy Commission certified 11 power plants. (None were larger than 240 MW. The largest plant licensed prior to the 1990s was the 385 MW Arco Watson Cogeneration facility licensed in 1985.) Of the plants licensed in the 1990s, three were never built due to market conditions. Eight of those approved plants generate 952 MW of electricity. Additionally, a project approved in 1994 had a 44 MW second phase that is now on line.

Only one power plant application was filed with the Energy Commission between 1994 and 1997 because of uncertainty of market conditions and the restructuring of the electricity industry.

Since March 1998 when electricity deregulation started, the Energy Commission has approved more than 30 power plant projects, though not all plants approved will be built. (See Exhibit 4-10 below).

Three "major" power plants, totaling 1,415 MW, came on line in 2001 and are producing electricity. Another 684 MW from "peaking" power plants were on line by early 2002. Except for two emergency peakers that came on line in early 2002, two plants totaling 978.4 MW have come on line in the rest of 2002. Also, the 530 MW Unit 1 of the Moss Landing Power Plant came on line July 1, 2002, with the plant's 530 MW Unit 2 coming on line July 11 (a total of 1,060 MW). Therefore, a **total of 15 power plants totaling 4,137.4 MW** have come on line since deregulation.

Power plant applications (simple and combined cycle in the 4-month, 6-month or 12-month processes) currently under review by the Commission are listed in Exhibit 4-11. Exhibit 4-12 provides the details as to location and status of many of the proposed plants to be built in California, while Exhibit 4-13 lists all of the pending applications for approvals currently before the California Energy Commission, which is responsible for siting and approving any unit greater than 50 MW.

**Exhibit 4-10 Total of All Power Plants Approved by the Commission Since 1999
(as of July 30, 2002)**

	Number of Plants	Total New Capacity in Megawatts	Under Construction (# plants MW)		On Line (# plants MW)	
Approved Power Plants Greater Than 300 MW Since 1999	17 *	10,931.0 MW *	7**	4,758.0 MW ** 2,811 MW (on hold)	6 **	3,587.0 MW
Approved Power Plants Less Than 300 MW Since 1999	16*	1,306.4 MW *	4***	480.0 MW***	10	775.4 MW *
Totals	33 *	12,352.4 MW *	16**	8,215.0 MW**	15*	4,137.4 MW *

*** Note: Note all projects approved will be built. Approved projects withdrawn or on hold include:**

Colusa Power Project (500 MW approved 8/15/01) withdrawn by applicant 5/14/02. MW not included in totals.

Hanford Energy Park Project (99 MW Small Power Plant Exemption approved 4/11/01) withdrawn by applicant 4/26/01. MW not included in totals.

Pegasus Chino (180 MW peaker) project approved by Commission but withdrawn. MW not included in totals.

Ramco Chula Vista (62.4 MW emergency peaker approved 6/19/01) withdrawn by applicant 7/11/01. MW not included in totals.

United Golden Gate Peaker Project (51 MW Small Power Plant Exemption approved 3/7/01) has been delayed because of contract problems. MW not included in totals.

**** Five projects (larger than 300 MW) have construction on hold. They are:**

Contra Costa (530 MW)

Huntington Beach Unit 4 (225 MW) – the 225 MW Unit 3 is on line of the 450 MW total

Midway-Sunset (500 MW)

Mountainview (1,056 MW)

Three Mountain (500 MW)

*** United Golden Gate not included because project is on hold. Sunrise Phase II Expansion Project (265 MW) has not been included in the total for Number of Plants or Total MW because it is an amendment and expansion to a previously approved license.

Source: www.caiso.com; Power Plant Updates.htm

**Exhibit 4-11 Power Plants Under Review by the Commission
(as of August 12, 2002)**

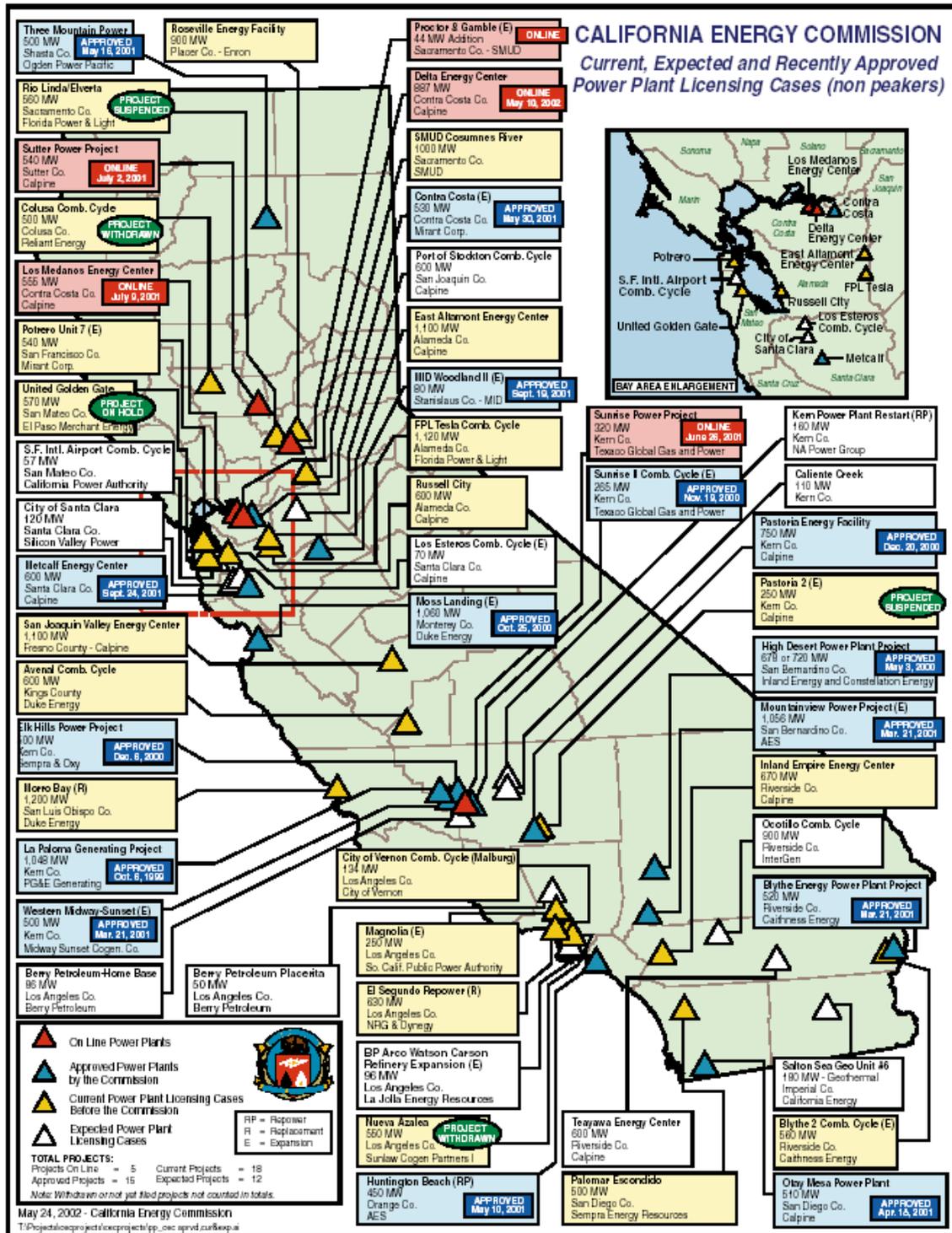
	Number of Plants	Total New Capacity In Megawatts	Are Data Adequate or Data Complete (# plants MW)		Applications Filed but Still Pending Data Adequacy (# plants MW)	
Power Plants Currently Under Review *	16*	10,549 MW*	15	10,364 MW*	1	185 MW*

* Excludes: Gilroy Energy Center Phase 2 (135 MW), Los Banos (80 MW), Pastoria II Expansion (250 MW), Rio Linda/Elverta (560 MW), South Star Cogeneration (200 MW), Spartan Energy Center (96 MW), and United Golden Gate Phase II (570 MW) – license process for these are either suspended or placed on hold or unknown status. SMUD Cosumnes Phase 2 (500 MW) unknown status. And Colusa Combined Cycle Project (500 MW) was withdrawn.

* Total includes **Gross MW** for El Segundo and Morro Bay project, though net MW to be added to state system is less.

Source: www.caiso.com; Power Plant Updates.htm

Exhibit 4-12 Current, Expected, and Approved Plant Licensing Cases



Source: www.caiso.com; CUR-EXP-APP.pdf

Exhibit 4-13 Power Plant Cases before the Commission

Project	Applicant / Host	Size (megawatts)	Capital Cost	Location	AFC Filing Date	Date Deemed "Data Adequate" [1]	Date Approved Or Denied [2]
Avenal Energy Project (01-AFC-20)	Duke Energy	600 MW	n/a	Avenal Kings County	AFC Filed 09-Oct-01	19-Dec-01	
Blythe Energy Project Phase II (Combined Cycle) (02-AFC-1)	Blythe Energy, LLC	520 MW	n/a	Blythe Riverside County	AFC Filed 19-Feb-02	17-Jul-02	
City of Vernon Malburg Combined Cycle (01-AFC-25)	City of Vernon	134 MW	\$100-110 million	Vernon Los Angeles County	AFC Filed 20-Dec-01	08-May-02	
East Altamont Energy Center (01-AFC-4)	Calpine	1,100 MW	\$400-500 million	Alameda County	AFC Filed 29-Mar-01	27-Jun-01	
El Segundo Repower (00-AFC-14)	NRG and Dynegy	630 MW [4] (old plant of 350 MW replaced by 630 MW plant)	\$350-\$400 million	Los Angeles County	AFC Filed Dec. 21, 2000	07-Feb-01	
Gilroy Energy Center, Phase II Project (01-AFC-9)	Calpine	135 MW [3]	\$250-280 million	Gilroy Santa Clara County	AFC Filed 15-Jun-01	unknown	unknown
Inland Empire Energy Center (01-AFC-17)	Inland Empire Energy Center LLC	670 MW	n/a	Romoland Riverside County	AFC Filed 17-Aug-01	19-Dec-01	
Los Banos Voltage Support Facility (01-AFC-23)	Cummins West Inc.	80 MW [3]	n/a	Los Banos Merced County	AFC Filed 20-Nov-01		PROJECT SUSPENDED 15-May-02
Magnolia Power Project (01-AFC-6)	Southern California Public Power Authority	250 MW	\$200-250 million	Burbank LA County	AFC Filed 14-May-01	25-Sep-01	
Morro Bay (00-AFC-12)	Duke Energy	1200 MW [4] (old plant of 1002 MW replaced by 1200 MW plant)	\$650 million	Morro Bay, San Luis Obispo County	AFC Re-Filed 23-Oct-00	December 20, 2000,	
Palomar Energy Project (01-AFC-24)	Palomar Energy LLC	500 MW	n/a	Escondido San Diego County	AFC Filed 28-Nov-01	06-Feb-02	
Pastoria Expansion (01-AFC-2)	Enron	250 MW [3]	\$250 million	Tejon Ranch, Kern County	AFC Filed 16-Feb-01		PROJECT SUSPENDED 7/1/01 - 10/31/02
Potrero Repower (00-AFC-4)	Southern Energy	540 MW	\$260-\$320 million	Potrero, San Francisco City / County	AFC Filed 31-May-00	11-Oct-00	
Roseville Energy Facility (01-AFC-14)	Roseville Energy Facility LLC (Enron)	900 MW	\$350-450 million	Roseville Placer County	AFC Filed 10-Aug-01	17-Oct-01	PROJECT SUSPENDED 8/14/02 - 29-Aug-03
Salton Sea Geothermal Project (02-AFC-2)	CE Obsidian Energy	185 MW	n/a	Salton Sea Imperial County	AFC Filed 29-Jul-02		
San Joaquin Valley Energy Center (01-AFC-22) (Formerly Central Valley)	San Joaquin Valley Energy Center, LLC	1,060 MW	\$550 million	Fresno County	AFC Filed 31-Oct-01	09-Jan-02	
SMUD Cosumnes Power Plant Project (01-AFC-19)	Sacramento Municipal Utility District	500 MW (plus 500 MW Phase 2)	\$450-500 million	Rancho Seco Sacramento County	AFC Filed 13-Sep-01	14-Nov-01	
South Star Cogeneration Project (01-AFC-15)	South Star Cogeneration LLC	200 MW [3]	\$210 - \$230 million	Near Taft Kern County	AFC Filed 13-Aug-01		PROJECT ON HOLD
Spartan I Energy Center (01-AFC-13)	Spartan Power LLC	96 MW [3]	n/a	San Jose Santa Clara County	AFC Filed 09-Aug-01		PROJECT ON HOLD 19-Dec-01
Tesla Power Plant Project (01-AFC-21)	Midway Power LLC	1,120 MW	n/a	Tracy Alameda County	AFC Filed 12-Oct-01	09-Jan-02	
United Golden Gate Power Plant, Phase II Project (01-AFC-3)	El Paso Energy	570 MW [3]	\$300 million	S.F. International Airport San Mateo County	AFC Filed 19-Mar-01		PROJECT ON HOLD
Total Megawatts [3]	over 300MW 8,440 under 300MW 569	9,009 [3]	--	--	--	--	--

The Western Systems Coordinating Council (WSCC) was merged with the Western Transmission Association (WRTA) and the Southwest Regional Transmission Association (SWART) to create the Western Electricity Coordinating Council (WECC) on April 18, 2002. This organization will continue to be responsible for coordinating and promoting system reliability in the region. Since California is an integral part of this system, relying to a large degree on imports at various times during the year, some information on the amount of future generation in the area was collected. Exhibit 4-14 summarizes the proposed generation in the WECC by categories shown below the exhibit.

Exhibit 4-14 Proposed Generation in WECC (MW)

Status	Northwest	Southwest	Rocky Mountain	California-Mexico	TOTAL
0	932	730	406	1,695	3,763
1	4,845	10,955	832	8,890	25,522
2	2,856	6,315	1,374	1,101	11,646
3	14,922	6,967	2,488	11,918	36,295
4	429	0	230	2,050	2,709
5	4,535	4,525	2,270	140	11,470
6	[6,660]	[8,112]	[857]	[9,880]	[25,509]
Total	28,519	29,492	7,600	25,794	91,405

Status Definitions:

- 0 – Operational
- 1 – Under construction
- 2 – Regulatory approval received
- 3 – Application under review
- 4 – Starting application process
- 5 – Press release only
- 6 – Cancelled, denied permit or delayed indefinitely

4.4 Summary

The above historical information for California's electric situation was to present data that would be utilized by the GEMSET program in its efforts to project future conditions in the State. With all that has happened that impacted the competitive market in the state, it is now uncertain as to what direction the market will take into the future.

5. Current Situation on CAISO's Market Operations

With the demise of the CalPX, the State has taken over the responsibility of securing electric supplies from the various generating entities that operate in the state and from sources outside California. The California Independent System Operator (CAISO) is still responsible for coordination of electric supplies and for the reliability of the system.

5.1 Supply Contracts

After the market catastrophe of 2000-2001, the State, through the California Department of Water Resources, secured electric supplies through a series of contracts with suppliers for both the long and short term. The contracts range from 90 days to 20 years. The contracts themselves are under investigation by FERC since the Public Utility Commission of the State of California filed a Section 206 complaint with FERC. Exhibit 5-1 provides some of the information, including price, of the contracts that are part of the 206 complaint. It is understood that several of these contracts have already been renegotiated, and are no longer part of the complaint.

Exhibit 5-1 44 CDWR Transactions in Excess of Forward Market Prices

Seller/Contract	Start Date	End Date	Years	Months	Location	Product Type	Max MW	Dispatchable	Contract Nominal \$	Contract Cost	Contract Price (CCAFP) in NPV	Cost Above Forward
Calpine 2a	Jul-01	Dec-11	10		6 NP	7x24	1000	No	5,233,180,800		1,552,528,532	
Calpine 2b	Aug-01	Jul-21	20		0 NP	6x16	495	Yes	2,984,691,253		1,333,982,973	
Calpine 1	Oct-01	Dec-11	10		3 NP	7x24	1000	No	4,620,234,960		1,281,011,347	
Allegheny 1	Oct-01	Dec-11	10		3 SP	7x24	1000	No	4,308,552,000		1,156,300,308	
Sempra 1a	Apr-02	Sep-11	9		6 SP	7x24	1200	No	4,805,187,360		1,108,109,470	
High Desert	Jul-03	Sep-11	8		3 SP	7x24	840	No	3,521,871,360		864,033,354	
GWF	Jul-01	Dec-11	10		6 NP	7x24, 6x16, 7x16	430	Yes	1,884,293,764		664,972,997	
Dynegy 1b	Jan-02	Dec-04	3		0 SP	6x16	600	No	1,076,729,143		569,718,493	
Coral 1a	Jul-01	Dec-05	4		6 NP/SP	6x16	550	No	1,038,339,878		552,141,749	
Sempra 1b	Jun-01	Sep-11	10		4 NP/SP	6x16	700	No	1,673,467,886		538,517,431	
Williams 1a	Jun-01	Dec-10	9		7 SP	7x24	600	No	1,806,150,000		505,069,710	
Sunrise	Jul-01	Nov-11	10		5 SP	6x16, 7x24	560	Yes	2,357,160,151		504,443,053	
Williams 1b	May-01	Dec-10	9		8 SP	6x16	300	No	1,129,906,286		422,174,646	
Dynegy 1a	Jan-02	Dec-04	3		0 SP	7x24	200	No	628,092,000		361,324,092	
PacifiCorp	Aug-01	Jun-11	9	11	NP	7x24, 6x16, Off Peak	300	Yes	1,033,630,732		341,702,324	
Mirant	Jul-01	Dec-02	1		6 NP	6x16	500	No	559,603,543		307,484,517	
Williams 1d	Jan-03	Dec-10	8		0 SP	6x16	500	No	1,251,428,571		297,544,834	
Constellation	Apr-01	Jun-03	2		3 SP	6x16	200	No	308,352,000		185,785,107	
Coral 1b	Jul-01	Dec-05	4		6 NP/SP	7x24	50	No	280,185,576		158,452,107	
Dynegy 1c	Jan-02	Dec-04	3		0 SP	7x16	500	Yes	584,292,000		150,981,047	
Coral 1c	Jan-06	Dec-11	6		0 NP/SP	6x16	550	No	914,270,318		150,029,994	
Alliance	Aug-01	Oct-10	9		3 SP	6x16	80	Yes	239,426,503		143,004,899	
Calpine 3	May-02	Apr-05	3		0 NP	6x16	225	Yes	249,651,602		120,863,342	
Morgan-Stanley	Feb-01	Dec-05	4	11	SP	7x24	50	No	188,402,400		91,280,438	
Williams 1c	Jun-01	Dec-05	4		7 SP	6x16	400	No	374,057,143		79,181,322	
El Paso 1a	Jan-01	Dec-05	5		0 NP	6x16	50	No	143,168,914		78,933,165	
Wellhead-Panoche	Oct-01	Oct-11	10		1 NP	6x16	49.9	Yes	188,002,807		77,816,246	
Coral 1d	Jan-06	Jun-12	6		6 NP/SP	7x24	50	No	112,676,544		77,451,537	
El Paso 1b	Jan-01	Dec-05	5		0 SP	6x16	50	No	129,641,143		65,358,753	
Calpeak-Midway	Dec-01	Nov-11	10		0 NP	6x16	48	Yes	112,887,600		50,370,340	
Clearwood	Jun-02	May-12	10		0 NP	7x24	25	No	147,606,000		50,097,364	
Calpeak-VacaDixon	Nov-01	Oct-11	10		0 NP	6x16	48	Yes	113,004,000		49,894,550	
Calpeak-Panoche	Oct-01	Sep-11	10		0 NP	6x16	48	Yes	112,819,200		49,793,425	
Dynegy 1d	Jan-02	Dec-04	3		0 SP	Off Peak	200	Yes	116,858,400		49,521,746	
Calpeak-Mission	Dec-01	Nov-11	10		0 SP	6x16	48	Yes	112,935,600		47,466,658	
Calpeak-EICajon	Dec-01	Nov-11	10		0 SP	6x16	48	Yes	112,892,400		47,433,239	
Calpeak-Border	Oct-01	Sep-11	10		0 SP	6x16	48	Yes	113,059,200		47,349,060	
Calpeak-Enterprise	Oct-01	Sep-11	10		0 SP	6x16	48	Yes	113,020,800		47,319,078	
Wellhead-Gates	Oct-01	Oct-11	10		1 NP	6x16	42	Yes	134,840,229		47,315,663	
Fresno	Aug-01	Oct-11	10		3 NP	5x16	21.3	Yes	72,344,084		31,314,183	
PGET	Sep-01	Aug-10	9		0 SP	7x24	43	No	119,965,565		29,037,368	
Allegheny 2	Jan-03	Dec-03	1		0 NP	6x16	150	No	57,065,143		22,240,462	
Soledad	Jun-01	Jun-06	5		1 NP	7x24	13	No	47,372,208		20,579,986	
Imperial Valley	Jul-01	Dec-03	2		6 SP	7x24	16	No	32,995,200		15,117,493	
Total									45,144,312,265		14,345,048,400	

*Each "contract" is a separately numbered exhibit and is named after the company of the seller. Some sellers have multiple contracts, in which case the contracts are numbered sequentially (e.g., Allegheny 1 and Allegheny 2). Some contracts have multiple transactions, in which case the transactions are listed alphabetically in lowercase letters (e.g., Calpine 2a and Calpine 2b). Sellers with only one contract do not have numbers (e.g., High Desert), unless that one contract contains multiple transactions, in which case the contract is numbered "1" with the multiple transactions designated separately by a lowercase letter (e.g., Sempra 1a and Sempra 1b).

5.2 CAISO Operations in Maintaining the Grid

5.2.1 Balancing the Grid

Along with operating the power grid, the California ISO conducts reliability markets, matching supply with demand and fine-tuning the flow of electricity. The ISO is like an escrow company, acting as a clearinghouse for energy transactions, but never buying or selling power itself. The markets allow the ISO to make adjustments in power deliveries in response to changes in energy consumption. The ISO's three open markets, which make up less than 10% of the total wholesale electricity markets, help maintain operational reliability of the transmission grid by providing electrical services such as regulation and operating reserves.

5.2.1.1 Ancillary Services Market

This market helps adjust the flow of electricity when the unexpected happens, such as a power plant failure or a sharp rise in demand for power. The capacity that is bought and sold can be dispatched within seconds, minutes, or hours. This is what is for sale in the Ancillary Services Auction, which is conducted the day-ahead and the hour-ahead of when electricity is used:

- **Regulation** – Generation that is already up and running (synchronized with the power grid) and that can be increased or decreased instantly to keep energy supply and energy use in balance.
- **Spinning Reserves** – Generation that is running, with additional capacity that can be dispatched within minutes.
- **Non-Spinning Reserves** – Generation that is not running, but can be brought up to speed within 10 minutes.
- **Replacement Reserves** – Generation that can begin contributing to the grid within an hour.

5.2.1.2 Transmission Market

This market allocates space on the transmission lines and is conducted the day-ahead and the hour ahead of when electricity is delivered. When there is not enough room for all the electrons on a line, congestion zones are established and Scheduling Coordinators operating in these zones can participate in the congestion management market, curtailing their power deliveries or generating more.

5.2.1.3 Real-Time Imbalance Market

This market is where supplemental energy is quickly bought or sold every 10 minutes to accommodate energy use just moments before it occurs. Scheduling Coordinators receive payment for extra generation they supply or are billed for extra energy they need to meet the demand of their customers. Market Participants can submit incremental (inc) bids to supply more power, or decremental (dec) bids to reduce power output because of oversupply or congestion on transmission lines.

5.2.1.4 Additional Market Terms

BEEP stands for **Balancing Energy Ex-Post Pricing**. It refers to the bids offered electronically into the ISO's real-time imbalance market. **Out-of-Market (OOM)** refers to a power purchase for energy outside of the electronic real-time auction, usually via the telephone. This is done only when the real-time auction cannot provide all the energy the system needs.

