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Report to the Congress; by Elmer B. Staats, Comptroller General.

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Financial statements of the Tennessee Valley Authority (TVA) for fiscal year 1976 were examined and the results of its operations and the changes in the financial position of its several programs for the years ending on June 30, 1975 and 1976 were reviewed. Findings/Conclusions: The financial statements were found to present fairly the Tennessee Valley Authority's financial position at June 30, 1976 and 1975 and the results of its operations and the changes in the financial position of its several programs for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis. TVA's operating revenue from the sale of electric energy increased 45% in fiscal year 1976 over 1975 and its net income increased 22%. Fuel and purchased power cost TVA $950 million in fiscal year 1976 and accounted for 56 cents of each revenue dollar, as compared to 33 cents 5 years ago. Coal inventory shortages increased considerably in the last 3 years. As a result of energy shortages, rising production and construction costs, and increasing environmental concerns, TVA is studying alternatives to its current rate structure. In fiscal year 1975, TVA began adjusting power rates monthly based on changes in the actual costs of fuel and purchased power. In fiscal year 1976, TVA spent $35 million on research programs which included environmental quality projects, advanced coal combustion techniques, solar energy, and the Clinch River Breeder Reactor project. (Author/SC)

REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Examination Of Financial Statements Of The Tennessee Valley Authority For Fiscal Year 1976

The financial statements of TVA present fairly its financial position as of June 30, 1976, the results of its operations, and the source and application of its funds for that year.

FOD-77-1

FEB. 7, 1977

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-114850

To the President of the Senate and the
Speaker of the House of Representatives

This report provides information on the results of our examination of the Tennessee Valley Authority's financial statements for fiscal year 1976, including comments on the Authority's programs.

We made our examination pursuant to the Government Corporation Control Act (31 U.S.C. 850).

We are sending copies of this report to the Director, Office of Management and Budget; the Secretary of the Treasury; and the Chairman, Board of Directors, Tennessee Valley Authority.

Comptroller General
of the United States

Contents

ABBREVIATIONS

GAO	General Accounting Office
TVA	Tennessee Valley Authority
EPA	Environmental Protection Agency
ERDA	Energy Research and Development Administration
AID	Agency for International Development
IFDC	International Fertilizer Development Center

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

EXAMINATION OF FINANCIAL STATEMENTS OF THE TENNESSEE VALLEY AUTHORITY FOR FISCAL YEAR 1976

D I G E S T

In GAO's opinion the financial statements included in this report present fairly the Tennessee Valley Authority's (TVA's) financial position at June 30, 1976 and 1975, and the results of its operations and the changes in the financial position of its several programs for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

TVA's operating revenue from the sale of electric energy increased $515.4 million, or 45 percent, in fiscal year 1976 over 1975, and its net income increased $22.7 million, or 22 percent. (See p. 3.)

Fuel and purchased power cost TVA $950 million in fiscal year 1976 and accounted for 56 cents of each revenue dollar, as compared to 33 cents 5 years ago. (See p. 3.)

At June 30, 1976, TVA owed the Treasury $65.1 million as a return on the Government's appropriation investment of $995.8 million at July 1, 1975, and $20 million as a partial repayment of the investment. TVA made the $85.1 million payment to the Treasury on September 30, 1976. On that same date, TVA paid the Treasury $16.3 million as a return on, and $5 million as a repayment of, the appropriation investment to cover the fiscal year transition quarter ended September 30, 1976. (See p. 4.)

Coal inventory shortages increased considerably in the last 3 years--$15.3 million (813,000 tons) in fiscal year 1976. TVA set up a task force to study the problem, increased the frequency of taking physical inventory, and plans to repair or replace scales used to weigh coal. (See p. 7.)

TVA's electric rate structure is based on a cost-of-service concept. As a result of energy shortages, rising production and construction costs, and increasing environmental concerns, TVA is studying other rate structures. (See pp. 9 and 10.)

In fiscal year 1975, because of large and unpredictable changes in fuel costs, TVA began adjusting power rates monthly based on changes in the actual costs of fuel and purchased power. Although the market price of coal remained relatively stable throughout fiscal year 1976, TVA believes it is necessary and desirable to continue having a fuel adjustment provision as a safeguard against the uncertainties of power system costs. (See p. 12.)

Browns Ferry nuclear plant's units 1 and 2, with 2.3 million kilowatts capacity, remained out of service for the entire fiscal year as a result of a fire on March 22, 1975. In August 1976, TVA received licenses to resume operating the units and expects to operate them at full power by the 1976-77 winter season. (See p. 15.)

TVA conducts energy research and development projects to provide adequate, clean, economical, and reliable electric power and to find better, less costly ways of protecting the environment. In fiscal year 1976, TVA spent $35 million on research programs which included environmental quality projects, advanced coal combustion techniques, solar energy, and the Clinch River Breeder Reactor project. (See p. 19.)

TVA ceased operating its phosphorous plant in fiscal year 1976 and plans to substitute commercial, wet-process phosphoric acid for the acid produced by its furnaces. As a result of the shutdown, TVA eliminated 350 jobs but, it placed most of these employees in other jobs. TVA also recognized a loss of $3.6 million on a phosphate plant and related facilities. (See p. 24.)

In fiscal year 1976, TVA's fertilizer development work, in less developed countries,

snifted from its National Fertilizer Development Center to a newly formed private International Fertilizer Development Center, adjacent to TVA's national center. (See p. 25.)

CHAPTER 1

INTRODUCTION

The Tennessee Valley Authority (TVA) is an independent Government corporation created by the Tennessee Valley Authority Act of May 18, 1933 (48 Stat. 58, 16 U.S.C. 831), to improve the usefulness of the Tennessee River and to help develop other resources in the Tennessee Valley and adjoining areas. TVA generates, transmits, and sells electric power; helps control floods; promotes navigation on the Tennessee River; develops fertilizers and munitions; and participates in the development of recreational, agricultural, and other resources in the Tennessee Valley.

TVA activities are directed by its Board of Directors. The President appoints the Board members, with the advice and consent of the Senate, which serve 9-year overlapping terms. The President also designates one member as presiding officer. As of June 30, 1976, the Board members and the expiration dates of their terms were:

Aubrey J. Wagner, Chairman	May 18, 1978
William L. Jenkins	May 18, 1981

Mr. Don McBride served as a member of the Board until his term expired on May 18, 1975. The position was still vacant as of October 31, 1976.

Mr. Lynn Seeber, TVA's General Manager, is responsible to the Board for carrying out its programs, policies, and decisions.

In accordance with the Government Corporation Control Act (31 U.S.C. 851), this report includes information and comments to keep the Congress informed of TVA's financial condition and operations.

Additional information on TVA's activities during fiscal year 1976 can also be found in its annual report to the President and to the Congress, which is required by the TVA Act.

CHAPTER 2

POWER OPERATIONS

As part of its resource development program, TVA supplies power at wholesale prices to 160 municipal and cooperative electric systems which distribute the power to about 2.5 million customers in parts of seven States. TVA also directly serves 49 industrial customers with large or unusual power requirements and several Federal atomic, aerospace, and military installations.

Financially, TVA's power program is separate from its other programs. The power program is self-supporting, and part of the net power proceeds earned under the program is used to pay a return on appropriated funds invested in TVA's power facilities and to repay the investment. TVA's power accounts are kept in accordance with the uniform system the Federal Power Commission prescribed for electric utilities.

OPERATING RESULTS

Power program assets increased by $927 million during fiscal year 1976 and totaled $6.804 billion at June 30, 1976, or about 90 percent of TVA's total assets of $7.596 billion. A summary of TVA's power operations results for fiscal years 1976 and 1975 follows.

	1976	1975	Percent increase or decrease(-)
	(000 omitted)		
Operating revenues:			
Sales of electric energy	$1,670,934	$1,155,567	45
Rents and miscellaneous revenues	21,573	20,724	4
Total operating revenues	1,692,507	1,176,291	43
Operating expenses	1,413,772	961,138	47
Operating income	278,735	215,153	30
Other income and deductions	139,723	117,184	19
Income before interest charges	418,458	332,337	26
Interest charges	292,406	228,976	28
Net income	126,052	103,361	22
Return on appropriation investment	65,056	71,372	-9
Increase in retained earnings reinvested	$ 60,996	$ 31,989	91

The $516 million increase in operating revenue was due to higher charges to customers to recover increased costs of fuel and purchased power. Much of the increased cost was due to the outage of Browns Ferry nuclear plant units 1 and 2, and the need to replace less costly nuclear power with power generated from fossil-fired plants and purchased from other systems. A general rate adjustment of 1 cent a kilowatt-hour to cover other power-generating costs also contributed to the increase in power revenue in January 1975.

Operating expenses increased by $452.6 million, or 47 percent, in fiscal year 1976 over the prior year. Of this increase, 80 percent resulted from higher fuel costs and larger purchases of high-cost energy from other electric utilities. The cost of fuel ($731 million) and power purchased from other utilities ($219 million) accounted for 56 cents of each revenue dollar in fiscal year 1976 as compared to 33 cents 5 years earlier.

TVA's payment to the Treasury as a return on the Government's appropriation investment decreased by $6.3 million, or 9 percent, because of a lower interest rate.

PROPRIETARY CAPITAL AND PAYMENTS TO THE TREASURY

The Government's total proprietary capital in TVA was $2.691 billion at June 30, 1976, and $1.936 billion, or 71.9 percent, of this amount was in the power program. Changes in proprietary capital during fiscal year 1976 are shown in the following table.

	Change		
	Power	Nonpower	Total
	(000 omitted)		
Appropriation investment:			
Congressional appropriations	$ 54	$ 99,971	$100,025
Transfers of property from other Federal agencies	260	87	347
Less repayments to general fund of the Treasury	-	13	13
Appropriation investment	314	100,045	100,359
Net income of power program	126,052	-	126,052
Net expense of nonpower programs	-	-54,024	-54,024
Increase in proprietary capital	126,366	46,021	172,387
Less:			
Payment of return on appropriation investment	65,056	-	65,056
Repayment of appropriation investment	20,000	-	20,000
Net increase in proprietary capital	$ 41,310	$ 46,021	$ 87,331

Section 15d of the TVA Act requires the corporation to pay to the Treasury each year, beginning with fiscal year 1961, a return on the appropriation investment in power facilities. The required payment is based on the average interest rate payable to the Treasury on its total marketable public obligations at the beginning of the fiscal year. The rate is applied to the unrepaid appropriation investment on that date.

The Fiscal Year Adjustment Act (Public Law 94-273) changed the date of the annual payments to the Treasury from June 30 to September 30 beginning with fiscal year 1976. The Fiscal Year Transition Act (Public Law 94-274) requires TVA to make a payment for July 1, 1976, through September 30, 1976.

For fiscal year 1976, TVA paid $65.1 million as a return on the unpaid appropriation investment of $995.8 million as of June 30, 1975. For the transitional quarter, TVA paid $16.3 million as a return on the unpaid appropriation investment of $996.1 million as of June 30, 1976. Both payments, totaling $81.4 million, were made to the Treasury on September 30, 1976.

Section 15d also requires a repayment of the appropriation investment in power facilities beginning in fiscal year 1961. The required payments are: $10 million annually for 1961-65, $15 million annually for 1966-70, and $20 million every year thereafter until $1 billion has been repaid. Under specified conditions the Board may defer these payments and the payments of return on the appropriation investment, for not more than 2 years, but the Board has not exercised that option. TVA had repaid the Treasury $225 million through June 30, 1975; $20 million for fiscal year 1976; and $5 million for the transition quarter (June 30, to September 30, 1976). Under legislation in effect before the 1961 repayment provision, TVA had paid $185 million of power proceeds to the Treasury.

Section 26 of the act provides for annual payments to the Treasury of any power or nonpower proceeds not needed for the operation of the power program, dams and reservoirs, or the manufacture and distribution of fertilizers. In fiscal year 1976, TVA paid about $13,000 of nonpower proceeds to the Treasury representing receipts from the Beech River Watershed Development Authority on its obligation to TVA. TVA had paid $41.7 million from nonpower proceeds under this provision through June 30, 1976.

BORROWING AUTHORITY

TVA is authorized, under section 15d of the act, to issue and sell bonds, notes, and other evidences of indebtedness up to $15 billion, outstanding at any one time, to help finance its power program. Section 15d states that the time of issuance and the maximum interest rates to be borne by the obligations are subject to approval by the Secretary of the Treasury, who is authorized to purchase TVA interim obligations up to $150 million, outstanding at any one time. Debt service on these obligations is payable solely from TVA's net power proceeds and has precedence over repayments of the appropriation investment and payments of a return on investment to the Treasury. Outstanding bonds and notes totaled $4.405 billion at June 30, 1976, an increase of $745 million, or 20.4 percent, over the June 30, 1975, amount.

The Basic Tennessee Valley Authority Power Bond Resolution, adopted October 6, 1960, and section 15d of the act set forth financial requirements which must be met by TVA's power operations before additional bonds can be issued.

Rate test

Section 15d of the act and section 3.2 of the resolution require TVA's rates to be sufficient to cover (1) annual costs associated with operating the power system, including debt service and payments to State and local governments instead of taxes, (2) payments to the Treasury as return on and repayment of, the appropriation investment, and (3) a margin for reinvestment in the power system and other purposes.

