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REPORT TO THE CONGRESS

093798



BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

Southeastern Federal Power Program-- Financial Management And Program Operations

Departments of the Interior and the Army

Federal Power Commision

The Southeastern Federal Power Program consists of (1) hydroelectric projects constructed, operated, and maintained by the Corps of Engineers (Civil Functions) and (2) power-marketing operations of the Southeastern Power Administration.

Net Power revenues have increased in recent years, but problems which may have adverse effects on future financial results have occurred in operating the projects.

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

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

This report discusses the financial management and
program operations of the Southeastern Federal Power Program.

We made this review so that we could report on the finan-
cial statements through fiscal year 1974, the status of repay-
ments of the Federal investment, and the power operations.
We made our review pursuant to the Budget and Accounting Act,
1921 (31 U.S.C. 53), and the Accounting and Auditing Act of
1950 (31 U.S.C. 67).

We are sending copies of this report to the Director,
Office of Management and Budget; the Secretaries of the Inte-
rior and the Army; and the Chairman, Federal Power Commission.

James B. Atwater
Comptroller General
of the United States

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ABBREVIATIONS

AAA	Army Audit Agency
FEA	Federal Energy Administration
FPC	Federal Power Commission
GAO	General Accounting Office
MW	megawatts
OMB	Office of Management and Budget
O&M	operation and maintenance
SEPA	Southeastern Power Administration
TVA	Tennessee Valley Authority

V

Principal officials responsible for
the administration of activities
discussed in this report

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COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

SOUTHEASTERN FEDERAL POWER
PROGRAM--FINANCIAL MANAGEMENT
AND PROGRAM OPERATIONS
Departments of the Interior
and Army
Federal Power Commission

D I G E S T

The Southeastern Federal Power Program--hydro-electric projects constructed, operated, and maintained by the Corps of Engineers (Civil Functions) and power-marketing operations of the Southeastern Power Administration, Department of the Interior--had assets of about \$862 million at June 30, 1974, and power revenues of about \$41 million for fiscal year 1974.

PROGRAM OPERATIONS

Net power revenues have increased in recent years, but problems in operating projects may have an adverse effect on future financial results, such as:

- Important rehabilitation requirements. (See p. 5.)
- Delays and cost increases in constructing projects. (See p. 12.)
- Delays in determining and collecting headwater benefits. (See p. 15.)
- Delays in firming up cost allocations of total project costs. (See p. 22.)
- Adverse environmental effects. (See p. 27.)
- Hazardous operating conditions. (See p. 29.)

For recommendations for alleviating adverse effects of some of these problems see pages 12, 22, 25, and 33.

MARKETING OF POWER FROM NEW PROJECTS

Four new projects, adding over 700 megawatts of generating capacity to the Southeastern Federal Power Program, are scheduled to begin operations in 1975 and 1976. Before marketing arrangements

can be completed, several problems must be resolved. (See p. 34.)

POTENTIAL FOR INCREASED POWER GENERATION

The Corps and the Southeastern Power Administration have taken actions to increase power generation from existing projects. (See p. 37.) The Corps and the Federal Energy Administration have identified 14 hydroelectric projects which might be expanded or constructed if further study shows them to be economically feasible. (See p. 38.)

RATE AND REPAYMENT STUDIES

The Southeastern Power Administration had repaid \$155 million of the estimated \$687 million Federal power investment through fiscal year 1974. About \$532 million is still to be repaid. Interior should issue uniform methods and guidelines for preparing rate and repayment studies used for determining the revenue levels needed in formulating wholesale power rates. (See p. 43.)

VIOLATION OF THE ANTI-DEFICIENCY ACT

The Corps Savannah District violated the Anti-Deficiency Act because it incurred obligations in excess of appropriation allotments. (See p. 46.) The Corps instructed the district to follow revised accounting procedures which, if properly implemented, should result in better accounting control and reduce the probability of future violations.

GAO recommends that, as required by law, the Army report the violation and actions taken to the President and to the Congress. (See p. 50.)

INTERNAL AUDIT

Although the Army Audit Agency is responsible for audits of financial and accounting activities of the Corps, it has not made financial audits of the Corps accounting offices involved in the Southeastern Federal Power Program since GAO's audit in fiscal year 1966. (See p. 51.) The Agency should schedule such audits periodically. (See p. 52.)

OPINION ON FINANCIAL STATEMENTS

In GAO's opinion, the program's financial statements, subject to the financial effects of future adjustments related to the adoption of firm cost allocations, present fairly the program's financial position at June 30, 1974, the financial results of its power operations, and the changes in its financial position for the year then ended, in accordance with accounting principles and standards prescribed by the Comptroller General of the United States. (See p. 53.)

AGENCY COMMENTS

Interior, the Federal Power Commission, and the Army generally agreed with GAO's conclusions and recommendations. (See pp. 12, 26, 33, 45, 50 and 52). The Commission, however, did not agree with the need for implementing GAO's recommendation pertaining to the determination and collection of headwater benefits. (See p. 20.)

CHAPTER 1

INTRODUCTION

The Southeastern Federal Power Program comprises the Federal power systems in the southeastern United States, which encompass hydroelectric generating facilities constructed and operated by the Department of the Army's Corps of Engineers (Civil Functions) and the power-marketing operations of the Southeastern Power Administration (SEPA), Department of the Interior.

Section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s) provides that electric power generated at Corps' plants and surplus to project needs be delivered to the Secretary of the Interior for marketing. The act states that public bodies and cooperatives be given preference in the sale of power. The Secretary is required to establish rates to recover the cost of producing and transmitting power, including repayment of the Federal investment, over a reasonable period of years. Rate schedules become effective upon Federal Power Commission (FPC) approval.

The Secretary has established a reasonable repayment period as being within 50 years from the date a hydroelectric project is placed in commercial service and becomes revenue producing. SEPA prepares rate and repayment studies to determine whether power rates are adequate to recover the Federal investment in a power system within the required repayment period.

As of June 30, 1974, the Southeastern Federal Power Program included 17 projects in operation with hydroelectric facilities costing about \$697 million and having a capacity of 2,010,000 kilowatts.¹ On the same date the Corps had four other projects with hydroelectric facilities under construction. When completed, these projects will add 702,375 kilowatts of capacity to the power program at an estimated cost of about \$231 million.

The projects have other purposes, in addition to power, and provide such benefits as flood control, navigation, and recreation. This report, however, covers only those aspects of project operations concerned with generating and marketing power.

¹1,000 watts equal 1 kilowatt. One million kilowatts is about the output of one large, modern, fossil-fueled or nuclear generating plant.

The Corps constructs, operates, and maintains the projects making up the Southeastern Federal Power Program through the following offices.

District offices

Mobile, Alabama
Savannah, Georgia
Wilmington, North Carolina
Nashville, Tennessee

Division offices

South Atlantic Division
Atlanta, Georgia

Ohio River Division
Cincinnati, Ohio

The district offices are headed by Army officers (district engineers) under the general direction of division engineers. The division engineers are responsible to the Chief of Engineers, Washington, D.C. In January 1955 the Comptroller General approved the accounting system for the civil functions of the Corps of Engineers. Since that time extensive changes have been made, including automation, and that system, along with the system for military functions, is currently being reviewed for reapproval.

SEPA is responsible for marketing power from Corps projects in the States of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. There are currently no projects in Mississippi or West Virginia. Power is sold in each of the 10 States except Mississippi and West Virginia. In addition, some power is sold outside the 10-State area to customers in Indiana and Illinois.

The projects are grouped into four systems for marketing, operating, and rate purposes. These systems are the Georgia-Alabama projects, the Kerr-Philpott projects, the Cumberland Basin projects, and the Jim Woodruff project. (See p. 58.)

SEPA's marketing arrangements, except for the Cumberland Basin projects, and contracts with Alabama Electric Cooperative and South Carolina Public Service Authority involve three-way agreements among SEPA, investor-owned utilities, and preference customers in the utilities' service areas. The agreements generally provide for the (1) sale of specified amounts of power directly to preference customers, (2) sale of the power to the utilities, (3) supply of supplemental energy to the preference customers by the utilities when project generation is below normal, (4) supply of additional power needs of the preference customers by the utilities, and (5) scheduling of the entire power output

of the projects by the utilities to maximize available power benefits.

The output of the Cumberland Basin projects is sold to the Tennessee Valley Authority (TVA) and to preference customers outside the TVA service area.

During fiscal year 1974 SEPA marketed 2,201,000 kilowatts of capacity¹ and about 7.5 billion kilowatt-hours of energy² to 188 customers--100 rural electric cooperatives, 79 municipally owned systems, 1 county system, 1 State system, TVA, and 6 private investor-owned utilities.

SEPA does not own or operate any transmission facilities; therefore all SEPA-marketed power is sold at the project or moved over transmission facilities owned by private and public utilities. SEPA pays a service charge to these utilities for transmitting or "wheeling" the Federal power to preference customers.

SEPA's activities are conducted from its offices in Elberton, Georgia. Operations are directed by an administrator, under authority delegated by the Secretary of the Interior. The administrator receives direction from the Assistant Secretary of the Interior for Energy and Minerals.

SEPA prepared the fiscal year 1974 financial statements included in this report by consolidating financial data from the accounts and records of SEPA and the Corps.

¹The power which a project can produce at a given time, expressed in kilowatts. A project can be operated above its nameplate capacity.

²The power which a project produces over a given time, expressed in kilowatts per hour.

CHAPTER 2

PROGRAM OPERATIONS

In a prior report to the Congress on the Southeastern Federal Power Program,¹ we said that the program had a net operating revenue of about \$2.4 million for fiscal year 1966 and cumulative net revenues of about \$34.1 million.

Our current review showed that operating results had improved during the intervening years, as shown below.

<u>FY</u>	<u>Net revenues</u>	<u>Cummulative net revenues</u>
1966	\$ 2,357,739	\$ 34,133,450
1967	6,873,271	50,261,069
1968	8,008,117	58,173,938
1969	1,258,325	59,565,568
1970	1,440,905	60,789,214
1971	5,762,353	66,631,407
1972	9,418,411	76,051,564
1973	11,911,941	88,281,019
1974	13,554,456	102,061,815

The unusually favorable operating results in recent years are attributable, in large part, to above-average rainfall which resulted in more than the average stream-flow being available for generating power. Other factors contributing to the improved operating results were (1) the additional power generation available for sale from three new projects--J. Percy Priest in February 1970, Millers Ferry in April 1970, and Cordell Hull in September 1973, (2) an increase in amount of power available for sale from certain projects as a result of a change in operations, (3) power rate increases on the Kerr-Philpott projects and Cumberland Basin projects, which increased operating revenues, and (4) the collection of headwater benefit² assessments by FPC applicable to years before fiscal year 1970.

Although the financial results from operations have shown improvement over the years, there have been problems,

¹"Examination of Financial Statements, Southeastern Federal Power Program, Fiscal Year 1966" (B-125032, Aug. 24, 1967).

²The benefits from the storage and/or release of water by a reservoir project upstream. The Federal project benefits downstream private utilities which are required to pay for the benefits.

some of which may have an adverse impact on future financial results, in operating the projects. These problems relate to major rehabilitation requirements at some projects, delays and cost increases in constructing projects, delays in determining and collecting headwater benefits, delays in firming up cost allocations, adverse environmental effects, and hazardous conditions resulting in loss of lives.

