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United States General Accounting Office  
Washington, DC 20548

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June 29, 2001

The Honorable Stephen Horn  
Chairman, Subcommittee on Government  
Efficiency, Financial Management and  
Intergovernmental Relations  
Committee on Government Reform  
House of Representatives

Subject: California Electricity Market: Outlook for Summer 2001

Dear Mr. Chairman:

The electricity industry is restructuring throughout the United States and in other countries around the world to be more competitive. However, some restructuring efforts have exhibited problems during this transition. Beginning in May 2000, restructured electricity markets in California experienced unprecedented disruptions. Since that time, California and the West have witnessed extraordinarily high wholesale prices and sharp limitations on the availability of electricity. In California, these high prices have led to financial problems for the state's utilities, widespread power outages, and rate increases. In other states across the West, the high prices have also led to impacts including rate increases for consumers. These price and reliability problems have persisted through the winter and spring and are expected to worsen during the summer of 2001.

Concerned about the availability and reliability of electric power in California, you asked for our assessment of the outlook for California's electricity supplies this summer. We briefed your staff on the results of our work on May 10, 2001. This report summarizes those results.

**Background: Restructuring Is Changing Electricity Markets in California and Across the United States**

The electricity industry and its markets are undergoing substantial change in California and across the United States. Historically, the U.S. electricity industry has been highly regulated. The federal government has regulated interstate wholesale sales and transmission of electricity, while the states have regulated retail markets by planning for demand growth, reviewing and approving costs, and establishing rates of return with public involvement throughout the process. Under this system, federal regulators approved wholesale electricity prices while state regulators set retail electricity prices. In contrast, with the movement to restructure the electricity

industry, prices will eventually be based on markets and no longer set by regulators. In states such as California, electricity companies may now build power plants without the approval of state electricity commissions, although other approvals, such as those for environmental and other siting matters are still necessary. However, companies choosing to build these power plants are no longer guaranteed repayment of the costs of building them. In California and elsewhere, restructured markets increasingly involve multistate suppliers competing for customers and market share through a network of regional electricity transmission interconnections extending across multiple states. This increased emphasis on markets and competition has, in some measure, reduced the transparency of market transactions, costs, and revenues as well as public involvement in the process.

### **GAO Unable to Provide Independent Outlook for the Summer of 2001; Other Studies Have Mixed Projections**

In summary, due to lack of timely direct access to key information and limitations in other data, we are not able to provide our own assessment of the likely conditions in California this summer. In order to make an independent, reliable assessment we would need access to data underlying key supply and demand factors, such as power plant outages (i.e., plants that are not available to generate and sell electricity) and electricity supplies that could be imported into California. Furthermore, we found that existing forecasts of California's electricity market show stark differences in the expected conditions this summer. For example, studies by California's Energy Commission, the California Independent System Operator (ISO—the entity that manages most of the California electricity system), and the North American Electric Reliability Council<sup>1</sup> (NERC) have drawn widely different conclusions—ranging from a surplus of 10,600 megawatts (MW) to a shortage of about 13,000 MW. Without conducting our own assessment, we are unable to meaningfully narrow this considerable range of estimates.

#### Lack of Access to Key Information and Data Limitations Prevented Us From Making an Assessment

During the course of our work, we were unable to obtain detailed supply and demand information and thus could not assess the likely summer 2001 conditions. We requested this information from entities including the Office of the Governor of California, the California Energy Commission, the California ISO, and the California PUC but were provided only general information.