TVA met the rate test for fiscal year 1976. Gross power revenue of $1,692.5 million exceeded the costs and payments specified and provided a $24.5 million margin.

Bondholders investment test

A second requirement of both section 15d of the act and section 3.3 of the resolution measures the adequacy of corporate earnings and protects holders' investments in securities. The test is made for successive 5-year periods beginning with fiscal year 1961. It requires the corporation to apply net power proceeds to reduce its capital obligations or to reinvest the proceeds in power assets. At the end of each 5 years, the reinvestments must equal or exceed depreciation and amortization of capital expenditures for power properties plus the net proceeds from disposal of power facilities.

October 1, 1976, marked the beginning of a new 5-year period. TVA determines the status of the bondholders

investment test at the end of each fiscal year to avoid large deficiencies or excesses in the latter part of a 5-year period. The status at June 30, 1976, is shown below.

Net power proceeds used to:	
Reduce appropriation investment	$ 20,000,000
Reinvest in power assets	166,786,419
	$186,786,419
Depreciation, amortization, and proceeds from sales of power facilities	125,790,040
Margin	$ 60,996,379

Additional bonds test

Section 3.4 was added to the resolution to insure that the equity investment in the power system would be maintained or increased if additional debt is incurred. Section 3.4 prohibits any increase in outstanding bonds unless a power income test specified in the resolution is met. To meet the test, net power income for the last 5 fiscal years must have aggregated at least:

$200 million

plus

$15 million for each one-quarter of 1 percent (or major fraction thereof) by which the interest on Treasury borrowings has averaged more than 3.25 percent during the 5 years.

TVA met the minimum net income requirement for the 5 years ended June 30, 1975, and sold $800 million in bonds in three issues during fiscal year 1976 resulting in a net increase of $700 million in outstanding long-term debts. TVA's net power income for these 5 years aggregated $547 million, and the minimum net income requirement for that period was $365 million.

TVA also met the minimum net income requirement for the 5 years ended June 30, 1976, and additional bonds on parity with those outstanding can be issued in fiscal year 1977. TVA's net power income for these 5 years aggregated $554 million, and the minimum net income requirement for that period was $365 million.

Short-term notes payable to the Federal Financing Bank totaled $580 million at June 30, 1976, as compared to $635 million payable to the public at June 30, 1975. Short-term notes payable to the Treasury at June 30, 1976, totaled $150 million, the same amount outstanding at June 30, 1975. In addition, TVA bonds amounting to $100 million became due and payable July 1, 1976; and, on that date, TVA issued $235 million of short-term notes to the Federal Financing Bank.

All bonds and notes issued by TVA during the year are payable to the Federal Financing Bank or the Treasury.

COAL INVENTORY SHORTAGE

Coal inventory shortages at TVA increased considerably over the last 3 years, as shown in the following table.

Fiscal year	Coal inventory shortage	
	Tons	Millions
1974	192,252	$ 1.5
1975	450,907	5.4
1976	812,135	15.3

TVA, recognizing the magnitude of the fiscal year 1976 shortage, analyzed for the first time the systemwide coal shortage. In the past, TVA investigated coal shortages only at individual steamplants.

After identifying the magnitude of the fiscal year 1976 coal shortage, TVA formed a coal task force, consisting of representatives of the four divisions of power production, power resource planning, purchasing, and finance. The task force was created to identify the cause of the shortage and to develop recommendations and procedures to better account for coal received, burned, and stored. The task force's final report, dated November 5, 1976, identified a number of factors contributing to the inventory shortages and stated that inaccurate measurements of coal burned was the most significant cause. The task force reported that, at some plants, scales used for measuring the coal burned were inadequate and outmoded and that administrative procedures should be improved to insure accurate measurements of the coal burned at plants. The task force did not identify any major differences between the quantity of coal purchased and received.

In addition to initiating the task force study, TVA temporarily modified its physical inventory procedures to better account for inventory shortages as they occur. In July 1976, TVA began taking physical inventory of coal stockpiles at 3 of its 12 steamplants each month. Under this

procedure, each steamplant's coal stockpile will be inventoried and inventory records adjusted three times a year, instead of once a year. TVA plans to continue monthly physical inventories until its records of coal received, burned, and stored are accurate.

The task force recommended that coal weighing facilities at most of TVA's steamplants be repaired or replaced to assure more accurate measurements of coal received and burned.

TVA's internal auditors have reported deficiencies in coal-weighing facilities and procedures at individual steamplants each year since fiscal year 1973. TVA has made few modifications or additions to its coal-weighing facilities. New scales were installed at the Cumberland steamplant in fiscal year 1975, but the task force reported 12 other belt scales were obsolete as of September 1976. TVA plans to repair or replace the scales at other plants and provide for more frequent calibrations of the scales.

CHAPTER 3

ENERGY PRICING

The TVA Act requires TVA to sell power at rates as low as feasible but high enough to maintain the financial soundness of the power program. TVA sets the rates to be charged on the basis of the cost of providing electric service to various classes of customers. This approach to setting power rates is characterized by decreasing unit prices for electricity with increasing usage. In fiscal year 1976, TVA studied alternative ways of pricing electricity, including time-of-day pricing and lifeline rates.

TVA has maintained a fuel adjustment clause in its rate structure which provides for adjusting power rates each month to offset the increases and decreases in the actual costs of the fuel TVA burns in its generating plants and the power it purchases from other utilities.

CURRENT RATE STRUCTURE

TVA's rate structure follows a cost-of-service approach. Under the cost-of-service concept, each class of consumers is charged a rate that will recover all of the costs of serving that class, and no one is entitled to service below their costs.

Some classes of consumers are more economical to serve than others and are charged less a kilowatt-hour. Among the factors causing one customer class to be more economical to serve than another are (1) purchasing power at a steady level rather than in varying amounts and (2) the need for less equipment to get the power from the TVA system to the customer.

In fiscal year 1976, TVA and its distributors used multi-step declining block rate schedules. Under the residential schedules, the average price of power usually declines with an increase in energy use. This is because the fixed investment and consumer costs of the distributor for each kilowatt-hour of electricity decreases as these costs are spread over a larger number of units.

The Board establishes the rates which TVA charges for electricity. The Board also determines whether a rate adjustment is needed based on a quarterly review of prospective power revenues and expenses by TVA and a committee representing its distributors. The last quarterly rate increase occurred in January 1975.

TVA plans to revise its rate structure in January 1977. As part of the rate charge, TVA's base rates will be increased to include a portion of the increased fuel and purchased power costs previously billed through its monthly fuel adjustment clause. As a result of the change, TVA expects the gross power revenues collected through base rates charged to wholesale, general, and residential power customers to increase by 0.5, 2, and 0.6 percent, respectively.

For residential customers, the rate structure will be revised to add a minimum customer charge and reduce the number of price tiers for additional power usage. On TVA's most frequently applied rate schedule, the minimum charge is $2.30, notwithstanding power usage. In addition, a four-tier energy charge structure was replaced by a two-tier structure divided at 500 killowatt-hours. These changes will result in a $1 rate increase for every 1,000 killowatt-hours used over 1,160 each month.

The effects of these two changes are illustrated below for various levels of electricity consumption, based on TVA's old rate schedule R-2 and its replacement rate schedule RS-8.

Monthly use (kilowatt-hours)	Cost to consumers under New rates	Old rates	Change
500	$13.76	$14.42	-$0.66
1,000	23.27	23.43	-.16
1,500	32.78	32.44	.34
4,000	80.33	77.49	2.84

ALTERNATIVE RATE STRUCTURES

As a result of energy shortages, rising production and construction costs, and increasing environmental concerns, there is a growing interest in utility pricing concepts and rate structures. This interest has led to a number of rate restructuring and load management proposals.

In October 1976, TVA reported on several proposed rate structures in an environmental statement on electric power rate policies. Basically TVA concluded, at that time, that none of the alternative rate structures met its needs as well as its cost-of-service rate structure. TVA recognizes, however, that changes in its power program objectives and operating characteristics may require changes in its rate structure. Therefore, TVA is investigating the effects of various rate structures on both power customers and electric utility operation.

TVA and the Chattanooga Electric Power Board are investigating patterns of electrical consumption for major consumer categories. In the first phase of the study, TVA has selected a scientific sample of 585 residential, commercial, and industrial customers. Each customer was interviewed to provide information on things, such as construction characteristics, appliance or equipment mix, and differences in lifestyles or production hours. This information is needed to help explain why energy consumption varies between consumers. Special metering devices are recording the energy used by these consumers every 15 minutes. This will enable TVA to analyze energy consumption by time of day and during weather extremes. TVA plans to gather data for 1 year (calendar year 1976) but may gather data for up to 3 years to determine the effect of normal customer growth in electrical use.

TVA will conduct tests to evaluate various rate restructuring and load management proposals in the second phase of the study. Peak load or time-of-day pricing--a concept of charging higher rates during the intervals when a utility's loads, and presumably costs are highest--will be the first alternative rate concept evaluated.

TVA is also participating with seven other electric utilities in an electric utility rate design study conducted jointly by the Electric Power Research Institute and the Edison Electric Institute. The main purpose of the study is to evaluate time-of-day pricing and load management as a means to deal equitably with the higher cost of utility service. These techniques may also encourage shifts in power use patterns so power customer load can be served at less cost.

Another rate restructuring proposal TVA evaluated is the concept of lifeline rates. These rates are intended to lower the electric bill of the poor and the elderly by charging lower rates to those customers consuming some minimum amount of electricity. According to TVA, the basic assumption underlying most lifeline rate proposals is that customers with low electricity consumption are poor and elderly and that customers with high electricity consumption are affluent.

Preliminary results from TVA's study of lifeline proposals show, however, that the poor (family income of less than $4,000) and elderly (head of household 65 or older) cannot be segregated on the basis of electricity consumed.

TVA's study showed that

--an average of 55 percent of the poor used more than 725 kilowatt-hours a month, and 20 percent of high-income families averaged less than 725 kilowatt-hours a month and

--6 percent of the poor and elderly in the TVA area are renters who pay for electricity in their rent, and residential lifeline rates would not benefit them.

According to TVA, there is no easy, or administratively inexpensive, way to design a lifeline rate for the TVA service area that will aid a substantial proportion of the poor and elderly without subsidizing the electric bill of a number of other households. TVA believes that any lifeline rate proposal would need to include income and age restrictions to effectively redistribute income to the poor and elderly.

FUEL ADJUSTMENT CLAUSE

In fiscal year 1975 because of large and unpredictable variations in fuel costs, TVA adopted a policy of adjusting power rates monthly to reflect the changes in the actual cost of fuel and purchased power.

TVA's fuel adjustment clause is intended to keep rates as low as feasible and also cover changes in fuel and purchased power costs. According to TVA, the clause provides the best way to insure fair treatment of consumers and also insure that TVA receives the revenues necessary to meet the financial requirements of the TVA Act and the Basic Bond Resolution. The clause causes power rates to increase or decrease as the actual cost of fuel and purchased power increases or decreases each month.

Although the market price of coal remained relatively stable throughout fiscal year 1976, TVA believes it is necessary and desirable to continue having a fuel adjustment clause. According to TVA, the fuel adjustment clause enables it to maintain power rates at minimum levels while also guarding against the uncertainties of power supply costs. Changes in the cost of the fuel burned are based on the average cost of fuel used, rather than on its current market price. Therefore, in times of relatively stable coal prices, the average cost of coal used will increase as older, lower priced coal contracts are replaced by new contracts for coal at current, but higher, market prices.

In addition, the provision helps to assure that revenues will be adequate to cover the cost of power purchased from other systems. These costs can vary significantly depending on the amount of power purchased and the price charged. TVA believes that actions taken by other oil-producing nations with respect to the supply or price of crude oil are unpredictable, and that these actions could quickly affect the demand for and price of coal. Unforeseen environmental requirements and unplanned system outages could also greatly affect fuel and purchased power costs. In addition, TVA notes that the continued ability to reflect monthly changes in fuel costs enables TVA not only to recognize increased coal costs but also the lower fuel costs associated with operating its nuclear powerplants.

In deciding on a method of having monthly power charges show increases or decreases in fuel and purchased power costs, TVA considered several approaches varying in complexity. TVA selected a less complicated approach of adjusting rates based on actual costs incurred. In selecting the method to be used, TVA recognized that there would be a 2-month lag between the time costs for fuel and purchased power are incurred and the time monthly billings would show the increases or decreases in those costs. Because of the lag, increases in the cost of fuel and purchased power totaling $88.8 million, recorded in fiscal year 1975, provided the basis for adjustments in power billings for July and August 1975. Increases in the cost of fuel and purchased power totaling $112.7 million, recorded in fiscal year 1976, were not included in power billings until July and August 1976.

During fiscal year 1976, TVA's base electric rates were increased each month under the fuel adjustment clause. For example, a residential customer using 1,000 kilowatt-hours of electricity was billed fuel adjustment charges ranging from $7.82 in September 1975 to $5.10 in May 1976. In July and August 1976, the fuel adjustment charge for this same residential customer was $7.43 and $7.89, respectively.