5.2.2 Scheduling of Power

Scheduling Coordinators are the intermediaries between the ISO, and retailers and customers. They submit schedules to deliver electricity that match their customers' demand with supply. As part of the congestion management market, the ISO runs these schedules through a complex computer program to determine the chances of congestion or traffic jams on the power grid. If no congestion is found, the ISO gives Scheduling Coordinators the green light to proceed. If congestion is discovered, Scheduling Coordinators have the opportunity to either sell or buy more power, with the ISO eventually choosing the least costly options.

Electronic auctions for Ancillary Services are also held in the Day-Ahead and Hour-Ahead markets. This is how Scheduling Coordinators submit bids for back-up power that the ISO uses to provide the operating reserves that ensure reliability of the grid.

The target schedule for the Day-Ahead Market is shown below:

- **Hour-Ahead** – Hour-Ahead schedules are submitted 2 hours prior to the beginning of the operating hour. Scheduling Coordinators do not have a chance to revise these schedules.
- **10 a.m.** – Scheduling Coordinators submit to the ISO how much power they think their customers will need for the next day and which power plants will produce that energy. Ancillary bids accepted for the ISO to procure needed operating reserves are published.
- **11 a.m.** – ISO is ready to give Scheduling Coordinators the signal either to proceed with their schedules or to modify them – giving them suggestions on how to do so. Preliminary Ancillary Services procurement schedules are published.

- **Noon** – Scheduling Coordinators submit revised schedules. This time, if the schedules conflict, the ISO automatically modifies them to flow with the other schedules. Revised or additional Ancillary Services schedules can be submitted.
- **1 p.m.** – ISO closes the Day-Ahead Market and the charge for use of congested lines is calculated and finalized. Final Ancillary Services procurement is published.

5.2.3 Regional Coordination

The Federal Energy Regulatory Commission (FERC) is encouraging all electrical entities under its jurisdiction to form or join a regional transmission operator (RTO). The California ISO filed June 1, 2001 for certification as an RTO, stating essentially that the organization already meets most of the RTO criteria.

An RTO is a federal designation for an organization that does fundamentally what the ISO does now, but with broader authority and responsibility. Several entities in the West began exploring the RTO concept following FERC's December 1999 Order 2000.

FERC's initial concept envisioned one RTO to control virtually the entire Western Grid. However, FERC recently acknowledged that, based on demographic, geographic, and technical issues, it might make more sense to have three organizations cooperatively manage the Western Grid. The California ISO has been working with RTO West (representing entities in the Northwest) and West Connect (representing the Southwest) to identify and minimize "seams issues" that might affect how the three organizations interact. The California ISO has been instrumental in organizing a working group among these entities to cooperatively explore the best way to achieve a seamless western market.

The RTO concept calls for removing technical, financial, and political barriers to open, nondiscriminatory access to the transmission grid throughout the West. That requires coordinating the technical operation of high-voltage interchanges, integrating existing power contracts into the new regional market structure, and fostering cooperation among various regulatory agencies. While the initial steps are underway, a lot of work remains. The goal is a regional system that allows the free flow of electricity throughout the West with minimal transaction costs and effective market monitoring. Such a seamless market will ensure that consumers throughout the West have access to a less expensive energy supply.

While the California ISO filed for RTO certification in 2001, it is unclear when FERC may act on that application. RTO West has received approval from FERC as to its basic governance structure. It is planning to file a detailed market design proposal in March 2002. West Connect is awaiting FERC action on its RTO status.

5.3 Proposed Market Design

Early in 2002, ISO Management initiated the Market Design 2002 (MD02) project to (1) take a comprehensive view of the changes needed in the structure of California's electricity markets,

with a focus on those markets operated by the ISO in performance of its core functions, and (2) develop an integrated program of proposed market design changes that will address current problems in a systematic fashion and create a framework for a sustainable, workably competitive electric industry that benefits all California consumers and is compatible with the rest of the western region.

The proposed program contains three areas to help explain and clarify the ISO's evolving Draft Comprehensive Design Proposal:

- Overview of Proposed Major Design Elements.
- Proposed ISO Market Time Line.
- Roles and Responsibilities Associated with Major Design Elements.

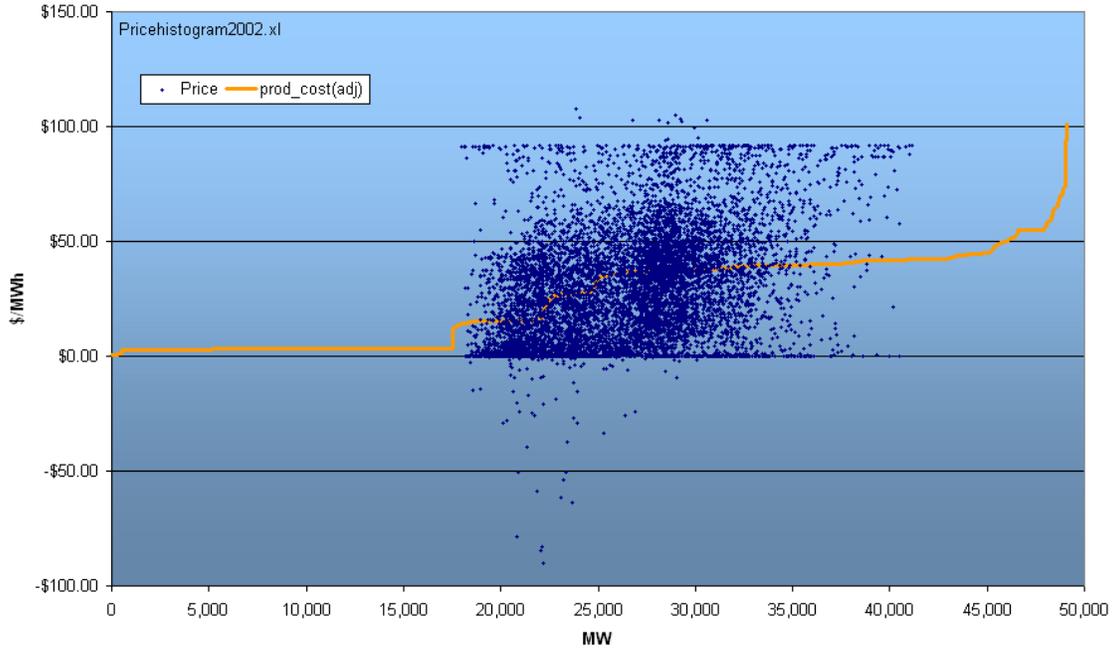
This program was submitted to FERC in April 2002, and on July 17, 2002 FERC responded with an order on the California comprehensive market redesign proposal (MD02). In that order, FERC accepted, rejected, and modified that proposal. California is now in the process of following up on that order with questions, concerns, and timetables for implementation. At this time, the California market is once again in a state of transition with regard to a competitive market situation. When the actual implementation occurs, this Characterization will once again be issued through an update.

5.4 Historical Market Clearing Prices

At the current time, the CAISO has several energy pricing programs including day-ahead, hour-ahead, and real time. These prices are only published after a 180 day time delay. They do however, publish ex-post prices which are average zonal prices for the energy traded to balance the system. The amount of this trading is quite small, less than 5% of the total energy required at any given hour. For purposes of this characterization, these prices have been collected and are provided in graphic format for review. They are considered to be representative of the market clearing prices for energy in California as stated in the CAISO web site.

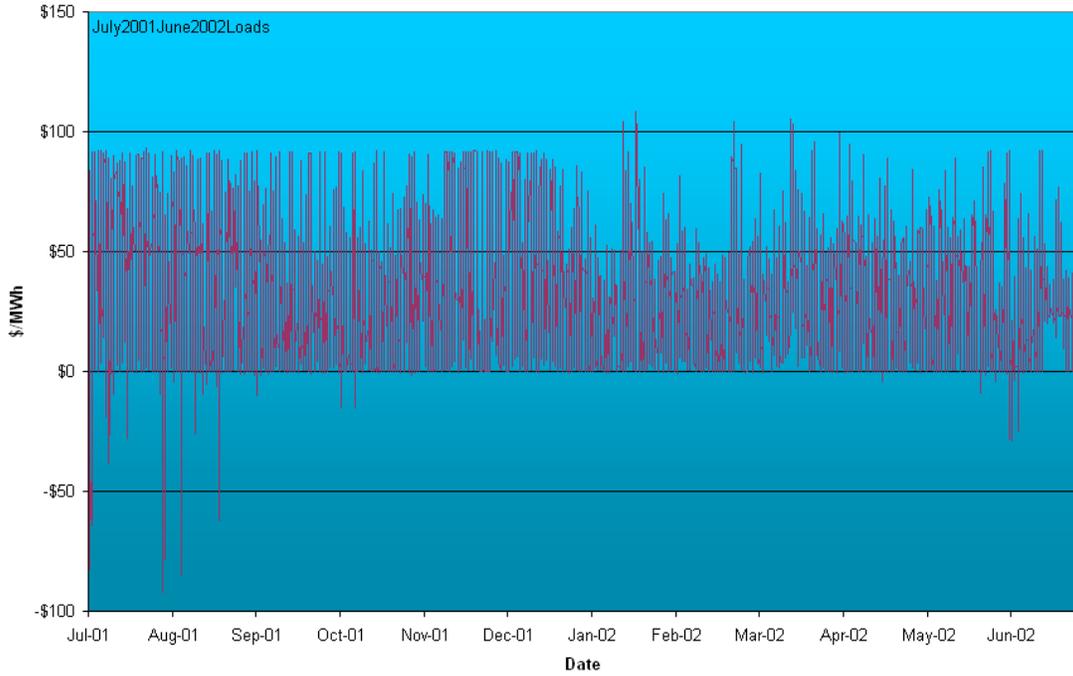
As shown in Exhibit 5-2, the average zonal prices for the past year were collected and compared against the production costs of the adjusted fleet of generators, which is provided in Appendix A of this characterization. As shown, the pricing did have a cap imposed on it at \$91.87, which was set by FERC in its June 19, 2001 order. That price was the maximum hourly ex-post price during the most recent stage 1 emergency, multiplied by 85%. This price does not, however, include the 10% uplift for credit uncertainty called for in the June order. The inclusion of the estimated production costs of the California fleet of generating units was added to see if those costs were consistent with the loads and their corresponding prices.

**Exhibit 5-2 California Actual Zonal Price versus Estimated Production Costs
(July 1, 2001 – June 30, 2002)**

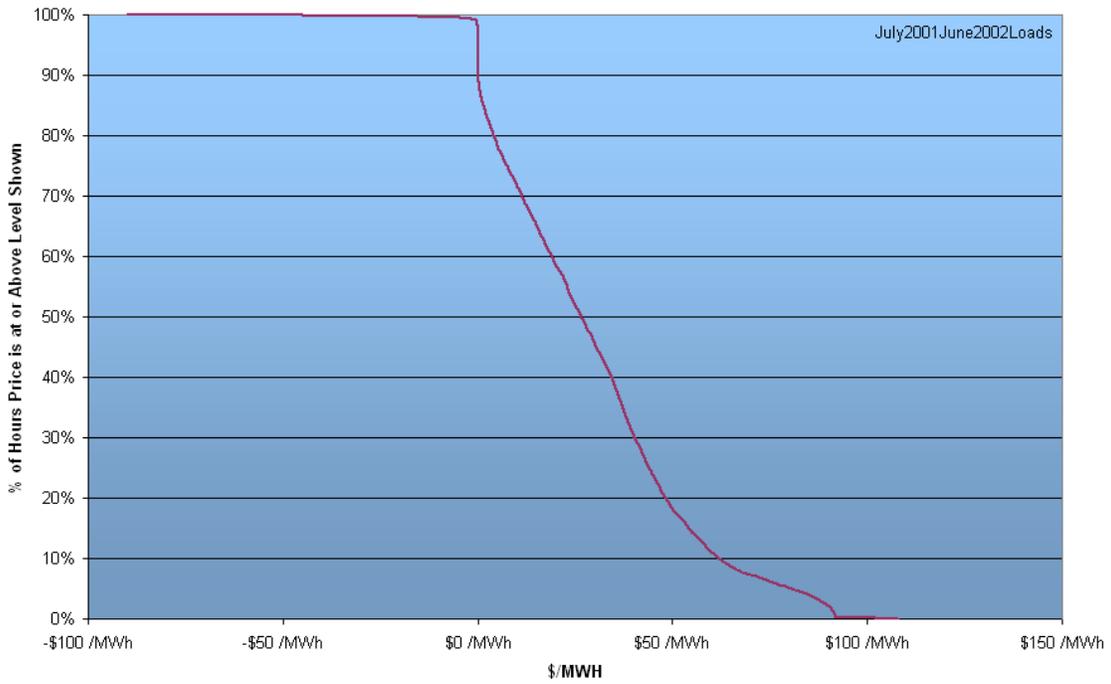


In Exhibit 5-3, the prices are shown by date, followed by an annual price duration curve in Exhibit 5-4. In the last two exhibits, the prices are restated as a correlation between demand versus price in Exhibit 5-5, and then the maximum and minimum prices on a daily basis were calculated and shown in Exhibit 5-6.

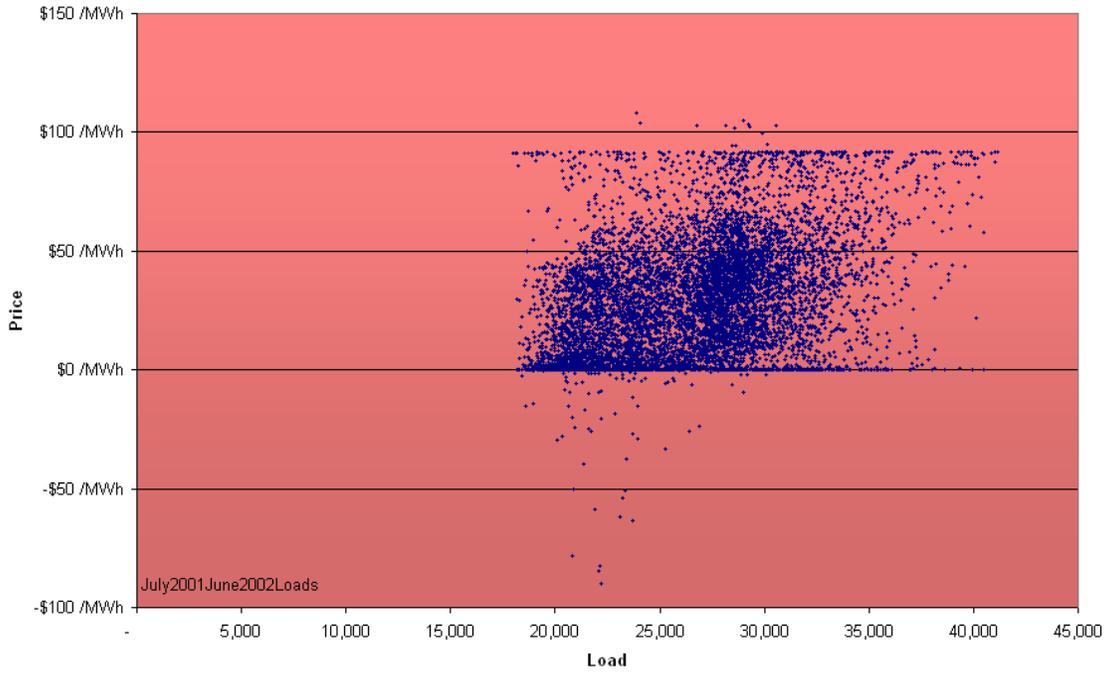
**Exhibit 5-3 California ISO Market Clearing Prices
(July 1, 2001 to June 30, 2002)**



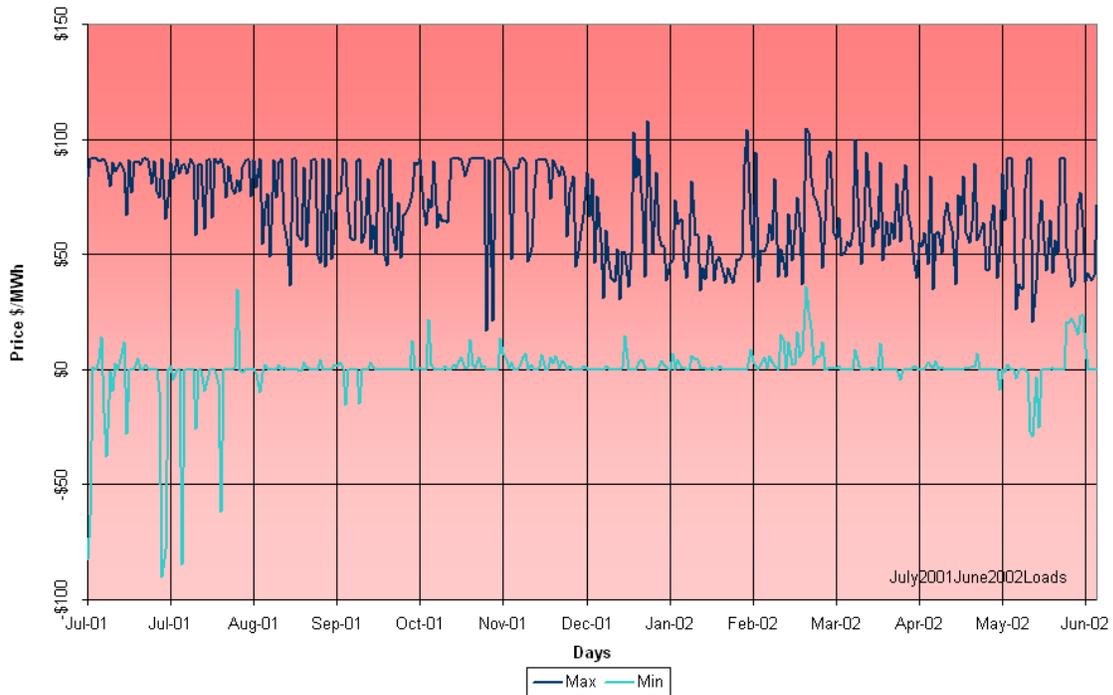
**Exhibit 5-4 California ISO Price Duration Curve
(July 2001 – June 2002)**



**Exhibit 5-5 CAISO Market Clearing Price
(July 1, 2001 – June 30, 2002)**



**Exhibit 5-6 California ISO Maximum-Minimum Prices per Day
(July 2001 – June 2002)**



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6. California Demand, Energy, and Fuel Price Projections

This section describes California's assessment about how the region's load is projected over the period 2000 to 2010. This projection is based on the latest planning reported by the California Energy Commission. These projections are the most recent available in California since its reductions promulgated by the events of the 2001. The Commission did indicate that a new forecast might be published by the end of 2002. For the present time, this projection is used as the basis for the region's forecast that will be utilized by the GEMSET team.

- Section 6.1 gives California's demand and energy growth projections for the State, broken down between the California ISO and the major municipalities.
- Finally, Section 6.2 documents California's historical and forecasted fuel prices for generation, using the GEMSET Fuel Characterization for NERC Region 9.

6.1 Demand and Energy Growth Projection

The *California Energy Demand 2000-2010* report summarizes the California Energy Commission's retail electricity and natural gas consumption forecasts for California through the year 2010. It also represents an element of our monitoring and policy functions, recently expressed in the Energy Commission's *Report on Generator & Consumer Data Reporting Requirements*, and provides information to market participants.

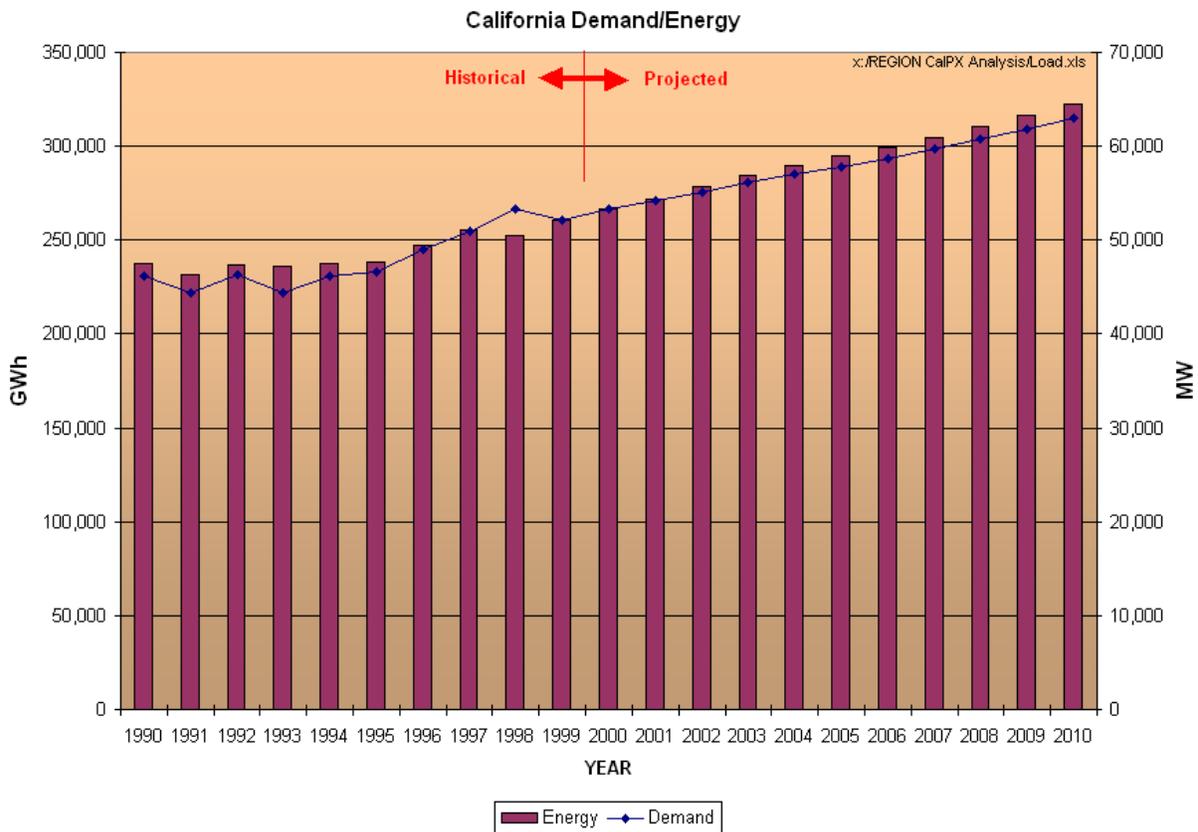
The demand forecast presented in this document is reported on a statewide and sector basis. It provides that information by traditional utility service area and also by transmission congestion zones established by the California Independent System Operator (ISO). The estimates also include the impacts of committed energy efficiency programs that have been funded and implemented through 2001. These committed programs continue after 2001 with declining level of impacts. The demand forecast does not include the impacts of uncommitted energy efficiency, nor does it include the impact of committed dispatchable load management programs.

The long-term forecast using the forecast models described in this report produce an energy system with peaks growing at 1.4% annually and total energy consumption growing at 2.1% annually. The forecasts were prepared using end-use models that employ a complex series of calculations that simultaneously consider such factors as economic growth, population, weather characteristics, changes in energy utilization, regulatory conditions, and recorded consumption.

The model results show the non-coincident system peak growing from 53,335 MW in 1999 to 64,483 MW in 2010. Associated energy demand is growing from 260,635 GWh in 1999 to 322,421 GWh in 2010 for the entire state of California. As a comparison to the actuals for 2001, the forecast for just the ISO loads was 47,230 MW and 239,450 GWh, where the actual demand and energy was 41,155 MW and 227,697 GWh. This certainly seems to prove that the demand for electricity decreased from the projections as a result of the previously stated reasons of high prices and a slower economy.

Exhibit 6-1 shows these growth trends in both demand and energy from the Energy Commission’s forecast.