While there is general agreement about the historical demand factors that are important in estimating California's electricity needs, recent events could alter these historical relationships. In the past, electricity demand has been largely a function of known factors, such as temperature and overall economic activity. However, several programs have recently been initiated to reduce demand on the state's electricity

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<sup>1</sup> NERC, among other things, evaluates and reviews the reliability of existing and planned generation and transmission systems. NERC operates as a voluntary organization of electricity suppliers and owners of transmission systems.

system. For example, in public statements by the Governor and during our meetings with his senior staff, these officials said that consumers in the state will reduce demand by 10 percent or more in response to public information announcements and state conservation programs. In addition, the California PUC, in March and May 2001, increased electricity rates to many customers in the state. In order to make an accurate and reliable assessment of the demand for electricity in the state it would be necessary to incorporate demand reduction by consumers in response to these conservation programs and the recent rate increases. We attempted to develop an understanding of the potential influence of key energy conservation measures put into place by the state of California but state officials did not respond to numerous requests for information about these programs and the markets that they are expected to influence. We also attempted to determine the likely impact of the recent rate increases in the state on electricity demand, but the PUC was not able to provide information on how rates would increase for various customers in California because the issue had not yet been resolved.

Experts disagree on the likely contributions of the various electricity supply factors during this summer. These supply factors include power plant outages, contracts to purchase electricity, electricity supplies that could be imported into California, anticipated environmental and other limitations on electrical generation from hydroelectric and other energy sources, and new plant additions. Recently, some of these factors have varied considerably from their historical pattern and thus could have a significant impact on the electricity supply outlook for this summer. For example, power plant outages (the aggregate generating capacity unavailable to supply electricity) have increased four-fold over the past year compared with historic averages and were as high as 11,000 MW in December 2000. This represents roughly 25 percent of California's peak electricity demand of about 48,000 MW. To assess available supply, we asked the California ISO for detailed information about these outages, but only general information was provided because the information was considered proprietary.

Contracts to purchase electric power are also important in understanding available supplies. As a result of the deterioration in the financial condition of the state's utilities, and other factors, California is now the primary purchaser of electricity for the state's customers. Since January 2001, the state has been in the process of signing multiyear contracts to purchase electricity. To help us conduct an assessment for this summer, we made several requests for these contracts to help us determine the proportion of summer demand that the state has under contract and under what terms and conditions. However, officials with the Office of the Governor did not provide the requested information. Despite our assurances of confidentiality, these officials express concerns that if such information was made publicly available it could jeopardize future contract negotiations.

Similarly, we were unable to develop our own assessment of how electricity imports from other states could affect the situation in California due to limitations with the scope of data that is collected and maintained by states. State agency officials in several neighboring states told us they believe they have a good understanding of their respective overall electricity situation. However, they said that they generally

did not maintain readily available details or databases on certain aspects of their electricity situation, such as the amount of imports and exports of electricity transmitted into and out of the state. For example, officials from several states told us that they did not regularly collect data that would enable them to make a detailed assessment of how much electricity could be available for export to California. These state officials said that such details could be made available to the state if needed, but that they would have to collect it from the utilities and other power plant generators in the state. These state officials also said that the type of information state governments need has been changing as the electricity industry has restructured. Given the importance of imports to California's electricity market—they account for about 20 percent of annual supplies—information on available exports from neighboring states is critical to an assessment of the state's electricity supply situation.

### Other Assessments Present Wide Range of Estimates of Summer Conditions

Assessments by the California Energy Commission, the California ISO, and the North American Electric Reliability Council range from a surplus of 10,600 MW to a shortage of 13,000 MW as the potential market conditions for California in the summer of 2001. The state of California in its November 2000 forecast, the most recent that the state would provide to us, predicted that there would be surplus capacity of between 1,900 MW and 10,600 MW. Although we made numerous requests for an updated assessment, state officials did not provide one. According to electricity industry experts we spoke with, some of the key assumptions used to develop this assessment no longer reflect the likely summer conditions. For example, the state assumed that the ISO would be able to reduce overall demand on the electricity system by discontinuing service to some "interruptible" customers (i.e., customers who are charged a lower rate in exchange for agreeing to allow the ISO to discontinue service a certain number of hours per year during times of high demand). However, according to these experts, because of extensive interruptions in service to these customers during the winter of 2000/2001, this program will not be able to curtail service to these customers during the summer. A second forecast, prepared by the California ISO in March 2001, estimated shortages ranging from 700 MW to 3,600 MW. This forecast used less optimistic assumptions regarding summer electricity supplies, with the most pressing shortages occurring during June and July. A third forecast, prepared by NERC in May 2001, estimated that California would most likely face shortages of between 4,500 MW and 5,500 MW and outages during 260 hours of the summer, with possible shortages of up to 13,000 MW under some conditions. In developing this forecast, NERC used even less optimistic assumptions regarding key supply factors, including power plant outages, reductions in the availability of in-state hydroelectric power, electricity imports from neighboring states, and new power plants coming on line. In total, these four factors accounted for a variation of as much as 10,100 MW from the state's own estimate. However, this forecast also incorporated about 3,200 MW of demand reduction from conservation programs and consumer response to rate increases.