Because fuel and purchased power costs are not expected to return to pre-1975 levels, a portion of the increased cost previously billed under the fuel adjustment clause will be included in TVA's base rates in January 1977. As part of this change, the fuel adjustment formula was revised to correspondingly reduce the monthly fuel adjustment charge.

In fiscal year 1975, TVA included its annual inventory adjustment as a cost of fuel in computing the monthly fuel adjustment charge. In fiscal year 1976, because of large

inventory shortages, TVA excluded the annual inventory adjustment from the fuel adjustment charge computation. Recognizing that the annual inventory adjustment is a cumulative effect of the entire year's operations, TVA decided that the adjustment was not properly classified as fuel cost of a given month for the purpose of computing the fuel adjustment charge and that a large adjustment would distort 1 month's fuel adjustment charge. Beginning in July 1976, TVA will take inventory at 3 of its 12 coal stockpiles each month. TVA will include the adjustments resulting from the monthly physical inventories in computing monthly fuel adjustment charges.

If the fiscal year 1976 inventory adjustment had been passed through the fuel adjustment clause as in the prior year, the August 1976 fuel adjustment charge would have been increased from $7.89 to $9.28 per 1,000 kilowatt-hours of electricity used. TVA's change in treatment of annual inventory adjustments does not affect the fiscal year 1976 financial statements. However, power revenue and net income for the transition period ended September 30, 1976, were $12.5 million less than if the inventory adjustment had been included in determining charges under the adjustment addendum.

CHAPTER 4

CONSTRUCTION

At June 30, 1976, the book value of TVA's property, plant, and equipment was $6,980 billion, an increase of $985 million from June 30, 1975. The balances at June 30, 1976, and the increases from the end of the prior fiscal year follow.

	Balance June 30, 1976	Increase
	(000 omitted)	
Completed plant, net	$4,164,471	$174,461
Construction and investigations in progress	2,588,257	752,507
Nuclear fuel, net	227,289	58,212
Total	$6,980,018	$985,180

Ninety percent of the nearly $7 billion of fixed property represents the book value of TVA's power program facilities. Ninety-five percent of the cost of construction and investigations underway at June 30, 1976, represents future power facilities.

TVA's installed power generating capacity totaled 27.1 million kilowatts at June 30, 1976, an increase of 345,000 kilowatts, or about 1.3 percent, over the June 30, 1975, capacity. The increase resulted primarily from TVA's acceptance of four gas turbine units at the Gallatin steamplant in July 1975. Browns Ferry units 1 and 2, 2.3 million kilowatts capacity, were out of service for the entire fiscal year as a result of a fire on March 22, 1975. Following hearings held by its Atomic Safety and Licensing Board, the Nuclear Regulatory Commission issued a license to resume operation of units 1 and 2 on August 20, 1976. TVA expects these units to be operating at full power by the 1976-1977 winter season--a period of heavy power demands.

To meet projected increases in power demands, TVA plans to expand its power supply from 27.1 to 48 million kilowatts by March 1986. Of the increase in capacity, 19.3 million kilowatts, or 92 percent, will be additional nuclear generating capacity. By 1986, 40 percent of TVA's generating capacity will be nuclear-powered generating plants, compared to 8.5 percent at June 30, 1976.

About 1.5 million kilowatts of peaking capacity--units normally used only during periods of highest power demands--is being added through a pumped-storage hydroelectric plant near Chattanooga, Tennessee. (See photograph on p. 18.) Water will be pumped from the Tennessee River into a mountaintop reservoir during offpeak periods and released to generate electric energy during peak periods. The units will be able to go from a standstill to full capacity in just 4 minutes. Commercial operation of the first of the plant's four units is scheduled to begin in February 1978.

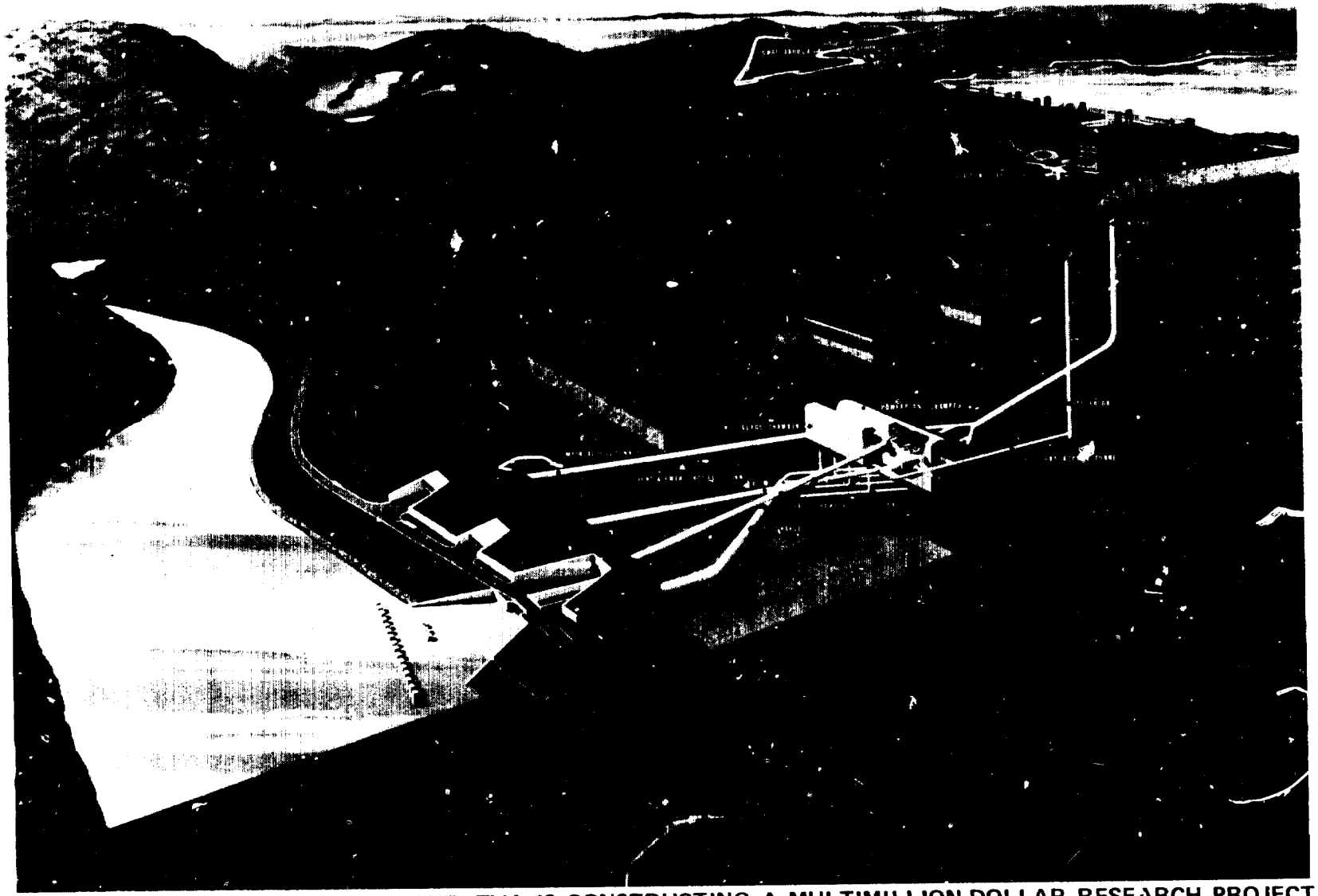
Scheduled commercial operation of Browns Ferry unit 3, Sequoyah unit 1, and Watts Bar unit 1 was delayed from 7 to 10 months during fiscal year 1976. The major reasons for the delay were late delivery of equipment and materials. TVA received a license for unit 3 of the Browns Ferry nuclear plant from the Nuclear Regulatory Commission on August 18. TVA expects to complete startup procedures and testing of this unit by about February 1977. Commercial operation dates for units of the Hartsville, Phipps Bend, and Yellow Creek nuclear plants have been extended 9 months to bring TVA's estimates in line with nationwide average construction time for nuclear powerplants.

A table summarizing capacity, schedule, and cost data for the major additions to TVA's power system is shown on page 17.

In fiscal year 1976, TVA's construction expenditures under the power program totaled $1.065 billion. The estimated cost to complete power projects is $10.395 billion.

Plant	Total estimated plant cost (000,000 omitted)	Unit	Nameplate capacity (kilowatts)	Scheduled commercial service dates: Original	Fiscal year 1976
Browns Ferry nuclear	a/ $ 920	3	1,152,000	Oct. 1972	Feb. 1977
Sequoyah nuclear	980	1	2,441,160	Oct. 1973	May 1978
		2		Apr. 1974	Jan. 1979
Raccoon Mountain pumped storage	310	1	1,530,000	Sept. 1974	Feb. 1978
		2		Dec. 1974	Apr. 1978
		3		Mar. 1975	June 1978
		4		June 1975	Aug. 1978
Watts Bar nuclear	985	1	2,539,800	Oct. 1976	June 1979
		2		Apr. 1977	Mar. 1980
Bellefonte nuclear	1,200	1	2,664,000	July 1977	June 1980
		2		Apr. 1978	Mar. 1981
Hartsville nuclear	2,500	1	5,148,000	Apr. 1979	Feb. 1983
		2		Apr. 1980	Feb. 1984
		3		Oct. 1979	Aug. 1983
		4		Oct. 1980	Aug. 1984
Proposed Phipps Bend nuclear	1,600	1	2,574,000	Apr. 1982	Apr. 1984
		2		Apr. 1983	Apr. 1985
Proposed Yellow Creek nuclear	1,900	1	2,750,000	Apr. 1983	Mar. 1985
		2		Apr. 1984	Mar. 1986
Total	$10,395		20,798,960		

a/Includes the cost of units 1, 2, and 3 because no breakout of the cost for unit 3 is available. Other data presented is for unit 3 only.



AT BROWNS FERRY NUCLEAR PLANT, TVA IS CONSTRUCTING A MULTIMILLION-DOLLAR RESEARCH PROJECT DESIGNED TO FIND OUT WHAT HAPPENS TO FISH POPULATIONS AND OTHER AQUATIC LIFE WHEN HEATED WATER IS RELEASED INTO RESERVOIRS.

(Photograph courtesy of TVA)

CHAPTER 5

ENERGY RESEARCH AND DEVELOPMENT

TVA performs and participates in energy and energy-related research and development efforts, including environmental technology and effects studies. TVA's effort is directed toward assessing new energy technologies with the goal of providing adequate, clean, economical, and reliable electric power. A major purpose of this research effort is to find better, less costly methods to protect the environment.

A power research staff in TVA's Office of Power coordinates energy and energy-related research and development projects. Research and development is administered and financed in several ways: in-house research conducted and financed by TVA, cooperative research conducted primarily by TVA, but financed either completely or partially by other organizations, and major national programs to which TVA and its distributors make financial contributions and participate in varying degrees in management and guidance. TVA's power-related research and development activities totaled about $35 million in fiscal year 1976, of which power proceeds provided about $27 million and other organizations provided about $8 million.

Research programs conducted or participated in by TVA included environmental quality projects, advanced coal combustion techniques, and solar energy. TVA also continued its participation in the Clinch River Breeder Reactor project.

ENVIRONMENTAL QUALITY

TVA's research, monitoring, and surveillance of the environmental quality of the Tennessee Valley are coordinated with related programs of Federal and State pollution control agencies. TVA's program, however, is concentrated on problems directly associated with its power operations, such as the emission pollutants from steamplant stacks and warm water discharges from steamplant cooling systems. Research projects in progress during fiscal year 1976 included sulfur dioxide emissions control and a biothermal research project.

Sulfur dioxide emissions control

Sulfur emissions have been recognized as a major bottleneck in the clean energy program. Believing there was no commercially demonstrated process for removing sulfur dioxide from stack gases of large coal-burning powerplants, TVA began work on the design and construction of a full-scale wet limestone scrubber in March 1973. The scrubber is scheduled to

be installed and in operation by March 1977, on a 550,000 kilowatt unit at TVA's Widows Creek steamplant. Estimated cost of the facility through March 1977 is $54 million, or $98 per kilowatt; however, additional capital expenditures will be needed by 1983 to expand settlement ponds needed to deposit sludge produced by the scrubber.