Exhibit 6-1 California Demand & Energy Forecast



The California Energy Commission breaks down its forecast into service areas for both the California ISO and non-ISO areas. The three major private utilities (Pacific Gas & Electric, Southern Cal Edison, and San Diego Electric & Gas) and the major municipals (Sacramento Municipal Utility District, Los Angeles Department of Water and Power, Burbank Public Service Department, Glendale Public Service Department, and Pasadena Water and Power Department), along with the state’s Department of Water Resources, make up the majority of the forecast. The remaining areas identified include the Imperial Irrigation District and an area labeled Far North & East Sierra. The individual area projections are shown in Exhibit 6-2 for energy, followed by demand in Exhibit 6-3

Exhibit 6-2 Electric Consumption by Utility Service Area (GWh)

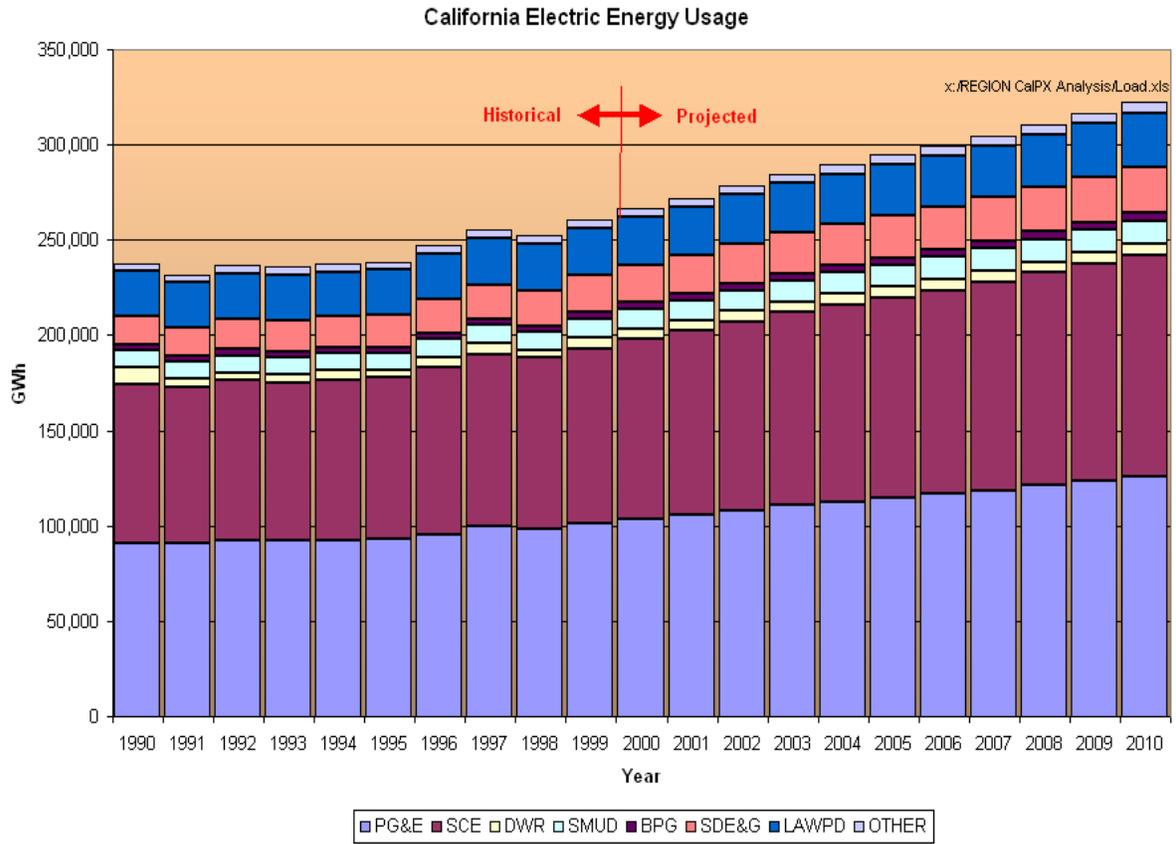
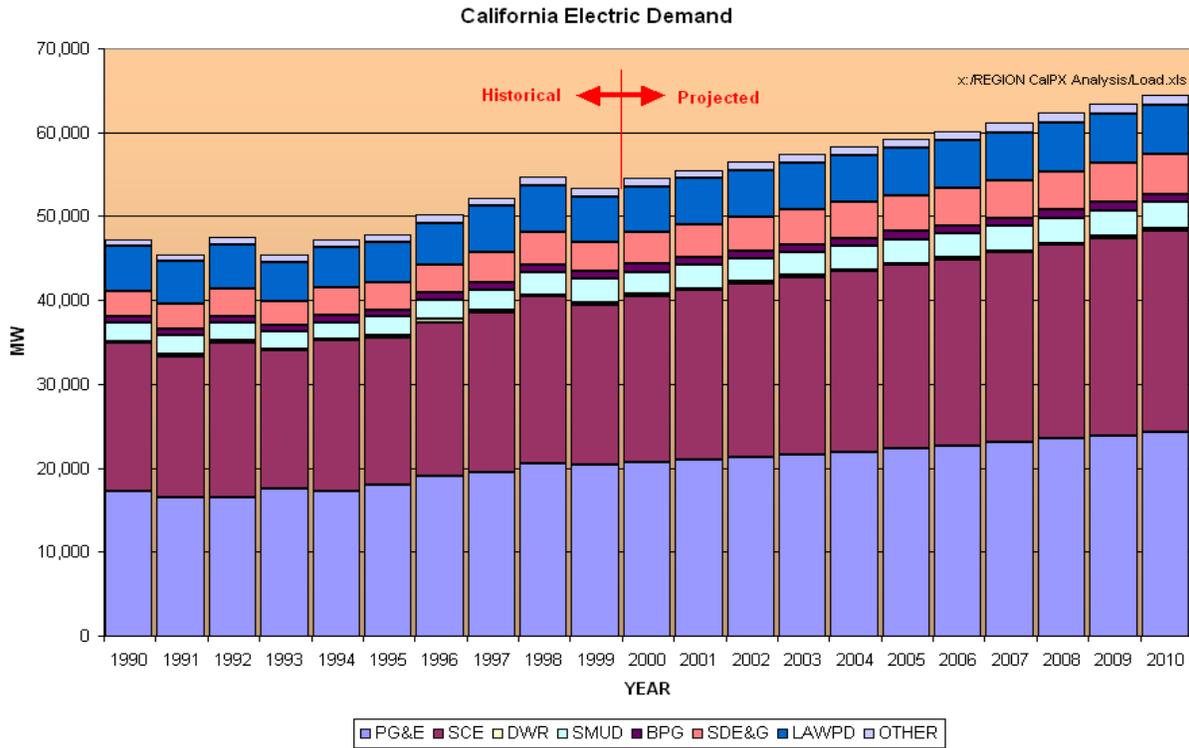


Exhibit 6-3 Peak Demand by Utility Service Area



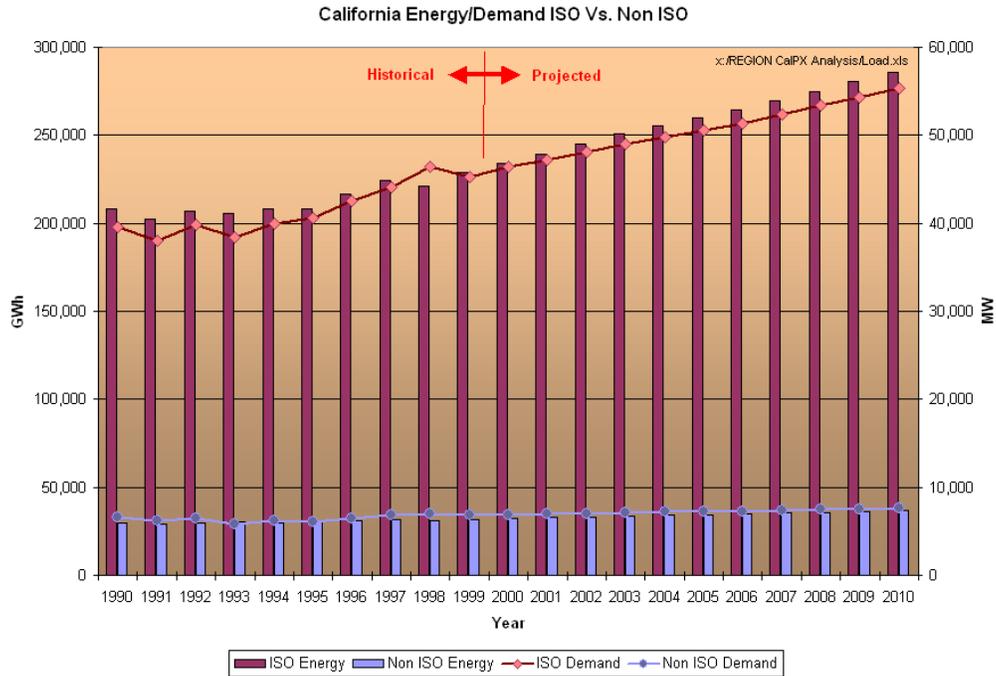
Overall, California expects to experience an increase in required capacity of about 11,000 MW over the next 10 years. This represents an increase of slightly more than 20% over that time period. When retirements are taken into consideration, California estimates that almost 15,000 MW of new capacity will be required through 2010.

The peak demand data discussed above is the amount of electricity that must be provided by generators and supplied over the grid system peak demand. System peak demand includes line losses and excludes loads served by self-generation, which amounts to approximately 1,800 MW over the projected time period. The system peak demand is the load that the control area operator must meet with supply options.

The system peak demand is expected to grow the same as end use peak demand. From 1999 to 2004, total system peak is expected to be at a 1.8% annual rate and, from 1999 to 2010, the projected annual growth is 1.7%. This forecast does not anticipate a major deployment of new distributed generation (which includes self-generation). Similarly, the forecast assumes no fundamental changes in electricity losses that would have resulted from changes in imports versus in-state generation.

Exhibit 6-4 provides the historical and projected demands and energy for the CAISO and the non-ISO territories.

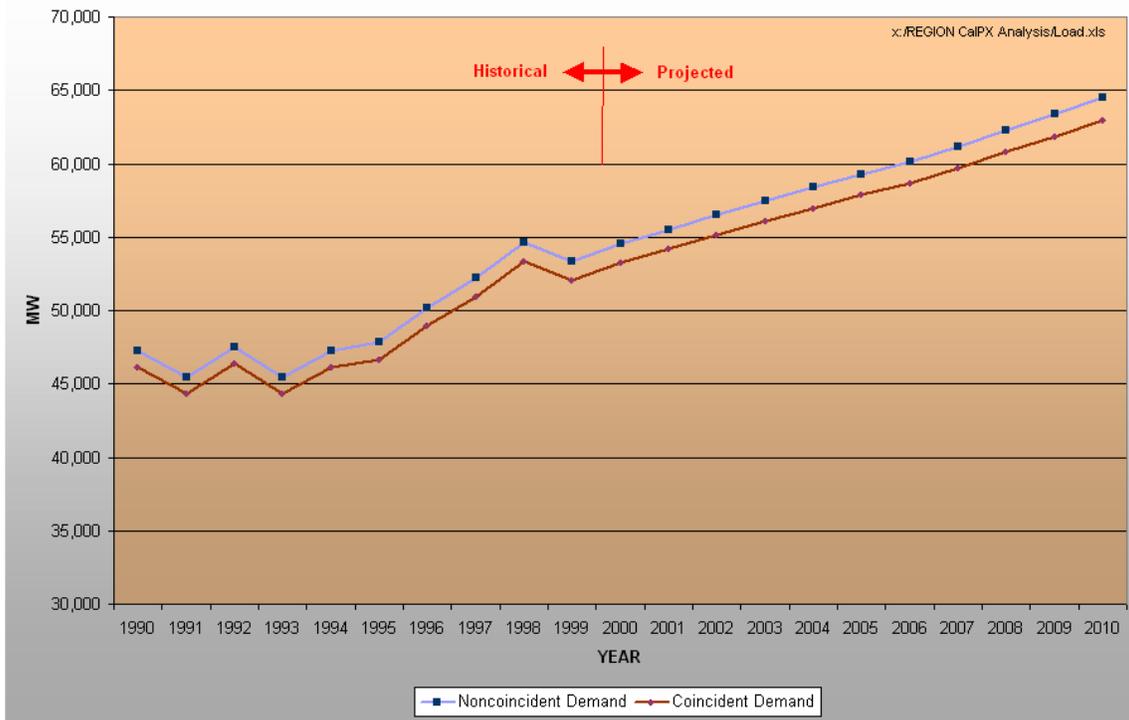
Exhibit 6-4 Non-ISO & CAISO Energy/Demands



6.1.1 Coincident versus Non-Coincident Peak Loads

The non-coincident peak loads shown in the exhibits above are summations of the peak loads from the various utilities in the state. The actual requirement for the state is the coincident demands at any given hour or time period for each of those territories. While some diversity exists in California due to its size and customer diversity, the magnitude of the two is not that great. Exhibit 6-5 indicates the expected demands for both non- and coincident loads in California. The rule of thumb for California is that the coincident demand is 97.6% of the non-coincident loads.

Exhibit 6-5 California Comparison of Non vs. Coincident Demand

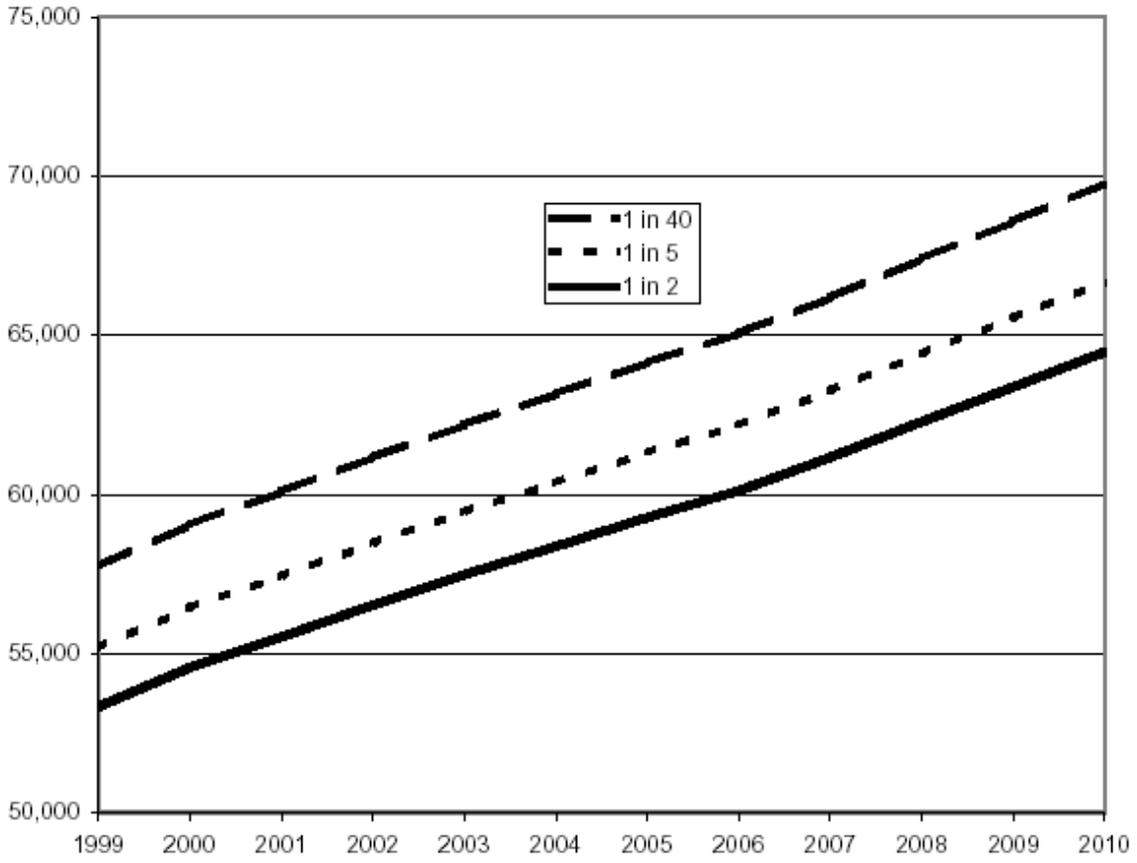


6.1.2 Peak Demand Temperature Sensitivity

The peak demand forecast is based on typical temperatures that are expected to occur one out of every two years (1 in 2). In July 1999, the Commission staff published a report, *High Temperatures & Electricity Demand*, which examined the effects of high temperatures on peak demand.

As part of the analysis of high temperature and peak demand, the report presented 1-in-5 and 1-in-40 year temperature sensitivity cases. The temperature sensitivities shown in Exhibit 6-6 were developed by applying the temperature sensitivity percent differences from the high temperature report to the 2000 baseline peak demand forecast.

Exhibit 6-6 Peak Demand Temperature Sensitivities



Source: Energy Commission staff

6.2 Fuels Forecast for the California Region

- Region 1 – New England
- Region 2 – Mid-Atlantic
- Region 3 – East North Central
- Region 4 – West North Central
- Region 5 – South Atlantic
- Region 6 – East South Central
- Region 7 – West South Central
- Region 8 – Mountain
- Region 9 - Pacific**



This section discusses the fuel prices that existed in the region and describes the forecast expectations for the region. Region 9 is made up of the following states as reported by FERC: California, Oregon, Washington, Alaska, and Hawaii. All data are contained in tables available in the Fuels Characterization recently prepared by the GEMSET Team.

6.2.1 Natural Gas Prices

The delivered natural gas price to generating company owners in the region is reported on FERC Form 423. Recent gas price historical and projected data for the region are shown in Exhibit 6-7, which also shows the projections from the actual data sources for the GEMSET projections. These data are reported on a monthly basis with a 6-month lag in the reports. Exhibit 6-8 then shows the GEMSET natural gas projection by itself.

Exhibit 6-7 GEMSET Baseline Natural Gas Price Projection for the Pacific Region in Current Year U.S. Dollars Compared to the Data Sources Used for the Projections

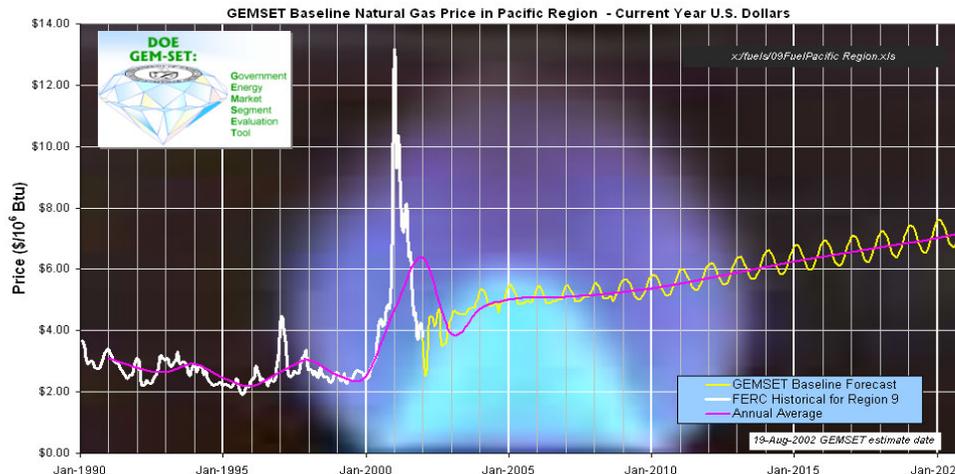
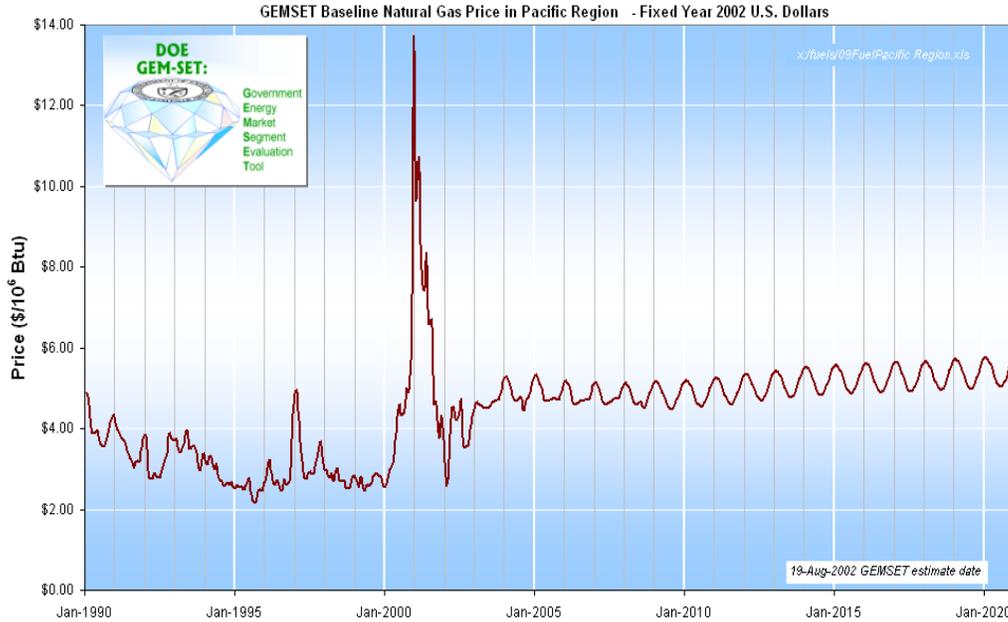


Exhibit 6-8 GEMSET Baseline Natural Gas Price Projection for the Pacific Region in Current Year U.S. Dollars

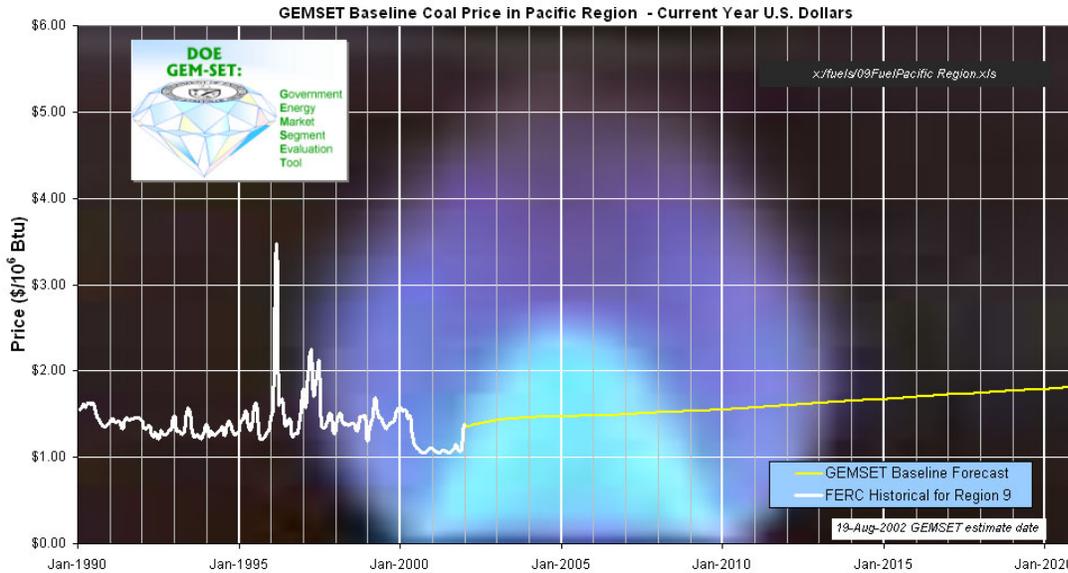


Periodically, these data will be revised to reflect changes in actual prices, and to adjust the forecasts to gas futures market changes, and changes in the NEMS economic modeling.

6.2.2 Coal Price in Pacific Region

The historical coal price in the Mid-Atlantic Region has been stable over the last few years, averaging between \$1.25 and 1.35/10⁶ Btu. This price is expected to continue for the short-term horizon, but rising slightly in the long-term. Exhibit 6-9 shows the historical and projected prices for coal.

Exhibit 6-9 GEMSET Baseline Coal Price Projection for the Pacific Region in Current Year U.S. Dollars



6.2.3 Oil Prices in the Pacific Region

The exhibits below indicate the historical and projected prices for No. 2 and No. 6 fuel oil in the region. As with all of the regions, there are individual ratios developed for each fuel based on the historical relationship on a national basis versus the regional prices. Those ratios are presented in the analysis itself.

