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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

ENERGY AND MINERALS
DIVISION

March 18, 1982

B-206743

The Honorable Frank H. Murkowski
Chairman, Subcommittee on Water
and Power
Senate Committee on Energy and
Natural Resources



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Dear Mr. Chairman:

Subject: Information concerning Western Area Power Administration's sale and purchase of power (EMD-82-65)

The Western Area Power Administration (Western) markets power produced at Federal dams in 15 Western States. In some cases this power is supplemented through power purchases from other generation. One such arrangement receiving recent attention is the purchase and sale of power in Western's Sacramento Area Office. Your March 2, 1982, letter expressing interest in this area requested that we provide history, facts, and figures concerning Western's 1/

- purchases of power from the Centralia powerplant marketed in California;
- sale of power to Pacific Gas and Electric Company (PG&E); and
- arrangements to purchase power back from PG&E, and how this relates to Western's purchase power requirements.

To address your inquiry we relied primarily on knowledge and data obtained from previous General Accounting Office studies 2/

1/On October 1, 1977, Congress passed the Department of Energy Organization Act and transferred to the new agency responsibility for marketing Federal power. The Department of Energy's Western Area Power Administration handles this responsibility for 15 Western States. Previously the Department of the Interior's Bureau of Reclamation managed this function.

2/"California's Central Valley Project--Proposed Power Rate Increase," November 19, 1973, B-125042 and "Rationale for Power Rates Charged by the Central Valley Project to Pacific Gas and Electric Company," EMD-78-81, November 21, 1977.

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concerning Western power rates. We supplemented this previous work by obtaining current information on Western's purchase power requirements and discussed these matters with officials of Western's Sacramento, California, area office; Golden, Colorado, headquarters; and the Washington, D.C., office. We also obtained and used pertinent agency documents on the subject.

We performed our review in accordance with GAO's current "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" except that because of the two week time frame for providing this information we could not verify the accuracy of the information provided to us by Western. In the following sections we present the history of the purchase and sale of power in Western's Sacramento Area Office and the current aspects of the purchase and sale arrangements.

HISTORICAL ASPECTS OF PURCHASE POWER

The Sacramento Area Office of Western markets power produced at Federal dams in northern California (Central Valley Project of the Bureau of Reclamation). Power generation began in 1944 and has basically been sold to preference customers 1/ and PG&E. Since power marketed by Western comes from hydropower, the amount of generation is dependent on water availability. Because water availability varies during seasons, much of the power is best used for peak load 2/. Western was, therefore, limited in the amount of firm (consistently relied on) load it could provide. However, when Western's hydropower is operated in conjunction with base load 2/ generation, Western can meet a higher firm load and, thus, have a more efficient use of generating resources.

To achieve these efficiencies, a contract was developed in 1951 to meld the Federal hydropower with PG&E's base load thermal generation and to deliver power over PG&E transmission lines to preference customers. A second contract permitted PG&E to purchase surplus Federal hydropower not required by preference customers. Although these contracts were modified at times, they remained in effect

1/Customers served by Western which include municipalities, cooperatives, irrigation districts, and Federal and State agencies in northern California. These customers were established by legislation.

2/Load is the amount of power needed at a given point on an electric system. The total load of a utility system is generally made up of base load and peak load. Base load is the generating load which is more or less constant throughout a period of time. Peak load is the load generated when demand is the highest.

until July 31, 1967, when a new sales and transmission contract was entered. The new contract, which basically is a continuation of the previous two contracts, runs through the year 2004. The basic difference allows for importation of Northwest power into Western's system with excess power being provided to PG&E.

To obtain Northwest power, Western entered a 10-year contract, signed in December 1967, to purchase about 400 megawatts 1/, starting in 1971, from the coal-fired Centralia powerplant located near Centralia, Washington. This power was imported to northern California over the Pacific Northwest-Pacific Southwest Intertie using the 400 megawatts of transmission capacity allocated the Federal Government. As a result of the contracts, Western's predecessor, the Bureau of Reclamation, estimated that Federal hydropower plus the power from Centralia and exchanges with PG&E would supply a firm load of 925 megawatts to meet its preference customers' needs and to meet the load growth (increased demand for power) of certain customers up to a total of 1,050 megawatts until 2004. 2/

Under the PG&E contract, power in excess of preference customer's needs was to be sold to PG&E with an equivalent amount of power made available for repurchase at times when generation was insufficient to meet preference customer's requirements. Energy 3/ sold to PG&E before July 31, 1967, is referred to as Energy Account No. 1; sales since that date are in Energy Account No. 2. In addition, capacity 4/ sold to PG&E after January 1, 1965, is in a Capacity Account.

The energy in Account No. 1 would be repurchased from PG&E at a fixed price of 2.81 mills per kilowatt-hour (mills/kWh). Energy in Account No. 2 would be repurchased at the selling price plus an adjustment for the change in thermal production costs in PG&E's system during the time the energy was sold. Thus, power from Account

1/1 megawatt equals 1,000 kilowatts.