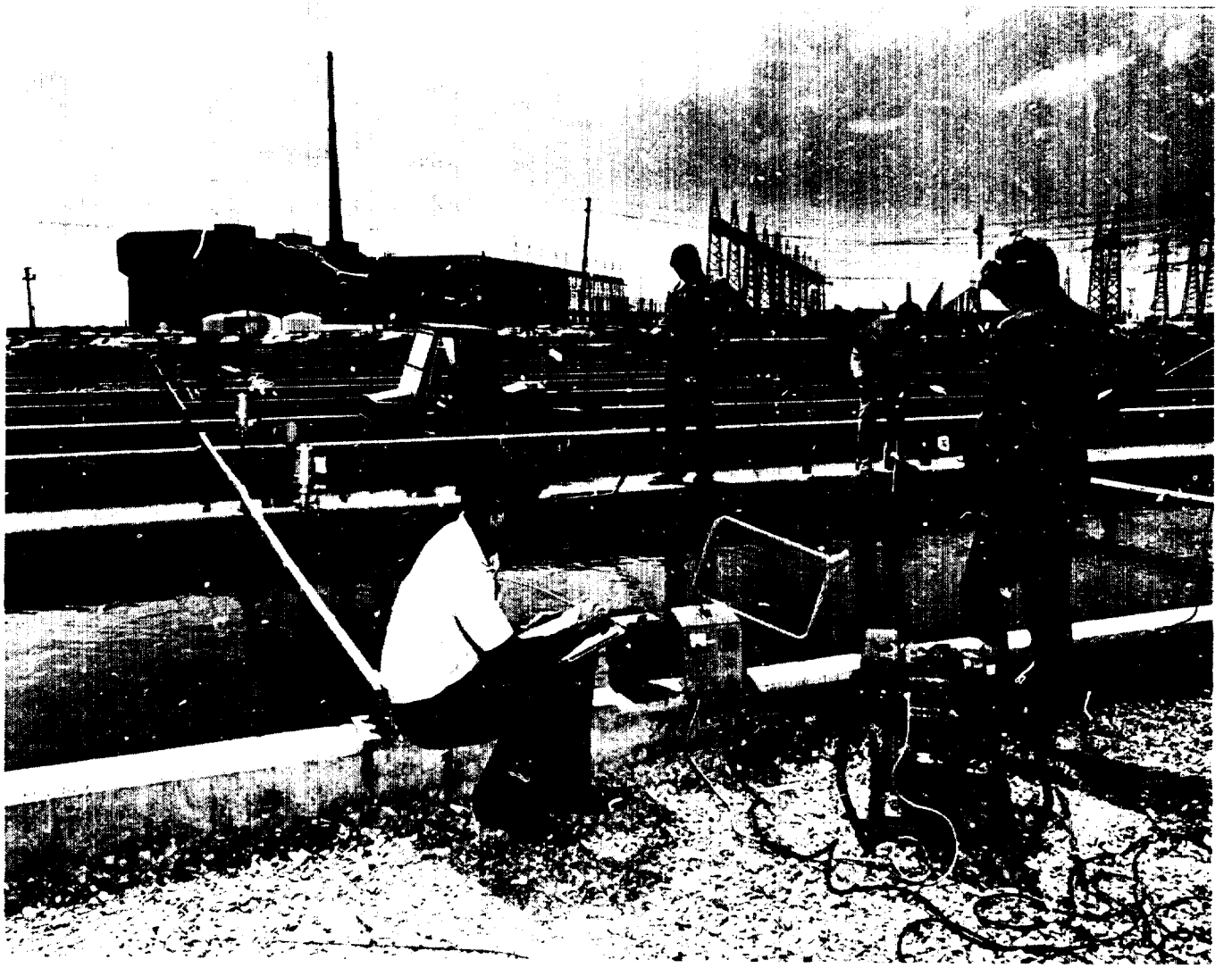
The successful demonstration of the wet limestone scrubber has become increasingly important to TVA and the utility industry as a whole. Federal regulations limit the emission of sulfur dioxide into the ambient air. The Environmental Protection Agency (EPA) has held that the Clean Air Act requires constant emission limitation measures, such as scrubbers, low-sulfur coal, and coal washing, to meet ambient air standards. TVA has argued, however, that harmful levels of sulfur dioxide concentrations can be avoided at ground level by dispersing the gas from very tall stacks and by cutting back on generation at a plant when local meteorological conditions interfere with proper dispersal.

On April 19, 1976, the United States Supreme Court denied TVA's petition for a review of lower court decisions upholding EPA's position. TVA estimates that meeting current sulfur dioxide emission standards with constant control measures will require a capital investment of over $500 million and result in increased annual costs of $250 million.

Biothermal research project

TVA and EPA are cooperating in a study of how the aquatic community is affected by elevated water temperatures. According to TVA, previous research has centered on the upper and lower letnal temperature limits for aquatic life, but little is known about the long-term effects of elevated water temperatures. This project will study the long-term effects of various temperatures on the growth, reproduction, and mortality of warmwater fish, aquatic plants, and invertebrates common to the southern region of the United States.

A biothermal research facility constructed at TVA's Browns Ferry nuclear plant will provide a semi-natural environment for the study. (See photograph on p. 21.) The facility has 12 channels, called "fish ditches," which are 360 feet long, 14 feet wide and almost 7 feet deep. Water in three of the channels is maintained at normal reservoir temperature. The remaining nine channels are heated to various levels for the experiments. The facility can maintain temperatures up to 36.7° C, or about 98° F. Experiments on each aquatic species will last about 1 year.



RACCOON MOUNTAIN PUMPED-STORAGE HYDRO PLANT WILL INCLUDE AN 8,000-FOOT-LONG DAM ALONG THE CURVING MOUNTAINTOP, CREATING A 528-ACRE STORAGE RESERVOIR THAT WILL BE FILLED WITH WATER PUMPED FROM NICKAJACK LAKE A THOUSAND FEET BELOW.

(Photograph courtesy of TVA)

A vital part of the Browns Ferry nuclear plant's operation (and all nuclear plants) is using water drawn from a reservoir to cool the condenser. Coal-fired electric plants also use water in their cooling systems. How warm water can be when returned to a reservoir is regulated by States and EPA. TVA hopes its biothermal research will provide a better basis for establishing water temperature standards which have a strong effect on the electric power industry.

ADVANCED COAL COMBUSTION

TVA's energy research staff believes that fluidized-bed combustion, an advanced combustion technique, offers greater potential for the TVA system than any current or proposed research project. Because they produce more complete burning of fuel, fluidized-bed combustion boilers can use lower grade coals that have no other market values. By mixing lime or limestone with coal during combustion, environmental standards for fly ash and sulfur dioxide emissions can be met without using pollution control equipment, such as electrostatic precipitators and scrubbers.

During fiscal year 1976 TVA completed a study for EPA comparing the cost of fluidized-bed combustion with that of a conventional powerplant with a scrubber. Preliminary results indicate a fluidized-bed combustion powerplant would produce electricity for about 15 percent less than a conventional plant using the same fuels and a scrubber.

TVA plans to build a 200 megawatt demonstration fluidized-bed powerplant. TVA plans to allocate $4 million to prepare site studies, cost estimates and preliminary designs. TVA will make its final decision on building a full-scale plant following completion of these efforts. TVA estimates that the demonstration plant would be completed by 1984 and will cost about $200 million.

CONSERVATION WITH SOLAR ENERGY

TVA's solar energy research concentrates on analyzing the fuel conservation potential of solar heating systems and the potential effect solar heating would have on the power system. Because of extended periods of cloudy weather that often occur in the winter season in the Tennessee Valley region, solar-heated homes will need considerable storage capacity or backup heating systems. If electric backup systems are used, TVA's requirements for peaking capacity could be significantly increased. Water and space heating of both commercial and residential buildings is likely to be the first major use of solar energy in the TVA region and, TVA is studying the potential of solar energy for this purpose.

TVA is purchasing solar water heating units for several TVA-owned or occupied buildings to gain experience with several types of solar water heating systems. The volume and temperature of hot water used will be measured, and a kilowatt-hour meter will record the amount of supplemental heat used during the course of the program. The program will determine whether solar water heating can be accomplished economically in the TVA area with units purchased "off the shelf."

TVA is also providing funds for the construction and demonstration of a solar-heated house. The solar house is one of three energy conservation systems being evaluated under a cooperative arrangement with the Oak Ridge National Laboratory, University of Tennessee, and TVA. The project will evaluate the operation of the systems and provide information of their effect on the peak loads of an electric system.

CLINCH RIVER BREEDER REACTOR PROJECT

TVA helps finance, and participates in the guidance of, the Clinch River Breeder Reactor project. TVA believes the breeder reactor is one of the most promising options to help the Nation meet its future needs for electric energy.

The proposed breeder reactor plant, with a generating capacity of about 400,000 kilowatts, will be built on the TVA system near Oak Ridge, Tennessee. The demonstration project was undertaken in 1972 by TVA, Commonwealth Edison Company of Chicago, and Energy Research and Development Administration (ERDA), with the participation of all segments of the electric utility industry. Industry funding for the project is set at about $250 million.

Estimated cost of the project has grown to $1.95 billion from $700 million in 1972. As a result, in May 1976, ERDA assumed management control of the project, previously held by the Project Management Corporation, to recognize the Government's larger financial commitment.

Initial site clearance for construction of the breeder reactor is scheduled for late 1976. Current construction schedules anticipate initial operation of the plant in 1983.

CHAPTER 6

FERTILIZER ACTIVITIES

TVA's National Fertilizer Development Center at Muscle Shoals, Alabama, administers a nationwide program consisting primarily of (1) basic and applied research and development and (2) introduction of new and improved fertilizers to the farming and fertilizer manufacturing industries.

In fiscal year 1976, TVA conducted fertilizer programs in 44 States and Puerto Rico. Cooperating with land-grant universities, TVA conducted farm test-demonstrations in Puerto Rico and 30 States outside the Tennessee Valley. Fertilizer industry demonstrations were also made by 212 distributors in 40 States and Puerto Rico.

PHOSPHOROUS OPERATIONS

TVA ceased its phosphorous operations in fiscal year 1976. TVA closed two phosphorous furnaces in March 1976, and the final one in May 1976. TVA decided in fiscal year 1972 to close the plant because it was no longer economical to operate. Furnace acid produced by the plant was costing considerably more than its substitute, wet-process phosphoric acid, and TVA expected this cost relationship to continue. However, commercial supplies of wet-process acid were unreliable and this delayed the transition. Shifts in the fertilizer program have reduced TVA's need for phosphoric acid and TVA believes an adequate supply of wet-process phosphoric acid can be obtained on the open market at favorable prices.

The shutdown of the phosphorus plant eliminated 350 jobs consisting of 32 salaried positions, 80 trades and labor maintenance employees, and 238 operators. TVA was successful in placing a large number of these employees in other jobs or in training programs. Two hundred and forty-five employees sought job placement counseling and 125 were placed in other positions or elected to retire. Fifty-three employees were placed in TVA apprenticeship programs, 8 in a TVA student generating plant operator program, and over 100 in other jobs, mostly within TVA.

As a result of the shutdown, TVA recognized a loss of $3.6 million, $3 million on the phosphate plant and $0.6 million on related mines and inventories. TVA anticipates leasing or selling the phosphorous furnaces and related equipment during fiscal year 1977.

INTERNATIONAL FERTILIZER DEVELOPMENT CENTER

Over the past several years, TVA through its National Fertilizer Development Center has increasingly assisted in upgrading food and fertilizer production in less developed countries. TVA has provided this assistance on a reimbursable basis at the request of the Agency for International Development (AID) and other organizations. For example, in fiscal year 1975 TVA scientists and engineers worked in 13 countries helping to solve local fertilizer production problems, assess markets, evaluate nutrient needs, and find feasible ways of expanding the fertilizer industry. TVA's international fertilizer development staff provided about 49 staff-months of technical assistance to AID, totaling about $195,000, in fiscal year 1975.

Addressing the United Nations General Assembly in April 1974 regarding the world food shortage and the energy crisis, the Secretary of State proposed the establishment of an international fertilizer institute and stated the United States would contribute facilities, technology, and expertise to such an undertaking. In furtherance of that interest, in October 1974, the International Fertilizer Development Center (IFDC) was created as a nonprofit organization with its headquarters and facilities located at Muscle Shoals, Alabama. IFDC's goal is to improve fertilizers and fertilizer know-how in developing countries through research and development, technical assistance, and training and communications. Major emphasis will be on fertilizers for tropical and subtropical agriculture. IFDC will be financed by contributions from international sources, and its staff will be multinational.

IFDC's facilities--office, laboratories, greenhouse, and pilot plants--will be built on 30 acres of TVA property close to its National Fertilizer Development Center. Construction began in April 1976; the facility is scheduled to be completed by January 1978. TVA will work closely with the new organization and provide on a reimbursable basis facilities to IFDC, including library, computers, specialized laboratories, and pilot plants. TVA will also provide IFDC with access to TVA staff experience and expertise in fertilizer technology. IFDC estimates that the availability of TVA facilities and personnel will save $100 million and permit IFDC programs to proceed at an accelerated pace.

TVA-ARMY MAINTENANCE CONTRACT

Among the transactions we reviewed as part of our fiscal year 1976 audit was a maintenance contract between the Army Armament Command and TVA's Office of Agricultural and Chemical

Development. The contract provides for TVA to maintain in standby status a phosphate development works plant for the Army at Muscle Shoals, Alabama. The plant once produced an intermediate agent required in producing nerve gas, but has not been operated in 19 years. The Army had paid TVA over $2 million--about $90,000 in fiscal year 1976--for maintenance services which consisted mainly of security and upkeep of the roads, grounds, and fences. However, the level of maintenance TVA provided had not been sufficient to prevent the plant from seriously deteriorating. TVA officials in charge of the plant's maintenance optimistically estimated that from 1 to 2 years would be required to mobilize the plant. They stated that some of the equipment is antiquated and obtaining repair parts may be difficult. We were further advised that the estimated cost to make the plant operational would be about $20 million.