Exhibit 6-10 No. 2 Oil Price in the Pacific Region

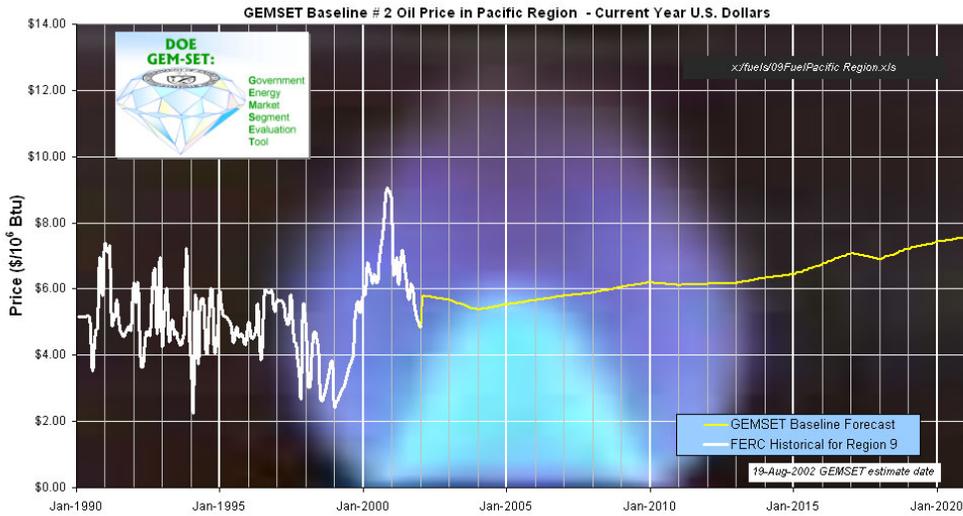
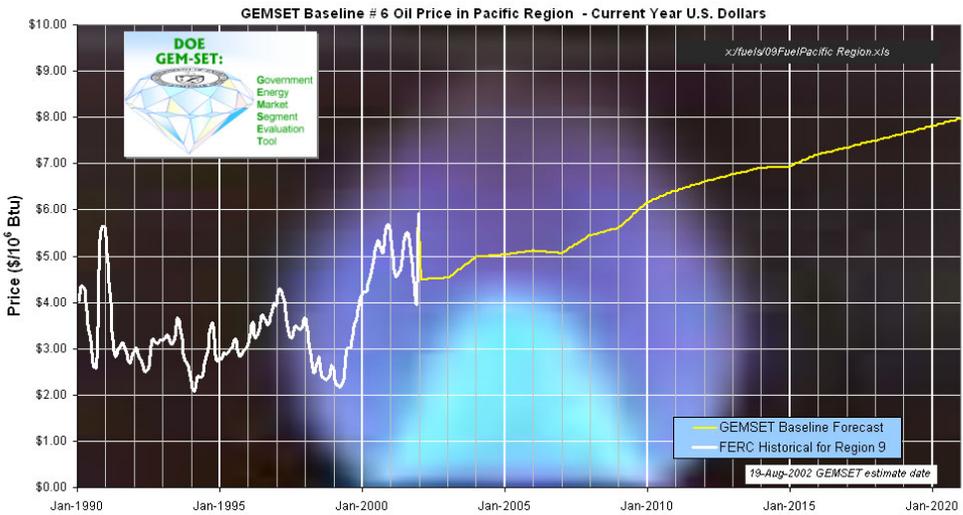


Exhibit 6-11 No. 6 Oil in the Pacific Region



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7. References

The following documents or internet web sites were utilized in the development of this characterization:

1. Section 206 Complaint before the Federal Energy Regulatory Commission, Docket No. EL02-____-000 by the Public Utilities Commission of the State of California.
2. Federal Energy Regulatory Commission, Docket No. ER02-1656-000 and Docket No. EL01-68-017; Order on the California Comprehensive Market Redesign Proposal.
3. California ISO web site; www.caiso.com
4. California Energy Commission web site; www.energy.ca.gov/
5. Weinstein, R.E., Herman, A.A., and Lowe, J.J. GEMSET Assessment: Fuels Characterization. Parsons Report No. EJ-2002-04

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Appendix A, CAISO Stacking

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Los Angeles City of	Equilon Los Angeles Refining Co	GT	OG	30,000	30
Los Angeles City of	Equilon Los Angeles Refining Co	GT	OG	30,000	60
Pacific Gas & Electric Co	Altamont Gas Recovery	GT	LFG	3,000	63
Pacific Gas & Electric Co	Altamont Gas Recovery	GT	LFG	3,000	66
Pacific Gas & Electric Co	Foster Wheeler Martinez Inc	CT	OG	40,000	106
Pacific Gas & Electric Co	Foster Wheeler Martinez Inc	CT	OG	40,000	146
Pacific Gas & Electric Co	Monterey Regional Water Pollution Control Cogen	IC	OBG	580	147
Pacific Gas & Electric Co	Monterey Regional Water Pollution Control Cogen	IC	OBG	580	147
Pacific Gas & Electric Co	Monterey Regional Water Pollution Control Cogen	IC	OBG	580	148
San Diego Gas & Electric Co	Gas Utilization Facility	IC	OBG	2,300	150
San Diego Gas & Electric Co	Gas Utilization Facility	IC	OBG	2,300	152
San Diego Gas & Electric Co	San Marcos	GT	LFG	950	153
San Diego Gas & Electric Co	San Marcos	GT	LFG	950	154
San Diego Gas & Electric Co	Sycamore San Diego	GT	LFG	950	155
San Diego Gas & Electric Co	Sycamore San Diego	GT	LFG	950	156
Southern California Edison Co	Aliso Water Management Agency	IC	OBG	400	157
Southern California Edison Co	Aliso Water Management Agency	IC	OBG	400	157
Southern California Edison Co	Aliso Water Management Agency	IC	OBG	400	157
Southern California Edison Co	BKK Landfill	GT	LFG	5,400	163
Southern California Edison Co	Oxnard Wastewater Treatment Plant	IC	OBG	500	163
Southern California Edison Co	Oxnard Wastewater Treatment Plant	IC	OBG	500	164
Southern California Edison Co	Oxnard Wastewater Treatment Plant	IC	OBG	500	164
Southern California Edison Co	Plant No 2	IC	OBG	3,000	167
Southern California Edison Co	Plant No 2	IC	OBG	3,000	170
Southern California Edison Co	Plant No 2	IC	OBG	3,000	173
Southern California Edison Co	Plant No 2	IC	OBG	3,000	176
Southern California Edison Co	Plant No 2	IC	OBG	3,000	179
Southern California Edison Co	Puente Hills Energy Recovery	GT	LFG	2,800	182
Southern California Edison Co	Total Energy Facilities	CT	OBG	9,900	192
Southern California Edison Co	Total Energy Facilities	CT	OBG	9,900	202
Southern California Edison Co	Total Energy Facilities	CT	OBG	6,500	208
Los Angeles City of	Equilon Los Angeles Refining Co	ST	OG	23,000	231
Pacific Gas & Electric Co	1 Power Plant Richmond CA	ST	OG	9,000	240
Pacific Gas & Electric Co	1 Power Plant Richmond CA	ST	OG	4,000	244
Pacific Gas & Electric Co	1 Power Plant Richmond CA	ST	OG	4,000	248
Pacific Gas & Electric Co	1 Power Plant Richmond CA	ST	OG	4,000	252
Pacific Gas & Electric Co	American Canyon Power Plant	IC	LFG	750	253
Pacific Gas & Electric Co	American Canyon Power Plant	IC	LFG	750	254
Pacific Gas & Electric Co	Byxbee Park Sanitary Landfill	IC	LFG	1,050	255
Pacific Gas & Electric Co	Central LF (Sonoma) Phase I	IC	LFG	800	256
Pacific Gas & Electric Co	Central LF (Sonoma) Phase I	IC	LFG	800	256
Pacific Gas & Electric Co	Central LF (Sonoma) Phase I	IC	LFG	800	257
Pacific Gas & Electric Co	Central LF (Sonoma) Phase I	IC	LFG	800	258
Pacific Gas & Electric Co	Central LF (Sonoma) Phase II	IC	LFG	800	259

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Central LF (Sonoma) Phase II	IC	LFG	800	260
Pacific Gas & Electric Co	Central LF (Sonoma) Phase II	IC	LFG	800	260
Pacific Gas & Electric Co	Central LF (Sonoma) Phase II	IC	LFG	800	261
Pacific Gas & Electric Co	Guadalupe Power Plant	IC	LFG	500	262
Pacific Gas & Electric Co	Guadalupe Power Plant	IC	LFG	1,000	263
Pacific Gas & Electric Co	Guadalupe Power Plant	IC	LFG	500	263
Pacific Gas & Electric Co	Guadalupe Power Plant	IC	LFG	500	264
Pacific Gas & Electric Co	M M Yolo Power LLC Facility	IC	LFG	450	264
Pacific Gas & Electric Co	M M Yolo Power LLC Facility	IC	LFG	600	265
Pacific Gas & Electric Co	M M Yolo Power LLC Facility	IC	LFG	600	265
Pacific Gas & Electric Co	M M Yolo Power LLC Facility	IC	LFG	600	266
Pacific Gas & Electric Co	M M Yolo Power LLC Facility	IC	LFG	600	267
Pacific Gas & Electric Co	Marina Landfill Gas	IC	LFG	987	268
Pacific Gas & Electric Co	Marina Landfill Gas	IC	LFG	987	269
Pacific Gas & Electric Co	Marina Landfill Gas	IC	LFG	805	269
Pacific Gas & Electric Co	Marsh Road Power Plant	IC	LFG	500	270
Pacific Gas & Electric Co	Marsh Road Power Plant	IC	LFG	500	270
Pacific Gas & Electric Co	Marsh Road Power Plant	IC	LFG	500	271
Pacific Gas & Electric Co	Marsh Road Power Plant	IC	LFG	500	271
Pacific Gas & Electric Co	Newby Island I	IC	LFG	500	272
Pacific Gas & Electric Co	Newby Island I	IC	LFG	500	272
Pacific Gas & Electric Co	Newby Island I	IC	LFG	500	273
Pacific Gas & Electric Co	Newby Island I	IC	LFG	500	273
Pacific Gas & Electric Co	Newby Island II	IC	LFG	1,000	274
Pacific Gas & Electric Co	Newby Island II	IC	LFG	1,000	275
Pacific Gas & Electric Co	Newby Island II	IC	LFG	1,000	276
Pacific Gas & Electric Co	Nove Power Plant	IC	LFG	1,050	277
Pacific Gas & Electric Co	Nove Power Plant	IC	LFG	1,050	279
Pacific Gas & Electric Co	Nove Power Plant	IC	LFG	1,050	280
Pacific Gas & Electric Co	Salinas	IC	LFG	1,450	281
Pacific Gas & Electric Co	Santa Clara	IC	LFG	1,450	282
Riverside County Waste Management Department	Badlands Landfill Gas to Energy Facility		LFG	2,400	285
Sacramento Municipal Util Dist	Kiefer LF	IC	LFG	3,050	288
Sacramento Municipal Util Dist	Kiefer LF	IC	LFG	3,050	291
Sacramento Municipal Util Dist	Kiefer LF	IC	LFG	3,050	294
San Diego Gas & Electric Co	Miramar Landfill MBC	IC	LFG	1,630	296
San Diego Gas & Electric Co	Miramar Landfill MBC	IC	LFG	1,630	297
San Diego Gas & Electric Co	Miramar Landfill MBC	IC	LFG	1,630	299
San Diego Gas & Electric Co	Miramar Landfill MBC	IC	LFG	1,630	301
San Diego Gas & Electric Co	North City Cogeneration Facility	IC	LFG	950	301
San Diego Gas & Electric Co	North City Cogeneration Facility	IC	LFG	950	302
San Diego Gas & Electric Co	North City Cogeneration Facility	IC	LFG	950	303
San Diego Gas & Electric Co	North City Cogeneration Facility	IC	LFG	950	304
San Diego Gas & Electric Co	Otay	IC	LFG	1,875	306
San Diego Gas & Electric Co	Otay	IC	LFG	1,875	308
San Diego Gas & Electric Co	Prima Desheha Landfill	IC	LFG	3,050	311
San Diego Gas & Electric Co	Prima Desheha Landfill	IC	LFG	3,050	314
Southern California Edison Co	BKK Landfill	ST	LFG	6,500	321

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Southern California Edison Co	Coyote Canyon Steam Plant	ST	LFG	20,000	341
Southern California Edison Co	Lopez Canyon Landfill	IC	LFG	3,050	344
Southern California Edison Co	Lopez Canyon Landfill	IC	LFG	3,050	347
Southern California Edison Co	Olinda Generating Plant	IC	LFG	1,875	349
Southern California Edison Co	Olinda Generating Plant	IC	LFG	1,875	351
Southern California Edison Co	Olinda Generating Plant	IC	LFG	1,875	352
Southern California Edison Co	Oxnard	IC	LFG	1,875	354
Southern California Edison Co	Oxnard	IC	LFG	1,875	356
Southern California Edison Co	Oxnard	IC	LFG	1,875	358
Southern California Edison Co	Palos Verdes Gas to Energy Facility	ST	LFG	13,000	371
Southern California Edison Co	Penrose	IC	LFG	1,875	373
Southern California Edison Co	Penrose	IC	LFG	1,875	375
Southern California Edison Co	Penrose	IC	LFG	1,875	377
Southern California Edison Co	Penrose	IC	LFG	1,875	379
Southern California Edison Co	Penrose	IC	LFG	1,875	380
Southern California Edison Co	Puente Hills Energy Recovery	ST	LFG	50,000	430
Southern California Edison Co	Spadra Landfill Gas to Energy	ST	LFG	10,500	441
Southern California Edison Co	Tajiguas Landfill	IC	LFG	3,050	444
Southern California Edison Co	Toyon	IC	LFG	1,875	446
Southern California Edison Co	Toyon	IC	LFG	1,875	448
Southern California Edison Co	Toyon	IC	LFG	1,875	450
Southern California Edison Co	Toyon	IC	LFG	1,875	451
Southern California Edison Co	Tulare City Landfill	IC	LFG	815	452
Southern California Edison Co	Tulare City Landfill	IC	LFG	815	453
Pacific Gas & Electric Co	Altamont Midway Ltd	WT	WND	10,920	464
Pacific Gas & Electric Co	Altamont Pass Windplant	WT	WND	332,500	797
Pacific Gas & Electric Co	Altamont Power LLC	WT	WND	28,700	825
Pacific Gas & Electric Co	Altech	WT	WND	5,760	831
Pacific Gas & Electric Co	Difwind Farms Ltd VII	WT	WND	24,000	855
Pacific Gas & Electric Co	Dinosaur Point	WT	WND	17,435	872
Pacific Gas & Electric Co	ESI Project	WT	WND	1,296	874
Pacific Gas & Electric Co	Kerman PV	PV	SUN	500	874
Pacific Gas & Electric Co	Montezuma Hills Windplant	WT	WND	60,000	934
Pacific Gas & Electric Co	Northwind Energy Inc	WT	WND	13,080	947
Pacific Gas & Electric Co	San Gorgonio Windplant	WT	WND	7,400	955
Pacific Gas & Electric Co	Santa Clara	WT	WND	18,000	973
PG&E Trading	Mountain View I	WT	WND	44,400	1,017
Sacramento Municipal Util Dist	Hedge PV	PV	SUN	200	1,017
Sacramento Municipal Util Dist	Solano Wind	WT	WND	6,800	1,024
Sacramento Municipal Util Dist	Solar	PV	SUN	1,000	1,025
Sacramento Municipal Util Dist	Solar	PV	SUN	1,000	1,026
Seawest Wind	Mountain View II	WT	WND	22,200	1,048
Southern California Edison Co	251 Project	WT	WND	19,405	1,068
Southern California Edison Co	33 East 85-A	WT	WND	14,920	1,083
Southern California Edison Co	33 East 85-B	WT	WND	21,600	1,104
Southern California Edison Co	A B Energy Inc	WT	WND	6,975	1,111
Southern California Edison Co	Altech III	WT	WND	9,800	1,121
Southern California Edison Co	Altech III	WT	WND	21,708	1,143
Southern California Edison Co	Altech III	WT	WND	3,445	1,146

Utility	Plant Name	Unit		Name-plate	Cumulative MW
		Type	Fuel		
Southern California Edison Co	Cabazon Wind Farm	WT	WND	39,750	1,186
Southern California Edison Co	Cameron Ridge	WT	WND	57,000	1,243
Southern California Edison Co	Coram Energy Group Ltd	WT	WND	1,880	1,245
Southern California Edison Co	CTV Power Purchase Contract Trust	WT	WND	4,360	1,249
Southern California Edison Co	Difwind Farms Ltd I	WT	WND	7,344	1,256
Southern California Edison Co	Difwind Farms Ltd II	WT	WND	5,559	1,262
Southern California Edison Co	Difwind Farms Ltd IV	WT	WND	9,240	1,271
Southern California Edison Co	Difwind Farms Ltd V	WT	WND	11,772	1,283
Southern California Edison Co	Difwind Farms Ltd VI	WT	WND	27,108	1,310
Southern California Edison Co	Difwind Farms Ltd VIII	WT	WND	15,000	1,325
Southern California Edison Co	East Winds Project	WT	WND	4,200	1,329
Southern California Edison Co	Edom Hill	WT	WND	11,015	1,340
Southern California Edison Co	Energy Conversion Technology	WT	WND	1,080	1,341
Southern California Edison Co	Energy Conversion Technology II	WT	WND	4,000	1,345
Southern California Edison Co	EUIPH Wind Farm	WT	WND	25,453	1,371
Southern California Edison Co	Green Power I	WT	WND	16,500	1,387
Southern California Edison Co	Helzel and Schwarzhoff	WT	WND	1,800	1,389
Southern California Edison Co	K-Site	WT	WND	6,380	1,396
Southern California Edison Co	Mesa Wind Developers (ZPI)	WT	WND	19,500	1,415
Southern California Edison Co	Mesa Wind Developers (ZPII)	WT	WND	10,400	1,425
Southern California Edison Co	Mojave 16	WT	WND	30,000	1,455
Southern California Edison Co	Mojave 17	WT	WND	25,000	1,480
Southern California Edison Co	Mojave 18	WT	WND	30,000	1,510
Southern California Edison Co	Mojave 3/5 - EDS	WT	WND	23,500	1,534
Southern California Edison Co	Mojave 3/5 - ESI	WT	WND	22,500	1,556
Southern California Edison Co	Mojave 4	WT	WND	29,000	1,585
Southern California Edison Co	Oak Creek Energy Systems Inc	WT	WND	23,100	1,609
Southern California Edison Co	Oak Creek Energy Systems Inc	WT	WND	4,200	1,613
Southern California Edison Co	Oak Creek Energy Systems Inc	WT	WND	7,200	1,620
Southern California Edison Co	Painted Hills Wind Developers	WT	WND	19,190	1,639
Southern California Edison Co	Ridgetop Energy LLC	WT	WND	60,428	1,700
Southern California Edison Co	Ridgetop Energy LLC II	WT	WND	13,000	1,713
Southern California Edison Co	San Gorgonio Farms Wind Energy Power Plant	WT	WND	33,735	1,746
Southern California Edison Co	San Gorgonio Westwinds II LLC	WT	WND	43,400	1,790
Southern California Edison Co	San Gorgonio Windplant WPP93	WT	WND	34,500	1,824
Southern California Edison Co	SEGS I	ST	SUN	13,800	1,838
Southern California Edison Co	SEGS II	ST	SUN	30,000	1,868
Southern California Edison Co	SEGS III	ST	SUN	30,000	1,898
Southern California Edison Co	SEGS IV	ST	SUN	30,000	1,928
Southern California Edison Co	SEGS IX	ST	SUN	108,235	2,036
Southern California Edison Co	SEGS V	ST	SUN	30,000	2,066
Southern California Edison Co	SEGS VI	ST	SUN	30,000	2,096
Southern California Edison Co	SEGS VII	ST	SUN	30,000	2,126
Southern California Edison Co	SEGS VIII	ST	SUN	108,235	2,235
Southern California Edison Co	Sky River Partnership	WT	WND	76,950	2,311
Southern California Edison Co	Swanmill Windfarm I	WT	WND	9,600	2,321
Southern California Edison Co	Tehachapi Wind Resource I	WT	WND	8,700	2,330
Southern California Edison Co	Tehachapi Wind Resource II	WT	WND	14,105	2,344
Southern California Edison Co	TPC Windfarms LLC	WT	WND	28,760	2,373

Utility	Plant Name	Unit		Name-plate	Cumulative MW
		Type	Fuel		
Southern California Edison Co	Victory Garden	WT	WND	28,620	2,401
Southern California Edison Co	Victory Garden Phase IV	WT	WND	22,050	2,423
Southern California Edison Co	Westwind Trust	WT	WND	16,039	2,439
Southern California Edison Co	Windland Inc	WT	WND	16,000	2,455
Southern California Edison Co	Wintec Energy Ltd	WT	WND	16,200	2,472
Burbank City of	Magnolia	CA	WH	10,000	2,482
Glendale City of	Grayson	CA	WH	20,000	2,502
Glendale City of	Grayson	CA	WH	20,000	2,522
Imperial Irrigation District	El Centro	CA	WH	34,500	2,552
Los Angeles City of	Air Products & Chemicals Inc - Wilmington CA	ST	WH	31,900	2,584
Los Angeles City of	Civic Center	CA	WH	12,400	2,597
Los Angeles City of	Harbor	CA	WH	86,250	2,683
Los Angeles City of	Linde Wilmington	CA	WH	6,000	2,689
Los Angeles City of	Los Angeles Refinery Wilmington Plant	GT	WH	58,500	2,747
Los Angeles City of	Los Angeles Refinery Wilmington Plant	OT	WH	10,000	2,757
Los Angeles City of	Olive View Medical Center	CA	WH	2,890	2,760
Los Angeles City of	UCLA South Campus Central Chiller Cogen Project	CA	WH	14,000	2,774
Madera Power LLC	Madera Power	ST	MSW	26,000	2,800
Pacific Gas & Electric Co	Agnews Cogeneration Project	CA	WH	7,600	2,808
Pacific Gas & Electric Co	Calpine Gilroy Cogen LP	CA	WH	40,000	2,848
Pacific Gas & Electric Co	Cardinal Cogen	CA	WH	10,730	2,858
Pacific Gas & Electric Co	DAI Oil Dale	CA	WH	8,396	2,867
Pacific Gas & Electric Co	Foster Wheeler Martinez Inc	CA	WH	33,500	2,900
Pacific Gas & Electric Co	Greenleaf Unit One	CA	WH	20,000	2,920
Pacific Gas & Electric Co	Humboldt Pulp Mill	ST	WH	27,900	2,948
Pacific Gas & Electric Co	Jefferson Smurfit Corp	CA	WH	4,900	2,953
Pacific Gas & Electric Co	King City Power Plant	CA	WH	42,400	2,995
Pacific Gas & Electric Co	Kingsburg Cogeneration	CA	WH	13,100	3,008
Pacific Gas & Electric Co	Martinez Refining Co A Div of Equilon Enterprises LLC	CA	WH	20,000	3,028
Pacific Gas & Electric Co	Martinez Regen Sulfuric Acid Plant	ST	SU	4,000	3,032
Pacific Gas & Electric Co	PE Berkeley Inc	CA	WH	5,500	3,038
Pacific Gas & Electric Co	Pulp Mill Power House	ST	BL	20,000	3,058
Pacific Gas & Electric Co	Stanislaus Resource Recovery Facility	ST	MSW	24,000	3,082
Pacific Gas & Electric Co	United Cogen Inc	CA	WH	8,000	3,090
Pacific Gas & Electric Co	Watsonville Cogeneration Project	CA	WH	8,000	3,098
Pasadena City of	California Institute of Technology	CA	WH	1,000	3,099
Sacramento Municipal Util Dist	Carson Ice CG	CA	WH	17,510	3,116
Sacramento Municipal Util Dist	SCA	CA	WH	49,860	3,153
Sacramento Municipal Util Dist	SPA	CA	WH	55,250	3,206
San Diego Gas & Electric Co	Encina	CA	WH	110,250	3,316
San Diego Gas & Electric Co	Encina	CA	WH	110,250	3,427
San Diego Gas & Electric Co	Encina	CA	WH	345,600	3,772
San Diego Gas & Electric Co	Encina	CA	WH	306,000	4,078
San Diego Gas & Electric Co	Encina	CA	WH	110,250	4,189
San Diego Gas & Electric Co	Goal Line LP	CA	WH	10,200	4,199
San Diego Gas & Electric Co	Naval Station Energy Facility	CA	WH	11,600	4,210
San Diego Gas & Electric Co	North Island Energy Facility	CA	WH	4,050	4,214
San Diego Gas & Electric Co	NTC MCRD Energy Facility	CA	WH	2,600	4,217
Southern California Edison Co	AES Huntington Beach LLC	ST	WH	215,000	4,432

