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

ENERGY AND MINERALS
DIVISION

APRIL 8, 1981

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The Honorable James B. Edwards
The Secretary of Energy

Dear Mr. Secretary:

Subject: Bonneville Power Administration's Efforts In Implementing ~~the~~ Pacific Northwest Electric Power Planning and Conservation Act (EMD-81-67)

Passage of the Pacific Northwest Electric Power Planning and Conservation Act (Public Law 95-501) on December 5, 1980, culminated over 3 years of legislative effort, which significantly expanded the authority and responsibility of the Bonneville Power Administration. During this period, the General Accounting Office (GAO) issued several reports on Northwest power issues, and on legislative proposals to restructure Bonneville. Based on those reports and related work recently performed at Bonneville, we have several observations for your consideration in implementing the act. Our suggestions concern (1) energy planning, (2) power sale contracts, (3) conservation and renewable resource acquisition, and (4) organization and staffing. We are also concluding a review of rates and repayment at Bonneville and will be including our recommendations on these matters in a separate letter.

ENERGY PLANNING

Forecasts by regional utilities indicate the Pacific Northwest could experience power shortages in the 1980s during periods of unfavorable water conditions. Differing opinions exist, however, as to whether such shortages will occur, or how severe they might be. Several reasons exist for continuing disagreements about energy demand projections.

--The methodology for estimating the relationship between energy demand and the many independent variables remains an uncertain art.

--The Northwest's energy data bases, while vastly improved, still contain errors and omissions. The data base on end use consumption in sectors other than transportation is still weak. This results in imprecise estimates of the degree to which oil, gas, and electricity can be substituted for one another.

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--Even with consensus about the methodology and an improved data base, uncertainties will still exist about future changes in the key assumptions that determine energy demand.

--Uncertainty exists about how anticipated electric rate increases and energy conservation programs will affect consumption patterns.

--Questions also exist about how quickly renewable energy resources can be brought on line and, since there is little historical experience with many of these resources, how such impacts can be captured in the forecast.

The act provides for the creation of a regional council of State representatives and charges it with the responsibility for developing a regional conservation and electric power plan, which includes a 20-year electricity demand and supply forecast. Because the act allows the states up to 1 year to create the council and an additional 2 years to develop a plan, 3 years could pass before a regional demand forecast is developed. In the interim, to meet its own responsibilities, Bonneville is planning to review utility forecasts and to prepare a regional forecast. Such efforts could be useful to the council when established. Given the uncertainties inherent in demand forecasting, we believe that Bonneville should explicitly recognize the risk of planning errors in preparing its forecasts. Bonneville should not limit itself to a single prediction in projecting future power demands. The forecast should include a probable range of eventualities, indicating the high, low, and medium level of demand. This would allow the development of alternative strategies to deal with unexpected shifts in demand.

The complexities of demand forecasting suggest to us that Bonneville should assign a high priority to this effort, and should develop a highly qualified forecasting section with a wide variety of expertise. Bonneville's Administrator should direct top management's attention to developing a credible and independent demand forecast. Every effort should be made to ensure that

--a range of forecasts is developed using the best methodologies available;

--forecasts are based on accurate and comprehensive information, including appropriate end-use data whenever possible; and

--the forecasting assumptions are made explicit, and special attention is given to the possible impacts of anticipated rate increases and conservation programs.

POWER SALE CONTRACTS

The act directs Bonneville to offer its customers long-term contracts for the sale of electricity within 9 months of the passage of the act. This requirement places significant time pressures on Bonneville's contracting staff which must develop about 150 power sale contracts by early September 1981 for Federal agencies, direct service industries, and public and private utilities.

The following provisions, in our opinion, should be included in these contracts.

--Conservation. The act provides for the inclusion of model conservation standards in the electric power plan to be developed by the council. It also authorizes the imposition of surcharges on rates to customers not implementing appropriate conservation measures. However, the act also allows up to 2 years for plan development after the council is formed. Because these standards will most likely be developed well after the September deadline when Bonneville must make contract offers to customers, Bonneville should make all contracts subject to the standards to be subsequently developed, as well as any surcharges which might be levied.

--Access to records. The act requires Bonneville, upon request from customers, to pay billing credits for conservation activities and for resource acquisition activities which reduce Bonneville's obligation to acquire resources. Because the credits will be related to costs incurred by customers, power contracts should provide Bonneville with sufficient access to customer records to verify such cost data.

In addition, Bonneville is authorized to exchange power with Northwest utilities at "average system costs" for qualifying residential loads. Here again, an access to utility records is required to verify such costs, and to assure that benefits from such exchanges are properly passed through to intended end users.

CONSERVATION AND RENEWABLE RESOURCE ACQUISITION

The act increased Bonneville's bonding authority for self-financing by $1.25 billion and reserved this amount for conservation and renewable resource development. As mentioned earlier, the act mandates these resources as first and second priority for Bonneville when acquiring additional resources. Although currently being revised, Bonneville's initial assessments show that the region could secure about 400 megawatts from conservation and about 500 megawatts from renewable resources by 1985.