By letter of August 9, 1976, to the Commanding General of the Army Armament Command, we described the plant's poor physical condition and inquired about the Army's need and plans for it. We also inquired about the possibility of leasing all or part of the plant's idle equipment to third parties who had expressed interest in it. On October 12, 1976, the Army replied that representatives of TVA, the Army's District Engineer in Mobile, Alabama, and the Army Armament Command were preparing a report of availability for lease of the entire facility. According to the Army, a prospective lessee was awaiting completion of the report and subsequent advertising for bid, so at least one response was anticipated. The Army expects advertising for bid to begin about 3 months following completion of the report.

CHAPTER 7

SCOPE OF EXAMINATION

AND

OPINION ON FINANCIAL STATEMENTS

Our examination of TVA's balance sheet as of June 30, 1976 and 1975, and the related statements of power and nonpower programs and of changes in financial position for the years then ended (exhibits I through IV) was made in accordance with generally accepted auditing standards and included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As provided by section 15d(c) of the TVA Act, TVA employs a firm of certified public accountants to audit its accounts and financial statements for each fiscal year, to facilitate its issuance and sale of revenue bonds. This audit does not take the place of the audit required by us under the Government Corporation Control Act. As a part of the examination, we observed and tested the firm's audit work, and our satisfaction with its quality and scope enable a substantial reduction in the extent of our own examination.

In our opinion the financial statements (exhibits I through IV) present fairly TVA's financial position at June 30, 1976 and 1975, and the results of its operations and the changes in the financial position of its programs for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

The supplemental information appearing in schedules A to F which has been subjected to audit procedures applied in the examination of the basic financial statements is, in our opinion, fairly stated in relation to the basic financial statements taken as a whole.

FINANCIAL STATEMENTS

EXHIBIT I

EXHIBIT I

TENNESSEE VALLEY AUTHORITY

(A CORPORATION WHOLLY OWNED BY THE UNITED STATES OF AMERICA)

BALANCE SHEETS JUNE 30, 1976 AND 1975

A S S E T S

	Power program		All programs	
	1976	1975	1976	1975
	(Thousands)			
PROPERTY, PLANT, AND EQUIPMENT, substantially all at original cost				
Completed plant; schedule A				
Multipurpose dams; note 1	$ 492,413	$ 491,054	$1,070,469	$1,017,155
Single-purpose dams	72,628	66,115	72,628	66,115
Steam production plants	2,229,552	2,158,152	2,229,552	2,158,152
Nuclear production plants	552,357	512,653	552,357	512,653
Other electric plant	1,670,031	1,550,672	1,670,031	1,550,672
Other plant	-	-	185,061	175,338
	5,016,981	4,778,646	5,780,098	5,480,085
Less accumulated depreciation and depletion; note 2	1,458,872	1,344,468	1,615,627	1,490,074
Completed plant, net	3,558,109	3,434,178	4,164,471	3,990,011
Construction and investigations in progress; schedule B and note 3	2,470,896	1,714,179	2,588,257	1,835,750
Nuclear fuel; schedule B	242,047	183,835	242,047	183,835
Less accumulated amortization; note 2	14,758	14,758	14,758	14,758
Nuclear fuel, net	227,289	169,077	227,289	169,077
Total property, plant, and equipment	6,256,294	5,317,434	6,980,017	5,994,838
CURRENT ASSETS				
Cash	13,915	153,601	59,600	194,933
Accounts receivable	146,398	129,519	157,324	137,662
Inventories, principally at average cost	377,465	273,239	389,818	289,077
Total current assets	537,778	556,359	606,742	621,672
DEFERRED CHARGES				
Unamortized debt expense; note 2	784	833	784	833
Mine development costs; schedule B	8,909	2,198	8,909	2,198
Total deferred charges	9,693	3,031	9,693	3,031
Total assets	$6,803,765	$5,876,824	$7,596,452	$6,619,541

Notes 1 through 9 following the exhibits are an integral part of the financial statements.

*Deduct

EXHIBIT I

L I A B I L I T I E S

	Power program		All programs	
	1976	1975	1976	1975
	(Thousands)			
PROPRIETARY CAPITAL				
Appropriation investment; note 4				
Congressional appropriations	$1,383,644	$1,383,590	$2,860,925	$2,760,900
Transfers of property from other Federal agencies	22,529	22,269	55,214	54,867
	1,406,173	1,405,859	2,916,139	2,815,767
Less repayments to General Fund of the U.S. Treasury; note 5	410,059	410,059	451,726	451,713
Appropriation investment	996,114	995,800	2,464,413	2,364,054
Requirement for repayment of appropriation investment; note 5	20,000*	-	20,000*	-
Retained earnings reinvested in the power program; exhibit II	959,403	898,407	959,403	898,407
Accumulated net expense of nonpower programs; exhibit III	-	-	713,257*	659,233*
Total proprietary capital	1,935,517	1,894,207	2,690,559	2,603,228
LONG-TERM DEBT				
Principal; note 6	3,575,000	2,875,000	3,575,000	2,875,000
Unamortized discount* and premium, net; note 2	7,620*	8,130*	7,620*	8,130*
Total long-term debt	3,567,380	2,866,870	3,567,380	2,866,870
CURRENT LIABILITIES				
Short-term debt, note 6				
U.S. Treasury	150,000	150,000	150,000	150,000
Federal Financing Bank	580,000	635,000	580,000	635,000
Long-term debt due July 1, 1976	100,000	-	100,000	-
Short-term debt	830,000	785,000	830,000	785,000
Accounts payable	388,455	268,202	409,489	286,880
Employees' accrued leave	15,923	14,189	28,691	26,317
Payrolls accrued	8,166	6,960	12,009	9,850
Interest accrued	58,324	41,396	58,324	41,396
Total current liabilities	1,300,868	1,115,747	1,338,513	1,149,443
COMMITMENTS; note 3				
Total liabilities	$6,803,765	$5,876,824	$7,596,452	$6,619,541

EXHIBIT II

TENNESSEE VALLEY AUTHORITY
POWER PROGRAM
NET INCOME AND RETAINED EARNINGS
FOR THE YEARS ENDED JUNE 30, 1976 AND 1975

	1976		1975	
	kWh	Amount	kWh	Amount
		(Thousands)		
OPERATING REVENUES				
Sales of electric energy				
Municipalities and cooperatives	66,536,938	$1,057,392	64,468,095	$ 737,203
Federal agencies	21,609,793	300,057	19,389,244	182,523
Industries	19,941,736	303,551	21,822,437	227,637
Electric utilities	97,131	1,921	115,803	1,541
Total outside sales	108,185,598	1,662,921	105,795,579	1,148,904
Interdivisional	532,853	8,013	637,607	6,663
Total sales of electric energy	108,718,451	1,670,934	106,433,186	1,155,567
Rents		20,819		20,200
Discounts and penalties		53		293
Other miscellaneous revenues		701		231
Total operating revenues		1,692,507		1,176,291
OPERATING EXPENSES; schedule C				
Production				
Fuel		731,304		455,384
Power purchased and interchanged, net		219,198		135,320
Other		211,011		160,047
Transmission		24,634		22,216
Customer accounts		600		534
Demonstration of power use		1,373		1,277
Administrative and general		48,620		34,004
Payments in lieu of taxes		48,370		36,847
Social security taxes		6,719		5,187
Provision for depreciation		121,942		110,322
Total operating expenses		1,413,771		961,138
Operating income		278,736		215,153
OTHER INCOME AND DEDUCTIONS				
Interest income		65		63
Allowance for funds used (construction and nuclear fuel); note 2		139,997		117,353
Other, net		340*		232*
Total other income and deductions		139,722		117,184
Income before interest charges		418,458		332,337
INTEREST CHARGES				
Interest on long-term debt		259,735		183,626
Other interest expense; note 2		32,096		44,802
Amortization of long-term debt discount, expense, and premium, net; note 2		575		548
Total interest charges		292,406		228,976
NET INCOME		126,052		103,361
Return on appropriation investment; note 5		65,056		71,372
Increase in retained earnings reinvested		60,996		31,989
Retained earnings reinvested at beginning of period		898,407		866,418
Retained earnings reinvested at end of period		$ 959,403		$ 898,407

Notes 1 through 9 following the exhibits are an integral part of the financial statements.

*Deduct

EXHIBIT III

TENNESSEE VALLEY AUTHORITY

NONPOWER PROGRAMS

NET EXPENSE AND ACCUMULATED NET EXPENSE

FOR THE YEARS ENDED JUNE 30, 1976 AND 1975

	1976	1975
	(Thousands)	
WATER RESOURCES DEVELOPMENT		
Navigation operations	$ 6,616	$ 6,441
Flood control operations	6,338	5,891
Recreation development	2,864	2,535
Regional water quality management	1,824	1,329
Fisheries and waterfowl resources development	661	629
Preliminary surveys and engineering	183	187
Total expense of water resources development	18,486	17,012
FERTILIZER DEVELOPMENT		
Research and development	7,165	6,409
Fertilizer introduction; note 2		
Fertilizer industry demonstrations	2,134	1,994
Farm test demonstrations outside the Valley	856	782
Net expense of fertilizer introduction	2,990	2,776
Developmental production		
Cost of products distributed	40,810	37,241
General expenses		
Loss or gain* on retirements of manufacturing plant and equipment, net	4,065	115*
Gain on sale of phosphate reserves, net	366*	317*
Administrative and general	605	560
Other	1,276	392
Total general expenses	5,580	520
Total production expense	46,390	37,761
Less transfers and sales of products		
Transfers to other TVA programs, at market prices	34,320	38,998
Direct sales	1,314	1,313
Total transfers and sales	35,634	40,311
Expense or income*, net, of developmental production	10,756	2,550*
Net expense of fertilizer development	20,911	6,635
GENERAL RESOURCES DEVELOPMENT		
Agricultural projects	1,612	1,566
Waste heat utilization	265	235
Forest and wild land resources development	1,669	1,514
Strip mine reclamation demonstrations	473	313
Tributary area development	3,125	1,991
Interagency health services demonstrations	168	160
Regional economic studies	710	601
Townlift community improvement	706	788
Human resources development	786	771
Minerals resources projects	302	287
Environmental quality projects	461	319
Net expense of general resources development	10,277	8,545
LAND BETWEEN THE LAKES OPERATIONS	2,839	2,500
VALLEY MAPPING AND REMOTE SENSING	547	454
OTHER EXPENSE, NET	964	62
NET EXPENSE; schedule D	54,024	35,208
Accumulated net expense at beginning of period	659,233	624,025
Accumulated net expense at end of period	$713,257	$659,233

Notes 1 through 9 following the exhibits are an integral part of the financial statements.

*Deduct

EXHIBIT IV

TENNESSEE VALLEY AUTHORITY

CHANGES IN FINANCIAL POSITION

FOR THE YEARS ENDED JUNE 30, 1976 AND 1975

	Power program		All programs	
	1976	1975	1976	1975
	(Thousands)			
SOURCE OF FUNDS				
Program sources				
Net power income; exhibit II	$ 126,052	$ 103,361	$ 126,052	$ 103,361
Add items not requiring funds; note a	16,404*	1,059	16,404*	1,059
Funds from power operations	109,648	104,420	109,648	104,420
Sale of power facilities	2,197	1,375	2,197	1,375
Funds from power program; note b	111,845	105,795	111,845	105,795
Net expense of nonpower programs; exhibit III			54,024*	35,208*
Add items not requiring funds; note a			11,900	7,247
Funds used in nonpower operations			42,124*	27,961*
Sale of nonpower facilities			895	1,167
Funds used in nonpower programs			41,229*	26,794*
Debt sources				
Long-term bonds				
Issues	800,000	800,000	800,000	800,000
Redemptions	-	50,000*	-	50,000*
Short-term notes				
Issues	2,495,000	2,070,000	2,495,000	2,070,000
Redemptions	2,550,000*	1,955,000*	2,550,000*	1,955,000*
Total debt sources	745,000	865,000	745,000	865,000
Other sources				
Congressional appropriations	298	139	100,025	77,400
Property transfers	260	429	347	767
Total other sources	558	568	100,372	78,167
Total source of funds	$ 857,403	$ 971,363	$ 915,988	$1,022,168
DISPOSITION OF FUNDS				
Expended for plant and equipment, excluding allowance for funds used	$ 925,500	$ 826,831	$ 986,285	$ 869,681
Less:				
Depreciation and amortization of nuclear fuel charged to construction and clearing accounts	2,447	6,202	4,516	8,312
Cost of removing retired facilities and salvage from retained materials	764*	2,764	918*	2,404
	923,817	817,865	982,687	858,965
Payments to U.S. Treasury; note 5				
Return on appropriation investment	-	71,372	-	71,372
Repayment of appropriation investment	-	20,000	13	20,027
	-	91,372	13	91,399
Requirement for payments to U.S. Treasury; note 5				
Return on appropriation investment	65,056	-	65,056	-
Repayment of appropriation investment	20,000	-	20,000	-
	85,056	-	85,056	-
Unamortized debt discount and expense and other deferred charges				
Mine and mill development cost	7,216	1,693	7,216	1,693
Short-term debt discount	-	13,901*	-	13,901*
Debt expense	16	16	16	16
	7,232	12,192*	7,232	12,192*
Changes in working capital (increase or decrease*)				
Cash	139,686*	70,878	135,333*	83,746
Accounts receivable	16,879	35,082	19,662	33,304
Inventories	104,226	144,558	100,741	152,959
	18,581*	250,518	14,930*	270,009
Less other current liabilities (excluding short-term debt)	140,121	176,200	144,070	186,013
	158,702*	74,318	159,000*	83,996
Total disposition of funds	$ 857,403	$ 971,363	$ 915,988	$1,022,168

*Deduct

EXHIBIT IV

TENNESSEE VALLEY AUTHORITY
CHANGES IN FINANCIAL POSITION
FOR THE YEARS ENDED JUNE 30, 1976 AND 1975

NOTES:

a. Items not requiring funds:

	Power		Nonpower	
	1976	1975	1976	1975
	(Thousands)			
Provisions for depreciation	$121,942	$110,322	$ 8,194	$7,669
Provisions for depletion	231	210	7	10
Amortization of nuclear fuel charged to operations	-	7,053	-	-
Loss or gain* on retirements and disposals of property, plant, and equipment, net	340	232	3,699	432*
Amortization of long-term debt discount, premium, and expense; and deferred charges	1,080	595	-	-
Allowance for funds used (construction and nuclear fuel)	139,997*	117,353*	-	-
	$ 16,404*	$ 1,059	$11,900	$7,247

b. Net power proceeds (see note 6) may be derived as follows:

	Year ended June 30	
	1976	1975
	(Thousands)	
Funds from power program	$111,845	$105,795
Add back interest charges	291,831	228,428
Net power proceeds	403,676	$334,223

Notes 1 through 9 following the exhibits are an integral part of the financial statements.