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Southern California Edison Co	AES Huntington Beach LLC	ST	WH	215,000	4,647
Southern California Edison Co	AES Placerita Inc	CA	WH	30,000	4,677
Southern California Edison Co	BP	OT	WH	12,000	4,747
Southern California Edison Co	Carson Cogeneration Co	CA	WH	10,500	4,757
Southern California Edison Co	Commerce Refuse To Energy	ST	MSW	12,000	4,769
Southern California Edison Co	Coolwater Generating Station	ST	WH	81,600	4,851
Southern California Edison Co	Coolwater Generating Station	CA	WH	119,999	4,971
Southern California Edison Co	Coolwater Generating Station	CA	WH	119,999	5,091
Southern California Edison Co	Coolwater Generating Station	ST	WH	65,280	5,156
Southern California Edison Co	El Segundo Refinery	CA	WH	1,500	5,158
Southern California Edison Co	El Segundo Refinery	CA	WH	9,120	5,167
Southern California Edison Co	El Segundo Refinery	CA	WH	1,200	5,168
Southern California Edison Co	Etiwanda Generating Station	ST	WH	122,500	5,290
Southern California Edison Co	Etiwanda Generating Station	ST	WH	333,000	5,623
Southern California Edison Co	Etiwanda Generating Station	ST	WH	122,500	5,746
Southern California Edison Co	Etiwanda Generating Station	ST	WH	333,000	6,079
Southern California Edison Co	Federal Plant	CA	WH	7,000	6,086
Southern California Edison Co	Growers Plant	CA	WH	7,000	6,093
Southern California Edison Co	Loma Linda University Cogeneration	CA	WH	1,250	6,094
Southern California Edison Co	Mandalay Generating Station	ST	WH	217,600	6,312
Southern California Edison Co	Mandalay Generating Station	ST	WH	217,600	6,529
Southern California Edison Co	Mojave Cogeneration Co	CA	WH	16,000	6,545
Southern California Edison Co	Mountainview Power Co LLC	ST	WH	60,000	6,605
Southern California Edison Co	Mountainview Power Co LLC	ST	WH	60,000	6,665
Southern California Edison Co	NP Cogen Inc	CA	WH	7,014	6,672
Southern California Edison Co	OLS Energy Camarillo	CA	WH	7,600	6,680
Southern California Edison Co	OLS Energy Chino	CA	WH	7,000	6,687
Southern California Edison Co	Ormond Beach Generating Station	ST	WH	750,000	7,437
Southern California Edison Co	Ormond Beach Generating Station	ST	WH	750,000	8,187
Southern California Edison Co	Pitchess Cogeneration Station	CA	WH	7,450	8,194
Southern California Edison Co	Plant No 2	ST	WH	1,000	8,195
Southern California Edison Co	Rhodia Dominguez Plant	ST	SU	5,000	8,200
Southern California Edison Co	Santa Ynez Facility	CA	WH	9,800	8,210
Southern California Edison Co	Southeast Resource Recovery	ST	MSW	35,600	8,246
Southern California Edison Co	Torrance Refinery	OT	WH	7,230	8,253
Southern California Edison Co	Torrance Refinery	CA	WH	193,000	8,446
Southern California Edison Co	Total Energy Facilities	CA	WH	5,500	8,452
Southern California Edison Co	Watson Cogeneration Co	ST	WH	82,000	8,534
Southern California Edison Co	Watson Cogeneration Co	ST	WH	35,000	8,569
Southern California Edison Co	Wheelabrator Norwalk Energy Co Inc	CA	WH	7,750	8,576
Yanke Energy	Soledad Energy	ST	MSW	13,000	8,589
California Dept-Wtr Resources	Alamo	HY	WAT	19,665	8,606
California Dept-Wtr Resources	Devil Canyon	HY	WAT	59,850	8,666
California Dept-Wtr Resources	Devil Canyon	HY	WAT	78,375	8,746
California Dept-Wtr Resources	Devil Canyon	HY	WAT	59,850	8,806
California Dept-Wtr Resources	Devil Canyon	HY	WAT	78,375	8,886
California Dept-Wtr Resources	Edward C Hyatt	HY	WAT	117,000	9,022
California Dept-Wtr Resources	Edward C Hyatt	PS	WAT	97,750	9,148
California Dept-Wtr Resources	Edward C Hyatt	HY	WAT	117,000	9,283

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
California Dept-Wtr Resources	Edward C Hyatt	HY	WAT	117,000	9,419
California Dept-Wtr Resources	Edward C Hyatt	PS	WAT	97,750	9,545
California Dept-Wtr Resources	Edward C Hyatt	PS	WAT	97,750	9,671
California Dept-Wtr Resources	Mojave Siphon	HY	WAT	10,925	9,682
California Dept-Wtr Resources	Mojave Siphon	HY	WAT	10,925	9,693
California Dept-Wtr Resources	Mojave Siphon	HY	WAT	10,925	9,704
California Dept-Wtr Resources	Thermalito	PS	WAT	27,500	9,731
California Dept-Wtr Resources	Thermalito	PS	WAT	27,500	9,758
California Dept-Wtr Resources	Thermalito	HY	WAT	32,600	9,788
California Dept-Wtr Resources	Thermalito	PS	WAT	27,500	9,816
California Dept-Wtr Resources	Thermalito Div Dam	HY	WAT	3,416	9,819
California Dept-Wtr Resources	W E Warne	HY	WAT	37,145	9,857
California Dept-Wtr Resources	W E Warne	HY	WAT	37,145	9,895
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	9,945
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	9,995
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	10,045
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	10,095
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	10,145
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	10,195
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	10,246
California Dept-Wtr Resources	W R Gianelli	PS	WAT	53,000	10,296
East Bay Municipal Util Dist	Camanche	HY	WAT	3,600	10,299
East Bay Municipal Util Dist	Camanche	HY	WAT	3,600	10,303
East Bay Municipal Util Dist	Camanche	HY	WAT	3,600	10,306
East Bay Municipal Util Dist	Pardee	HY	WAT	8,600	10,316
East Bay Municipal Util Dist	Pardee	HY	WAT	7,500	10,326
East Bay Municipal Util Dist	Pardee	HY	WAT	7,500	10,335
El Dorado Irrigation District	El Dorado	HY	WAT	10,000	10,345
El Dorado Irrigation District	El Dorado	HY	WAT	10,000	10,352
Escondido City of	Bear Valley	HY	WAT	753	10,353
Escondido City of	Bear Valley	HY	WAT	753	10,353
Escondido City of	Rincon Power	HY	WAT	150	10,353
Escondido City of	Rincon Power	HY	WAT	150	10,354
Imperial Irrigation District	A W Hoch	ST	GEO	35,802	10,389
Imperial Irrigation District	Double Weir	HY	WAT	280	10,390
Imperial Irrigation District	Double Weir	HY	WAT	280	10,390
Imperial Irrigation District	Drop 1	HY	WAT	1,950	10,392
Imperial Irrigation District	Drop 1	HY	WAT	1,950	10,394
Imperial Irrigation District	Drop 1	HY	WAT	1,950	10,395
Imperial Irrigation District	Drop 2	HY	WAT	5,000	10,400
Imperial Irrigation District	Drop 2	HY	WAT	5,000	10,406
Imperial Irrigation District	Drop 3	HY	WAT	4,800	10,411
Imperial Irrigation District	Drop 3	HY	WAT	5,000	10,416
Imperial Irrigation District	Drop 4	HY	WAT	10,000	10,426
Imperial Irrigation District	Drop 4	HY	WAT	9,600	10,436
Imperial Irrigation District	Drop 5	HY	WAT	2,000	10,438
Imperial Irrigation District	Drop 5	HY	WAT	2,000	10,439
Imperial Irrigation District	East Highline	HY	WAT	2,415	10,441
Imperial Irrigation District	GEM III	ST	GEO	20,000	10,460

Utility	Plant Name	Unit		Name-plate	Cumulative MW
		Type	Fuel		
Imperial Irrigation District	Heber Geothermal Co	ST	GEO	52,000	10,512
Imperial Irrigation District	J J Elmore	ST	GEO	35,802	10,548
Imperial Irrigation District	J M Leathers	ST	GEO	35,802	10,583
Imperial Irrigation District	Pilot Knob	HY	WAT	16,500	10,586
Imperial Irrigation District	Pilot Knob	HY	WAT	16,500	10,590
Imperial Irrigation District	Salton Sea Unit 1	ST	GEO	10,000	10,600
Imperial Irrigation District	Salton Sea Unit 3	ST	GEO	53,970	10,654
Imperial Irrigation District	Salton Sea Unit 4	ST	GEO	51,000	10,705
Imperial Irrigation District	Turnip	HY	WAT	420	10,706
Imperial Irrigation District	Vulcan	ST	GEO	30,160	10,736
Imperial Irrigation District	Vulcan	ST	GEO	9,560	10,745
Kings River Conservation Dist	Pine Flat	HY	WAT	55,000	10,800
Kings River Conservation Dist	Pine Flat	HY	WAT	55,000	10,855
Kings River Conservation Dist	Pine Flat	HY	WAT	55,000	10,910
Los Angeles City of	Big Pine	HY	WAT	3,200	10,913
Los Angeles City of	Castaic	PS	WAT	212,500	11,153
Los Angeles City of	Castaic	PS	WAT	212,500	11,393
Los Angeles City of	Castaic	PS	WAT	212,500	11,633
Los Angeles City of	Castaic	PS	WAT	212,500	11,873
Los Angeles City of	Castaic	HY	WAT	56,000	11,928
Los Angeles City of	Castaic	PS	WAT	212,500	12,168
Los Angeles City of	Castaic	PS	WAT	212,500	12,408
Los Angeles City of	Control Gorge	HY	WAT	37,500	12,446
Los Angeles City of	Cottonwood	HY	WAT	1,200	12,448
Los Angeles City of	Cottonwood	HY	WAT	1,200	12,449
Los Angeles City of	Division Creek	HY	WAT	600	12,450
Los Angeles City of	Foothill	HY	WAT	11,000	12,460
Los Angeles City of	Franklin	HY	WAT	2,000	12,462
Los Angeles City of	Haiwee	HY	WAT	2,800	12,465
Los Angeles City of	Haiwee	HY	WAT	2,800	12,468
Los Angeles City of	Middle Gorge	HY	WAT	37,500	12,506
Los Angeles City of	Pleasant Valley	HY	WAT	3,200	12,509
Los Angeles City of	San Fernando	HY	WAT	2,800	12,512
Los Angeles City of	San Fernando	HY	WAT	2,800	12,515
Los Angeles City of	San Francisquito 1	HY	WAT	9,375	12,526
Los Angeles City of	San Francisquito 1	HY	WAT	25,000	12,552
Los Angeles City of	San Francisquito 1	HY	WAT	25,000	12,578
Los Angeles City of	San Francisquito 1	HY	WAT	10,000	12,591
Los Angeles City of	San Francisquito 2	HY	WAT	14,000	12,609
Los Angeles City of	San Francisquito 2	HY	WAT	14,000	12,623
Los Angeles City of	San Francisquito 2	HY	WAT	14,000	12,638
Los Angeles City of	Sawtelle	HY	WAT	640	12,639
Los Angeles City of	Upper Gorge	HY	WAT	37,500	12,675
Merced Irrigation District	Exchequer	HY	WAT	94,500	12,769
Merced Irrigation District	McSwain	HY	WAT	9,000	12,778
Merced Irrigation District	Papazian (Fairfield)	HY	WAT	900	12,779
Merced Irrigation District	Parker	HY	WAT	2,700	12,782
Merced Irrigation District	Reta (Canal Creek)	HY	WAT	900	12,783
Metropolitan Water District	Corona	HY	WAT	2,850	12,786

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Metropolitan Water District	Coyote Creek	HY	WAT	3,125	12,789
Metropolitan Water District	Etiwanda	HY	WAT	23,900	12,813
Metropolitan Water District	Foothill Feeder	HY	WAT	4,516	12,817
Metropolitan Water District	Foothill Feeder	HY	WAT	4,516	12,826
Metropolitan Water District	Greg Avenue	HY	WAT	1,000	12,827
Metropolitan Water District	Lake Mathews	HY	WAT	4,900	12,832
Metropolitan Water District	Perris	HY	WAT	7,940	12,840
Metropolitan Water District	Red Mountain	HY	WAT	5,900	12,846
Metropolitan Water District	Rio Hondo	HY	WAT	1,910	12,848
Metropolitan Water District	San Dimas	HY	WAT	9,924	12,858
Metropolitan Water District	Sepulveda Canyon	HY	WAT	8,540	12,867
Metropolitan Water District	Temescal	HY	WAT	2,850	12,870
Metropolitan Water District	Valley View	HY	WAT	4,100	12,874
Metropolitan Water District	Venice	HY	WAT	10,120	12,884
Metropolitan Water District	Yorba Linda	HY	WAT	5,089	12,889
Modesto Irrigation District	Stone Drop	HY	WAT	600	12,889
NCPA	COLLIERVILLE PLANT (AGGREGATE)	HY	WAT	252,500	13,142
NCPA	GEOTHERMAL PLANT 1 (AGGREGATE)	ST	GEO	77,000	13,219
NCPA	Graegle Hydro	HY	WAT	400	13,219
Nevada Irrigation District	Chicago Park	HY	WAT	44,000	13,263
Nevada Irrigation District	Combie North	HY	WAT	300	13,264
Nevada Irrigation District	Combie South	HY	WAT	500	13,264
Nevada Irrigation District	Combie South	HY	WAT	500	13,265
Nevada Irrigation District	Combie South	HY	WAT	500	13,265
Nevada Irrigation District	Dutch Flat 2	HY	WAT	27,300	13,292
Nevada Irrigation District	Rollins	HY	WAT	12,100	13,305
Nevada Irrigation District	Scott Flat	HY	WAT	1,000	13,306
Northern California Power Agny	Geothermal 1	ST	GEO	55,000	13,365
Northern California Power Agny	Geothermal 1	ST	GEO	55,000	13,424
Northern California Power Agny	Geothermal 2	ST	GEO	55,000	13,484
Northern California Power Agny	Geothermal 2	ST	GEO	55,000	13,544
Northern California Power Agny	Hydro Proj No 1	HY	WAT	500	13,544
Northern California Power Agny	Hydro Proj No 1	HY	WAT	2,700	13,547
Northern California Power Agny	Hydro Proj No 1	HY	WAT	2,700	13,549
Northern California Power Agny	Hydro Proj No 1	HY	WAT	121,500	13,671
Northern California Power Agny	Hydro Proj No 1	HY	WAT	121,500	13,792
Northern California Power Agny	Hydro Proj No 1	HY	WAT	200	13,793
Oakdale & South San Joaquin	Beardsley	HY	WAT	10,000	13,804
Oakdale & South San Joaquin	Donnells	HY	WAT	54,000	13,876
Oakdale & South San Joaquin	Tulloch	HY	WAT	8,550	13,885
Oakdale & South San Joaquin	Tulloch	HY	WAT	8,550	13,894
Oroville-Wyandotte Irrig Dist	Forbestown	HY	WAT	29,000	13,921
Oroville-Wyandotte Irrig Dist	Kelly Ridge	HY	WAT	10,000	13,930
Oroville-Wyandotte Irrig Dist	Sly Creek	HY	WAT	12,100	13,939
Oroville-Wyandotte Irrig Dist	Woodleaf	HY	WAT	52,000	13,988
Pacific Gas & Electric Co	A G Wishon	HY	WAT	3,200	13,991
Pacific Gas & Electric Co	A G Wishon	HY	WAT	3,200	14,011
Pacific Gas & Electric Co	A G Wishon	HY	WAT	3,200	14,014
Pacific Gas & Electric Co	A G Wishon	HY	WAT	3,200	14,017

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Aidlin Geothermal Power Plant	ST	GEO	12,500	14,030
Pacific Gas & Electric Co	Aidlin Geothermal Power Plant	ST	GEO	12,500	14,042
Pacific Gas & Electric Co	Alta	HY	WAT	1,000	14,043
Pacific Gas & Electric Co	Alta	HY	WAT	1,000	14,044
Pacific Gas & Electric Co	Balch 1	HY	WAT	31,000	14,078
Pacific Gas & Electric Co	Balch 2	HY	WAT	48,600	14,127
Pacific Gas & Electric Co	Balch 2	HY	WAT	48,600	14,232
Pacific Gas & Electric Co	Bear Canyon Power Plant	ST	GEO	12,222	14,244
Pacific Gas & Electric Co	Bear Canyon Power Plant	ST	GEO	12,222	14,255
Pacific Gas & Electric Co	Bear Creek	HY	WAT	3,200	14,258
Pacific Gas & Electric Co	Belden	HY	WAT	117,900	14,383
Pacific Gas & Electric Co	Bidwell Ditch Project	HY	WAT	1,845	14,385
Pacific Gas & Electric Co	Big Creek Water Works	HY	WAT	5,000	14,390
Pacific Gas & Electric Co	Bowman	HY	WAT	3,600	14,394
Pacific Gas & Electric Co	Bucks Creek	HY	WAT	33,000	14,459
Pacific Gas & Electric Co	Bucks Creek	HY	WAT	33,000	14,492
Pacific Gas & Electric Co	Burney Creek	HY	WAT	3,000	14,495
Pacific Gas & Electric Co	Butt Valley	HY	WAT	40,000	14,536
Pacific Gas & Electric Co	Calistoga Power Plant	ST	GEO	88,200	14,621
Pacific Gas & Electric Co	Calistoga Power Plant	ST	GEO	88,200	14,705
Pacific Gas & Electric Co	Calpine Geysers-Sonoma Power Plant	ST	GEO	78,000	14,780
Pacific Gas & Electric Co	Caribou 1	HY	WAT	25,000	14,805
Pacific Gas & Electric Co	Caribou 1	HY	WAT	25,000	14,830
Pacific Gas & Electric Co	Caribou 1	HY	WAT	23,850	14,905
Pacific Gas & Electric Co	Caribou 2	HY	WAT	60,300	15,025
Pacific Gas & Electric Co	Caribou 2	HY	WAT	57,600	15,083
Pacific Gas & Electric Co	Centerville	HY	WAT	900	15,084
Pacific Gas & Electric Co	Centerville	HY	WAT	5,500	15,090
Pacific Gas & Electric Co	Chili Bar	HY	WAT	7,020	15,097
Pacific Gas & Electric Co	Clear Lake Hydro Project	HY	WAT	2,500	15,100
Pacific Gas & Electric Co	Coal Canyon	HY	WAT	1,000	15,101
Pacific Gas & Electric Co	Coleman	HY	WAT	12,150	15,114
Pacific Gas & Electric Co	Collieville	HY	WAT	126,500	15,240
Pacific Gas & Electric Co	Collieville	HY	WAT	126,500	15,367
Pacific Gas & Electric Co	Cove Hydroelectric	HY	WAT	5,000	15,372
Pacific Gas & Electric Co	Cow Creek	HY	WAT	720	15,373
Pacific Gas & Electric Co	Cow Creek	HY	WAT	720	15,374
Pacific Gas & Electric Co	Crane Valley	HY	WAT	990	15,375
Pacific Gas & Electric Co	Cresta	HY	WAT	36,900	15,412
Pacific Gas & Electric Co	Cresta	HY	WAT	36,900	15,482
Pacific Gas & Electric Co	De Sabla	HY	WAT	18,450	15,501
Pacific Gas & Electric Co	Deer Creek	HY	WAT	5,500	15,506
Pacific Gas & Electric Co	Drum 1	HY	WAT	13,200	15,520
Pacific Gas & Electric Co	Drum 1	HY	WAT	12,000	15,532
Pacific Gas & Electric Co	Drum 1	HY	WAT	12,000	15,586
Pacific Gas & Electric Co	Drum 1	HY	WAT	12,000	15,598
Pacific Gas & Electric Co	Drum 2	HY	WAT	53,100	15,647
Pacific Gas & Electric Co	Dutch Flat	HY	WAT	22,000	15,669
Pacific Gas & Electric Co	El Dorado Hydro Montgomery Creek Hydro	HY	WAT	2,600	15,672

Utility	Plant Name	Unit		Name-plate	Cumulative MW
		Type	Fuel		
Pacific Gas & Electric Co	Electra	HY	WAT	35,100	15,707
Pacific Gas & Electric Co	Electra	HY	WAT	32,300	15,805
Pacific Gas & Electric Co	Electra	HY	WAT	35,100	15,840
Pacific Gas & Electric Co	Forks of Butte Hydro Project	HY	WAT	13,300	15,853
Pacific Gas & Electric Co	Frankenheimer Power Plant	HY	WAT	5,300	15,858
Pacific Gas & Electric Co	Friant Hydro Facility	HY	WAT	15,000	15,873
Pacific Gas & Electric Co	Friant Hydro Facility	HY	WAT	2,000	15,875
Pacific Gas & Electric Co	Friant Hydro Facility	HY	WAT	8,000	15,883
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	111,000	15,994
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	118,000	16,108
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	118,000	16,221
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	110,000	16,331
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	110,000	16,444
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	110,000	16,554
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	113,000	16,667
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	118,000	16,781
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	138,000	16,914
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	118,000	17,027
Pacific Gas & Electric Co	Geysers Unit 5-20	ST	GEO	110,000	17,137
Pacific Gas & Electric Co	Gosselin Hydroelectric Plant	HY	WAT	1,000	17,138
Pacific Gas & Electric Co	Gosselin Hydroelectric Plant	HY	WAT	1,000	17,139
Pacific Gas & Electric Co	Haas	HY	WAT	67,500	17,283
Pacific Gas & Electric Co	Haas	HY	WAT	67,500	17,351
Pacific Gas & Electric Co	Halsey	HY	WAT	13,600	17,362
Pacific Gas & Electric Co	Hamilton Branch	HY	WAT	2,750	17,364
Pacific Gas & Electric Co	Hamilton Branch	HY	WAT	2,640	17,369
Pacific Gas & Electric Co	Hat Creek 1	HY	WAT	10,000	17,378
Pacific Gas & Electric Co	Hat Creek 2	HY	WAT	10,000	17,386
Pacific Gas & Electric Co	Hatchet Creek Project	HY	WAT	6,890	17,393
Pacific Gas & Electric Co	Haypress Hydroelectric Inc	HY	WAT	5,000	17,398
Pacific Gas & Electric Co	Haypress Hydroelectric Inc	HY	WAT	5,000	17,403
Pacific Gas & Electric Co	Helms Pumped Storage	PS	WAT	351,000	18,615
Pacific Gas & Electric Co	Helms Pumped Storage	PS	WAT	351,000	18,966
Pacific Gas & Electric Co	Helms Pumped Storage	PS	WAT	351,000	19,317
Pacific Gas & Electric Co	Indian Valley Dam Hydro Project	HY	WAT	1,460	19,318
Pacific Gas & Electric Co	Indian Valley Dam Hydro Project	HY	WAT	1,460	19,320
Pacific Gas & Electric Co	Indian Valley Dam Hydro Project	HY	WAT	86	19,320
Pacific Gas & Electric Co	Inskip	HY	WAT	7,650	19,328
Pacific Gas & Electric Co	James B Black	HY	WAT	85,140	19,500
Pacific Gas & Electric Co	James B Black	HY	WAT	83,520	19,583
Pacific Gas & Electric Co	Kanaka	HY	WAT	1,120	19,585
Pacific Gas & Electric Co	Kekawaka Power House	HY	WAT	4,950	19,590
Pacific Gas & Electric Co	Kerckhoff	HY	WAT	11,360	19,628
Pacific Gas & Electric Co	Kerckhoff	HY	WAT	11,360	19,639
Pacific Gas & Electric Co	Kerckhoff	HY	WAT	11,360	19,650
Pacific Gas & Electric Co	Kerckhoff 2	HY	WAT	139,500	19,805
Pacific Gas & Electric Co	Kern Canyon	HY	WAT	9,540	19,817
Pacific Gas & Electric Co	Kilarc	HY	WAT	1,500	19,818
Pacific Gas & Electric Co	Kilarc	HY	WAT	1,500	19,821