MAJOR REHABILITATION REQUIREMENTS

The Corps has spent about \$9.7 million on remedial measures to correct leakage problems of the earthen embankment sections of the Wolf Creek and Walter F. George Dams and expects to incur additional costs on these projects in the future. At the Wolf Creek project, a major rehabilitation program is planned to provide a permanent solution. This program, which the Corps estimates will cost about \$91 million, is scheduled to take about 5 years. The Corps plans to continue its surveillance of the leakage problem at the Walter F. George project and to make needed repairs.

The problems at these projects and the solutions the Corps considered are discussed below.

Wolf Creek project

Late in 1967 and early in 1968, muddy flows were observed in the river near the project retaining wall below the Wolf Creek Dam. Later, in March and April 1968, two sinkholes¹ developed on the downstream side of the dam's earth embankment which is 3,940 feet long. Investigations revealed that the muddy flows and sinkholes were the result of seepage from the reservoir. This seepage was passing either through or under a trench under the embankment section and was eroding the embankment material through a channel in the limestone bedrock to the tailrace.² The original design had assumed that the trench, supplemented with grout,³ would be effective in stopping reservoir flows through the limestone bedrock. (See diagram of cross section of embankment on p. 7.)

¹A hole which is formed in soluble rock by the action of water and which conducts surface water to an underground passage.

²The point where water is discharged below dam.

³Grout is a concrete mixture used to seal channels or cracks. Grouting is the process of flowing grout into place by gravity or under pressure.

Abnormally high pressures and low temperatures in the embankment indicated to the Corps a serious weakness in the foundation which could become critical if uncorrected. The Corps lowered the reservoir level to reduce pressure against the embankment and in May 1968 started grouting and took other remedial measures to cut off the seepage from the reservoir. The Corps did not consider these emergency measures, which cost over \$5.9 million, a permanent solution. Also over \$1.4 million in power revenues were lost during the 8-month period the reservoir level was lowered.

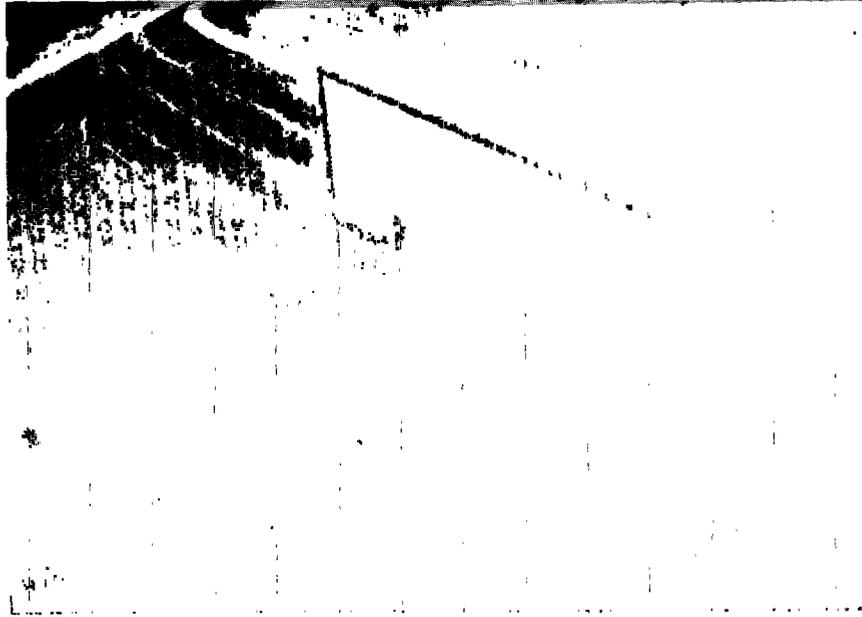
After the Corps reviewed the original project design and the construction records, it concluded that the single, most important factor leading to the seepage problem was the procedure followed in constructing the trench. The 1940 Corps construction criteria used for trenches at Wolf Creek were changed to alleviate similar future problems.

Studies of conditions and monitoring of pressures indicated to the Corps that dangerous conditions existed in the embankment, and as a result the Corps appointed a Board of Consultants in 1972 to review the foundation and embankment conditions and to advise the Corps of the corrective measures that would insure the permanent safety of the Wolf Creek Dam. The Board concluded, among other things, that the emergency grouting, although saving the structure, was not a remedy for the foundation defects and that further grouting would involve an unacceptable risk to the safety of the structure. The Board said that the most practicable solution to insure cutting off the seepage was to construct a concrete diaphragm wall through the embankment into the limestone bedrock.

The Corps studied a number of plans for treating the foundation problem, including that recommended by the Board. However, the Corps adopted a plan for installing a concrete diaphragm wall along the upstream embankment crest and around the power switchyard. Several of the alternative plans required draining the reservoir during construction, which would result in economic losses from power, recreation, and other benefits ranging from \$105 million to \$183 million. The Corps also considered abandoning the project but rejected this because of the annual loss of \$18.2 million in power, flood control, recreation, and other tangible benefits.

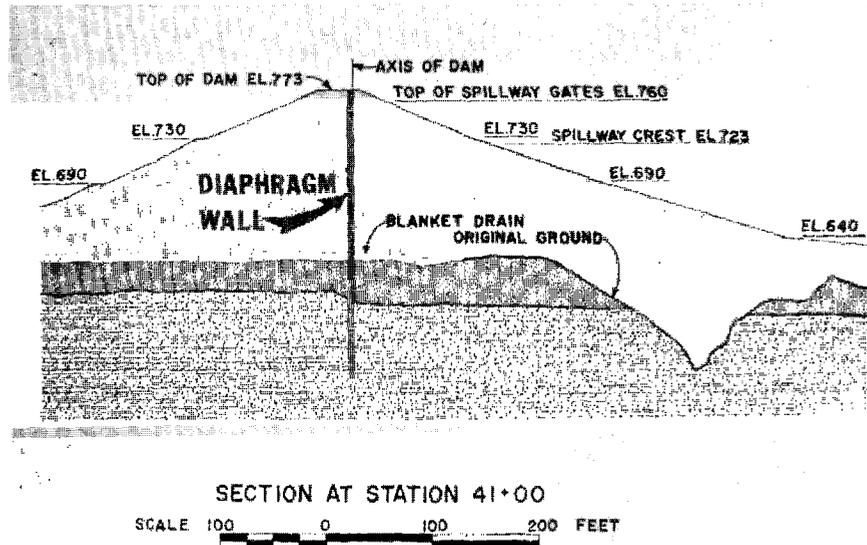
An artist's conception of the proposed concrete diaphragm wall and a cross section of the wall follows.

The diaphragm wall, estimated to cost \$91 million, will be constructed in four increments over about 5 years.



Source: Corps of Engineers

Artist's conception of concrete diaphragm wall in the embankment.



Source: Corps of Engineers

Cross section of wall showing extension through the embankment.

The Corps is using a two-phase procedure of contracting for constructing the wall. In the first phase, now completed, the Corps solicited technical proposals from potential contractors on the methods and approaches that could be used in building the wall while still maintaining the integrity of the dam. The Corps had received several proposals which it was evaluating at the time of our review. In April 1975 those contractors meeting the requirements in the request for proposals were invited to submit bids on the construction work. Corps officials estimated that actual construction probably would start late in 1975.

The manufacturer's specified capacity of the Wolf Creek generators is 270 megawatts (MW).¹ On the basis of a water level of 717.6 feet, however, 345 MW of power have been available. However, the Corps has lowered the normal operating level to 700 feet with a resulting power capability of 300 MW. The Corps plans to continue the pool restriction indefinitely and to restrict the pool level to 680 feet with a generating capacity of 230 MW during the construction of the diaphragm wall. This latter restriction is planned to start about June 1976 and is expected to last 4 to 6 months.

SEPA markets to TVA the power from its Cumberland Basin system, which includes the Wolf Creek project. Under the terms of SEPA's contract with TVA, when power service is interrupted or reduced in excess of 50 MW below nameplate capacity for a continuous period of more than 31 days, payments required from TVA are adjusted. According to SEPA, the reduction in power available to TVA as a result of the problem at Wolf Creek will be about 40 MW below nameplate capacity during the 4- to 6-month period, and therefore TVA's payments to SEPA will not be affected. However, SEPA said there would be a loss of power revenues if the Cumberland Basin projects experienced additional failure with a total loss in generating capacity in excess of 50 MW below nameplate capacity. If conditions permit, the Corps will resume normal reservoir operations after installing about 100 feet of the diaphragm wall next to the concrete dam.

Walter F. George project

The Walter F. George lock and dam, on the Chattahoochee River between Georgia and Alabama, have been affected since 1961 by seepage of reservoir water under the foundation of the earth dikes and later from sinkholes that formed in and

¹1,000 kilowatts equals 1 megawatt.

around the dikes (embankments). During this period the Corps spent over \$6.4 million for plugging numerous sinkholes, grouting, and other remedial measures.

The project is in an area where sinkholes form, and before construction was completed, numerous sinkholes developed near the site. Water seeped under the earth dikes because the foundation was built over soluble limestone and other permeable material. This seepage is slowly opening and enlarging channels under the dikes. After the channels develop into large cavities the surface area collapses and creates a depression or sinkhole.

Before construction began the Corps was aware that sinkholes were developing and probably would continue to develop at the site. Several sinkholes and solution channels were discovered during geological explorations. Although the nature of the foundation at the site created some difficulty in designing the embankment foundation, the Corps said that it believed that the structures planned were feasible.

Initially the Corps considered installing a trench to stop seepage through the dikes; however, it abandoned this plan because of the cost involved. Instead, the Corps had a clay blanket installed 500 feet upstream from the dam to retard seepage. The Corps spent over \$2.6 million for grouting beneath the dikes and for other remedial measures before initial construction was completed.

After the project had been in operation several years, a large spring developed near the downstream lock wall and sinkhole activity increased near one of the dikes. These problems required additional grouting, filling of sinkholes, and other work which started in 1968 and which is continuing. By December 1974 over \$3.8 million had been spent on these remedial measures.

The Corps did not consider the seepage and sinkhole development as a serious problem and said that it believed that remedial measures taken were effective. However, when the foundation problem surfaced at the Wolf Creek project, the Corps appointed a Board of Consultants to determine whether the problems at Walter F. George project were more serious than indicated and to suggest corrective measures for insuring the project's permanent safety.

The Board concluded that the only positive remedial measure would be to construct a concrete diaphragm wall extending downward through the limestone for the entire length of the earth dikes, a distance of over 2 miles.

The cost of this program was estimated at about \$140 million. However, the Board said that it believed that a failure of the dam was unlikely and that the safety of the dam could be insured without major reconstruction work, provided that the Corps established a vigorous surveillance program to detect the formation of sinkholes and filled and repaired them promptly. Accordingly, the Board recommended that the Corps develop plans for continued surveillance and detection of sinkholes and emergency remedial measures.

The Corps adopted the Board's recommendation and currently budgets some funds each year to cover the cost of emergency repairs at the project.

Corps inspection program

Since 1965 the Corps has had a formal program requiring periodic inspection and evaluation of major civil works structures to insure their safety and stability and operational adequacy. Previously the Corps' policy was to inspect dams after they were completed but the results were not formally reported. According to the Corps, the inspection program now in effect was not started as a result of the foundation problem discovered at Wolf Creek. The Corps said, however, that this problem has resulted in increased awareness and concern over the integrity of Corps dams.

The most recent Corps inspections of completed power projects in the Southeast disclosed some minor problems but no serious structural deficiencies or major problems like those at the Wolf Creek and Walter F. George projects.