*Deduct

TENNESSEE VALLEY AUTHORITY
NOTES TO FINANCIAL STATEMENTS

1. Allocation of cost of multipurpose projects--Section 14 of the TVA Act requires TVA's Board of Directors to allocate the cost of completed multipurpose projects, subject to the approval of the President of the United States. The cost of facilities installed exclusively for a single purpose is assigned directly to that purpose; the cost of multiple-use facilities is allocated among the various purposes served.

The total investment of $1,070,469,000 in completed multipurpose dams at June 30, 1976, is classified as follows:

	Investment		
	Direct	Multiple-use	Total
		(Thousands)	
Power	$315,115	$177,298	$ 492,413
Navigation	151,803	137,284	289,087
Flood control	61,846	144,542	206,388
Recreation	824	40,576	41,400
Tributary area development	20	41,161	41,181
Total	$529,608	$540,861	$1,070,469

2. Summary of significant accounting policies--Power accounts are kept in accordance with the uniform system prescribed for electric utilities by the Federal Power Commission.

Plant additions and retirements--Additions to plant are recorded at cost, which includes material, labor, overhead, and allowance for funds used. The costs of generation including amortization of nuclear fuel, less credit for the fair value of energy generated during preliminary operations prior to commercial acceptance, are also included in the recorded cost of steam and nuclear generating plants. Except for chemical plant, plant retirements (including original cost and removal cost less salvage) are charged against appropriate accumulated depreciation accounts. Because of the experimental nature of fertilizer development, losses on early retirement of chemical plant are included in current year operations. Also see note 9.

Depreciation and depletion--Straight-line depreciation is provided for substantially on a composite basis. Rates of depreciation are derived from engineering studies of useful life and are reviewed each year. Depletion of coal land and land rights and phosphate land and mineral rights is provided on a unit of production basis.

Allowance for funds used--The practice of capitalizing an allowance for funds used during construction and during the fabrication of nuclear fuels is followed in the power program. The rate is established at the beginning of each six-month period on the basis of the cost of borrowings during the preceding 12 months. Rates used were 8.0 percent and 7.5 percent, respectively, for the two six-month periods during 1976 and 8.5 percent for each of the two six-month periods during 1975.

Repairs and maintenance--The cost of current repairs and minor replacements is charged to appropriate operating expense and clearing accounts, and the cost of renewals and betterments is capitalized.

Nuclear fuel amortization--The amortization of nuclear fuel is provided on a unit of production basis. Rates are established to amortize the costs over the useful life.

Operating revenues and energy costs--Revenues from the sale of electric energy, including amounts resulting from the application of an adjustment addendum providing for monthly billing charges to reflect increases or decreases in fuel and purchased power costs, are recorded only when billed. Costs of fuel consumed and of purchased power are reflected in operating expenses as incurred. About $88.8 million of these costs recorded in fiscal year 1975 were used in calculating the adjustment to power billings for July and August 1975; and about $112.7 million of these costs recorded in fiscal year 1976 were used in calculating the adjustment to power billings for July and August 1976.

Borrowing expenses--Expenses, discounts, and premiums on power borrowings are amortized on a straight-line basis over the term of the related securities. Amortization of discount on short-term notes is charged to other interest expense.

Research and development--Research and development costs are expensed as incurred (approximately $18,738,000 in 1976 and $16,475,000 in 1975) except for those costs which relate to specific power program capital projects.

Sales of fertilizer--Sales of fertilizer materials are not made on a commercial basis, but are made to organizations collaborating in an experimental and educational program aimed at improving the manufacture, distribution, and use of fertilizers.

3. Construction projects, commitments, and rental expenses--The construction budgets for the transition quarter (July 1-September 30, 1976) and fiscal year 1977 are $264,642,000 and $1,211,835,000, respectively, for power projects and $18,853,000 and $68,944,000, respectively, for multipurpose and nonpower projects. Substantial commitments have been incurred for these projects.

The total rentals charged to power operating expenses and other operating clearing accounts for the years ending June 30, 1976 and 1975, amounted to approximately $13,843,000 and $11,986,000, respectively. At June 30, 1976, the aggregate minimum gross rental commitments of TVA under all noncancelable leases for the periods shown are as follows:

Year	Amount (Thousands)	Years	Amount (Thousands)
1977	$12,443	1982-86	$39,722
1978	12,180	1987-91	16,142
1979	12,121	1992-96	14,236
1980	12,026	Thereafter	318
1981	10,985		

Minimum gross rental commitments include rentals paid under agreements with the City of Memphis, Tennessee, which provide that (1) TVA sells to the City all the power and energy requirements of its electric distribution system, and (2) the City leases to TVA the Thomas H. Allen steam-electric generating plant with an installed capacity of 990,000 kilowatts. Each agreement is for a term of 20 years, beginning January 1, 1965. The lease agreement provides for annual rental payments of $6,900,000 and grants TVA an option to buy the plant for $2,000,000 at the end of the lease term.

4. Appropriation investment--Changes in appropriation investment during the years ended June 30, 1976 and 1975, were as follows:

	Power program		All programs	
	1976	1975	1976	1975
	(Thousands)			
Congressional appropriations, net	$ 54	$ 123	$ 100,025	$ 77,400
Transfers of property from other Federal agencies	260	429	347	767
	314	552	100,372	78,167
Less repayments to General Fund of the U.S. Treasury	-	20,000	13	20,027
Increase or decrease* for the period	314	19,448*	100,359	58,140
Balance, beginning of period	995,800	1,015,248	2,364,054	2,305,914
Balance, end of period	$996,114	$ 995,800	$2,464,413	$2,364,054

*Deduct

Beginning July 1, 1976, there will be a three-month transition quarter to effect the change in the U.S. Government fiscal year from a twelve-month period ending June 30 to one ending September 30. An appropriation for the transition quarter (July-September 1976) of $30,550,000 was made as of July 1, 1976, by Public Law 94-180, approved December 26, 1975. An appropriation of $125,930,000 was made by Public Law 94-355, approved July 12, 1976, for the fiscal year beginning October 1, 1976.

5. Payments to the U.S. Treasury--Section 15d of the TVA Act requires the payment from net power proceeds of a return on the net appropriation investment in power facilities plus repayments of such investment, beginning with fiscal year 1961. The amount of return payable during each year is based on the appropriation investment as of the beginning of that year and the computed average interest rate payable by the U.S. Treasury on its total marketable public obligations as of the same date. The repayment schedule calls for payment of not less than $10 million for each of the first five years (1961-1965), $15 million for each of the next five years (1966-1970), and $20 million for each year thereafter until a total of $1 billion shall have been repaid. The payments required by Section 15d may be deferred under certain circumstances for not more than two years.

Required payments have been made to June 30, 1975, amounting to $757,782,000 as a return on the appropriation investment and $225,000,000 as a repayment, a total of $982,782,000.

Section 15d of the TVA Act was amended in April 1976 by Public Law 94-273, Fiscal Year Adjustment Act, which changed the date for payments to the U.S. Treasury from June 30 to September 30 each fiscal year. At June 30, 1976, $65,056,000 for the return on the appropriation investment and $20,000,000 for the repayment was recorded in accounts payable. In addition, Public Law 94-274, Fiscal Year Transition Act, requires that TVA make payments for the period July 1, 1976, through September 30, 1976. For this period the amounts to be paid will be $16,333,000 as a return on the appropriation investment at the computed average interest rate of 6.559 percent and $5,000,000 as a repayment. The total payments due September 30, 1976, will be $106,389,000.

In addition to the payments from net power proceeds, $13,000 of nonpower proceeds was paid to the U.S. Treasury in 1976 under the provisions of Section 26 of the TVA Act. This brought the total payments from nonpower proceeds to $41,667,000.

Prior to 1961, under then existing legislation, TVA paid to the Treasury $185,059,000 of power proceeds. In addition to the repayments indicated in Exhibit I, $65,072,000 of bonds sold to the Treasury and Reconstruction Finance Corporation in fiscal years 1939-1941 have been fully repaid from power proceeds. Section 26 of the TVA Act provides for annual payments to the Treasury of any power or nonpower proceeds not needed for the operation of dams and reservoirs, the conduct of the power program, and the manufacture and distribution of fertilizers.

6. Borrowing authority—Section 15d of the TVA Act authorizes TVA to issue bonds, notes, and other evidences of indebtedness up to a total of $15 billion outstanding at any one time to assist in financing its power program. Debt service on these obligations, which is payable solely from TVA's net power proceeds, has precedence over the payment to the U.S. Treasury described in note 5. Issues outstanding on June 30, 1976, consist of the following:

	(Thousands)
Long-term debt	
4.40% 1960 Series A, due November 15, 1985	$ 50,000
4-5/8% 1961 Series A, due July 1, 1986	50,000
4-1/2% 1962 Series A, due February 1, 1987	45,000
5.70% 1967 Series A, due May 15, 1992	70,000
6-3/8% 1967 Series B, due November 1, 1992	60,000
8-1/4% 1969 Series B, due October 15, 1994	100,000
9% 1970 Series A, due March 15, 1995	100,000
9-1/4% 1970 Series B, due June 15, 1995	50,000
7.30% 1971 Series B, due October 1, 1996	150,000
7% 1972 Series A, due January 1, 1997	150,000
7.35% 1972 Series B, due May 1, 1997	150,000
7.35% 1972 Series C, due July 1, 1997	150,000
7.40% 1972 Series D, due October 1, 1997	150,000
7.35% 1973 Series A, due January 1, 1998	100,000
7.35% 1973 Series B, due April 1, 1998	150,000
7-3/4% 1973 Series C, due July 1, 1998	150,000
7.70% 1973 Series D, due October 1, 1998	100,000
8.05% 1974 Series A, due January 1, 1999	100,000
8.10% 1974 Series B, due April 1, 1979	100,000
8.50% 1974 Series C, due October 31, 1979 (FFB)	300,000
8.05% 1975 Series A, due January 31, 1990 (FFB)	200,000
8.70% 1975 Series B, due March 31, 2000 (FFB)	100,000
8.35% 1975 Series C, due May 31, 1988 (FFB)	200,000
8.47% 1975 Series D, due July 31, 2000 (FFB)	200,000
8.485% 1975 Series E, due October 31, 2000 (FFB)	300,000
8.175% 1976 Series A, due February 28, 2001 (FFB)	300,000
Total long-term debt	3,575,000 [See GAO note.]
Short-term debt	
U.S. Treasury	150,000
Federal Financing Bank (FFB)	580,000
Long-term debt due July 1, 1976	100,000
Total short-term debt	830,000
	$4,405,000

7. Retirement plan—TVA has a contributory retirement plan which covers substantially all of its salaried employees. The cost of currently accruing benefits is funded currently. The cost of the plan to TVA was $24,892,000 in 1976 and $20,782,000 in 1975, including amortization of unfunded prior service costs over a period of 30 and 31 years, respectively. The total pension fund assets as of June 30, 1975, the latest actuarial valuation date, exceeded the actuarially computed value of vested benefits of the plan, which were calculated on the basis of an eight percent interest factor which is considered representative of current market conditions. The rate was changed from that used in the prior year (five percent) in order to more properly relate the calculation of vested benefits to the market value of fund assets.