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Kings River	HY	WAT	48,600	19,873
Pacific Gas & Electric Co	Lime Saddle	HY	WAT	1,000	19,874
Pacific Gas & Electric Co	Lime Saddle	HY	WAT	1,000	19,875
Pacific Gas & Electric Co	Lost Creek I	HY	WAT	1,100	19,877
Pacific Gas & Electric Co	Merced Falls	HY	WAT	3,440	19,880
Pacific Gas & Electric Co	Muck Valley Hydroelectric	HY	WAT	29,900	19,910
Pacific Gas & Electric Co	Nacimiento Hydro Project	HY	WAT	375	19,910
Pacific Gas & Electric Co	Nacimiento Hydro Project	HY	WAT	3,976	19,914
Pacific Gas & Electric Co	Narrows	HY	WAT	10,200	19,926
Pacific Gas & Electric Co	Nelson Creek Power	HY	WAT	1,296	19,928
Pacific Gas & Electric Co	New Hogan Power Plant	HY	WAT	1,980	19,930
Pacific Gas & Electric Co	New Hogan Power Plant	HY	WAT	990	19,931
Pacific Gas & Electric Co	Newcastle	HY	WAT	12,700	19,942
Pacific Gas & Electric Co	Oak Flat	HY	WAT	1,400	19,943
Pacific Gas & Electric Co	Olsen	HY	WAT	5,000	19,948
Pacific Gas & Electric Co	Phoenix	HY	WAT	1,600	19,950
Pacific Gas & Electric Co	Pit 1	HY	WAT	34,650	19,985
Pacific Gas & Electric Co	Pit 1	HY	WAT	34,650	20,046
Pacific Gas & Electric Co	Pit 3	HY	WAT	26,730	20,073
Pacific Gas & Electric Co	Pit 3	HY	WAT	26,730	20,143
Pacific Gas & Electric Co	Pit 3	HY	WAT	26,730	20,170
Pacific Gas & Electric Co	Pit 4	HY	WAT	51,750	20,221
Pacific Gas & Electric Co	Pit 4	HY	WAT	51,750	20,316
Pacific Gas & Electric Co	Pit 5	HY	WAT	33,280	20,350
Pacific Gas & Electric Co	Pit 5	HY	WAT	38,280	20,388
Pacific Gas & Electric Co	Pit 5	HY	WAT	38,280	20,548
Pacific Gas & Electric Co	Pit 5	HY	WAT	32,000	20,580
Pacific Gas & Electric Co	Pit 6	HY	WAT	39,600	20,619
Pacific Gas & Electric Co	Pit 6	HY	WAT	39,600	20,699
Pacific Gas & Electric Co	Pit 7	HY	WAT	52,200	20,752
Pacific Gas & Electric Co	Pit 7	HY	WAT	57,600	20,864
Pacific Gas & Electric Co	Poe	HY	WAT	71,415	20,984
Pacific Gas & Electric Co	Poe	HY	WAT	71,415	21,055
Pacific Gas & Electric Co	Ponderosa Bailey Creek	HY	WAT	1,100	21,056
Pacific Gas & Electric Co	Potter Valley	HY	WAT	2,000	21,058
Pacific Gas & Electric Co	Potter Valley	HY	WAT	4,400	21,067
Pacific Gas & Electric Co	Potter Valley	HY	WAT	3,060	21,070
Pacific Gas & Electric Co	Rio Bravo Hydroelectric Project	HY	WAT	7,038	21,077
Pacific Gas & Electric Co	Rio Bravo Hydroelectric Project	HY	WAT	7,038	21,084
Pacific Gas & Electric Co	Roaring Creek Water Power	HY	WAT	2,000	21,086
Pacific Gas & Electric Co	Rock Creek	HY	WAT	62,370	21,149
Pacific Gas & Electric Co	Rock Creek	HY	WAT	62,370	21,261
Pacific Gas & Electric Co	Rock Creek LP	HY	WAT	1,500	21,262
Pacific Gas & Electric Co	Salt Springs	HY	WAT	29,700	21,292
Pacific Gas & Electric Co	Salt Springs	HY	WAT	12,325	21,336
Pacific Gas & Electric Co	San Joaquin 1A	HY	WAT	425	21,336
Pacific Gas & Electric Co	San Joaquin 2	HY	WAT	2,880	21,340
Pacific Gas & Electric Co	San Joaquin 3	HY	WAT	4,000	21,344
Pacific Gas & Electric Co	Sand Bar Power Plant	HY	WAT	16,200	21,360

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Site 980 65	HY	WAT	2,135	21,362
Pacific Gas & Electric Co	South	HY	WAT	6,750	21,369
Pacific Gas & Electric Co	Spaulding 1	HY	WAT	7,040	21,376
Pacific Gas & Electric Co	Spaulding 2	HY	WAT	3,700	21,381
Pacific Gas & Electric Co	Spaulding 3	HY	WAT	6,615	21,386
Pacific Gas & Electric Co	Spicer Meadow Project	HY	WAT	500	21,387
Pacific Gas & Electric Co	Spicer Meadow Project	HY	WAT	2,750	21,390
Pacific Gas & Electric Co	Spicer Meadow Project	HY	WAT	2,750	21,392
Pacific Gas & Electric Co	Spring Gap	HY	WAT	6,000	21,399
Pacific Gas & Electric Co	Stanislaus	HY	WAT	81,900	21,490
Pacific Gas & Electric Co	Three Forks Hydroelectric Project	HY	WAT	1,300	21,492
Pacific Gas & Electric Co	Tiger Creek	HY	WAT	26,775	21,518
Pacific Gas & Electric Co	Tiger Creek	HY	WAT	25,500	21,576
Pacific Gas & Electric Co	Toadtown	HY	WAT	1,800	21,578
Pacific Gas & Electric Co	Tule	HY	WAT	4,250	21,582
Pacific Gas & Electric Co	Tule	HY	WAT	4,250	21,589
Pacific Gas & Electric Co	Volta 1	HY	WAT	8,550	21,598
Pacific Gas & Electric Co	Volta 2	HY	WAT	956	21,598
Pacific Gas & Electric Co	Warm Springs Hydroelectric Project	HY	WAT	2,790	21,601
Pacific Gas & Electric Co	West Ford Flat Power Plant	ST	GEO	19,000	21,620
Pacific Gas & Electric Co	West Ford Flat Power Plant	ST	GEO	19,000	21,639
Pacific Gas & Electric Co	West Point	HY	WAT	13,600	21,654
Pacific Gas & Electric Co	Wise	HY	WAT	13,600	21,668
Pacific Gas & Electric Co	Wise	HY	WAT	2,875	21,671
Pacific Gas & Electric Co	Woodward Power Plant	HY	WAT	2,850	21,674
PacifiCorp	Box Canyon	HY	WAT	2,500	21,676
PacifiCorp	Box Canyon	HY	WAT	2,500	21,679
PacifiCorp	Copco 1	HY	WAT	10,000	21,691
PacifiCorp	Copco 1	HY	WAT	10,000	21,704
PacifiCorp	Copco 2	HY	WAT	13,500	21,718
PacifiCorp	Copco 2	HY	WAT	13,500	21,733
PacifiCorp	Fall Creek	HY	WAT	450	21,734
PacifiCorp	Fall Creek	HY	WAT	500	21,734
PacifiCorp	Fall Creek	HY	WAT	1,250	21,735
PacifiCorp	Iron Gate	HY	WAT	18,000	21,755
PacifiCorp	Slate Creek	HY	WAT	4,200	21,760
Pasadena City of	Azusa	HY	WAT	3,000	21,762
Placer County Water Agency	French Meadows	HY	WAT	15,300	21,779
Placer County Water Agency	Hell Hole	HY	WAT	725	21,779
Placer County Water Agency	Middle Fork	HY	WAT	54,900	21,845
Placer County Water Agency	Middle Fork	HY	WAT	61,200	21,911
Placer County Water Agency	Oxbow	HY	WAT	6,128	21,917
Placer County Water Agency	Ralston	HY	WAT	79,200	22,003
Redding City of	Whiskeytown	HY	WAT	3,240	22,005
Sacramento Municipal Util Dist	Camino	HY	WAT	77,000	22,080
Sacramento Municipal Util Dist	Camino	HY	WAT	77,000	22,155
Sacramento Municipal Util Dist	Camp Far West	HY	WAT	6,800	22,162
Sacramento Municipal Util Dist	Jaybird	HY	WAT	77,000	22,239
Sacramento Municipal Util Dist	Jaybird	HY	WAT	77,000	22,314

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Sacramento Municipal Util Dist	Jones Fork	HY	WAT	11,500	22,325
Sacramento Municipal Util Dist	Loon Lake	HY	WAT	82,000	22,407
Sacramento Municipal Util Dist	Robbs Peak	HY	WAT	29,500	22,432
Sacramento Municipal Util Dist	Slab Creek	HY	WAT	482	22,433
Sacramento Municipal Util Dist	Union Valley	HY	WAT	46,700	22,479
Sacramento Municipal Util Dist	White Rock	HY	WAT	115,000	22,591
Sacramento Municipal Util Dist	White Rock	HY	WAT	115,000	22,703
San Diego Gas & Electric Co	Alvarado Hydro Facility	HY	WAT	2,100	22,706
San Diego Gas & Electric Co	Badger Filtration Plant	HY	WAT	600	22,706
San Diego Gas & Electric Co	Badger Filtration Plant	HY	WAT	885	22,707
San Francisco City & County of	Dion R Holm	HY	WAT	82,500	22,785
San Francisco City & County of	Dion R Holm	HY	WAT	82,500	22,864
San Francisco City & County of	Moccasin	HY	WAT	50,000	22,916
San Francisco City & County of	Moccasin	HY	WAT	50,000	22,967
San Francisco City & County of	Moccasin LH	HY	WAT	2,900	22,970
San Francisco City & County of	R C Kirkwood	HY	WAT	40,600	23,015
San Francisco City & County of	R C Kirkwood	HY	WAT	38,813	23,053
San Francisco City & County of	R C Kirkwood	HY	WAT	38,813	23,092
Santa Clara City of	Black Butte	HY	WAT	6,190	23,098
Santa Clara City of	Grizzly	HY	WAT	22,000	23,122
Santa Clara City of	High Line	HY	WAT	530	23,122
Santa Clara City of	Stony Gorge	HY	WAT	2,500	23,125
Santa Clara City of	Stony Gorge	HY	WAT	2,500	23,127
Sierra Pacific Power Co	Farad	HY	WAT	1,400	23,129
Sierra Pacific Power Co	Farad	HY	WAT	1,400	23,130
Solano Irrigation District	Monticello	HY	WAT	5,000	23,142
Solano Irrigation District	Monticello	HY	WAT	1,500	23,143
Solano Irrigation District	Monticello	HY	WAT	5,000	23,148
Southern California Edison Co	Big Creek 1	HY	WAT	21,600	23,165
Southern California Edison Co	Big Creek 1	HY	WAT	19,800	23,183
Southern California Edison Co	Big Creek 1	HY	WAT	31,200	23,214
Southern California Edison Co	Big Creek 1	HY	WAT	15,750	23,231
Southern California Edison Co	Big Creek 2	HY	WAT	15,750	23,247
Southern California Edison Co	Big Creek 2	HY	WAT	17,500	23,266
Southern California Edison Co	Big Creek 2	HY	WAT	15,750	23,281
Southern California Edison Co	Big Creek 2	HY	WAT	17,500	23,298
Southern California Edison Co	Big Creek 2A	HY	WAT	55,000	23,347
Southern California Edison Co	Big Creek 2A	HY	WAT	55,000	23,397
Southern California Edison Co	Big Creek 3	HY	WAT	34,000	23,431
Southern California Edison Co	Big Creek 3	HY	WAT	36,000	23,472
Southern California Edison Co	Big Creek 3	HY	WAT	36,450	23,510
Southern California Edison Co	Big Creek 3	HY	WAT	34,000	23,544
Southern California Edison Co	Big Creek 3	HY	WAT	34,000	23,579
Southern California Edison Co	Big Creek 4	HY	WAT	50,000	23,629
Southern California Edison Co	Big Creek 4	HY	WAT	50,000	23,679
Southern California Edison Co	Big Creek 8	HY	WAT	45,000	23,718
Southern California Edison Co	Big Creek 8	HY	WAT	100	23,718
Southern California Edison Co	Big Creek 8	HY	WAT	30,000	23,743
Southern California Edison Co	Big Creek 8	HY	WAT	200	23,744

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Southern California Edison Co	Bishop Creek 2	HY	WAT	2,320	23,746
Southern California Edison Co	Bishop Creek 2	HY	WAT	2,500	23,749
Southern California Edison Co	Bishop Creek 2	HY	WAT	2,500	23,751
Southern California Edison Co	Bishop Creek 3	HY	WAT	2,340	23,754
Southern California Edison Co	Bishop Creek 3	HY	WAT	2,750	23,756
Southern California Edison Co	Bishop Creek 3	HY	WAT	2,750	23,759
Southern California Edison Co	Bishop Creek 4	HY	WAT	1,000	23,760
Southern California Edison Co	Bishop Creek 4	HY	WAT	1,000	23,761
Southern California Edison Co	Bishop Creek 4	HY	WAT	1,985	23,763
Southern California Edison Co	Bishop Creek 4	HY	WAT	1,985	23,765
Southern California Edison Co	Bishop Creek 4	HY	WAT	1,985	23,767
Southern California Edison Co	Bishop Creek 5	HY	WAT	2,000	23,769
Southern California Edison Co	Bishop Creek 5	HY	WAT	2,532	23,771
Southern California Edison Co	Bishop Creek 6	HY	WAT	1,600	23,773
Southern California Edison Co	Borel	HY	WAT	3,000	23,775
Southern California Edison Co	Borel	HY	WAT	6,000	23,782
Southern California Edison Co	Borel	HY	WAT	3,000	23,784
Southern California Edison Co	Coso Energy Developers	ST	GEO	30,000	23,813
Southern California Edison Co	Coso Energy Developers	ST	GEO	30,000	23,841
Southern California Edison Co	Coso Energy Developers	ST	GEO	30,000	23,870
Southern California Edison Co	Coso Finance Partners	ST	GEO	30,000	23,899
Southern California Edison Co	Coso Finance Partners	ST	GEO	32,200	23,930
Southern California Edison Co	Coso Finance Partners	ST	GEO	30,000	23,959
Southern California Edison Co	Coso Power Developers	ST	GEO	30,000	23,988
Southern California Edison Co	Coso Power Developers	ST	GEO	30,000	24,016
Southern California Edison Co	Coso Power Developers	ST	GEO	30,000	24,045
Southern California Edison Co	East Portal Generator	HY	WAT	1,250	24,046
Southern California Edison Co	Fontana	HY	WAT	1,475	24,047
Southern California Edison Co	Fontana	HY	WAT	1,475	24,048
Southern California Edison Co	J S Eastwood	PS	WAT	199,800	24,255
Southern California Edison Co	Kaweah 1	HY	WAT	2,250	24,258
Southern California Edison Co	Kaweah 2	HY	WAT	1,800	24,260
Southern California Edison Co	Kaweah 3	HY	WAT	2,400	24,262
Southern California Edison Co	Kaweah 3	HY	WAT	2,400	24,264
Southern California Edison Co	Kern River 1	HY	WAT	6,570	24,270
Southern California Edison Co	Kern River 1	HY	WAT	6,570	24,277
Southern California Edison Co	Kern River 1	HY	WAT	6,570	24,283
Southern California Edison Co	Kern River 1	HY	WAT	6,570	24,289
Southern California Edison Co	Kern River 3	HY	WAT	20,500	24,307
Southern California Edison Co	Kern River 3	HY	WAT	19,675	24,326
Southern California Edison Co	Lundy	HY	WAT	1,500	24,327
Southern California Edison Co	Lundy	HY	WAT	1,500	24,329
Southern California Edison Co	Lytle Creek	HY	WAT	250	24,329
Southern California Edison Co	Lytle Creek	HY	WAT	250	24,329
Southern California Edison Co	Mammoth Pacific I	ST	GEO	5,000	24,334
Southern California Edison Co	Mammoth Pacific I	ST	GEO	5,000	24,339
Southern California Edison Co	Mammoth Pacific II	ST	GEO	5,000	24,344
Southern California Edison Co	Mammoth Pacific II	ST	GEO	5,000	24,349
Southern California Edison Co	Mammoth Pacific II	ST	GEO	5,000	24,354

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Southern California Edison Co	Mammoth Pool	HY	WAT	95,000	24,448
Southern California Edison Co	Mammoth Pool	HY	WAT	95,000	24,541
Southern California Edison Co	Mill Creek 1	HY	WAT	800	24,542
Southern California Edison Co	Mill Creek 2	HY	WAT	250	24,543
Southern California Edison Co	Mill Creek 3	HY	WAT	1,000	24,544
Southern California Edison Co	Mill Creek 3	HY	WAT	1,000	24,544
Southern California Edison Co	Mill Creek 3	HY	WAT	1,000	24,545
Southern California Edison Co	Ontario 1	HY	WAT	200	24,546
Southern California Edison Co	Ontario 1	HY	WAT	200	24,546
Southern California Edison Co	Ontario 1	HY	WAT	200	24,546
Southern California Edison Co	Ontario 2	HY	WAT	320	24,547
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,548
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,549
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,550
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,551
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,553
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,554
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,555
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,556
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,557
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,559
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,560
Southern California Edison Co	Ormesa 1 E Facility	ST	GEO	1,200	24,561
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,562
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,563
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,565
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,566
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,567
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,568
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,569
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,571
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,572
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,573
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,574
Southern California Edison Co	Ormesa 1H	ST	GEO	1,200	24,575
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,577
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,578
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,579
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,580
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,581
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,583
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,584
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,585
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,586
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,587
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,589
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,590
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,591
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,592

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,593
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,595
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,596
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,597
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,598
Southern California Edison Co	Ormesa Geothermal II	ST	GEO	1,200	24,599
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,601
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,602
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,603
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,604
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,605
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,607
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,608
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,609
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,610
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,611
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,613
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,614
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,615
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,616
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,617
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,619
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,620
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,621
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,622
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,623
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,624
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,626
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,627
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,628
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,629
Southern California Edison Co	Ormesa I	ST	GEO	1,200	24,630
Southern California Edison Co	Ples I	ST	GEO	5,000	24,635
Southern California Edison Co	Ples I	ST	GEO	5,000	24,640
Southern California Edison Co	Ples I	ST	GEO	5,000	24,645
Southern California Edison Co	Poole	HY	WAT	11,250	24,656
Southern California Edison Co	Portal	HY	WAT	10,800	24,667
Southern California Edison Co	Rush Creek	HY	WAT	4,000	24,672
Southern California Edison Co	Rush Creek	HY	WAT	4,400	24,678
Southern California Edison Co	Salton Sea Unit 2	ST	GEO	5,000	24,683
Southern California Edison Co	Salton Sea Unit 2	ST	GEO	3,500	24,687
Southern California Edison Co	Salton Sea Unit 2	ST	GEO	11,500	24,698
Southern California Edison Co	San Dimas Wash Generating Station	HY	WAT	1,050	24,699
Southern California Edison Co	San Gabriel Hydroelectric Project	HY	WAT	1,075	24,701
Southern California Edison Co	San Geronio 1	HY	WAT	1,500	24,702
Southern California Edison Co	San Geronio 2	HY	WAT	938	24,703
Southern California Edison Co	Santa Ana 1	HY	WAT	800	24,704
Southern California Edison Co	Santa Ana 1	HY	WAT	800	24,705
Southern California Edison Co	Santa Ana 1	HY	WAT	800	24,706

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Southern California Edison Co	Santa Ana 1	HY	WAT	800	24,707
Southern California Edison Co	Santa Ana 3	HY	WAT	3,100	24,710
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	4,500	24,714
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	3,500	24,718
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	3,500	24,721
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	4,500	24,726
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	4,500	24,730
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	3,500	24,734
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	3,500	24,737
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	3,500	24,741
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	4,500	24,745
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	4,500	24,750
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	4,500	24,754
Southern California Edison Co	Second Imperial Geothermal Co SIGC Plant	ST	GEO	3,500	24,758
Southern California Edison Co	Sierra	HY	WAT	240	24,758
Southern California Edison Co	Sierra	HY	WAT	240	24,758
Southern California Edison Co	Success Power Project	HY	WAT	1,400	24,760
Southern California Edison Co	Terminus Hydroelectric Project	HY	WAT	17,000	24,777
Southern California Edison Co	Tule River	HY	WAT	1,260	24,778
Southern California Edison Co	Tule River	HY	WAT	1,260	24,779
Southern California Edison Co	Whitewater Hydroelectric Plant	HY	WAT	1,375	24,781
Turlock Irrigation District	Don Pedro	HY	WAT	45,505	24,836
Turlock Irrigation District	Don Pedro	HY	WAT	45,505	24,891
Turlock Irrigation District	Don Pedro	HY	WAT	34,380	24,929
Turlock Irrigation District	Don Pedro	HY	WAT	45,505	24,984
Turlock Irrigation District	Hickman	HY	WAT	550	24,984
Turlock Irrigation District	Hickman	HY	WAT	550	24,985
Turlock Irrigation District	La Grange	HY	WAT	3,375	24,989
Turlock Irrigation District	La Grange	HY	WAT	1,229	24,990
Turlock Irrigation District	Turlock Lake	HY	WAT	1,100	24,991
Turlock Irrigation District	Turlock Lake	HY	WAT	1,100	24,992
Turlock Irrigation District	Turlock Lake	HY	WAT	1,100	24,993
Turlock Irrigation District	Upper Dawson	HY	WAT	4,427	24,998
U S Bureau of Reclamation	Folsom	HY	WAT	66,240	25,070
U S Bureau of Reclamation	Folsom	HY	WAT	66,240	25,142
U S Bureau of Reclamation	Folsom	HY	WAT	66,240	25,213
U S Bureau of Reclamation	Judge F Carr	HY	WAT	77,200	25,302
U S Bureau of Reclamation	Judge F Carr	HY	WAT	77,200	25,391
U S Bureau of Reclamation	Keswick	HY	WAT	39,000	25,430
U S Bureau of Reclamation	Keswick	HY	WAT	39,000	25,469
U S Bureau of Reclamation	Keswick	HY	WAT	39,000	25,508
U S Bureau of Reclamation	Lewiston	HY	WAT	350	25,508
U S Bureau of Reclamation	New Melones	HY	WAT	150,000	25,699
U S Bureau of Reclamation	New Melones	HY	WAT	150,000	25,890
U S Bureau of Reclamation	Nimbus	HY	WAT	6,750	25,899
U S Bureau of Reclamation	Nimbus	HY	WAT	6,750	25,907
U S Bureau of Reclamation	O'Neill	PS	WAT	4,200	25,909
U S Bureau of Reclamation	O'Neill	PS	WAT	4,200	25,912
U S Bureau of Reclamation	O'Neill	PS	WAT	4,200	25,914