Need for timely and systematic information affecting power operations

Because of the Corps delay in notifying SEPA of the potential major rehabilitation work required at the Wolf Creek Dam, an extraordinary effort by SEPA and other affected parties was required to make appropriate provision for recovery of the anticipated costs in wholesale power rate schedules submitted to FPC for confirmation and approval.

The Wolf Creek project is part of the Cumberland Basin system, and SEPA markets most of the power from that system to TVA under a contract dated June 15, 1970. The contract provides that power rates charged TVA may be adjusted on June 30, 1973, and at successive 5-year intervals for differences in costs from those which were estimated at the time of contract execution. The contract provides also that:

"TVA will be afforded an opportunity to examine the factual bases relating to the need for any proposed adjustment and to consult with the Administrator [SEPA] with regard to any proposed adjustment prior to its submission by the Administrator to the Federal Power Commission."

Before it knew of the major rehabilitation work required at the Wolf Creek project, SEPA concluded that a power rate increase would be needed for the Cumberland Basin system and that the contract price with TVA would have to be adjusted at the first authorized rate adjustment date--June 30, 1973. Because no further adjustments could be made after that date until June 30, 1978, it was important that, in proposing a rate adjustment, SEPA be aware of and consider provision for recovery of any fair and reasonable costs expected to be incurred during the period ending June 30, 1978.

SEPA said that without knowing of the major rehabilitation work required at Wolf Creek project, SEPA entered into negotiations with TVA for a rate increase and prepared a proposed rate adjustment submission to FPC for confirmation and approval. TVA executed the contract in March 1973, but SEPA withheld execution because, around that time, it learned of the major problems at Wolf Creek secondhand through the Office of Management and Budget (OMB). By an extraordinary effort, and with the cooperation of TVA and other affected parties, SEPA revised its proposed rate adjustment to provide for the major rehabilitation work required at Wolf Creek and, on June 29, 1973, obtained FPC confirmation and approval.

Subsequently, in an October 1973 letter to the Corps' Nashville District, SEPA pointed out that, because of SEPA's vital interest in the marketing of power, it is important that SEPA be kept abreast of developments on a timely basis. The Corps' Nashville District, in a letter to SEPA dated November 13, 1973, expressed regret for the apparent lack of communication. The letter concluded:

"Despite the apparent lack of communication between our agencies with regard to the Wolf Creek matter, I assure you that it is our intention to make a greater effort to keep you informed of subsequent events which may in any way affect the marketable power of the Cumberland Basin."

Although SEPA is responsible for marketing the power from Corps projects in the Southeast and for recovering the Federal investment in such projects, the Corps operates the

projects and SEPA is dependent on the Corps for project information which could affect costs or power availability. Other power-marketing agencies in the Department of the Interior--such as the Southwestern Power Administration and the Bureau of Reclamation--also depend on the Corps for such information.

Because SEPA and the other Interior power-marketing agencies are continually evaluating power-marketing arrangements and the adequacy of power rates, and because power-marketing contracts often cannot be adjusted for extended periods, it is important that the Corps promptly advise marketing agencies of anticipated project operations and conditions which could affect costs or power availability.

Recommendation to the Secretary of the Army

We recommend that the Secretary of the Army require the Corps to establish a procedure requiring its Division and District offices to provide prompt written notification to Interior's power-marketing agencies of any anticipated change in Corps' power operations and conditions which could substantially affect costs or power availability. The procedure should also require, at least annually, routine notification that such changes in operations or conditions are not anticipated for the next year.

Agency comments

By letter dated October 3, 1975, (see app. IV), the Department of the Army agreed that a formal procedure should be developed for informing power-marketing agencies, in a timely manner, of any operations or anticipated conditions which may affect power availability or costs. The Army stated that a Corps regulation will be developed and that annual notification of scheduled operating changes will also be provided.

DELAYS AND COST INCREASES IN CONSTRUCTING PROJECTS

The construction of several projects has taken many years longer than estimated, resulting in increasing costs and delays in obtaining the benefits of additional power production. Some delays were unavoidable; however, others were intentional. Generally, the intentional delays were caused by funding restrictions related to the executive branch's fiscal policies.

Delays experienced in completing power projects in the Southeast at June 30, 1974, and the cost increases are shown in the following table.

Project	Estimated power-on-line dates		Delay in completion (years)	Project cost estimate			Major causes for project cost increases	Increased cost	Loss of power benefits as a result of power-on-line delays
	Original	1974		Original	1974	Amount of increase			
				(millions)			(millions)		
Jones Bluff	9/69	6/75	6	\$52.6	\$ 74.8	\$22.2	Price level increases Refinements in estimates Modifications and design changes Schedule changes	\$ 9.1 8.8 4.1 .2	\$ 19.9
Carters	1/68	7/75	7	38.0	106.0	68.0	Modification and design changes Price level increase Schedule changes ^a Refinements in estimates	65.3 15.6 1.6 -14.5	127.4
Laurel	9/70	9/78	8	22.7	40.4	17.7	Price level increases Design changes Other	17.4 - .3	10.7
West Point	11/70	3/75	5	52.9	112.0	59.1	Refinements in estimates Modifications and design changes Price level increases Schedule changes Other	20.6 14.2 13.8 10.2 .3	16.5

^a Refinements in cost estimates resulting from low bids.

According to the Corps, the most common reasons for delays in completing projects were modifications and design changes and funding level restrictions. For several years OMB has required the Corps to place some of the funds it received for constructing water resource projects into a budgetary reserve. This was done as part of the administration's policy to reduce expenditures in Federal construction programs in order to diminish inflationary pressures on the economy.

The Corps has reported that the effects of funding limitations have been substantial and have contributed to increases in price levels and project costs and delays in project benefits.

The Corps identified two projects--Jones Bluff and Carters--where funding restrictions caused delays in project completion and increases in estimated costs. The Jones Bluff project was delayed 17 months, resulting in project cost increases of \$1.8 million, and the Carters project was delayed 44 months, resulting in project cost increases of \$10 million.

Because of difficulty in obtaining necessary data, the Corps could not provide us with specific cost increases resulting from funding level restrictions imposed on the other two power projects under construction in the Southeast--Laurel and West Point. The following table, however, shows the amount of OMB-imposed funding restrictions and the Corps' estimate of the delay in project completion resulting from these restrictions.

<u>Project</u>	<u>OMB funding restrictions (note a)</u>	<u>Estimate by Corps of delay in project completion due to funding restrictions (months)</u>
Jones Bluff	\$13,516,000	17
Carters	26,884,000	44
Laurel	8,855,000	12
West Point	18,791,400	36

^aThe figures show the yearly differences between the OMB allowance and Corps' recommendations plus reductions in the Corps' annual work allowance due to OMB's Government-wide savings and slippage program.

The Congress has expressed concern over delays in completing civil works power projects because such delays result in substantial cost increases and delays in receiving benefits considered essential to the public interest. The House Committee on Appropriations included, in the fiscal year 1975 budget, funds for the Corps' full construction capability on hydroelectric power projects. The Committee felt that the Corps should accelerate hydroelectric power development to help ease the national energy problems. The Committee also urged the administration, in future budgets, to develop a policy of optimum funding for power projects so that projects underway could be completed as soon as possible at least cost to the Government.

NEED FOR FPC TO INTENSIFY EFFORTS TO
DETERMINE AND COLLECT HEADWATER BENEFITS

Section 10(f) of the Federal Power Act, as amended (16 U.S.C. 803(f)), requires FPC to determine the amounts that owners of downstream hydroelectric projects should pay to owners of upstream headwater improvements for the benefits that the downstream power projects receive from streamflow regulation by the upstream facilities (referred to as headwater benefits). Downstream beneficiaries must also pay costs incurred by FPC in making the headwater benefit determinations. FPC has had this responsibility since 1920.

SEPA is the marketing agency for six Corps hydroelectric projects which provide headwater benefits to downstream projects. However, as shown in the following table, headwater benefits have not been determined and assessed in a timely manner.

The headwater benefit payments for the six projects are considered as revenues available to SEPA to use in repaying the Federal investment in the projects. Through fiscal year 1974, about \$4.4 million of such benefits had been collected and applied to repayment of the Federal investment, thus reducing the amount of the investment on which SEPA had to compute interest costs. Headwater benefits tend to keep the rates charged for SEPA power lower than they otherwise would be.

On the other hand, if headwater benefits are not paid to the Government as expeditiously as possible, it would result in unnecessary interest costs to SEPA (and, thus, to its power customers) and to the Government. The unnecessary interest costs to the Government result because interest rates paid by SEPA on the outstanding Federal investment are less than current interest rates at which the U.S. Treasury borrows funds to finance Federal programs.

STATUS OF HEADWATER BENEFIT DETERMINATIONS AND
PAYMENTS FOR CORPS PROJECTS
WHICH HAVE THEIR POWER MARKETED
BY SEPA--JUNE 30, 1974

<u>Projects providing headwater benefits</u>	<u>Date of projects' commercial operation</u>	<u>Headwater benefit determi- nation periods and date first payments were made</u>		<u>Periods for which headwater benefits have not been determined</u>
		<u>Period covered</u>	<u>Date of first collection</u>	
Clark Hill (note a) Hartwell (note a)	1/53 4/62	1950-74	1965	(b)
Kerr (note a) Philpott (note a)	11/52 9/53	^c 1951-68	1967	1969-74
Allatoona	1/50	1950-63	1955	1964-74
Buford	6/57	^{c,d} 1956-65	1973	1966-74

^a Benefits determined jointly for Clark Hill and Hartwell projects and for Kerr and Philpott projects.

^b Headwater benefit assessments are current.

^c Some headwater benefits occurred during the filling of these reservoirs.

^d Represents only payments for energy benefits. Capacity benefits determined by FPC are still being disputed.

FPC lists 56 U.S. river basins with potential headwater benefits, including 36 with Federal projects which may be eligible for headwater benefits. For many of these river basins, FPC either had not made headwater benefit determinations or had not made such determinations for all applicable years. Also, headwater benefits had not been collected in 11 basins, only partial benefits had been collected in another 11 basins, and preliminary studies had been made of 14 basins which recommended no benefit payments.

FPC policy and procedures
for determining headwater benefits

FPC determines headwater benefits either by making a formal study of a river basin or by allowing negotiated settlements between the parties involved. Generally, FPC makes formal studies when headwater benefits are due a Federal agency. FPC regulations issued in 1963 allow non-Federal parties to negotiate settlements for headwater benefits between themselves. This was done to spare non-Federal parties the expense of a formal study and investigation and to reduce FPC's workload. This regulation allows FPC staff to give precedence to investigating headwater benefit situations which appear to involve the largest payments to the Government.

FPC also issued revised guidelines in 1963 designed to simplify, expedite, and reduce costs of headwater benefit determinations. The revisions require both the upstream reservoir owner and the owner of downstream non-Federal hydroelectric power plants annually to submit data concerning their facilities and operations. The revisions established certain billing rules and prescribed that once an average annual payment was determined, payments in that amount would be made annually until a further study is warranted by changing conditions.

FPC staff told us, however, that only 8 of the 56 river basins have had headwater benefits determined under these simplified procedures. The reason for this, according to FPC staff, is either an inability or an unwillingness on the part of the parties involved to meet the criteria required to use such procedures. These criteria include among other things assurance of scheduled water releases and establishment of average annual benefits.