8. Litigation—A class action suit, filed in state court on April 4, 1975, and removed to the United States District Court for the Middle District of Tennessee, challenged as illegal and unconstitutional TVA's method of implementing that portion of its January 1, 1975, adjustment addendum covering changes in TVA's costs of fuel and purchased power. Plaintiff contended that proration of the monthly amounts is required. On August 13, 1976, the court entered summary judgment on defendants' motion dissolving an injunction previously issued by the state court and dismissing the action. The court's opinion upholds the constitutionality of and the statutory authority for the adjustment addendum procedure and finds it to be "a pragmatic, logical, and economically justified method" of complying with the mandates of the TVA Act.

Suit was filed on February 18, 1976, in the United States District Court for the Eastern District of Tennessee by three individuals and two organizations to enjoin further construction of the Tellico Dam project on the grounds that the reservoir clearing and impoundment of the lower Little Tennessee River were illegal and in violation of the Endangered Species Act of 1973, in that these activities would modify or destroy the habitat of the snail darter or otherwise jeopardize the continued existence of this fish, which was listed as an endangered species effective November 9, 1975. A preliminary injunction was denied, and, after the trial on the merits, the action was dismissed. The District Court upheld TVA's position that the Endangered Species Act did not prevent completion of the Tellico project, which was about 75 percent completed at the time the fish was listed as endangered. Plaintiffs appealed to the United States Court of Appeals for the Sixth Circuit and moved for an order enjoining all construction pending appeal. That motion was granted on July 26, 1976, and the case was assigned for oral argument in the October 1976 session. On TVA's motion for reconsideration, the injunction was temporarily stayed on July 28, 1976, and modified on August 2, 1976, to allow continuation of construction of the project and only enjoin closure of the dam pending appeal. In the opinion of TVA's counsel the decision of the district court is correct and that the Endangered Species Act does not prevent completion of the Tellico project or closure of the dam.

On October 20, 1975, TVA filed suit against Westinghouse Electric Corp. in the United States District Court for the Eastern District of Tennessee. The suit arises from Westinghouse's repudiating in major part certain contracts for the sale of nuclear fuel to TVA for the Sequoyah and Watts Bar Nuclear Plants. Westinghouse bases its repudiation on the doctrine of "commercial impracticability" found in Uniform Commercial Code § 2-615. TVA brought the action seeking, in addition to injunctive relief, a declaratory judgment as to the continuing validity, effectiveness, and enforceability of these contracts; in the alternative the action requests the court to adopt an allocation plan for the nuclear fuel presently under Westinghouse's control which is fair and reasonable to all Westinghouse customers as of September 8, 1975, the date of the repudiation. The case was transferred and consolidated for discovery with similar cases brought by other utilities to the Eastern District of Virginia under 28 U.S.C. § 1407. Discovery is underway with production of documents having been nearly completed and depositions just begun.

On April 20, 1976, a suit was filed in the United States District Court for the Middle District of Tennessee seeking to enjoin TVA from carrying out, at the site of its Hartsville Nuclear Plant on the Cumberland River, activities which have been authorized by the Nuclear Regulatory Commission and seeking a declaratory judgment that construction of the plant outside the Tennessee River Valley is illegal. The plaintiffs have abandoned a challenge to the validity of the Nuclear Regulatory Commission's order authorizing limited site preparation, leaving the one issue of whether TVA has the authority to construct power generating facilities outside the Tennessee River Valley. The case is set for trial on December 9, 1976. In the opinion of TVA's counsel plaintiffs' position has no merit.

9. Contingency—In May 1976, certain chemical facilities (having a net book value of $[illegible],607,000 at June 30, 1976) ceased being utilized in the fertilizer development program. While negotiations for the disposition of such facilities are presently underway, no determination of the net realizable value of the facilities and the associated loss, if any, which may be sustained can be made at this time.

GAO note: The long-term debt issues outstanding at June 30, 1976, included issues with the Federal Financing Bank of $1.6 billion.

SCHEDULES

SCHEDULE A

SCHEDULE A

TENNESSEE VALLEY AUTHORITY

COMPLETED PLANT

JUNE 30, 1976

	Assets	Accumulated depreciation and depletion
Power		
Multipurpose dams		
System allocation	$ 432,358,740	$ 171,199,164
Project allocations	60,054,241	8,364,005
Single-purpose dams	72,627,832	26,126,108
Steam production plants	2,229,551,748	814,216,157
Nuclear production plants	552,356,901	24,513,843
Other electric plant	1,670,031,529	414,453,263
Total power	5,016,980,991	1,458,872,540
Navigation		
Multipurpose dams		
System allocation	228,666,824	54,360,805
Project allocations	60,420,002	5,370,165
Single-purpose navigation plant	7,063,240	362,292
Total navigation	296,150,066	60,093,262
Flood control		
Multipurpose dams		
System allocation	180,236,747	38,199,597
Project allocations	26,151,462	735,155
Single-purpose flood control plant	2,065,742	146,713
Total flood control	208,453,951	39,081,465
Tributary area development		
Multipurpose dams		
Project allocations	41,180,842	668,649
Recreation and conservation education		
Multipurpose dams		
Project allocations	41,400,426	730,189
Land Between The Lakes	55,069,864	3,214,463
Other recreation plant	1,985,387	173,634
Total recreation and conservation education	98,455,677	4,118,226
Chemical	72,999,375	30,796,563
General	45,877,085	21,995,634
Total	$5,780,097,987	$1,615,626,339
Total completed plant		
Multipurpose dams		
System allocation	$ 841,262,311	$ 263,759,566
Project allocations	229,206,973	15,868,103
	1,070,469,284	279,627,669
Single-purpose dams	72,627,832	26,126,108
Steam production plants	2,229,551,748	814,216,157
Nuclear production plants	552,356,901	24,513,843
Other electric plant	1,670,031,529	414,453,263
Other plant	185,060,693	56,689,299
Total	$5,780,097,987	$1,615,626,339

SCHEDULE B

TENNESSEE VALLEY AUTHORITY
CONSTRUCTION AND INVESTIGATIONS IN PROGRESS, NUCLEAR FUEL, AND MINE DEVELOPMENT COSTS
JUNE 30, 1976

	Power program	All programs
CONSTRUCTION AND INVESTIGATIONS IN PROGRESS		
Construction in progress		
Generating facilities		
Browns Ferry Nuclear Plant	$ 310,311,382	$ 310,311,382
Sequoyah Nuclear Plant	678,821,930	678,821,930
Watts Bar Nuclear Plant	516,055,041	516,055,041
Bellefonte Nuclear Plant	293,371,116	293,371,116
Proposed Hartsville Nuclear Plant	80,873,262	80,873,262
Proposed Phipps Bend Nuclear Plant	13,788,850	13,788,850
Proposed Yellow Creek Nuclear Plant	10,839,566	10,839,566
Cumberland Steam Plant	10,376,666	10,376,666
Johnsonville gas turbine units 1-16	963,517	963,517
Gallatin gas turbine units 1-4	150,201	150,201
Raccoon Mountain pumped storage project	230,352,738	230,352,738
Total generating facilities	2,145,904,269	2,145,904,269
Transmission lines, substations, and other additions to power facilities	318,614,901	318,614,901
Navigation facilities		1,079,835
Flood control facilities		559,402
Lower Elk rural village		337,150
Multipurpose facilities		
Tellico Dam and Reservoir	-	83,949,330
Columbia Dam and Reservoir	-	13,291,723
Normandy Dam and Reservoir	-	1,204,632
Bear Creek water control system	-	5,589,738
Other	344,585	826,516
Total multipurpose facilities	344,585	104,861,939
Chemical plant		2,873,892
Recreation and conservation education facilities		2,445,421
Land Between The Lakes		593,876
Other recreation facilities		3,039,297
Total recreation and conservation education facilities		
General plant	-	1,203,981
General construction equipment and materials	1,801,793	5,359,933
Other additions to general plant	1,801,793	6,563,914
Total general plant	2,466,665,548	2,583,834,599
Total construction in progress		
Investigations for future projects	4,230,618	4,230,618
Power facilities	-	117,903
Navigation facilities	-	73,492
Flood control facilities	4,230,618	4,422,013
Total investigations for future projects		
Total construction and investigations in progress	$2,470,896,166	$2,588,256,612
NUCLEAR FUEL		
Nuclear fuel in process		
Browns Ferry	$ 67,617,198	$ 67,617,198
Sequoyah	30,092,814	30,092,814
Bellefonte	6,470,966	6,470,966
Enrichment	40,700,884	40,700,884
Total nuclear fuel in process	144,881,862	144,881,862
Nuclear fuel in stock	19,015,554	19,015,554
Nuclear fuel in reactor		
Browns Ferry	78,149,589	78,149,589
Total nuclear fuel	$ 242,047,005	$ 242,047,005
ACCUMULATED AMORTIZATION		
Browns Ferry	$ 14,757,782	$ 14,757,782
MINE DEVELOPMENT COSTS		
Coal mine development and leases	$ 5,935,845	$ 5,935,845
Uranium mine development and preoperations	2,972,722	2,972,722
Total mine development costs	$ 8,908,567	$ 8,908,567

SCHEDULE C

TENNESSEE VALLEY AUTHORITY

DETAILS OF POWER EXPENSE

FOR THE YEAR ENDED JUNE 30, 1975

SUMMARY	Total	Provision for depreciation	Total before depreciation (exhibit II)	Operation		Maintenance	Other production
				Fuel	Other		
Production							
Multipurpose dams							
Direct	$ 12,441,328	$ 5,415,548	$ 7,025,780	$ -	$ 4,048,252	$ 2,977,528	$ -
Multiple-use; schedule E	5,001,895	1,239,544	3,762,351	-	2,940,090	822,261	-
Single-purpose dams	2,726,488	909,979	1,816,509	-	1,038,138	778,371	-
Cumberland Basin projects; note a	7,156,272	-	7,156,272	-	-	-	7,156,272
Steam plants	906,854,108	61,637,726	845,216,382	699,978,978	46,470,037	98,767,367	-
Nuclear plants	30,933,953	14,732,077	16,201,876	118,052	8,822,775	7,281,049	-
Gas turbine plants	41,452,524	6,300,415	35,152,109	31,206,773	259,486	3,685,850	-
Total generation	1,006,586,568	90,235,289	916,351,279	731,303,803	63,578,778	114,312,426	7,156,272
Purchased power	79,080,227	-	79,080,227	-	-	-	79,080,227
Interchange power received	154,400,207	-	154,400,207	-	-	-	154,400,207
Interchange power delivered	14,281,793*	-	14,281,793*	-	-	-	14,281,793*
Power purchased and interchanged, net	219,198,641	-	219,198,641	-	-	-	219,198,641
System control and load dispatching	1,902,203	317,227	1,584,976	-	-	-	1,584,976
Other	24,376,838	-	24,376,838	-	-	-	24,376,838
Total production	1,252,666,250	90,552,516	1,161,513,734	731,303,803	63,578,778	114,312,426	252,318,727
Transmission	53,518,609	28,884,171	24,634,438	-	14,238,359	10,396,079	-
Customer accounts	600,339	-	600,339	-	600,339	-	-
Demonstration of power use	1,372,896	-	1,372,896	-	1,372,896	-	-
Payments in lieu of taxes; note b	48,369,691	-	48,369,691	-	-	-	48,369,691
Social security taxes	6,718,926	-	6,718,926	-	-	-	6,718,926
Administrative and general							
Direct	51,019,185	2,505,218	48,513,967	-	48,170,470	343,497	-
Multiple-use	105,983	-	105,983	-	105,983	-	-
Total operating expense	$1,413,771,879	$121,941,905	$1,291,829,974	$731,303,803	$128,066,825	$125,052,002	$307,407,344

SYSTEM STATISTICS	kWh generated less station use (thousands)	Production expense including depreciation		Installed capacity at June 30, 1975 (kilowatts)	Ratio of average gross generation to installed capacity (percent)
		Total	Per kWh (mills)		
Generation					
Multipurpose dams					
Direct	13,259,002	$ 12,441,328	.938	2,985,920	50.89
Multiple-use; schedule E	-	5,001,895	.377	-	
Total multipurpose dams	13,259,002	17,443,223	1.315	2,985,920	50.89
Single-purpose dams	1,347,207	2,726,488	2.024	245,240	62.67
Cumberland Basin projects; note a	2,541,094	7,156,272	2.816	85,000	34.16
Alcoa dams; note c	2,048,240			423,715	55.15
Total hydro generation	19,195,543			4,507,895	48.76
Steam plants	81,704,757	906,854,108	11.099	17,749,565	55.50
Nuclear plants	100,145*	30,933,953		2,304,000	
Gas turbine plants	1,112,046	41,452,524	37.271	2,510,000	5.14
Total commercial generation; note d	101,961,341			27,071,460	44.08
Purchased power	4,882,335	79,080,227			
Interchange power received	11,373,782	154,400,207			
System control and load dispatching	-	1,902,203			
Other	-	24,376,838			
Total system input	118,217,458				
Delivered under Alcoa agreement	1,844,839*				
Interchange power delivered	4,666,774*	14,281,793*			
Net energy supply	113,705,845	1,252,666,250	11.016		
Shop and internal uses	9,861*				
Transmission and transformation losses	3,671,133*				
Total kWh sales and production expense	109,715,451	$1,252,666,250	11.417		

Notes:

a. TVA purchases substantially all of the output of eight hydro plants in the Cumberland River Basin. In accordance with memorandums of understanding with the Corps of Engineers, Department of the Army, the Cumberland Basin projects are operated for optimum production of power in conjunction with TVA's power system, subject to flood control, navigation, and other operating requirements of the Army.

b. Payments made to states and counties in which power operations are carried out. The basic amount is 5 percent of gross revenues from the sale of power to other than Federal agencies during the preceding year, with the provision of minimum payments under certain circumstances.

c. Operation of twelve hydro plants of the Aluminum Company of America is coordinated with the operation of TVA's power plants under an arrangement whereby the storage and release of water from the Alcoa plants are carried out by the company under TVA's direction.

d. Installed capacity increased 344,850 kilowatts during fiscal year 1975. Additions consisted of 325,200 kilowatts in four gas turbine units at the Gallatin Steam Plant and 19,650 kilowatts from modifications to three generators.