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
U S Bureau of Reclamation	O'Neill	PS	WAT	4,200	25,917
U S Bureau of Reclamation	O'Neill	PS	WAT	4,200	25,919
U S Bureau of Reclamation	O'Neill	PS	WAT	4,200	25,921
U S Bureau of Reclamation	Parker	HY	WAT	30,000	25,951
U S Bureau of Reclamation	Parker	HY	WAT	30,000	25,981
U S Bureau of Reclamation	Parker	HY	WAT	30,000	26,011
U S Bureau of Reclamation	Parker	HY	WAT	30,000	26,041
U S Bureau of Reclamation	Shasta	HY	WAT	2,000	26,044
U S Bureau of Reclamation	Shasta	HY	WAT	125,000	26,169
U S Bureau of Reclamation	Shasta	HY	WAT	125,000	26,294
U S Bureau of Reclamation	Shasta	HY	WAT	125,000	26,419
U S Bureau of Reclamation	Shasta	HY	WAT	125,000	26,548
U S Bureau of Reclamation	Shasta	HY	WAT	125,000	26,677
U S Bureau of Reclamation	Shasta	HY	WAT	2,000	26,680
U S Bureau of Reclamation	Spring Creek	HY	WAT	90,000	26,770
U S Bureau of Reclamation	Spring Creek	HY	WAT	90,000	26,860
U S Bureau of Reclamation	Stampede	HY	WAT	3,000	26,863
U S Bureau of Reclamation	Stampede	HY	WAT	650	26,863
U S Bureau of Reclamation	Trinity	HY	WAT	70,000	26,933
U S Bureau of Reclamation	Trinity	HY	WAT	70,000	27,003
Ukiah City of	Lake Mendocino	HY	WAT	1,000	27,004
Ukiah City of	Lake Mendocino	HY	WAT	2,500	27,007
Utica Power Authority	Angels	HY	WAT	1,400	27,008
Utica Power Authority	Murphys	HY	WAT	3,600	27,012
Yuba County Water Agency	Colgate	HY	WAT	157,500	27,181
Yuba County Water Agency	Colgate	HY	WAT	157,500	27,350
Yuba County Water Agency	Deadwood Creek	HY	WAT	2,000	27,352
Yuba County Water Agency	Fish Power	HY	WAT	150	27,352
Yuba County Water Agency	Narrows 2	HY	WAT	46,750	27,401
Pacific Gas & Electric Co	Wadham Energy LP	ST	AB	28,650	27,430
Pacific Gas & Electric Co	Jackson Valley Energy LP	ST	WW	18,500	27,448
Imperial Irrigation District	Mesquite Resource Recovery Project	ST	AB	17,890	27,466
Pacific Gas & Electric Co	Ultrapower 3 Blue Lake	ST	WW	13,806	27,480
Southern California Edison Co	ARCO Wilmington Calciner	ST	PC	34,000	27,514
Pacific Gas & Electric Co	Hanford	ST	PC	27,000	27,541
Pacific Gas & Electric Co	East Third Street Power Plant	ST	PC	20,500	27,561
Pacific Gas & Electric Co	Loveridge Road Power Plant	ST	PC	20,500	27,582
Pacific Gas & Electric Co	Nichols Road Power Plant	ST	PC	20,500	27,602
Pacific Gas & Electric Co	Wilbur East Power Plant	ST	PC	20,500	27,623
Pacific Gas & Electric Co	Wilbur West Power Plant	ST	PC	20,500	27,643
Pacific Gas & Electric Co	Diamond Walnut	ST	AB	4,500	27,648
Sierra Pacific Industries	SIERRA PACIFIC INDUSTRIES - SONORA	ST	WW	3,500	27,651
Wheelabrator Environmental	Wheelabrator Shasta Energy Company Unit 4	ST	WW	3,000	27,654
Southern California Edison Co	San Onofre	ST	NUC	1,127,000	28,734
Southern California Edison Co	San Onofre	ST	NUC	1,127,000	29,804
Pacific Gas & Electric Co	Diablo Canyon	ST	NUC	1,136,487	30,877
Pacific Gas & Electric Co	Diablo Canyon	ST	NUC	1,164,093	31,964
Southern California Edison Co	ACE Cogeneration Co	ST	BIT	108,000	32,072
Pacific Gas & Electric Co	Mt Poso Cogeneration	ST	BIT	62,034	32,135

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Stockton CoGen Co	ST	BIT	60,000	32,195
Pacific Gas & Electric Co	Port of Stockton District Energy Facility	ST	BIT	50,000	32,245
Pacific Gas & Electric Co	Rio Bravo Poso	ST	BIT	38,295	32,283
Southern California Edison Co	Rio Bravo Jasmin	ST	BIT	38,295	32,321
California Portland Cement	California Portland Cement	ST	BIT	28,500	32,350
Southern California Edison Co	Argus Cogen Plant	ST	BIT	27,500	32,377
Southern California Edison Co	Argus Cogen Plant	ST	BIT	27,500	32,405
Southern California Edison Co	TXI Riverside Cement Power House	ST	BIT	12,000	32,417
Southern California Edison Co	TXI Riverside Cement Power House	ST	BIT	12,000	32,429
Southern California Edison Co	Mecca Plant	ST	WDS	55,500	32,484
Duke Energy	Moss Landing	CC	NG	530,000	33,014
Duke Energy	Moss Landing	CC	NG	530,000	33,544
Southern California Edison Co	Delano Energy Co Inc	ST	WDS	31,835	33,576
Pacific Gas & Electric Co	Burney Forest Products	ST	WDS	31,000	33,607
Pacific Gas & Electric Co	Mendota Biomass Power Ltd	ST	WDS	28,000	33,635
Pacific Gas & Electric Co	Rio Bravo Fresno	ST	WDS	28,000	33,663
Pacific Gas & Electric Co	Woodland Biomass Power Ltd	ST	WDS	28,000	33,691
Pacific Gas & Electric Co	Rio Bravo Rocklin	ST	WDS	27,960	33,719
Southern California Edison Co	Delano Energy Co Inc	ST	WDS	25,270	33,744
Pacific Gas & Electric Co	Ultrapower Chinese Station	ST	WDS	25,000	33,769
Pacific Gas & Electric Co	Wheelabrator Martell Inc	ST	WDS	23,000	33,792
Edison Mission Energy	SUNRISE POWER PROJECT (AGGREGATE)	CT	NG	337,840	34,130
Pacific Gas & Electric Co	Burney Facility	ST	WDS	20,000	34,150
Pacific Gas & Electric Co	Quincy Facility	ST	WDS	20,000	34,170
Sierra Pacific Power Co	Loyalton Facility	ST	WDS	20,000	34,190
Pacific Gas & Electric Co	Wheelabrator Shasta	ST	WDS	18,300	34,208
Pacific Gas & Electric Co	Wheelabrator Shasta	ST	WDS	18,300	34,227
Pacific Gas & Electric Co	Wheelabrator Shasta	ST	WDS	18,300	34,245
Pacific Gas & Electric Co	Crockett Cogeneration Project	GT	NG	247,400	34,492
Pacific Gas & Electric Co	Fairhaven Power Co	ST	WDS	17,250	34,510
Pacific Gas & Electric Co	The Pacific Lumber Co	ST	WDS	12,500	34,522
Pacific Gas & Electric Co	The Pacific Lumber Co	ST	WDS	12,500	34,535
Pacific Gas & Electric Co	Collins Pine Co Project	ST	WDS	12,000	34,547
Pacific Gas & Electric Co	Lincoln Facility	ST	WDS	11,500	34,558
Pacific Gas & Electric Co	Burney Mountain Power	ST	WDS	11,400	34,569
Pacific Gas & Electric Co	Mt Lassen Power	ST	WDS	11,400	34,581
Pacific Gas & Electric Co	Big Valley Lumber Co	ST	WDS	9,375	34,590
Pacific Gas & Electric Co	Pacific Oroville Power Inc	ST	WDS	9,375	34,600
Pacific Gas & Electric Co	Pacific Oroville Power Inc	ST	WDS	9,375	34,609
Sacramento Municipal Util Dist	SPA	CT	NG	118,750	34,720
Pacific Gas & Electric Co	Quincy Facility	ST	WDS	7,500	34,727
Pacific Gas & Electric Co	Wheelabrator Hudson Energy Co	ST	WDS	6,875	34,734
Pacific Gas & Electric Co	Fort Bragg Western Wood Products	ST	WDS	5,000	34,739
Pacific Gas & Electric Co	Fort Bragg Western Wood Products	ST	WDS	5,000	34,744
Pacific Gas & Electric Co	Fort Bragg Western Wood Products	ST	WDS	5,000	34,749
Pacific Gas & Electric Co	Anderson Facility	ST	WDS	4,000	34,753
Pacific Gas & Electric Co	Sonora	ST	WDS	3,000	34,756
Imperial Irrigation District	El Centro	CT	NG	89,900	34,844
Pacific Gas & Electric Co	Lincoln Facility	ST	WDS	1,500	34,846

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Los Angeles City of	Haynes	ST	NG	343,000	35,187
Glendale City of	Grayson	CT	NG	60,000	35,247
Glendale City of	Grayson	CT	NG	30,000	35,277
Los Angeles City of	Scattergood	ST	NG	496,800	35,722
Los Angeles City of	Haynes	ST	NG	230,000	35,944
Modesto Irrigation District	Woodland	GT	NG	56,000	35,994
Los Angeles City of	Haynes	ST	NG	230,000	36,216
Pacific Gas & Electric Co	Duke Energy Moss Landing LLC	ST	NG	702,000	36,918
Pacific Gas & Electric Co	Duke Energy Moss Landing LLC	ST	NG	702,000	37,620
Pacific Gas & Electric Co	Pittsburg Power	ST	NG	682,000	38,302
Los Angeles City of	Haynes	ST	NG	230,000	38,524
Los Angeles City of	Haynes	ST	NG	343,000	38,865
Los Angeles City of	Haynes	ST	NG	230,000	39,087
Southern California Edison Co	AES Alamitos LLC	ST	NG	495,000	39,582
Southern California Edison Co	AES Alamitos LLC	ST	NG	495,000	40,077
Southern California Edison Co	AES Redondo Beach LLC	ST	NG	495,000	40,572
Southern California Edison Co	AES Redondo Beach LLC	ST	NG	495,000	41,067
Los Angeles City of	Scattergood	ST	NG	163,200	41,246
Pacific Gas & Electric Co	Hunters Point	ST	NG	156,250	41,409
Los Angeles City of	Scattergood	ST	NG	163,200	41,588
San Diego Gas & Electric Co	Duke Energy South Bay LLC	ST	NG	136,000	41,724
San Diego Gas & Electric Co	Duke Energy South Bay LLC	ST	NG	201,600	41,925
Pacific Gas & Electric Co	Duke Energy Morro Bay LLC	ST	NG	359,000	42,284
Pacific Gas & Electric Co	Duke Energy Morro Bay LLC	ST	NG	359,000	42,643
Burbank City of	Olive	GT	NG	37,800	42,675
Southern California Edison Co	El Segundo Power	ST	NG	342,000	43,017
Southern California Edison Co	El Segundo Power	ST	NG	342,000	43,359
Imperial Irrigation District	El Centro	ST	NG	81,600	43,439
Pacific Gas & Electric Co	Contra Costa Power	ST	NG	339,000	43,778
Pacific Gas & Electric Co	Contra Costa Power	ST	NG	337,000	44,115
Southern California Edison Co	AES Alamitos LLC	ST	NG	333,000	44,448
Southern California Edison Co	AES Alamitos LLC	ST	NG	333,000	44,781
Pacific Gas & Electric Co	Pittsburg Power	ST	NG	325,000	45,106
Pacific Gas & Electric Co	Pittsburg Power	ST	NG	325,000	45,431
CALPINE	GILROY ENERGY CENTER UNITS 1 & 2 (AGGREGATE)	CT	NG	97,400	45,529
Burbank City of	Olive	ST	NG	59,782	45,584
Pacific Gas & Electric Co	King City Power Plant	CT	NG	90,875	45,675
Pacific Gas & Electric Co	Calpine Gilroy Cogen LP	CT	NG	90,000	45,765
GWF Energy, LLC	HEP PEAKER PLANT (GWF HANFORD) (AGGREGATE)	CT	NG	88,000	45,853
Southern California Edison Co	Coolwater Generating Station	CT	NG	84,999	45,938
Southern California Edison Co	Coolwater Generating Station	CT	NG	84,999	46,023
Southern California Edison Co	Coolwater Generating Station	CT	NG	84,999	46,108
Southern California Edison Co	Coolwater Generating Station	CT	NG	84,999	46,193
Southern California Edison Co	Watson Cogeneration Co	GT	NG	82,000	46,275
Southern California Edison Co	Watson Cogeneration Co	GT	NG	82,000	46,357
Southern California Edison Co	Watson Cogeneration Co	GT	NG	82,000	46,439
Pacific Gas & Electric Co	Midway Sunset Cogeneration Co	GT	NG	78,000	46,517
Pacific Gas & Electric Co	Midway Sunset Cogeneration Co	GT	NG	78,000	46,595

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Midway Sunset Cogeneration Co	GT	NG	78,000	46,673
Pacific Gas & Electric Co	Potrero Power	ST	NG	260,000	46,933
Southern California Edison Co	Kern River Cogeneration Co	GT	NG	75,000	47,008
Southern California Edison Co	Kern River Cogeneration Co	GT	NG	75,000	47,083
Southern California Edison Co	Kern River Cogeneration Co	GT	NG	75,000	47,158
Southern California Edison Co	Kern River Cogeneration Co	GT	NG	75,000	47,233
Southern California Edison Co	Sycamore Cogeneration Co	GT	NG	75,000	47,308
Southern California Edison Co	Sycamore Cogeneration Co	GT	NG	75,000	47,383
Southern California Edison Co	Sycamore Cogeneration Co	GT	NG	75,000	47,458
Southern California Edison Co	Sycamore Cogeneration Co	GT	NG	75,000	47,533
San Diego Gas & Electric Co	Kearny	GT	NG	72,000	47,605
San Diego Gas & Electric Co	Kearny	GT	NG	72,000	47,677
Pacific Gas & Electric Co	Badger Creek Cogen	GT	NG	68,820	47,746
Pacific Gas & Electric Co	Bear Mountain Cogen	GT	NG	68,820	47,814
Pacific Gas & Electric Co	Chalk Cliff Cogen	GT	NG	68,820	47,883
Pacific Gas & Electric Co	Live Oak Cogen	GT	NG	68,820	47,952
Pacific Gas & Electric Co	McKittrick Cogen	GT	NG	68,820	48,021
Pacific Gas & Electric Co	San Joaquin Cogen	GT	NG	68,820	48,090
Pacific Gas & Electric Co	Richmond Cogeneration Project	GT	NG	62,640	48,152
Pacific Gas & Electric Co	Richmond Cogeneration Project	GT	NG	62,640	48,215
Southern California Edison Co	AES Placerita Inc	CT	NG	60,000	48,275
Southern California Edison Co	AES Placerita Inc	CT	NG	60,000	48,335
Glendale City of	Grayson	ST	NG	44,000	48,380
Pasadena City of	Broadway	ST	NG	75,000	48,453
Northern California Power Agny	Lodi CC	GT	NG	50,000	48,503
Wellhead Power	Gates Wellhead	CT	NG	49,900	48,553
Wellhead Power	Panoche - Wellhead	CT	NG	49,900	48,603
Pacific Gas & Electric Co	Greenleaf Unit Two	GT	NG	49,500	48,652
Pacific Gas & Electric Co	Ripon Mill	GT	NG	49,500	48,702
Southern California Edison Co	Oxnard	GT	NG	49,500	48,751
Turlock Irrigation District	Almond Power Plant	GT	NG	49,500	48,801
CalPeak Power LLC	Panoche - Calpeak	CT	NG	49,145	48,850
CalPeak Power LLC	Border	CT	NG	49,100	48,899
CalPeak Power LLC	Enterprise	CT	NG	49,000	48,948
Pacific Gas & Electric Co	Yuba City Cogeneration Partners LP	GT	NG	49,000	48,997
CALPINE	Gilroy Energy Center Unit 3	CT	NG	48,700	49,046
CALPINE	King City Energy Center	CT	NG	48,700	49,094
Southern California Edison Co	E F Oxnard Oxnard Energy Facility	GT	NG	48,500	49,143
Pacific Gas & Electric Co	Duke Energy Morro Bay LLC	ST	NG	169,100	49,312
Pacific Gas & Electric Co	Duke Energy Morro Bay LLC	ST	NG	169,100	49,481
Los Angeles City of	Valley	ST	NG	172,800	49,641
Southern California Edison Co	Corona Cogen	GT	NG	47,000	49,688
Wildflower Energy	Larkspur 2	CT	NG	47,000	49,735
Southern California Edison Co	AES Alamitos LLC	ST	NG	163,200	49,898
Pacific Gas & Electric Co	Pittsburg Power	ST	NG	163,000	50,061
Pacific Gas & Electric Co	Pittsburg Power	ST	NG	163,000	50,224
Pacific Gas & Electric Co	Pittsburg Power	ST	NG	163,000	50,387
Pacific Gas & Electric Co	Pittsburg Power	ST	NG	163,000	50,550
Anaheim City of	Anaheim GT	GT	NG	49,269	50,597

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Gaylord Container Corp Antioch	GT	NG	46,000	50,643
Wildflower Energy	Larkspur 1	CT	NG	45,700	50,688
Southern California Edison Co	U S Borax Inc	GT	NG	45,000	50,733
Southern California Edison Co	AES Redondo Beach LLC	ST	NG	156,250	50,890
Southern California Edison Co	AES Redondo Beach LLC	ST	NG	156,250	51,046
Southern California Edison Co	El Segundo Power	ST	NG	156,250	51,202
Southern California Edison Co	El Segundo Power	ST	NG	156,200	51,358
RAMCO	Chula Vista	CT	NG	44,000	51,402
RAMCO	Escondido	CT	NG	44,000	51,446
Wildflower Energy	Indigo Energy 3	CT	NG	43,800	51,490
Wildflower Energy	Indigo Energy 2	CT	NG	43,700	51,534
Wildflower Energy	Indigo Energy 1	CT	NG	43,400	51,577
Sacramento Municipal Util Dist	Carson Ice CG	GT	NG	54,000	51,621
Colton Power, LP	CENTURY (AGGREGATE)	CT	NG	43,000	51,664
Colton Power, LP	DREWS (AGGREGATE)	CT	NG	43,000	51,707
Southern California Edison Co	El Segundo Refinery	CT	NG	42,450	51,749
Southern California Edison Co	El Segundo Refinery	CT	NG	42,450	51,792
Pacific Gas & Electric Co	Oildale Cogen	GT	NG	42,250	51,834
Pacific Gas & Electric Co	Cardinal Cogen	CT	NG	42,188	51,876
Los Angeles City of	Valley	ST	NG	172,800	52,039
Pacific Gas & Electric Co	Greenleaf Unit One	CT	NG	41,400	52,080
Sacramento Municipal Util Dist	Carson Ice CG	CT	NG	54,000	52,122
San Diego Gas & Electric Co	Goal Line LP	CT	NG	41,211	52,163
Southern California Edison Co	Mojave Cogeneration Co	CT	NG	41,120	52,204
Southern California Edison Co	El Segundo Refinery	CT	NG	40,300	52,244
Pacific Gas & Electric Co	Martinez Refining Co A Div of Equilon Enterprises LLC	CT	NG	40,000	52,284
Pacific Gas & Electric Co	Martinez Refining Co A Div of Equilon Enterprises LLC	CT	NG	40,000	52,324
Sacramento Municipal Util Dist	SCA	CT	NG	49,860	52,364
Sacramento Municipal Util Dist	SCA	CT	NG	49,860	52,404
Southern California Edison Co	Santa Ynez Facility	CT	NG	39,500	52,443
Pacific Gas & Electric Co	Mid Set Cogeneration Co	GT	NG	39,100	52,482
Southern California Edison Co	Carson Cogeneration Co	CT	NG	39,000	52,521
Pacific Gas & Electric Co	Salinas River Cogeneration Co	GT	NG	38,940	52,560
Pacific Gas & Electric Co	Wheelabrator Lassen Inc	GT	NG	38,888	52,599
Pacific Gas & Electric Co	Berry Cogen	GT	NG	38,700	52,638
Pacific Gas & Electric Co	Coalinga Cogeneration Co	GT	NG	38,440	52,676
San Diego Gas & Electric Co	Naval Station Energy Facility	CT	NG	38,300	52,714
Pacific Gas & Electric Co	Sargent Canyon Cogeneration Co	GT	NG	38,270	52,753
San Diego Gas & Electric Co	Duke Energy South Bay LLC	ST	NG	136,000	52,889
Southern California Edison Co	San Gabriel Facility	GT	NG	36,000	52,925
Southern California Edison Co	Watson Cogeneration Co	GT	NG	35,000	52,960
San Diego Gas & Electric Co	North Island Energy Facility	CT	NG	34,500	52,994
Southern California Edison Co	Ontario Mill	GT	NG	34,000	53,028
Burbank City of	Olive	ST	NG	50,000	53,070
San Diego Gas & Electric Co	Miramar	GT	NG	33,000	53,103
Los Angeles City of	Valley	ST	NG	100,000	53,202
Pacific Gas & Electric Co	South Belridge Cogen Facility	GT	NG	31,428	53,234
Pacific Gas & Electric Co	South Belridge Cogen Facility	GT	NG	31,428	53,265
Pacific Gas & Electric Co	South Belridge Cogen Facility	GT	NG	31,428	53,297

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Redding City of	Redding Power	GT	NG	24,040	53,324
Redding City of	Redding Power	GT	NG	24,040	53,352
Burbank City of	Magnolia	ST	NG	34,500	53,382
Pacific Gas & Electric Co	Double C	GT	NG	26,800	53,408
Pacific Gas & Electric Co	Double C	GT	NG	26,800	53,435
Pacific Gas & Electric Co	High Sierra	GT	NG	26,800	53,462
Pacific Gas & Electric Co	High Sierra	GT	NG	26,800	53,489
Pacific Gas & Electric Co	Kern Front	GT	NG	26,800	53,516
Pacific Gas & Electric Co	Kern Front	GT	NG	26,800	53,542
Pacific Gas & Electric Co	Calpine Pittsburg LLC	GT	NG	26,600	53,569
Pacific Gas & Electric Co	Calpine Pittsburg LLC	GT	NG	26,600	53,596
Southern California Edison Co	Federal Plant	CT	NG	26,000	53,622
Southern California Edison Co	Growers Plant	CT	NG	26,000	53,648
Southern California Edison Co	NP Cogen Inc	CT	NG	25,872	53,674
Los Angeles City of	Linde Wilmington	CT	NG	25,000	53,699
Pacific Gas & Electric Co	Agnews Cogeneration Project	CT	NG	24,400	53,723
Pacific Gas & Electric Co	Kern River Eastridge	GT	NG	24,400	53,747
Pacific Gas & Electric Co	Kern River Eastridge	GT	NG	24,400	53,772
Pasadena City of	Broadway	ST	NG	46,000	53,817
Southern California Edison Co	OLS Energy Camarillo	CT	NG	24,047	53,841
Pacific Gas & Electric Co	Kingsburg Cogeneration	CT	NG	23,117	53,864
Pacific Gas & Electric Co	PE Berkeley Inc	CT	NG	23,040	53,887
Pacific Gas & Electric Co	United Cogen Inc	CT	NG	23,000	53,910
San Diego Gas & Electric Co	NTC MCRD Energy Facility	CT	NG	23,000	53,933
Southern California Edison Co	Wheelabrator Norwalk Energy Co Inc	CT	NG	23,000	53,956
Pacific Gas & Electric Co	Watsonville Cogeneration Project	CT	NG	22,998	53,979
Pacific Gas & Electric Co	DAI Oil Dale	CT	NG	22,618	54,002
Southern California Edison Co	Berry Placerita Cogen	GT	NG	22,600	54,024
Southern California Edison Co	Berry Placerita Cogen	GT	NG	22,600	54,047
Southern California Edison Co	Torrance Refinery	CT	NG	22,500	54,069
Fresno Cogen Partners	Fresno Cogen Peaker	CT	NG	22,400	54,092
Los Angeles City of	Civic Center	CT	NG	22,130	54,114
Pacific Gas & Electric Co	Jefferson Smurfit Corp	CT	NG	21,900	54,136
Southern California Edison Co	Long Beach Generation LLC	ST	NG	80,000	54,216
Los Angeles City of	Harbor	CT	NG	80,000	54,296
Los Angeles City of	Harbor	CT	NG	80,000	54,376
Southern California Edison Co	OLS Energy Chino	CT	NG	21,266	54,397
Southern California Edison Co	Pitchess Cogeneration Station	CT	NG	20,997	54,418
Pacific Gas & Electric Co	Calpine Pittsburg LLC	GT	NG	20,800	54,439
Pacific Gas & Electric Co	Southeast Kern River Cogen	GT	NG	20,800	54,460
Los Angeles City of	Valley	ST	NG	100,000	54,555
Southern California Edison Co	Westend Facility	GT	NG	20,000	54,575
San Diego Gas & Electric Co	Duke Energy South Bay LLC	ST	NG	240,300	54,815
Southern California Edison Co	Oxnard	GT	NG	19,295	54,834
Redding City of	Redding Power	GT	NG	17,602	54,852
Southern California Edison Co	Long Beach Generation LLC	ST	NG	66,400	54,918
Imperial Irrigation District	El Centro	ST	NG	50,000	54,966
Pacific Gas & Electric Co	Tosco Refining Co	GT	NG	17,000	54,983
Pacific Gas & Electric Co	Tosco Refining Co	GT	NG	17,000	55,000