2/The firm load requirements increased, from 1050 to 1152 megawatts in 1981, as a result of a lawsuit by the City of Santa Clara against the United States Government [City of Santa Clara v. Andrus 572 F. 2d 660 9 (9th Cir. 1978)] to acquire project power.

3/Energy is the amount of power used.

4/Capacity is the rate at which a generating unit produces, or is capable of producing energy. In accounting terms, the capacity component generally consists of the annual fixed, operating, and maintenance costs of the generating plant that produces the power. The energy component generally consists of the annual fuel and variable cost of the generating plant.

No. 2 will be more expensive and will cost an estimated 55 mills/kWh in 1985 and increase to about 90 mills/kWh in 1988. As of March 1982, the balance in Energy Account No. 1 was 8.5 billion kWh, Energy Account No. 2 was 19.5 billion kWh, and the Capacity Account was 41 million kilowatt-months. 1/

CURRENT ASPECTS
OF PURCHASE POWER

The 10-year Centralia contract ended in December 1981. Starting in 1982 Western has had to replace Centralia power to meet its customers firm requirements. Contractually, Western can use its repurchase privileges with PG&E and draw the necessary power from Accounts No. 1 and No. 2. Western estimates these accounts, if used exclusively to supplement Federal generation, will be depleted by 1985 and 1991, respectively.

To determine the most cost-effective way of providing power to its preference customers, Western studied the implications of exercising its repurchase privileges by purchasing power from Accounts No. 1 and No. 2 and compared this option to another alternative. Western under this alternative would obtain power from (1) importing coal-fired energy from the Midwest, (2) purchasing nuclear power from the Palo Verde plant near Phoenix, Arizona, and (3) purchasing surplus energy, primarily from the Northwest. While a combination of these options or other options may be feasible, none were provided to us by Western.

The following table which includes capacity, energy, and wheeling charges 2/, reflects the results of Western's February 1982 analysis. Under option A, Western would repurchase power from PG&E using Energy Accounts No. 1 and 2 and the Capacity Account as much as possible. Western estimates this would cost about \$1.2 billion through 1988. Under option B, Western would seek power from other sources using its repurchase privileges sparingly to avoid repurchases from Energy Account No. 2. This would cost about \$978 million or about \$191 million less than option A. These options were developed by Western after the 1983 budget documents were submitted to the Congress. Although these alternatives were not submitted, they were discussed in the statements Western presented at the 1983 appropriation hearings.

1/This is firm capacity made available to PG&E which was accumulated on a monthly basis.

2/The use of the transmission facilities of one system to transmit power of and for another system.

Purchased Power and Wheeling Requirements
(note a)

<u>Fiscal year</u>	<u>Option A</u>	<u>Option B</u>	<u>Cost difference between options A and B</u>
1983	\$ <u>b/44,712,000</u>	\$ 55,560,000	\$(10,848,000)
1984	53,238,000	75,378,000	(22,140,000)
1985	135,203,000	82,585,000	52,618,000
1986	266,093,000	183,572,000	82,521,000
1987	308,166,000	255,039,000	53,127,000
1988	<u>362,274,000</u>	<u>326,271,000</u>	<u>36,003,000</u>
Total	<u>\$1,169,686,000</u>	<u>\$978,405,000</u>	<u>\$191,281,000</u>

a/ Assumes normal water year less 20 percent to reflect a dry year situation. Also, includes various assumptions regarding customer load level, PG&E's Diablo Canyon Nuclear Powerplant, Palo Verde Nuclear Powerplant, Trinity and New Melones Dams, negotiations with PG&E on dependable capacity, wheeling rates, and rates for future power purchases.

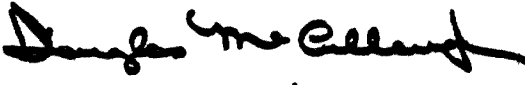
b/ Estimate is higher than the administration's 1983 budget request of \$30,750,000. This budget figure was determined back in October 1981 and was based only on purchases from PG&E Bank Account No. 1 and estimates for generation and wheeling that have since changed. Western plans to use carryover funds from 1982 to cover this shortfall. If carryover funds do not materialize, Western may need a supplemental appropriation.

Under option A power will be bought from Account No. 1 until 1985. To that point in time, the inexpensive power from this account helps make option A about \$33 million less expensive than option B. In 1985 the cost of option A begins to exceed option B because Western will be buying more expensive power from Account No. 2. From a budgeting view, option A is attractive in the short run since it lowers funding outlays immediately. In the long run it would have a greater impact on the budget and the consumer. However, whether Western could meet its objectives under option B depends upon the negotiation of favorable power purchase contracts from other sources, including the availability of transmission and intertie facilities.

Copies of this report will be provided to the Senate and House Legislative and Appropriation Committees for Western, the Office of Management and Budget, the Department of Energy, and

others on request. We trust this information will be of use in your deliberations. If we can be of any further assistance, please let us know.

Sincerely yours,

for 
J. Dexter Peach
Director