*Deduct

SCHEDULE D

TENNESSEE VALLEY AUTHORITY

DETAILS OF NONPOWER NET EXPENSE

FOR THE YEAR ENDED JUNE 30, 1976

	Direct	Multiple-use (schedule E)	Total
WATER RESOURCES DEVELOPMENT			
Navigation operations			
Studies and investigations			
Navigation engineering and investigations	$1,105,977	$ -	$ 1,105,977
Administrative and general expenses; schedule F	42,822	-	42,822
	1,148,799	-	1,148,799
Operation and maintenance of facilities			
Operation	70,328	1,758,131	1,828,459
Maintenance	84,954	536,790	621,744
Administrative and general expenses	-	67,443	67,443
Provision for depreciation	2,004,781	944,567	2,949,348
	2,160,063	3,306,931	5,466,994
Total expense of navigation operations	$3,308,862	$3,306,931	6,615,793
Flood control operations			
Studies and investigations			
System studies and investigations	$ 300,975	$ -	300,975
Local flood damage prevention studies	476,340	-	476,340
Administrative and general expenses; schedule F	17,396	-	17,396
	794,711	-	794,711
Operation and maintenance of facilities			
Operation	30,563	2,125,425	2,155,988
Maintenance	-	643,641	643,641
Administrative and general expenses	-	80,290	80,290
Provision for depreciation	472,302	992,073	1,464,375
	502,865	3,841,429	4,344,294
Local flood control improvements	1,198,884	-	1,198,884
Total expense of flood control operations	$2,496,460	$3,841,429	6,337,889
Recreation development			
Recreation development	$ 754,351	$ -	754,351
Administrative and general expenses; schedule F	45,497	-	45,497
	799,848	-	799,848
Operation and maintenance of facilities			
Operation	-	1,636,278	1,636,278
Maintenance	55,643	34,572	90,215
Administrative and general expenses	-	64,232	64,232
Provision for depreciation	64,540	208,651	273,191
	120,183	1,945,733	2,063,916
Total expense of recreation development	$ 920,031	$1,943,733	2,863,764
Regional water quality management			
Regional water quality management			1,702,267
Provision for depreciation			63,817
Administrative and general expenses; schedule F			57,541
Total expense of regional water quality management			1,823,565
Fisheries and waterfowl resources development			
Fisheries resource assessment			102,736
Fisheries resource management and use			307,349
Waterfowl management and use			206,310
Provision for depreciation			16,570
Administrative and general expenses; schedule F			28,101
Total expense of fisheries and waterfowl resources development			661,066
Preliminary surveys and engineering			
Preliminary surveys and engineering			179,407
Administrative and general expenses; schedule F			4,015
Total expense of preliminary surveys and engineering			183,422
Total expense of water resources development			$18,485,499

SCHEDULE D

TENNESSEE VALLEY AUTHORITY

DETAILS OF NONPOWER NET EXPENSE

FOR THE YEAR ENDED JUNE 30, 1976

FERTILIZER DEVELOPMENT		
Research and development		
Chemical fertilizer research and development		
Fundamental research		$ 1,242,831
Applied research		1,200,585
Process engineering		1,485,235
Ammonia from coal project		107,065
General expenses		1,651,378
		5,687,094
Soils and fertilizer research		1,230,899
Provision for depreciation		103,732
Administrative and general expenses; schedule F		143,428
Total expense of research and development		7,165,153
Fertilizer introduction		
Fertilizer industry demonstrations		
Fertilizers used		33,260,171
Educational distribution expense		1,624,059
Administrative and general expenses; schedule F		80,427
		34,964,657
Less industry payments for fertilizer		32,830,438
		2,134,219
Farm test demonstrations outside the Valley		
Fertilizers used		502,458
Planning and supervision		718,200
Administrative and general expenses; schedule F		29,490
		1,250,148
Less farmer payments for fertilizer		394,652
		855,496
Net expense of fertilizer introduction		2,989,715
Developmental production		
Cost of products distributed		
Materials used		12,827,267
Direct manufacturing and shipping expense		20,672,912
Indirect manufacturing and shipping expense		3,754,936
Provision for depreciation and depletion		2,556,768
Byproduct recoveries		269,618*
In-process inventory changes		316,998
Finished inventory changes		950,937
Total cost of products distributed		40,810,200
General expenses		
Loss on retirements of manufacturing plant and equipment, net		4,065,281
Gain on sale of phosphate reserves, net		366,320*
Other general expenses		
Administrative and general expenses; schedule F	$604,542	
Shipping order and field inventory expense	284,826	
Provision for depreciation of idle manufacturing plant and equipment	168,494	
Other, including depreciation of $19,738*	822,834	1,880,696
Total general expenses		5,579,657
Total production expense		46,389,857
Less transfers and sales of products		
Transfers to TVA programs, at market prices		
Fertilizer industry demonstrations		33,260,171
Farm test demonstrations		502,458
Agricultural development		324,108
Other		232,629
Total transfers		34,319,366
Direct sales		1,314,233
Total transfers and sales		35,633,599
Net expense of developmental production		10,756,258
Net expense of fertilizer development		$20,911,126

*Deduct

SCHEDULE D

TENNESSEE VALLEY AUTHORITY

DETAILS OF NONPOWER NET EXPENSE

FOR THE YEAR ENDED JUNE 30, 1976

GENERAL RESOURCES DEVELOPMENT		
Agricultural projects		
Valley agricultural resources development		
Fertilizers used		$ 324,108
Planning and supervision		1,039,430
		1,363,538
Less farmer payments for fertilizer		291,194
		1,072,344
Program planning and analysis		69,175
Special agricultural investigations and technical assistance		127,982
High-income agricultural enterprises, including fertilizers used of $539		161,809
Agribusiness development		105,151
Administrative and general expenses; schedule F		75,065
Net expense of agricultural projects		1,611,526
Waste heat utilization		
Greenhouse environmental control		147,243
Soil heating to extend crop growing season		11,976
Biological recycling of nutrients from livestock waste		100,793
Administrative and general expenses; schedule F		5,362
Total expense of waste heat utilization		265,374
Forest and wild land resources development		
Forest industry development		458,715
Forest and wildlife management and wildlife use		333,561
Forest and wild land investigations		448,076
Improvement and establishment of wild land vegetation		338,697
Provision for depreciation		12,910
Administrative and general expenses; schedule F		77,614
Total expense of forest and wild land resources development		1,669,573
Strip mine reclamation demonstrations		
Strip mine reclamation demonstrations		459,631
Administrative and general expenses; schedule F		13,382
Total expense of strip mine reclamation demonstrations		473,013
Tributary area development		
Basic investigations		493,076
Development assistance in specific tributary areas		1,860,967
Local government assistance		313,218
Administrative and general expenses; schedule F		119,097
Multiple-use operating expenses; schedule E		
Operation and maintenance	$155,278	
Provision for depreciation, including $194 direct	179,946	
Administrative and general expenses	3,212	338,436
Total expense of tributary area development		3,124,794
Interagency health services demonstrations		
Interagency health services demonstrations		158,544
Administrative and general expenses; schedule F		9,367
Total expense of interagency health services demonstrations		167,911

SCHEDULE D

TENNESSEE VALLEY AUTHORITY
DETAILS OF NONPOWER NET EXPENSE
FOR THE YEAR ENDED JUNE 30, 1976

GENERAL RESOURCES DEVELOPMENT - continued	
Regional economic studies	
Regional economic studies	$ 677,544
Administrative and general expenses; schedule F	32,116
Total expense of regional economic studies	709,660
Townlift community improvement	
Townlift community improvement	677,801
Administrative and general expenses; schedule F	28,101
Total expense of townlift community improvement	705,902
Human resources development	
Human resources development	727,191
Administrative and general expenses; schedule F	58,879
Total expense of human resources development	786,070
Minerals resources projects	
Minerals resources projects	293,048
Administrative and general expenses; schedule F	9,367
Total expense of minerals resources projects	302,415
Environmental quality projects	
Regional air quality management	162,722
Research on disposal of solid wastes	274,272
Administrative and general expenses; schedule F	24,087
Total expense of environmental quality projects	461,081
Net expense of general resources development	$10,277,319
LAND BETWEEN THE LAKES OPERATIONS	
Conservation and education operations	$ 773,109
Recreation operations	703,993
Operation and maintenance of support facilities	875,636
Provision for depreciation	416,723
Administrative and general expenses; schedule F	69,585
Total expense of Land Between The Lakes operations	$ 2,839,046
VALLEY MAPPING AND REMOTE SENSING	
Valley mapping and remote sensing	$ 519,705
Provision for depreciation	15,124
Administrative and general expenses; schedule F	12,061
Total expense of valley mapping and remote sensing	$ 546,890
OTHER EXPENSE OR INCOME*	
Scientific and technical cooperation	$ 6,282
Joint bicentennial demonstration caravan	736,871
Emergency preparedness	9,218
Maintenance of bridges financed by others on TVA dams	225,794
Interest income from receivables	14,077*
Other expense, net	$ 964,088
NET EXPENSE	$54,023,968

SCHEDULE E

TENNESSEE VALLEY AUTHORITY

OPERATING EXPENSES OF MULTIPLE-USE FACILITIES

FOR THE YEAR ENDED JUNE 30, 1976

Expenses	
Operation	
Water control operations	$ 1,388,105
Water control investigations	144,981
Investigations and control of reservoir ecology	1,075,179
Plant protection and services to visitors	1,794,476
Operation and upkeep of dam reservations	1,580,663
Reservoir land management	2,197,989
Development of water resource management methods	400,383
Total operation	8,581,776
Administrative and general expenses; schedule F	321,160
Maintenance	2,070,690
Provision for depreciation	3,564,587
Total	$14,538,213

Distributed to	Operation	Administrative and general	Maintenance	Depreciation	Total
Power operations	$2,940,090	$105,983	$ 822,261	$1,239,544	$ 5,107,878
Navigation operations	1,758,131	67,443	536,790	944,567	3,306,931
Flood control operations	2,125,425	80,290	643,641	992,073	3,841,429
Recreation development	1,636,278	64,232	34,572	208,651	1,943,733
Tributary area development	121,852	3,212	33,426	179,752	338,242
Total	$8,581,776	$321,160	$2,070,690	$3,564,587	$14,538,213

SCHEDULE F

TENNESSEE VALLEY AUTHORITY

ADMINISTRATIVE AND GENERAL EXPENSES

FOR THE YEAR ENDED JUNE 30, 1976

Expenses	
Board of directors	$ 196,422
Office of the general manager	420,738
Planning and budget staffs	608,289
Washington office	147,856
Information office, including technical library service	1,566,916
Equal employment opportunity staff	515,134
Division of personnel	1,023,458
Division of finance	2,962,321
Division of law	2,556,569
Division of property and services	1,379,007
Medical and safety services	2,111,403
Other administrative and general	239,874
Total	$13,727,987

	Amount	Percent of total
Distributed to		
Construction and investigations in progress	$ 5,892,990	42.93
Recovered through services billed to others at cost	252,671	1.84
Expense of programs		
Power	5,673,824	41.33
Water resources development		
Navigation	42,822	.31
Flood control	17,396	.13
Regional water quality management	57,541	.42
Fisheries and waterfowl resources development	28,101	.20
Preliminary surveys and engineering	4,015	.03
Recreation development	45,497	.33
Multiple-use facilities operations	321,160	2.34
Fertilizer development		
Developmental production	604,542	4.40
Fertilizer introduction		
Fertilizer industry demonstrations	80,427	.58
Farm test demonstrations	29,490	.21
Research and development	143,428	1.04
General resources development		
Agricultural projects	75,065	.55
Waste heat utilization	5,362	.04
Forest and wild land resources development	77,614	.57
Strip mine reclamation demonstrations	13,382	.10
Tributary area development	119,097	.87
Interagency health services demonstrations	9,367	.07
Regional economic studies	32,116	.23
Townlift community improvement	28,101	.20
Human resources development	58,879	.43
Minerals resources projects	9,367	.07
Environmental quality projects	24,087	.18
Land Between The Lakes operations	69,585	.51
Valley mapping and remote sensing	12,061	.09
Total	$13,727,987	100.00