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Tosco Refining Co	GT	NG	17,000	55,017
Southern California Edison Co	Smurfit Newsprint Corp	GT	NG	16,300	55,033
Glendale City of	Grayson	ST	NG	44,000	55,078
Los Angeles City of	UCLA South Campus Central Chiller Cogen Project	CT	NG	14,500	55,093
Los Angeles City of	UCLA South Campus Central Chiller Cogen Project	CT	NG	14,500	55,107
Pasadena City of	Broadway	ST	NG	46,000	55,152
Burbank City of	Magnolia	ST	NG	20,000	55,172
Pacific Gas & Electric Co	Humboldt Bay	ST	NG	51,200	55,224
San Diego Gas & Electric Co	C P Kelco - -San Diego Plant	GT	NG	10,000	55,234
Pacific Gas & Electric Co	Santa Maria Cogen Plant	GT	NG	9,550	55,244
Pacific Gas & Electric Co	Berry Cogen T	GT	NG	8,800	55,253
Pacific Gas & Electric Co	Berry Cogen T	GT	NG	8,800	55,262
Pasadena City of	Glenarm	GT	NG	28,890	55,292
Pasadena City of	Glenarm	GT	NG	28,890	55,322
Vernon City of	Vernon	GT	NG	5,900	55,328
Vernon City of	Vernon	GT	NG	5,900	55,334
San Diego Gas & Electric Co	C P Kelco - -San Diego Plant	GT	NG	8,000	55,342
San Diego Gas & Electric Co	C P Kelco - -San Diego Plant	GT	NG	8,000	55,350
Turlock Irrigation District	Walnut	GT	NG	24,950	55,375
Turlock Irrigation District	Walnut	GT	NG	24,950	55,400
Pacific Gas & Electric Co	Humboldt Bay	ST	NG	51,200	55,453
Pacific Gas & Electric Co	Tosco Refining Co	ST	NG	27,300	55,480
San Diego Gas & Electric Co	Patio Test Cell Solar Turbines Inc	GT	NG	6,400	55,487
Pacific Gas & Electric Co	Hershey Chocolate Confectionery Corp Oakdale Plant	GT	GAS	6,200	55,493
Glendale City of	Grayson	GT	NG	31,000	55,516
Pacific Gas & Electric Co	Recot Inc Cogeneration Plant	GT	NG	6,050	55,522
Pacific Gas & Electric Co	San Jose Cogeneration	GT	NG	6,000	55,528
Pacific Gas & Electric Co	SRI International Cogen Project	GT	NG	6,000	55,534
Southern California Edison Co	Black Hills Ontario Facility	GT	NG	6,000	55,540
Southern California Edison Co	Black Hills Ontario Facility	GT	NG	6,000	55,546
Pacific Gas & Electric Co	Tracy Biomass Plant	ST	NG	23,000	55,569
Pacific Gas & Electric Co	Hunters Point	ST	NG	107,550	55,676
Southern California Edison Co	Loma Linda University Cogeneration	CT	NG	5,200	55,681
Southern California Edison Co	Loma Linda University Cogeneration	CT	NG	5,200	55,686
Santa Clara City of	Gianera	GT	NG	32,310	55,718
Santa Clara City of	Gianera	GT	NG	32,310	55,750
Pacific Gas & Electric Co	General Mills Operations Inc Lodi Plant	GT	NG	4,685	55,755
Harbor Cogen	HARBOR COGEN THERMAL (AGGREGATE)	ST	NG	19,000	55,774
Southern California Edison Co	Long Beach Generation LLC	GT	NG	63,000	55,837
Southern California Edison Co	Long Beach Generation LLC	GT	NG	63,000	55,900
Southern California Edison Co	Long Beach Generation LLC	GT	NG	63,000	55,963
Pasadena City of	California Institute of Technology	CT	NG	4,300	55,967
Pacific Gas & Electric Co	Arco Fee A Cogen	GT	NG	4,200	55,972
San Diego Gas & Electric Co	Patio Test Cell Solar Turbines Inc	GT	NG	4,200	55,976
Los Angeles City of	Central Utility Plant	GT	NG	4,000	55,980
Los Angeles City of	Central Utility Plant	GT	NG	4,000	55,984
Pacific Gas & Electric Co	Welpport Lease Project	GT	NG	3,822	55,988
Pacific Gas & Electric Co	Arco Fee A Cogen	GT	NG	3,725	55,991
Pacific Gas & Electric Co	Arco Fee B Cogen	GT	NG	3,725	55,995

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	Arco Fee C Cogen	GT	NG	3,725	55,999
Pacific Gas & Electric Co	Arco Fee C Cogen	GT	NG	3,725	56,002
Glendale City of	Grayson	GT	NG	22,000	56,020
Glendale City of	Grayson	ST	NG	20,000	56,041
Southern California Edison Co	Rincon Facility	GT	NG	3,600	56,045
Pacific Gas & Electric Co	Lost Hills Cogeneration Plant	GT	NG	3,575	56,049
Pacific Gas & Electric Co	Lost Hills Cogeneration Plant	GT	NG	3,575	56,052
Pacific Gas & Electric Co	Lost Hills Cogeneration Plant	GT	NG	3,575	56,056
Pacific Gas & Electric Co	North Midway Cogeneration Plant	GT	NG	3,575	56,059
Pacific Gas & Electric Co	North Midway Cogeneration Plant	GT	NG	3,575	56,063
Pacific Gas & Electric Co	North Midway Cogeneration Plant	GT	NG	3,575	56,066
Pacific Gas & Electric Co	University of California	GT	NG	3,500	56,070
Southern California Edison Co	Centaur Generator Facility	GT	NG	3,500	56,073
Southern California Edison Co	Gaviota Oil Plant	GT	NG	3,500	56,077
Southern California Edison Co	Gaviota Oil Plant	GT	NG	3,500	56,080
Pacific Gas & Electric Co	Chevron Coalinga 25D	GT	NG	3,450	56,084
Pacific Gas & Electric Co	Chevron Coalinga 25D	GT	NG	3,450	56,087
Pacific Gas & Electric Co	Chevron Coalinga 25D	GT	NG	3,450	56,091
Pacific Gas & Electric Co	Chevron Coalinga 25D	GT	NG	3,450	56,094
Pacific Gas & Electric Co	Chevron Coalinga 6C	GT	NG	3,450	56,098
Pacific Gas & Electric Co	Chevron Coalinga 6C	GT	NG	3,450	56,101
Pacific Gas & Electric Co	Chevron Cymric 31X	GT	NG	3,450	56,105
Pacific Gas & Electric Co	Chevron Cymric 31X	GT	NG	3,450	56,108
Pacific Gas & Electric Co	Chevron Cymric 6Z	GT	NG	3,450	56,112
Pacific Gas & Electric Co	Chevron Cymric 6Z	GT	NG	3,450	56,115
Pacific Gas & Electric Co	Coalinga Cogeneration Facility	GT	NG	3,400	56,118
Pacific Gas & Electric Co	Coalinga Cogeneration Facility	GT	NG	3,400	56,122
Pacific Gas & Electric Co	Southeast Kern River Cogen	GT	NG	3,400	56,125
Pacific Gas & Electric Co	Southeast Kern River Cogen	GT	NG	3,400	56,129
Pacific Gas & Electric Co	Weir Cogeneration Plant	GT	NG	3,400	56,132
Southern California Edison Co	B Braun Medical Inc	GT	NG	3,300	56,135
Pacific Gas & Electric Co	McKittrick Cogeneration Plant	GT	NG	3,290	56,139
Pacific Gas & Electric Co	McKittrick Cogeneration Plant	GT	NG	3,290	56,142
Pacific Gas & Electric Co	McKittrick Cogeneration Plant	GT	NG	3,290	56,145
Redding City of	Redding Power	ST	NG	30,000	56,173
Pacific Gas & Electric Co	Hunters Point	ST	NG	107,550	56,280
Pacific Gas & Electric Co	Chevron Cymric 36W	GT	NG	3,125	56,283
Pacific Gas & Electric Co	Chevron Cymric 36W	GT	NG	3,125	56,286
Pacific Gas & Electric Co	Chevron Cymric 36W	GT	NG	3,125	56,290
Pacific Gas & Electric Co	Chevron Cymric 36W	GT	NG	3,125	56,293
Pacific Gas & Electric Co	Chevron Taft 26C	GT	NG	3,125	56,296
Pacific Gas & Electric Co	Chevron Taft 26C	GT	NG	3,125	56,299
Pacific Gas & Electric Co	Chevron Taft 26C	GT	NG	3,125	56,302
Pacific Gas & Electric Co	Chevron Taft 26C	GT	NG	3,125	56,305
Santa Clara City of	Santa Clara Cogen	GT	NG	3,900	56,309
Santa Clara City of	Santa Clara Cogen	GT	NG	3,900	56,313
Pacific Gas & Electric Co	Dome Project	GT	NG	3,032	56,316
Pacific Gas & Electric Co	Dome Project	GT	NG	3,032	56,319
Pacific Gas & Electric Co	AERA San Ardo Cogen Facility	GT	NG	3,000	56,322

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	AERA San Ardo Cogen Facility	GT	NG	3,000	56,325
Pacific Gas & Electric Co	South Belridge Cogen Facility Section II	GT	NG	3,000	56,328
Pacific Gas & Electric Co	South Belridge Cogen Facility Section II	GT	NG	3,000	56,331
Pacific Gas & Electric Co	South Belridge Cogen Facility Section II	GT	NG	3,000	56,334
Los Angeles City of	Olive View Medical Center	CT	NG	2,890	56,337
Pacific Gas & Electric Co	Corn Products Stockton Plant	GT	NG	2,812	56,340
Pacific Gas & Electric Co	Oxford Cogeneration Facility	GT	NG	2,800	56,343
Pacific Gas & Electric Co	Oxford Cogeneration Facility	GT	NG	2,800	56,345
Southern California Edison Co	B Braun Medical Inc	GT	NG	2,800	56,348
Yanke Energy	Dinuba	ST	NG	12,000	56,360
San Diego Gas & Electric Co	Richard J Donovan Correctional Facility Rock Mt	GT	NG	2,692	56,363
Imperial Irrigation District	Rockwood	GT	NG	24,950	56,388
San Diego Gas & Electric Co	San Diego State University	CT	NG	2,500	56,390
Sacramento Municipal Util Dist	McClellan	GT	NG	74,200	56,439
Southern California Edison Co	Pebble Beach	IC	DFO	1,125	56,440
Southern California Edison Co	Sierra Power Corp	ST	GAS	7,500	56,448
Pacific Gas & Electric Co	Veterans Home of California	GT	NG	1,500	56,449
Pacific Gas & Electric Co	Veterans Home of California	GT	NG	1,500	56,451
Southern California Edison Co	Paper Pak Products	GT	NG	1,475	56,452
Calpine	SUTTER POWER PLANT (AGGREGATE)	CG	NG	546,000	56,998
Delta Energy Center, LLC	DELTA ENERGY CENTER (AGGREGATE)	CG	NG	811,000	57,809
	Santa Clara Go-gen	ST	NG	6,000	57,815
Burbank City of	Magnolia	GT	NG	23,144	57,837
Southern California Edison Co	Saint Johns Health Center	GT	NG	1,080	57,838
Burbank City of	Olive	GT	NG	24,438	57,862
Imperial Irrigation District	Coachella	GT	NG	23,150	57,882
Imperial Irrigation District	Coachella	GT	NG	23,150	57,902
Imperial Irrigation District	Coachella	GT	NG	23,150	57,922
Imperial Irrigation District	Coachella	GT	NG	23,150	57,942
Northern California Power Agny	Lodi	GT	NG	25,240	57,969
San Diego Gas & Electric Co	Grossmont Hospital	GT	NG	800	57,969
San Diego Gas & Electric Co	Grossmont Hospital	GT	NG	800	57,970
San Diego Gas & Electric Co	Naval Hospital Medical Center	GT	NG	800	57,971
San Diego Gas & Electric Co	Naval Hospital Medical Center	GT	NG	800	57,972
San Diego Gas & Electric Co	Naval Hospital Medical Center	GT	NG	800	57,973
Los Angeles City of	Harbor	GT	NG	23,580	57,992
Los Angeles City of	Harbor	GT	NG	23,580	58,011
Los Angeles City of	Los Angeles Cold Storage Co	IC	NG	450	58,011
Los Angeles City of	Los Angeles Cold Storage Co	IC	NG	450	58,012
Los Angeles City of	Los Angeles Cold Storage Co	IC	NG	450	58,012
Los Angeles City of	Television City Cogen LP	IC	NG	1,415	58,013
NEO Corporation	CHOWCHILLA II PEAKER (AGGREGATE)	IC	NG	48,600	58,062
NEO Corporation	RED BLUFF PEAKER (AGGREGATE)	IC	NG	44,000	58,106
Pacific Gas & Electric Co	Chevron USA Accounting Center	IC	NG	1,500	58,108
Pacific Gas & Electric Co	Chevron USA Accounting Center	IC	NG	1,500	58,109
Pacific Gas & Electric Co	JRW Associates LP	IC	NG	1,300	58,110
Pacific Gas & Electric Co	JRW Associates LP	IC	NG	1,300	58,112
Pacific Gas & Electric Co	JRW Associates LP	IC	NG	1,300	58,113
Pacific Gas & Electric Co	JRW Associates LP	IC	NG	1,300	58,114

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Pacific Gas & Electric Co	JRW Associates LP	IC	NG	1,300	58,116
Pacific Gas & Electric Co	JRW Associates LP	IC	NG	1,300	58,117
Pacific Gas & Electric Co	Oroville Cogeneration LP	IC	NG	1,150	58,118
Pacific Gas & Electric Co	Oroville Cogeneration LP	IC	NG	1,150	58,119
Pacific Gas & Electric Co	Oroville Cogeneration LP	IC	NG	1,150	58,120
Pacific Gas & Electric Co	Oroville Cogeneration LP	IC	NG	1,150	58,121
Pacific Gas & Electric Co	Oroville Cogeneration LP	IC	NG	1,150	58,123
Pacific Gas & Electric Co	Oroville Cogeneration LP	IC	NG	1,150	58,124
Pacific Gas & Electric Co	Oroville Cogeneration LP	IC	NG	1,150	58,125
Pacific Gas & Electric Co	Ridgewood/Byron Power Partners LP	IC	NG	1,300	58,126
Pacific Gas & Electric Co	Ridgewood/Byron Power Partners LP	IC	NG	1,300	58,127
Pacific Gas & Electric Co	Ridgewood/Byron Power Partners LP	IC	NG	1,300	58,129
Pacific Gas & Electric Co	Ridgewood/Byron Power Partners LP	IC	NG	1,300	58,130
Pacific Gas & Electric Co	Ridgewood/Byron Power Partners LP	IC	NG	1,300	58,131
Pacific Gas & Electric Co	Saint Agnes Medical Center	IC	NG	775	58,132
Pacific Gas & Electric Co	Saint Agnes Medical Center	IC	NG	775	58,133
Pacific Gas & Electric Co	Saint Agnes Medical Center	IC	NG	775	58,134
Pacific Gas & Electric Co	San Jose Convention Center	IC	NG	1,500	58,135
Pacific Gas & Electric Co	Solano County Cogeneration Plant	IC	NG	450	58,136
Pacific Gas & Electric Co	Solano County Cogeneration Plant	IC	NG	1,000	58,137
Pacific Gas & Electric Co	Sunnyside Cogeneration Partners LP	IC	NG	1,300	58,138
Pacific Gas & Electric Co	Sunnyside Cogeneration Partners LP	IC	NG	1,300	58,139
Pacific Gas & Electric Co	Sunnyside Cogeneration Partners LP	IC	NG	1,300	58,141
Pacific Gas & Electric Co	Sunnyside Cogeneration Partners LP	IC	NG	1,300	58,142
Pacific Gas & Electric Co	Sunnyside Cogeneration Partners LP	IC	NG	1,300	58,143
Pacific Gas & Electric Co	UC Santa Cruz Cogeneration	IC	NG	2,635	58,146
Pacific Gas & Electric Co	Univ of San Francisco Cogen	IC	NG	1,500	58,147
San Diego Gas & Electric Co	4160 V Cogeneration System	IC	NG	630	58,148
San Diego Gas & Electric Co	4160 V Cogeneration System	IC	NG	650	58,149
San Diego Gas & Electric Co	4160 V Cogeneration System	IC	NG	630	58,149
San Diego Gas & Electric Co	Childrens Hospital	IC	NG	350	58,150
San Diego Gas & Electric Co	Childrens Hospital	IC	NG	350	58,150
San Diego Gas & Electric Co	Childrens Hospital	IC	NG	350	58,150
San Diego Gas & Electric Co	Encina Water Pollution Control	IC	NG	475	58,151
San Diego Gas & Electric Co	Encina Water Pollution Control	IC	NG	475	58,151
San Diego Gas & Electric Co	Encina Water Pollution Control	IC	NG	475	58,152
San Diego Gas & Electric Co	Kyocera Project	IC	NG	800	58,153
San Diego Gas & Electric Co	Kyocera Project	IC	NG	800	58,153
San Diego Gas & Electric Co	Kyocera Project	IC	NG	800	58,154
San Diego Gas & Electric Co	Kyocera Project	IC	NG	800	58,155
San Diego Gas & Electric Co	NRG Energy Inc	IC	NG	800	58,156
San Diego Gas & Electric Co	NRG Energy Inc	IC	NG	800	58,157
San Diego Gas & Electric Co	Palomar Medical Center	IC	NG	650	58,157
San Diego Gas & Electric Co	Palomar Medical Center	IC	NG	650	58,158
San Diego Gas & Electric Co	Salk Institute	IC	NG	650	58,158
San Diego Gas & Electric Co	Salk Institute	IC	NG	650	58,159
San Diego Gas & Electric Co	TRW ASD	IC	NG	650	58,160
San Diego Gas & Electric Co	TRW ASD	IC	NG	650	58,160
San Diego Gas & Electric Co	USD Cogeneration Facility	IC	NG	350	58,161

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
San Diego Gas & Electric Co	USD Cogeneration Facility	IC	NG	350	58,161
San Diego Gas & Electric Co	USD Cogeneration Facility	IC	NG	350	58,161
Southern California Edison Co	Biola University	IC	NG	600	58,162
Southern California Edison Co	Biola University	IC	NG	600	58,163
Southern California Edison Co	Kaweah Delta District Hospital	IC	NG	550	58,163
Southern California Edison Co	Kaweah Delta District Hospital	IC	NG	550	58,164
Southern California Edison Co	Municipal Cogen Plant	IC	NG	650	58,164
Southern California Edison Co	Municipal Cogen Plant	IC	NG	650	58,165
Southern California Edison Co	Plant No 1	IC	NG	2,500	58,168
Southern California Edison Co	Plant No 1	IC	NG	2,500	58,170
Southern California Edison Co	Plant No 1	IC	NG	2,500	58,173
Southern California Edison Co	San Antonio Community Hospital	IC	NG	900	58,173
Southern California Edison Co	San Antonio Community Hospital	IC	NG	900	58,174
Sierra Pacific Power Co	Portola	IC	DFO	2,000	58,176
Sierra Pacific Power Co	Portola	IC	DFO	2,000	58,178
Sierra Pacific Power Co	Portola	IC	DFO	2,000	58,180
VARIOUS	IGNACIO AREA LUMPED QF UNITS	ST	NG	2,500	58,183
Northern California Power Agny	Roseville	GT	NG	25,240	58,211
Northern California Power Agny	Roseville	GT	NG	25,240	58,239
Southern California Edison Co	Smurfit Stone Container Corp	GT	DFO	43,411	58,282
Pacific Gas & Electric Co	UC Santa Cruz Cogeneration	GT	NG	290	58,282
Pacific Gas & Electric Co	JRW Associates LP	ST	NG	1,300	58,284
Pacific Gas & Electric Co	JRW Associates LP	ST	NG	1,300	58,285
Southern California Edison Co	Pebbly Beach	IC	DFO	1,400	58,286
Sierra Pacific Power Co	Kings Beach	IC	DFO	2,750	58,289
Sierra Pacific Power Co	Kings Beach	IC	DFO	2,750	58,292
Sierra Pacific Power Co	Kings Beach	IC	DFO	2,750	58,295
Sierra Pacific Power Co	Kings Beach	IC	DFO	2,750	58,297
Sierra Pacific Power Co	Kings Beach	IC	DFO	2,750	58,300
Sierra Pacific Power Co	Kings Beach	IC	DFO	2,750	58,303
Southern California Edison Co	Long Beach	ST	DFO	90,000	58,393
Northern California Power Agny	Alameda	GT	NG	25,240	58,419
Northern California Power Agny	Alameda	GT	NG	25,240	58,446
Southern California Edison Co	Pebbly Beach	IC	DFO	1,500	58,448
San Diego Gas & Electric Co	Silver Gate	ST	DFO	69,000	58,512
Vernon City of	Vernon	IC	DFO	6,000	58,516
Vernon City of	Vernon	IC	DFO	6,000	58,520
Vernon City of	Vernon	IC	DFO	6,000	58,524
Vernon City of	Vernon	IC	DFO	6,000	58,528
Vernon City of	Vernon	IC	DFO	6,000	58,532
Pacific Gas & Electric Co	Mobile GT	GT	DFO	13,300	58,547
Pacific Gas & Electric Co	Mobile GT	GT	DFO	13,300	58,562
San Diego Gas & Electric Co	Silver Gate	ST	DFO	69,000	58,626
Southern California Edison Co	Pebbly Beach	IC	DFO	1,575	58,628
Southern California Edison Co	Pebbly Beach	IC	DFO	1,000	58,629
Pacific Gas & Electric Co	Hunters Point	GT	DFO	56,250	58,681
San Diego Gas & Electric Co	Silver Gate	ST	DFO	69,000	58,743
San Diego Gas & Electric Co	Silver Gate	ST	DFO	40,000	58,783
Modesto Irrigation District	McClure	GT	DFO	71,200	58,844

Utility	Plant Name	Unit Type	Fuel	Name-plate	Cumulative MW
Modesto Irrigation District	McClure	GT	DFO	71,200	58,905
Pacific Gas & Electric Co	Downieville	IC	DFO	750	58,905
Imperial Irrigation District	Rockwood	GT	DFO	24,950	58,930
Pacific Gas & Electric Co	Mobile GT	GT	DFO	13,300	58,945
Pacific Gas & Electric Co	Sierra City MBL	IC	DFO	335	58,946
Pacific Gas & Electric Co	Washington MBL	IC	DFO	250	58,946
Southern California Edison Co	Pebbly Beach	IC	DFO	2,800	58,949
Imperial Irrigation District	Brawley	GT	DFO	11,500	58,960
Imperial Irrigation District	Brawley	GT	DFO	11,500	58,971