Reasons cited by FPC for
the long time frame required
to make headwater benefit determinations

An FPC official said the following factors contributed to the long time frame required to determine and assess headwater benefits:

--Headwater benefit studies are complex, requiring analysis of over 100 variables and their relationship to each other. The complexity of the studies increases with the number of headwater improvements and downstream developments on a river system.

--Timelags of a year or more are encountered in gathering certain types of data. Consequently, payments for headwater benefits will always be 1 or 2 years after the period for which the benefits are determined.

--The studies sometimes result in FPC hearings as well as further legal appeals to the courts. In addition to the time frame required for such appeals, the FPC staff must spend substantial time preparing detailed and well-documented studies so that the staff can defend their conclusions.

--Because appeal rulings may change some procedures used in a study, FPC's policy is not to start a headwater benefit study until all issues from the previous study are resolved.

--There is still wide disagreement over the proper method of determining that part of headwater benefits concerned with power capacity gains as opposed to energy gains. Therefore, hearings usually result whenever FPC determines capacity gains to be part of the headwater benefits.

--FPC's staff of 8 spends about 75 percent of its time determining headwater benefits for 56 U.S. river basins with more than 600 Federal and non-Federal projects having possible headwater benefit situations.

Unsuccessful attempts to expedite headwater benefit determinations for two SEPA projects

Headwater benefit payments have not been made for the Allatoona and Buford projects for the years 1964-74 and 1966-74, respectively. In September 1972 FPC staff agreed to allow SEPA and the investor-owned utilities to attempt to negotiate a settlement acceptable to all parties involved--SEPA, the utilities, and FPC. A SEPA official said that the negotiations were undertaken because the investor-owned utilities disagreed with an FPC staff determination of the headwater benefits. FPC did not provide SEPA or the investor-owned utilities with any written criteria or instructions regarding factors which FPC believed should be considered in such a settlement.

During October 1972 through December 1973, SEPA and the utilities conducted negotiations. Agreement was reached in April 1974. The non-Federal power developers proposed to pay \$982,000 for benefits provided by the Allatoona project and \$1,470,000 for benefits provided by the Buford project for the periods through 1973. Additionally, a future payment proposal was made calling for an annual payment of \$140,000 a year for Allatoona benefits through 1976. The Buford settlement proposal contained no specific offer for future payments; however, the parties agreed to continue negotiations to arrive at a future payment amount.

SEPA representatives said they believed that initial FPC reaction to the negotiated settlement proposals was favorable. In June 1974, however, the FPC staff requested additional information from the parties to complete its studies of energy and capacity gains through 1973. FPC staff told us that, based on its studies, it disagreed with the negotiated settlements proposed by SEPA and the two investor-owned utilities because in one case it believed that the amount was too low and in both cases the proposed settlements did not separately identify the amounts applicable to energy gains and to capacity gains. In addition, FPC staff said there was a lack of satisfactory coordination agreements between SEPA and the companies, which it felt were necessary for optimum use of resources as well as being beneficial for future benefit determinations.

SEPA officials said they question whether coordination agreements would benefit their operations, since current system operations are designed to maximize revenues. They also said that the negotiated amounts were low because they were based on streamflows in average water years. This method

was used because at the time of the negotiations actual data was not available for part of the period covered by the proposed settlement. When FPC staff evaluated the proposed settlement actual data was available and above average water years had occurred. SEPA representatives said their decision to negotiate a settlement based on average water years was logical, based on the best data available. They were aware that payments would be too low during good water years, however, payments would be too high in a bad water year. SEPA representatives said that if they had known that the FPC staff was going to object to the agreement for these reasons, they would have attempted to negotiate the settlements differently.

FPC staff made a counterproposal to the private utility companies which the companies rejected. One company withdrew its negotiated settlement offer to SEPA and offered to settle with FPC staff at an amount lower than previously negotiated with SEPA. FPC staff and SEPA officials said that these matters will probably be the subject of FPC hearings and subsequent legal actions and that it may be several years before they are resolved.

We estimate that FPC staff's decision not to accept the proposed settlements agreed to by SEPA and the companies has cost SEPA and the Government about \$197,000 in additional interest between April 1974 and April 1975. This averages about \$530 in interest for each day that headwater benefits are not collected for these two projects.

The FPC staff decision to reject the negotiated settlements proposed by SEPA and the companies not only costs SEPA and the Government interest for each day that the matter remains unresolved, but also means that less FPC staff time is available for work on other headwater benefit studies.

Agency comments

By letter dated August 28, 1975, (see app. II), FPC said that staff studies for the Kerr and Philpott projects for 1969-72 were complete and that their results would soon be sent to the concerned parties for review and comment. FPC anticipates that headwater benefit collections for this period can be made during this year.

FPC said that delays in headwater benefit assessments for the Allatoona and Buford projects result primarily from major differences in possible gains in dependable capacity. It said a key question was the "assurance" that downstream non-Federal owners have in the operation of the Federal reservoir projects. According to FPC, when this problem

surfaced at a September 12, 1972, staff conference, it was agreed that SEPA and the non-Federal utilities would undertake negotiations toward agreements that would provide for the future coordinated operation of all facilities. FPC said such agreements could assure optimum operation of facilities, provide a firm basis for future headwater benefits determinations, and be a possible guide for the settlement of headwater benefits in past years.

Two SEPA officials who attended the September 12, 1972, staff meeting said apparently there had been a misunderstanding because they did not realize that the negotiations FPC staff had authorized them to undertake with the utilities were for the purpose of reaching agreement regarding coordinated operation of all facilities. In fact, the SEPA officials questioned whether coordination agreements would benefit their operations.

FPC said it recognizes the desirability of making headwater benefits determinations on a timely basis and has acted to expedite the determination. Also, FPC said it was concerned about the unnecessary interest costs to SEPA and the Government as a result of delays in collecting headwater benefits and that the question of interest on unpaid headwater benefits would be an issue in an FPC hearing relating to the Upper Mississippi River basin.

FPC concluded that its existing headwater benefit regulations, though not allowing negotiated settlements where headwater benefits are provided by Federal reservoirs, provide criteria which, under conditions of assured reservoir operation, would allow the affected parties to determine appropriate compensation. FPC said these criteria are adequate, and a major factor causing delays in collecting headwater benefits has been the inability or unwillingness of those involved to meet the criteria.

Conclusions

FPC has a large backlog of headwater benefit determinations. Delays in completing these determinations result in interest costs to Federal power customers and to the Government. Because the downstream beneficiaries are required to reimburse FPC costs of making headwater benefit studies, intensification of such FPC efforts should result in a reduction in interest costs to the Federal power customers and to the Government without a corresponding increase in administrative costs to the Government.

In addition, to facilitate headwater benefit settlements and to avoid nonproductive efforts in those instances where

the FPC staff agrees that a Federal power-marketing agency and non-Federal utilities may negotiate solutions to difficulties hampering settlements, the FPC staff should provide the Federal agency with written instructions clearly setting forth the scope and purpose of the negotiations. The lack of such instructions contributed to a misunderstanding in the benefit determination negotiations for the Allatoona and Buford projects and resulted in nonproductive efforts.

Recommendations to the Chairman, FPC

We recommend that FPC intensify its efforts to reduce the large backlog of headwater benefit determinations. In addition, when the FPC staff authorizes a Federal agency and non-Federal utilities to enter into negotiations to propose solutions to problems hampering settlements of headwater benefits determinations, we recommend that the FPC staff provide the Federal agency with written instructions clearly setting forth the scope and purpose of the negotiations.

NEED TO FIRM UP COST ALLOCATIONS

Three Corps projects in operation at May 31, 1975--Hartwell, J. Percy Priest, and Cordell Hull--had tentative, rather than firm, allocations of project costs. In the process of firming up tentative cost allocations, the amounts allocated to the power purpose of the Southeastern Federal Power Program could change, but the amount of such changes and the resulting effect on financial operations are not determinable. It is important, therefore, that such tentative cost allocations be firming up as soon as possible to determine the effect on the amount of the Federal investment that power users must repay so that current costs are matched to current revenue requirements.

In addition, the Corps and SEPA have used different tentative cost allocations for the same projects resulting in inconsistencies between financial data recorded in the Corps records and financial data reported by SEPA for power rate determination purposes. These inconsistencies, and the Corps' failure to make a detailed retroactive cost adjustment for the Walter F. George project as SEPA had done (see note 6, p. 61), were the primary reasons for a difference of about \$9 million in the power investment shown in the Corps' accounting records and SEPA's rate and repayment studies (see note 3, p. 59). Corps and SEPA officials said that corrective actions would be taken to assure that the same

tentative cost allocations would be used in the future.¹

The need for cost allocations arises because each Corps project may serve several purposes, such as providing power, flood control, recreation, navigation, and other benefits. Some of the projects' costs cannot be specifically identified with a particular project purpose and, therefore, are considered to be joint costs which must be allocated to the various project purposes. Generally, these joint costs are allocated to each project purpose based on the relative amount of benefits considered as resulting from each purpose.

Procedures used in firming up cost allocations

After a Corps project in the SEPA power-marketing area is placed in operation, the responsible Corps district prepares a proposed final cost allocation report showing the amount of proposed project costs to be allocated to each project purpose. SEPA and FPC review the report at field level, where either agreement is reached or disagreements are noted.

The tentative cost allocation report, revised as necessary, is next forwarded to the Chief of Engineers. Staff in the Office of the Chief of Engineers review the report, and if satisfactory, it is referred to the Interior and FPC members of the Interagency Committee on Cost Allocations. This is an informal committee established to assure that the concerns of interested agencies would be considered in the final allocations of costs. Members of the Committee have other duties in their own agencies and their Committee work is additional to the other duties. According to the Department of the Army, however, actual responsibility and authority for cost allocation for Corps projects rests with the Chief of Engineers (except for the few projects for which FPC was given this responsibility by law).

After the Committee has fully considered and commented on a tentative (proposed final) cost allocation, the Chief of Engineers' staff prepares the allocation for adoption by the Chief of Engineers. Before adoption he forwards the proposed cost allocation report to the Secretary of the

¹In a Sept. 16, 1975, letter (see app. III), Interior stated, however, that where major differences exist due to disagreements on cost allocation content or procedures, SEPA reserves the right to disagree with the tentative allocations until the differences are resolved by an interagency committee on cost allocations.

Interior and the Chairman of FPC for their formal comments. Any disagreements may then be reconsidered by the Committee and, if resolved, the Chief of Engineers notifies Interior and FPC that he has adopted the cost allocation as a project document. The Department of the Army said the Chief of Engineers could also make such notification if he determines that the issues raised were not appropriate. When the allocation is firm, accounting records established on the basis of preliminary cost allocations are adjusted based on the final cost allocation.

Delays in firming up cost allocations

Very long delays have been experienced in firming up cost allocations. For example, the Hartwell and J. Percy Priest projects were placed in commercial operation in 1962 and 1970, respectively, but as of May 31, 1975, the cost allocations were still considered tentative. Most other Corps projects in the Southeastern Federal Power Program also experienced long delays before the cost allocations were made firm; one as long as 17 years.

An FPC official said that between 1962-67 there was a hiatus in the activities of the Interagency Committee on Cost Allocations because Senate Document No. 97, 87th Congress (May 1962), indicated that an interagency body (subsequently identified as the Water Resources Council) would issue uniform cost allocation standards and procedures to be used by all Federal water resources planning agencies. No such standards and procedures were issued, however, so the Interagency Committee on Cost Allocations was reestablished in 1967 to eliminate a backlog of projects for which firm cost allocations were needed.