Conservation

Bonneville established a Conservation Division in late 1978 and in late 1979 initiated a conservation test and demonstration effort estimated to cost about $6 million. This effort consisted of home weatherization loans, irrigation pump testing, and installing solar hot water heaters and small windmills.

With passage of the act, Bonneville developed a proposed fiscal year 1981 conservation program for implementation during the next 5 years which included nine efforts, estimated to cost $422.5 million, as follows:

	(Millions)
Home weatherization, water heater wrap, and flow restrictors	$255.7
Commercial energy efficiency	5.9
Street and area lighting incentives	67.5
Incentives for new home construction standards	26.6
Solar home builders design	1.7
Pump testing/repair rebate	2.8
Customer system efficiency	.3
Research, development, and demonstration projects	5.8
Utility administration, including energy audits	56.0
Total	$422.3

The above activities are described by Bonneville as its first phase efforts in implementing the conservation provisions of the act. They were selected because of their identified potential for obtaining substantial savings.

We are aware of the short time frames within which Bonneville developed this early effort and realize that revisions or additions may be made as better information is collected and program needs are further defined. We do, however, have observations that may be useful to Bonneville in considering future program revisions. We noted that activities for the commercial sector appear to be modest and there are no efforts aimed at the industrial sector, which is the single largest user of electricity in the Pacific Northwest, using a little over 50 percent. The 15 direct service industries served by Bonneville alone account for nearly 35 percent of the total electricity it markets. Bonneville is undertaking an industrial end-use study, scheduled to be completed in October 1981, of Northwest industries which should provide a basis for designing industrial conservation program efforts. The study is determining industrial energy uses; potential for cost effective electricity conservation within the industries; maximum regional conservation potential; and the financial, institutional, and technical barriers to conservation.

We believe every effort needs to be made to assure that conservation opportunities in the industrial sector, including Bonneville's direct service customers, are identified as soon as possible and program efforts aggressively launched as soon as possible. In addition, Bonneville should develop a system for monitoring the rate of progress by customers in implementing conservation efforts. This will provide Bonneville with information required to evaluate program effectiveness, design new program efforts, and impose any rate surcharges provided for under the act, should the regional council decide to grant this authority.

In a related area--rate design--we observed that considerable uncertainty and disagreement exists among Bonneville staff, wholesale customers, and various end-user groups on the merits of using alternative rate structures to encourage conservation. The act requires the regional council to prepare, in consultation with Bonneville and others, a report with recommendations on use of such rate structures. To help provide empirical data for the council's use, we believe that Bonneville, in conjunction with volunteering utilities, should conduct a series of demonstration projects to evaluate the use and impact of a variety of conservation-inducing rate structures.

Renewable resources

With respect to renewable resource acquisition, Bonneville did not have a program effort underway prior to the new act. Bonneville's fiscal year 1981 budget contains the following estimates for renewable resource power acquisition.

Fiscal year	Millions of dollars
1981	$ 5.8
1982	12.6
1983	23.5
1984	34.7
1985	58.1

Staff are currently preparing guidelines and procedures for acquiring the power output from or directly sponsoring the development of individual renewable resource projects. With respect to the budget amounts shown above, Bonneville officials caution that the speed with which renewable resources are developed, or power acquired, will depend on (1) how fast sufficient staff capabilities are acquired to analyze and process individual renewable projects and (2) the time needed to comply with environmental requirements. We were informed that if an environmental impact statement is required, 21 to 33 months would be needed to prepare the statement.

To assure that renewable resources make a contribution to the region's power resources as soon as possible, Bonneville management should make every effort to streamline and finalize acquisition procedures and guidelines.

ORGANIZATION AND STAFFING

Since 1937, Bonneville's major role has been that of a distributor and marketer of Federal power. Consequently, the agency has been organized and staffed to construct transmission lines and wheel Federal electric power to customers. The new act significantly expanded Bonneville's responsibilities in energy planning, and for the first time provided it with broad purchase authority to meet regional power needs. The act strongly emphasizes conserving electricity and developing renewable resources by making these activities Bonneville's first and second priority when acquiring new resources. Additional emphasis is provided in the act by directing the Bonneville Administrator to establish an executive level position for conservation and renewable resource development. To assure the effectiveness of the position, it should be placed sufficiently high enough within Bonneville's organizational structure, possibly reporting directly to the Administrator, to assure the priority emphasis intended by the act.

Bonneville recently was granted authority to increase its ceiling by 34 employees in fiscal year 1981 and 83 employees in fiscal year 1982 to implement the new responsibilities placed upon it by the act. With a new legislative mandate, increased staffing, and a new Administrator, this seems like an opportune time for the Department, in conjunction with Bonneville, to comprehensively examine Bonneville's organizational structure. This study should thoroughly examine organizational alternatives, program options, priorities, and funding levels.

We would appreciate your comments, and those of the new Bonneville Administrator, when appointed, on the above observations. Should you or the new Administrator desire, members of my staff and I stand ready to discuss the above matters.

Sincerely yours,

J. Dexter Peach
Director