While each of these estimates relied on similar information, they drew widely different conclusions about likely market conditions in California. In general, these

three forecasts relied on substantially similar estimates of likely peak summer demand (that is, the highest level of electricity demand during the summer). However, there were significant differences in estimates of key supply factors. The range in these various estimates would have sharply different effects on the state of California and its consumers. For example, under one analysis the state would have over 10,600 MW of surplus capacity and consumers would not experience any disruptions, while another calls for substantial shortfalls in availability of electricity to the state and the possibility of outages for the equivalent of 13 million homes. We were unable to meaningfully narrow the discrepancies in these estimates.

## **Conclusions**

Lack of access to information and limitations associated with information that was available constrained our analysis. Throughout the course of our work we made numerous requests for detailed information and data, but only general information was provided. The general information was not adequate to allow us to draw our own conclusions regarding how individual supply and demand factors would likely affect California's electricity market nor for us to provide an overall assessment of the market this summer. With the increased emphasis on company-to-company competition, information vital to performing detailed analyses may increasingly be considered confidential, proprietary, or commercially sensitive and, as a result might not always be made available to us. This comes at a time when electricity markets are evolving in such a way that the effects of the California electricity situation may have far-reaching implications for companies, organizations, and people far outside the state's borders.

## **Scope and Methodology**

In attempting to develop our own assessment of the summer of 2001, we (1) discussed the outlook for several key supply and demand factors with the Office of the Governor of California, the California Energy Commission, the California Electricity Oversight Board, the California Air Resources Board, the California Public Utilities Commission, the California ISO, NERC, officials from western state governments, and other industry experts; (2) made numerous requests for analysis and data from the Office of the Governor, the California Department of Water Resources, the California Energy Commission, and NERC; (3) reviewed other data maintained by the Department of Energy's Energy Information Administration, the Federal Energy Regulatory Commission, the National Oceanic and Atmospheric Administration, and other federal agencies; (4) discussed the likely summer conditions and the California electricity market with the Federal Energy Regulatory Commission and industry experts; and (5) discussed possible alternative data sources with industry experts.

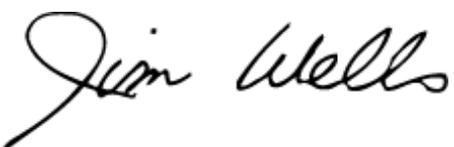
To describe the assessments of the summer of 2001, we reviewed reports prepared by the state of California Energy Commission, the California ISO, and NERC. We also discussed these findings with the staff of the California Energy Commission and the California ISO. We conducted our review from March through May 2001 in accordance with generally accepted government auditing standards.

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Unless you publicly announce its contents earlier, we plan no further distribution of this report until 14 days after the date of this letter. At that time, we will send copies of this letter to appropriate congressional committees and interested Members of Congress. This letter will also be available on GAO's home page at <http://www.gao.gov>.

If you have any questions about this letter or need additional information, please call me on (202) 512-3841 or Daniel Haas on (202) 512-3841. Other key contributors to this report were Richard Iager, Jon Ludwigson, Frank Rusco, and Barbara Timmerman.

Sincerely yours,



Jim Wells  
Director, Natural Resources  
and Environment

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