The Committee has not been meeting regularly. Between the time the Committee was reestablished in September 1967 and May 1975, it met 11 times. Seven of these meetings were between 1967-69 and four took place in the last 6 years for the purpose of reviewing and discussing cost allocations.

Minutes of the meetings often did not provide sufficient detail to make clear the reasons for disagreement with the Corps' proposed firm cost allocations or the actions needed to resolve the disagreements. For this reason, and because of changes over the years in the agencies' representatives on the Committee, some of the Committee members at the time of our review often could not identify the areas of disagreement that were delaying approval of outstanding tentative cost allocations. As a result of our inquiries concerning the cost allocations for two projects--Old Hickory and

ADVERSE ENVIRONMENTAL EFFECTS
RESULTING FROM POWER OPERATIONS

The Corps has identified some adverse environmental effects resulting from power operations in the Southeastern Federal Power Program which may be costly to correct. Additional adverse effects may be identified as the Corps progresses in its program to prepare environmental impact statements for each project.

Water quality problems

At times several of the operating projects have discharged water containing a low dissolved oxygen level which can be caused by varying water temperatures as is the case at the Allatoona, Clark-Hill, Kerr and Buford projects. Significant reductions in the oxygen level are harmful to fish and other aquatic life. The Corps considers this problem serious enough to require corrective action at the Clark-Hill project.

The Corps plans to spend \$630,000 to install a system at the Clark-Hill project which will inject liquid oxygen into the water to increase the amount of dissolved oxygen. The Corps said there was a similar problem at the Kerr project but it was not severe enough to warrant the injection of liquid oxygen. However, the Corps said that if the condition gets worse an air pump would be used to increase the oxygen level. It said the air pump would initially cost more than the oxygen injection procedure but the long-run cost would be less. However, no cost effectiveness studies have been done as yet. The Allatoona and Buford projects also had a low level of dissolved oxygen in the water but, according to the Corps, not to an extent requiring corrective action.

The Allatoona project is on the Etowah River, about 50 miles upstream from Rome, Georgia. At Rome, the Etowah and Oostanaula Rivers join to form the Coosa River. Operation of the Allatoona project for peaking power production results in large releases of water downstream for short periods of time. When these large flows reach the Rome area during extremely low flows in the Oostanaula River they can cause a reversal of the Oostanaula River water flow. Rome discharges its municipal wastes into the Oostanaula River downstream from its water intake opening and, as a result of the flow reversal, wastes discharged into the river are carried upstream past the city's water intake.

The Corps said that it has arranged the release schedule at the Allatoona project to try to prevent this problem. Also, the Corps said that the operation of the recently completed Carters Dam should provide regulated flows along the Oostanaula River which will help correct the flow reversal problem.

Bank erosion problems

Several projects have had erosion problems either on the shoreline around a reservoir or on the river bank downstream from a dam. A serious erosion problem--caused by wave actions, fluctuations in the water level, and soft soil--exists along the shoreline of the Clark Hill and Hartwell reservoirs. The problem was first identified in 1960, and since early 1967 the Corps has tried several corrective measures. These included (1) flattening the eroded shoreline and covering it with dumped rock and (2) constructing a rock-lined ditch around affected private property. In December 1972, as a result of periodic surveys, the Corps determined that the erosion was progressing at an average rate of 2 feet a year in the worst areas at Clark Hill. The Corps concluded that at that rate erosion would wear away the shoreline held by Government easements and encroach on private land in about 8 years. In 1974 the Corps estimated that as much as 200 miles of the 1,100-mile Clark Hill shoreline might need some form of protection.

From 1972 through early 1974 the Corps took no significant corrective actions and erosion continued at about the same rate. In 1974 the Corps awarded a contract to study shoreline erosion problems at Clark Hill and Hartwell and to find ways to repair the present damage and to prevent future damage. At Hartwell, the Corps has begun identifying private property subject to flooding which could be exchanged for land at a higher elevation, thus reducing damage to privately owned property. The Corps has budgeted about \$2.4 million for shoreline erosion control at the Clark Hill and Hartwell projects through fiscal year 1979.

There were seven known erosion areas at the Kerr project which may cause problems in the next 3 to 4 years. Two alternatives the Corps was considering to reduce the effects of erosion on private property owners were (1) providing bank protection measures at a cost of about \$561,000 and (2) acquiring land along the critical areas at a cost of \$279,000 to accommodate natural stabilization. The Corps stated that the tentative conclusion of a study now in progress was that the Corps should purchase land to allow erosion to be corrected through "natural" land stabilization.

Property owners downstream from the Millers Ferry project have complained that operation of the project causes severe fluctuations in the water level of the Alabama River resulting in considerable bank erosion and loss of many acres of land. The Corps has considered several alternatives to reduce the erosion and said that the problem below Millers Ferry is common and not peculiar to that project.

The alternatives include (1) operating the project strictly as a run-of-river plant; i.e., using all the streamflow as it comes for power generation without storing it for future use, (2) buying easements from affected landowners, (3) providing some form of bank protection for affected areas, and (4) modifying the present peaking operating procedures by having one generating unit operating continuously for several days following a period of flooding. The Corps said that it rejected the first alternative because it would have resulted in a considerable power revenue loss. It rejected the next two alternatives because landowners were unwilling to give up use of their land or the proposed protection was too costly.

The Corps has proposed adoption of the modified peaking operation since it would be more acceptable from a power standpoint and probably would not cause downstream fluctuations much greater than a run-of-river operation. In addition, the Corps has adjusted the operation of the power units during peaking production by shutting down the units consecutively at 1 hour intervals after production is completed rather than shutting off the three units together. SEPA has approved both modifications to the production program, and according to SEPA, very little (if any) monetary loss should result from the modifications.

HAZARDOUS CONDITIONS FROM GENERATING POWER RESULTING IN LOSS OF LIVES

Some of the hydroelectric projects in the Southeastern Federal Power Program store large quantities of water behind the dams and only make steady releases downstream in the minimum quantities necessary to meet required flows. These projects generate electricity only periodically in response to large electrical demands (peak loads) on the system. However, when the projects produce power, large quantities of water are suddenly released through the generators, causing the downstream water level to rise rapidly.

Some people in or near the river below the dam have been trapped by the sudden rise in water level and have drowned. For years the Corps has been concerned about this problem and has placed signs along the river banks and in the rivers warning of

the danger. In addition, a Corps official said that the Corps has issued press, radio, and television releases pointing out the inherent dangers of the area.

The problem is particularly acute at the Corps' Hartwell project, located on the Savannah River between Georgia and South Carolina. The riverbed for about 25 miles below this dam is filled with large boulders and holes. When the power generators begin operating, there is a rapid rise in the water level as shown in the following photos which were taken on September 11, 1974, about 1 mile below the Hartwell Dam. As a result of the rapid rise in water level, people wading in the river or fishing from the rocks have difficulty moving to safety quickly. Since 1963 seven drownings have occurred below the Hartwell Dam, four of which, the Army said, were directly attributable to rapidly rising water. A claim of \$300,000 against the Government is currently outstanding as a result of a 1972 drowning in this area.

The Corps has considered various alternatives to lessen the hazards. These have included (1) installing a small generator at the Hartwell powerhouse to provide a steady release of water, (2) installing a series of warning horns along the river, (3) constructing a ditch in the middle of the riverbed, and (4) installing an audible warning system at the dam. The first three alternatives were rejected because, according to the Corps, they were either impractical or economically unfeasible. At the Hartwell project, the Corps has installed an audible warning system--costing about \$2,000--which began operating in September 1974. A horn sounds from the dam about 3 minutes before water is released downstream each time peak power is generated. However, the horn can be heard only about one-quarter of a mile downstream; thus, much of the 25-mile danger area below the dam is not covered by the warning system.

Corps officials pointed out that construction of the Richard B. Russell project about 30 miles below the Hartwell Dam will eliminate the hazardous shallow areas except for about one-half mile immediately below the dam. The shallow areas should be covered by water because the Richard B. Russell project will back water to within one-half mile of the Hartwell Dam. However, the Russell project is not scheduled to be operational until about 1982.

Audible warning systems have also been installed at five projects in the South Atlantic Division--Clark Hill, Allatoona, Buford, Kerr, and Philpott. The Corps plans to install this system at all multiple-purpose projects in the South Atlantic Division. According to Corps officials, seven drownings have



Before power generation--at 10:15 a.m.



During power generation--at 11:00 a.m.

occurred during power generating at two projects--Cheatham and Old Hickory--in the Corps' Nashville District, Ohio River Division. However, the Army said that none of the drownings were directly attributable to rapid rising water. The Corps said that audible warning systems have not been installed at these projects, or at other projects in the district (except J. Percy Priest), because all of them, except J. Percy Priest are operated automatically; i.e., they can begin generating power within seconds after a request for power has been received. Because of the automatic operation, the Corps said that an audible warning system would be useless. Warning signs have been posted at all Nashville power projects.

The Army said that an audible warning system possibly could have prevented 4 of the 14 drownings at its projects.

The Corps said that the audible warning system has several disadvantages. The horn can only be heard about one-quarter mile below the dam; people tend to rely too much on this type of warning system, giving them a false sense of security; warning systems are not infallible and could possibly fail to function before water release; and use of an audible warning system reduces the speed with which a response can be made to meet a request for additional power.

To alleviate the problem, the Corps has also constructed fishing docks on Corps land and has encouraged the public to use such docks for fishing rather than standing or boating in the river. In addition, the Corps said that it had proposed to State governments that they explore the possibilities of having the States, local governmental bodies, or others provide safe fishing areas or piers at intervals along the river banks.

Conclusion

The Corps is aware of the hazardous conditions below some of its dams and of its inability to fully solve the problem, even though it has made many attempts to find the best solution.

Although the problem is not completely soluble, the Corps should intensify its efforts to mitigate the adverse effects resulting from the operations of its hydroelectric projects. Among other things, the Corps should:

- Solicit the cooperation of the news media, community services, businesses, and other organizations and of local governments in a continuing and intensified campaign to inform and alert the public of the safety hazards.
- Extend its audible warning system so it can be heard along the entire downstream danger area.
- Increase its efforts to provide alternative public recreational options, including requesting congressional authorization for financial assistance to local communities if such assistance is determined to be needed.

Recommendation to the Secretary of the Army

We recommend that the Corps intensify its efforts to mitigate the adverse effects on public safety resulting from the operations of its hydroelectric projects by expanding the scope of its public information program and of its audible warning systems and increasing its efforts to provide alternative public recreational options.

Agency comments

The Army, in its October 3, 1975, letter (see app. IV), said that the Corps will continue to review its attempts to reduce the adverse effects of power operations on public safety with minimum incident loss of power and take whatever action deemed appropriate.

CHAPTER 3

MARKETING OF POWER FROM NEW PROJECTS

Four new Corps hydroelectric projects are scheduled to begin operation in 1975 and 1976, adding over 700,000 kilowatts of generating capacity to the present capacity of Southeastern Federal Power Program projects. The West Point, Jones Bluff, and Carters projects, planned for completion during 1975, will add 641,000 kilowatts to SEPA's Georgia-Alabama system. The Laurel project in southeastern Kentucky will add 61,000 kilowatts to SEPA's Cumberland Basin system and is planned for completion in 1976.

SEPA has plans for marketing the power from the new projects but, at our review's conclusion, had reached no agreement with prospective customers and other parties involved in the marketing plans. Several factors affecting the negotiations must be resolved before marketing arrangements can be completed. A summary of these factors, and of factors affecting SEPA's marketing plans for the new projects, follows.

LAUREL PROJECT

SEPA plans to market power from the Laurel project to the East Kentucky Power Cooperative--a rural electric cooperative--and to eight municipally owned electric systems in Kentucky, all within 150 miles of the project and within the common service area of Kentucky Utilities and East Kentucky Power Cooperative. All of the proposed customers are preference customers within the meaning of section 5 of the Flood Control Act of 1944. Final power allocations have not yet been made but SEPA expects that the available power will be divided equitably among the participating preference customers.

The project will be connected to the transmission lines of the East Kentucky Power Cooperative. The eight municipalities purchase power from Kentucky Utilities and are served by that company's transmission facilities. SEPA's plan calls for obtaining wheeling arrangements from the East Kentucky Power Cooperative and Kentucky Utilities, which have interconnected transmission systems, to transmit project power to the municipalities.

East Kentucky has agreed to cooperate with SEPA in implementing the proposed marketing plan. However, SEPA said that Kentucky Utilities has not yet agreed in principle to the proposed wheeling plan. SEPA said that it anticipates a long

negotiating period with Kentucky Utilities, but believes that it will be able to work out an acceptable arrangement.

WEST POINT, CARTERS, AND
JONES BLUFF PROJECTS

SEPA has under consideration a proposal to market the power from three of the new projects, along with the six existing operating projects in its Georgia-Alabama system, as one operating system of nine projects. Under the proposal, power from the new projects would be integrated with that portion of the power from the existing projects, now sold in Georgia and Alabama, and marketed in the area served by the Southern Company--a holding company comprising four operating subsidiaries; the Alabama, Georgia, Mississippi, and Gulf Power Companies. The marketing proposal would extend sale of Government power to a number of preference customers located in the area served by the Gulf and Mississippi Power Companies. In the interim, SEPA entered into a short-term contract to sell power from the West Point project to the Georgia Power Company on a temporary basis.

SEPA told us that in the future it plans to market primarily peaking capacity (kilowatts) to its preference customers with less emphasis on energy (kilowatt-hours) sales. SEPA said that it anticipates that after 1980 all of the Georgia-Alabama System capacity could possibly be sold to the preference customers as peaking power.

Peaking power is that part of a system's power requirements which must be met when customers' power demands on a system are highest. These high demands may be for relatively short periods of time. Hydroelectric generating facilities generally are ideally suited for meeting peaking demands because they can be started and shut down quickly and, usually, they do not have sufficient water to meet the customers' base-load requirements. When such base-load requirements of a customer are met by a hydroelectric system, such as SEPA's, arrangements must be made to obtain additional energy from other utilities.

SEPA said that one factor influencing its proposed change in marketing arrangements is the changing relationship between utilities in the SEPA power-marketing area, some of whom are SEPA's preference customers. The utilities have changed, or have proposed changing, the rate for power they sell to SEPA's preference customers from primarily an energy rate to a two-part rate where a substantial part of the total power cost is included in the rate's capacity component. Therefore, preference customers are increasingly interested.

in obtaining power--particularly capacity--from SEPA. In addition, the utilities' recent rate schedules for cooperative and municipal customers have been based on cost-of-service studies which have increased charges to preference customers. Existing rates to preference customers are higher than SEPA's present rates. These changes have increased the value and demand for SEPA capacity for peaking power purposes.

In addition, SEPA said that future marketing arrangements may be affected by the recent purchase of some of Georgia Power Company's generation and transmission facilities by a cooperative serving 39 rural electric cooperatives in Georgia and the planned acquisition of similar facilities by the municipal electric systems. SEPA said that these cooperatives and municipalities, which currently purchase power from SEPA, will need to supplement their future power requirements with purchases of peaking power and that this situation may expedite the change in SEPA's marketing arrangements so that SEPA will sell only peaking power.

CHAPTER 4

POTENTIAL FOR INCREASED POWER GENERATION

The Corps and SEPA have taken actions designed to increase power generation from existing projects. Also, the Corps and the Federal Energy Administration (FEA) have identified hydroelectric projects for expansion or construction which further study might prove economically feasible.

INCREASED POWER GENERATION FROM EXISTING PROJECTS

The Corps has changed the operating procedures of several projects and made other changes which have increased the amount of power generated from power projects.

SEPA determined in a long-range operational study that the Kerr-Philpott projects could be modified to provide increased power and recreational benefits without changing other project purposes. In cooperation with the Corps, the normal operating pool level of the Kerr project was raised during the period August through February, thus increasing the dependable capacity of the projects by about 47 MWs. SEPA included the additional capacity in new power contracts during 1973. The increase in capacity has resulted in a net revenue gain of about \$295,000 annually.

During negotiations for sale of power from the J. Percy Priest project, TVA advised SEPA that it was not getting the full potential power output from the Cumberland Basin projects and recommended that the Corps' operating limitations on these projects be partially relaxed. At the time, the Corps was operating the generating units at these projects at no more than their stated nameplate capacity and a water intake gate position of 90 percent open or less. As a result of the TVA proposal, the Corps changed its operating procedure so that generating units could be operated for reasonable periods of time with the gates fully opened and generation up to 115 percent of the stated nameplate capacity.

The new procedure has provided TVA with additional capacity and flexibility and thereby increased the power benefits derived by TVA from the Cumberland Basin projects. However, the change in procedure will not increase power revenue to SEPA from the Cumberland Basin projects because the revenue is computed as an annual charge based on the unregulated water flow into the Wolf Creek reservoir and not on the basis of actual power generation.

The Corps also made other revisions in the operation of its power projects which increased power production. These include (1) adding 3 feet to the power storage pool of the Allatoona project and 2 feet to the Buford project and (2) reducing the drawdown of the Clark Hill and Hartwell project reservoirs by 1 foot as a result of cooperative arrangements with Duke Power Company's hydroelectric projects in the same river basin. However, both the Corps and SEPA said that significant changes in pool operating levels, similar to the change made at the Kerr project, could not be made at other projects without adversely affecting other project functions, such as flood control.

EXPANSION OF EXISTING PROJECTS
OR CONSTRUCTION OF NEW PROJECTS

The Congress included in the Federal Energy Administration Act of 1974 a requirement that FEA report to the Congress on (1) Federal hydroelectric generating facilities authorized for construction by the Congress but not yet completed and (2) opportunities for increasing the generating capacity of existing hydroelectric generating facilities.

In a September 1974 report to the Congress, FEA identified 14 Corps projects in the Southeast authorized for construction but not completed. These included four projects under construction at June 30, 1974. FEA also identified one Corps project in the Southeast that offered potential for increasing generating capacity by adding an additional unit.

The FEA report, however, did not contain data on the potential for expanding generation at the Allatoona and West Point projects by installing generating units in spaces already available for such units and did not identify individually all the Corps projects in the Southeast which have been authorized for construction.

The Allatoona and West Point projects have spaces for additional generating units of 36 and 35 MWs, respectively.

The Corps was reviewing the Allatoona project to determine whether operations, including power, should be modified in any way because of changed physical or economic conditions. Although the review had not been completed at the time of our fieldwork, the Corps told us that their tentative conclusion was that it would not be economically feasible to install the additional power unit at present.

Preliminary Corps studies indicated that an additional generating unit at West Point would be economically feasible and could be installed in about 2 years at an estimated cost

of \$6.8 million. The Corps stated, however, that power produced from four generating units at West Point, which includes the potential additional unit, would cause such large water level fluctuations below the project that it would be hazardous to recreational activities. The Corps concluded, therefore, that the additional unit could not be installed at the West Point project until action can be taken to alleviate large water level fluctuations.

In addition to the 14 Corps projects FEA identified as authorized for construction, there are other authorized Corps projects in the SEPA marketing area which have about 5,000 MW of hydroelectric potential. However, the Corps has placed these projects in a deferred or inactive category. The Corps defines deferred projects as those with marginal economic justification or where local groups are currently unable to furnish the required cooperation. The Corps defines inactive projects as those which lack economic justification, need substantial modification, or are opposed by local interests. These projects have been grouped in the FEA report with projects in other parts of the United States in the same categories.

In addition to the FEA report to the Congress, the Corps' Institute of Water Resources began a two-phase study in 1974, designed to reevaluate the hydropower potential at Corps projects. Phase 1 of the study provides for (1) reviewing the Corps' role in the supply of electric power, (2) determining the capability for hydropower production at both developed and underdeveloped projects, and (3) developing a framework for the reevaluation of projects by Corps field offices.

Phase 2 of the study--to be implemented primarily by the Corps field offices--provides for (1) analyzing the hydropower potential at selected high-priority projects and (2) making recommendations on future actions pertaining to hydropower development.

The Corps said the feasibility of constructing all the authorized projects in the SEPA marketing area will be further considered in connection with its Institute of Water Resources study.

CHAPTER 5

RATE AND REPAYMENT STUDIES

SEPA prepares rate and repayment studies at least once every 5 years to determine the revenue levels needed to formulate wholesale power rates. Each year during the other years of the 5-year period, repayment studies are prepared using updated cost and revenue estimates to demonstrate whether existing power rates are adequate to accomplish repayment of all power costs within the maximum 50-year repayment period.

SEPA prepares a separate rate and repayment study for each of the four power systems making up the Southeastern Federal Power Program--the Georgia-Alabama projects, Kerr-Philpott projects, Cumberland Basin projects, and Jim Woodruff project. These studies show each system's actual revenues, expenses, amount repaid, cumulative repayment of investment, and remaining Federal investment through the end of the current fiscal year as well as a projection of the same financial data for each year through the end of each system's repayment period. A system's repayment period ends 50 years from the date the last project in the system is placed in service and becomes revenue producing. The Federal investment in each project in the system must be repaid, however, within 50 years from the project's inservice date. Recent SEPA rate and repayment studies indicate that rate revisions may be needed on some systems.

Since our prior audit in 1966, SEPA has changed power rates on some systems, revised some procedures used in preparing rate and repayment studies, and made other changes affecting the current status of repayment of the investment and the amount needed for future repayment. These matters are discussed in the following paragraphs.

CHANGES IN POWER RATES

In 1971 the rate for dependable capacity sold from the Kerr-Philpott system increased from \$.90 to \$1.10 per kilowatt per month. This change, along with changes in energy quantities and rates for nondependable capacity, increased the system's average annual revenue by \$692,000 over the previous average. SEPA also increased TVA's average annual payment for power from the Cumberland Basin system in 1973 by \$1.5 million. Both of these rate changes were needed to produce revenues sufficient to recover all costs associated with the production and transmission of power. The average annual revenue from the Jim Woodruff project was reduced

about \$109,000 in 1967, primarily as a result of decreases in capacity charges to preference customers.

CHANGES IN PROCEDURES USED IN
PREPARING REPAYMENT STUDIES

One of the most significant factors affecting future repayment of the Federal investment occurred during 1974 as a result of changes SEPA made in estimating the cost of future major replacements of facilities and equipment projected for each system. During the 50-year repayment period it may be necessary for the Corps to replace some project facilities or equipment that have service lives of less than 50 years. Since power revenues must be sufficient to repay all costs associated with the power program, including replacements, SEPA estimates these costs and includes them in its rate and repayment studies to determine whether current power rates are adequate to cover all estimated future costs.

Until 1974 SEPA's estimate of future replacement costs in its rate and repayment studies was based on original project capital costs for replacement items without providing for price-level increases since the date of original construction. Some power projects have been operating over 20 years. For its 1974 rate and repayment studies, SEPA escalated the cost of replaceable items to the midpoint of the next 5-year rate review period for each system by using an appropriate price index for public utility construction costs. This change, in which we concur, along with certain other adjustments, increased estimated future replacement cost over the remaining repayment period for all systems by \$71 million over estimated costs used in the 1973 rate and repayment studies.

SEPA also included in 1974 rate and repayment studies, projections for future additions planned at Corps operating projects and for estimated miscellaneous Corps' revenue collections that will be allocated to the power program. These changes, however, did not significantly affect the projected repayment status of the affected systems.

SEPA's 1974 rate and repayment study for the Kerr-Philpott system showed that the changes in system costs resulting from the revision in replacement costs and increases in Corps' operation and maintenance costs, could not be recovered over the remainder of the system's repayment period. Therefore, in December 1974, SEPA notified power customers of the Kerr-Philpott system that it proposed to increase rates and charges for power by about 12 percent, effective July 1, 1975. FPC

approved the proposed rate increase for an interim period, not to exceed 1 year, subject to refund if FPC should later disapprove all or part of the increase. SEPA estimates that the proposed rates will increase system revenue about \$662,000 a year.

Although projected replacement costs increased for SEPA's other systems as a result of the procedural changes, the increases were not large enough to require an immediate rate increase.

In addition to the changes discussed above, procedures used by SEPA in preparing rate and repayment studies were revised as a result of changes in Interior revenue allocation policies which now allow repayment of the highest interest-bearing investment first to the extent possible while still meeting the 50-year repayment requirements on the lower interest-bearing investments. Before this policy change, SEPA allocated revenues to individual projects in a system using a ratio of estimated annual charges to power for each project to the total estimated annual charges for the system. The estimated annual charges included interest expense, amortization of the Federal investment, Corps' operation and maintenance expenses, and replacement costs.

SEPA first implemented this new revenue allocation policy in fiscal year 1974. Power revenues were first allocated to pay operating costs, interest expense, capital additions, and replacements at all projects and excess revenues were applied to the project with the highest interest-bearing investment. This procedure is also followed in projecting repayment over the remainder of the repayment period. As compared to SEPA's previous procedures, the new policy results in a reduction of future interest expense and increases the amount available to repay the remaining power investment, thus tending to reduce the need for a rate increase. As a result of its new revenue allocation policy, SEPA repays current year additions, betterments, and replacements on existing projects in the year they are placed in service, if revenues are available after paying current year electric operating expense and interest on the investment.

The Army said (see app. IV) that it does not agree with Interior's new revenue allocation procedures and that the Corps has developed a power revenue allocation procedure which it believes meets congressional requirements and is equitable, consistent, and simple and, therefore, would be appropriate for use on Corps projects in the SEPA marketing area.

Although we do not consider Interior's new revenue allocation method the best alternative available, it does have

the desirable characteristics of (1) being systematic, (2) providing for uniformity by all Federal power systems, and (3) providing for assigning sufficient revenues to particular project investments to insure that such investments are repaid within 50 years. This has not been true in the past for all Federal power systems.

CURRENT STATUS OF REPAYMENT OF THE
FEDERAL POWER INVESTMENT

Through fiscal year 1974, SEPA had repaid \$155 million of the estimated \$687 million Federal investment in the Southeastern Federal Power Program. A comparison of the amount of investment repaid and still to be repaid as of June 30, 1974, follows.

<u>System</u>	<u>Repaid</u>	<u>To be repaid</u>	<u>Total investment</u>
Georgia-Alabama	\$ 75,317,000	\$248,290,000	\$323,607,000
Cumberland Basin	53,225,000	204,561,000	257,786,000
Kerr-Philpott	18,106,000	62,282,000	80,388,000
Jim Woodruff	8,551,000	16,557,000	25,108,000
Total	<u>\$155,199,000</u>	<u>\$ 531,690,000</u>	<u>\$686,889,000</u>

Although SEPA is making progress in repaying the initial Federal power investment, SEPA rate and repayment studies do not show any predetermined milestones or annual repayment goals to measure SEPA's progress in meeting repayment requirements.

SEPA considers the repayment of the power investment on schedule if its rate and repayment studies show that projected revenues will be sufficient to recover all power costs and repay the initial power investment within the 50-year repayment period, regardless of how much investment actually has been repaid to date. Under this concept, no specific amount of initial investment is required to be repaid in any year during the repayment period.

In order to measure the status of repayment of the Federal investment in the Southeastern Federal Power Program if an orderly amortization of the investment were required, we used the compound-interest amortization method to compute an annual requirement for repaying the power investment over a period ending 50 years from the date each investment was added to each system. Our computation of the amount due June 30, 1974, for each system showed the following surplus or deficiency in the repayments actually made (see app. I):

<u>System</u>	<u>Surplus or deficit (-)</u>
Georgia-Alabama	\$19,628,338
Cumberland Basin	6,041,479
Jim Woodruff	3,536,116
Kerr-Philpott	<u>-3,254,868</u>
Total	<u>\$25,951,065</u>

Under the compound-interest method of amortizing a project investment, annual funds are required at a fixed amount which, during the repayment period, will provide for repaying the investment and interest on the unrepaid investment. Each year the portion of the fixed annual amount applicable to repayment of the investment increases as the interest on the unrepaid investment decreases.

Although for three of the four systems, our computations show a surplus of actual repayments over repayment requirements, this does not necessarily mean that power rates can be reduced. The amount available for repaying the investment can vary from year to year because of changes in revenues and expenses. For example, power revenues each year depend upon rainfall conditions and streamflow available to generate power for sale.

Actual generation at most projects in the Southeast has been above average for the past several fiscal years because of favorable streamflow conditions, a situation which cannot continue indefinitely. SEPA records show that, except for the Kerr-Philpott system, average streamflow for the other systems is above the longterm average flow.

Other factors which significantly affect the amount available for repayment in any year include (1) increases in normal operation and maintenance costs, (2) increases in replacement costs, and (3) unusual costs incurred for repairs or rehabilitation. An example of the latter would be the substantial remedial costs incurred at the Wolf Creek project to stop seepage under the dam (see p. 5).

NEED FOR UNIFORM METHODOLOGY AND GUIDELINES

Although SEPA and the other Department of the Interior power-marketing agencies have prepared rate and repayment studies for many years, Interior had not developed uniform methodology and guidelines for use by the agencies in preparing such studies. As a result, the various power-marketing agencies used procedures which varied between agencies and also varied from year to year in the same agency.

In an August 22, 1974, memorandum the Assistant Secretary of the Interior--Energy and Minerals, requested a departmental task force to propose uniform methodology for use by power-marketing agencies in preparing rate and repayment studies. An Interior official told us that a draft of the proposed methodology has been completed and has been supplemented by a draft of proposed detail guidelines for preparing rate and repayment studies. However, at the completion of our field-work the guidelines had not been approved for issuance.

The issuance of uniform methodology and guidelines, if sufficiently comprehensive, should contribute to uniformity in the methods used to determine rates for power sold by Interior from Federal hydroelectric projects and should provide a better basis for top management's control over and review of the procedures used in preparing rate and repayment studies.

RECOMMENDATION TO THE
SECRETARY OF THE INTERIOR

Accordingly, we recommend that the Secretary of the Interior require the issuance of uniform methodology and guidelines to be used by Interior's power marketing agencies in preparing rate and repayment studies.

Agency comments

Interior, in its September 16, 1975, letter (see app. III), stated that its proposed uniform guidelines for annual rate and repayment studies (see above) have been used by the Assistant Secretary-Management in preparing draft departmental manual sections covering financial policies relating to power activities. The Department said that these proposed policies are under review and it expects to issue uniform guidelines, as we recommended.

CHAPTER 6
VIOLATION OF THE
ANTI-DEFICIENCY ACT

Our review of the Corps records supporting the consolidated financial statements prepared by SEPA disclosed a violation of the Anti-Deficiency Act (31 U.S.C.665) (section 3679, Revised Statutes). The violation involves obligations incurred by the Corps' Savannah district from the operation and maintenance (O&M) general appropriation during fiscal year 1974, of about \$219,000 in excess of the Corps' O&M appropriation allotments to the district.

Among other things, the Anti-Deficiency Act, in subsection (h), prohibits any officer or employee of the Government from authorizing or creating any obligation or making any expenditure in excess of the amount permitted by agency regulations prescribed pursuant to the act concerning allotment of appropriations.

For purposes of implementing the act, OMB issued guidelines (Circular A-34) which provide that agencies should distinguish between targets for budgeting and management purposes and allotments which are used to control obligations for the purpose of complying with the act.

In establishing its administrative system of control to comply with the Anti-Deficiency Act and OMB Circular A-34, the Corps established the district office as the control point for maintaining and reporting obligations at the allotment level.

The O&M appropriation primarily covers charges from the Corps' Revolving Fund for labor, overhead, travel, etc. However, certain direct charges are also billed to the appropriation for items such as supplies, telephone, and electric services. The Corps' Revolving Fund, authorized by the Congress in 1953, provides and initially finances services which are needed by two or more appropriations or projects.

The following schedule summarizes the allotments made to the Corps' Savannah District during fiscal year 1974, the obligations incurred against the allotments, and the amount of overobligation of funds.

Total FY 1974 obligations, O&M, general \$8,712,846.53

FY 1974 O&M, general obligational authority:

Carryover from FY 1973 funds	\$ 32,037.39
FY 1974 allotments to Savannah	7,854,200.00
Appropriation reimbursements	606,737.39

Total FY 1974, O&M General obligation authority 8,492,974.78

Excess of obligations over obligation authority \$ 219,871.75

At the end of May 1974, the O&M allotment to the Savannah District had an unobligated balance of \$930,123.81. During the following month, the Revolving Fund continued to perform work for Savannah's O&M allotment. In the latter part of June 1974, the O&M allotment received an advance billing from the Revolving Fund for about \$502,000 for estimated June costs. The amount was paid from Savannah's O&M allotment to the Revolving Fund and reduced the unobligated balance in the allotment.

Subsequent to the advance billing, and about the time the fiscal year 1974 books were being closed, district personnel apparently realized that work performed by the Revolving Fund and being billed to the allotment could not be covered by the remaining unobligated authority. The district then reversed the advance billing from the allotment ledgers, thus increasing the unobligated balance in the O&M allotment.

After reversal of the advance billing, however, additional charges continued to be received by the O&M allotment from the Revolving Fund. District representatives stated that, by the time they learned that actual charges to the allotment had exceeded Savannah's obligational authority, it was too late to request an additional allotment from the Chief of Engineers. The Savannah District prepared accounting entries which had the effect of transferring back to the Revolving Fund some of the charges received for work performed during May and June 1974 for the O&M allotment.

After transferring some of the charged costs back to the Revolving Fund and adjusting project records by reducing obligations in an amount equivalent to the transfer, the district yearend reports for Savannah's O&M allotment showed an unobligated balance of \$7,584.84. The costs transferred back to the Revolving Fund were eventually liquidated in August 1974, 2 months after the close of fiscal year 1974. The transferred costs were paid with fiscal year 1975 allotment authority.

A Savannah District official said that he believes that the provisions contained in Corps' regulations (ER37-2-10, Ch. 5, para. 5-9b(3)) allowed the district to adjust their books in the manner described above and, thus, avoid a section 3679 violation. The regulation cited by the district official states:

"(3) The following clarification has been issued by the Comptroller of the Army in regard to reportable violations of Section 3679, RS, on overrun of estimates for reimbursable work performed by Revolving Fund, Corps of Engineers, Civil. In instances where funds are obligated on an estimated basis in the project accounts to reimburse the Revolving Fund for actual charges incurred for maintenance and operation of equipment, financing of common inventories, etc., it has been determined by the Comptroller of the Army that if the actual charges exceed such estimates, no reportable violation of Section 3679, Revised Statutes occurs until or unless such excess is billed against such project. The Comptroller of the Army has pointed out, however, that the practice of allowing or incurring costs in the Revolving Fund in excess of fund limitations imposed on any given project is considered contrary to sound management practices."

Washington, D.C., officials of the Corps told us that the intent of the above regulation is to allow the Revolving Fund to defer charges of nominal amounts to appropriations they serve and that the paragraph does not apply to the type of situation encountered at the Savannah district.

In any event, we believe that the regulation is not applicable to the Savannah District situation because the charges actually were billed to the projects by the Revolving Fund. When it was determined that an overobligation had occurred, improper accounting entries were prepared to eliminate the overobligation.

The Savannah District's actions were also contrary to the following paragraphs of Army regulations (AR 37-20) pertaining to the Anti-Deficiency Act:

Paragraph 16(a)

"...a violation of Revised Statutes 3679, as amended, and of this regulation will occur when any action results in an overdistribution, overobligation, or overexpenditure of funds in any appropriation or subdivision thereof or exceeds any statutory or administrative limitation properly imposed..."

Paragraph 16(f)

"An overobligation or overexpenditure cannot be avoided by failure to post to accounting records; by delay in posting until funds are received; by posting or charging a fund subdivision not properly chargeable; or by transferring charges or funds between accounts."

Paragraph 16(k)

"If funds become overobligated because of inaccurate estimates of obligations or failure to reserve sufficient funds to cover contingencies, such fund deficit will be a violation of Revised Statutes 3679, attributable to the allottee."

In our opinion, the overobligation of the O&M allotment occurred because Savannah District did not maintain adequate control over funds. The Corps has two procedures for treating obligations to the Revolving Fund which are outlined in the Corps' "Finance and Accounting Manual." The Corps' procedures, normally recommended, state that an obligation to cover anticipated billings from the Revolving Fund will be established for each project at the beginning of each month. As billings are received during the month, they are to be recorded and liquidated against the estimated obligation.

The alternative procedure outlined in the Manual can be used when the district engineer considers local controls to be adequate to preclude overobligations of project funds. It allows the simultaneous recording of obligations and expenditures as received. Savannah District utilized this latter procedure. As discussed above, however, we found that controls were not adequate to preclude overobligations.

In addition, we believe that the estimate for the Revolving Fund's June 1974 billing was unrealistic. The district was unable to document the basis for the advance billing but stated that it was based on May costs plus 25 percent additional

to cover the last 10 days in June (monthly costs are determined from the 20th of each month). We computed estimated June costs based on the described district method and projected the costs to be about \$200,000 greater than the district's estimate. The difference is attributable to our use of actual Revolving Fund charges to the O&M appropriation in May, which were greater than the actual May costs used by the district. It appeared that the district did not include all costs applicable to May. Also, we used an increment of 33 percent, whereas the district used 25 percent to cover the extra 10 days in this last billing period (10 extra days divided by 30 days each month). We believe that a better estimate of June costs could have alerted the district that their unobligated allotment was getting low.

After we brought this situation to the Corps' attention, in March 1975 the Corps' division office wrote the Savannah District that the accounting treatment used to reverse the charges from the project accounts and the allotment ledger was not considered acceptable and was an abuse of Corps regulations. The division office also told the Savannah District office that, in the future, it should use the normal fund control procedures set forth in the Corps' Manual and that it should prepare realistic monthly estimates of anticipated costs. This normal procedure will require that an obligation be established at the beginning of each month to cover anticipated billing from the Revolving Fund.

The actions outlined in the division's March letter, if properly implemented, should result in better accounting control and should reduce the probability of similar violations of the Anti-Deficiency Act. However, the Corps should report any violations of the Anti-Deficiency Act by the Savannah District as required by that act.

RECOMMENDATION TO THE SECRETARY OF THE ARMY

We recommend that the Secretary of the Army, in accordance with the provisions of 31 U.S.C. 665(i) (2) report to the President and the Congress all pertinent facts surrounding the violation of the Anti-Deficiency Act by the Corps' Savannah District, together with a statement of the action taken.

Agency comments

The Army, in commenting on the report (see app. IV), stated that the Corps is preparing a report in response to the Savannah District's alleged violation of the Anti-Deficiency Act and that, upon review of Corps findings, appropriate action will be taken.

CHAPTER 7

INTERNAL AUDITS

We have made periodic audits of the Southeastern Federal Power Program, including the accounting records and reports for Corps projects as well as the Southeastern Power Administration. Department of the Army regulations place the responsibility for audits of the Corps' financial and accounting activities with the U.S. Army Audit Agency (AAA).

During our current audit of the program, we noted that AAA had not made any financial audits of the Corps' accounting offices involved in the power program since our last audit in 1966. The Southern District manager of AAA confirmed that audits of Corps' financial activities are within AAA's authority and responsibility but are not being made by the agency. He said that audit effort at the Corps is confined to selected functional areas, such as real estate.

The Southeastern Federal Power Program is a major program with annual power revenues of over \$40 million and assets of over \$860 million. Most of these assets are invested in plant, property, and equipment at the Corps' power projects. It is essential that the financial records and reports of the power projects be audited periodically to assure their reliability and usefulness for internal management purposes as well as for use by other agencies. The Southeastern Power Administration uses Corps' financial reports in preparing annual consolidated financial statements for the power program and for repayment studies showing the status of repayment of the Federal power investment. The accuracy of the financial data used in the repayment studies is important because the studies establish whether the existing power rates are adequate to recover the Federal power investment.

In a letter report to the Secretary of the Army ^{1/} covering our review of the Corps' system of controls, including internal audits, over receipts and disbursements, we stated that AAA's efforts in reviewing the Corps' financial activities were not adequate to discharge the Department of the Army's responsibilities under the Accounting and Auditing Act of 1950. Accordingly, we recommended that the Secretary direct the AAA to devise an adequate program for auditing Corps' financial and accounting activities.

We believe that the segment of the Southeastern Federal Power Program audit covering the financial activities of the

¹Report dated May 7, 1974 (B-118634).

Corps' generating projects is properly an AAA function within its overall authority and responsibility for Corps audits. AAA should provide for auditing the Corps' power accounting records and reports when it revises its program for the audit of Corps' financial and accounting activities.

RECOMMENDATION TO THE
SECRETARY OF THE ARMY

We recommend that the Secretary of the Army require AAA to schedule periodic audits of Corps' financial activities, including audits of financial statements submitted by the Corps to Federal power marketing agencies of the Department of the Interior.

Agency comments

The Army, in commenting on the report (see app. IV), said that AAA agrees that it should schedule an audit of financial statements submitted by the Corps to Federal Power marketing agencies and that AAA is considering scheduling such an audit in fiscal year 1977.

CHAPTER 8

SCOPE OF EXAMINATION AND OPINION ON FINANCIAL STATEMENTS

We have examined the Statements of Assets and Liabilities of the Southeastern Federal Power Program (see note 1 to the financial statements) as of June 30, 1974, and the related Statements of Revenues and Expenses and of Changes in Financial Position for fiscal year 1974.

Our review of the financial activities of SEPA and the Corps in the Southeastern Federal Power Program included a review of the applicable policies and procedures and an examination of the accounting records, reports, and transactions to the extent we considered necessary to evaluate the reliability of financial data for fiscal year 1974.

Our review, made in accordance with generally accepted auditing standards, included such other auditing procedures as we considered necessary, except that we did not confirm accounts receivable as of June 30, 1974. We satisfied ourselves, however, as to the fairness of the accounts receivable at June 30, 1974, by other auditing procedures. In addition, we reviewed pertinent legislation and congressional hearings and reports applicable to SEPA and Corps activities in the Southeastern Federal Power Program. We also reviewed selected aspects of power operational activities of the two agencies and selected rate and repayment studies prepared by SEPA.

Our last review of the financial statements of the Southeastern Federal Power Program was for fiscal year 1966, and we did not review the information shown in the accompanying financial statements for fiscal year 1973 except to the extent necessary to ascertain that accounting principles and standards were applied consistently.

Our review was made at the Corps' Ohio River Division in Cincinnati; the South Atlantic Division in Atlanta; at the Corps' district offices in Savannah, Mobile, Nashville, and Wilmington; the Office of the Southeastern Power Administration, Elberton, Georgia; and Washington, D.C., headquarters offices of Interior, Corps, and FPC. We also made field visits to selected Corps projects in operation or under construction.

The accompanying financial statements were prepared on an accrued cost-accounting basis which included depreciation. The statements do not present the financial results on a

basis designed to show whether power rates are adequate to repay the Federal investment in the program, either for the fiscal year or cumulatively.

In our opinion, the accompanying financial statements (exhibits 1, 2, and 3), subject to the financial effects of future adjustments related to the adoption of firm cost allocations, as explained in note 6, present fairly the financial position of the program at June 30, 1974, the financial results of its power operations, and the changes in financial position for the year then ended, in conformity with accounting principles and standards prescribed by the Comptroller General of the United States.

SOUTHEASTERN FEDERAL POWER PROGRAM
 STATEMENT OF REVENUES AND EXPENSES
 FOR THE FISCAL YEARS ENDED JUNE 30, 1974 AND JUNE 30, 1973
 (NOTES 1, 2, and 3)

	June 30	
	1974	1973
OPERATING REVENUES:		
Sales of electric energy by Southeastern Power Administration:		
Electric cooperatives	\$14,510,154	\$12,821,925
Municipalities	5,535,594	5,517,843
Privately owned utilities	8,159,378	9,618,092
Other public utilities	<u>13,159,894</u>	<u>12,096,999</u>
Total	<u>41,365,020</u>	<u>40,054,859</u>
Other electric revenues:		
Inter-departmental sales	25,782	29,904
Other revenues	<u>1,569,760</u>	<u>117,307</u>
Total (Note 9)	<u>1,595,542</u>	<u>147,211</u>
Total power system operating revenues	<u>42,960,562</u>	<u>40,202,070</u>
OPERATING EXPENSES OTHER THAN DEPRECIATION:		
Purchase power	826,915	1,258,016
Transmission expense	3,380,539	3,412,916
Operation and maintenance expense:		
Operation expense (Note 7)	6,050,402	5,641,407
Maintenance expense	<u>2,715,771</u>	<u>2,287,649</u>
Total operation and maintenance expenses	<u>8,766,173</u>	<u>7,929,056</u>
Total operating expenses other than depreciation	<u>12,973,627</u>	<u>12,599,988</u>
Net operating revenues	<u>29,986,935</u>	<u>27,602,082</u>
INTEREST EXPENSE:		
Interest on Federal investment (includes projects under construction) (Note 5)	17,708,661	17,428,877
Related interest charged to construction	<u>4,557,124*</u>	<u>4,770,771</u>
Net interest expense	<u>13,151,537</u>	<u>12,658,106</u>
NET REVENUES AVAILABLE FOR REPAYMENT	16,835,398	14,943,976
LESS DEPRECIATION (Note 4)	<u>3,280,942</u>	<u>3,032,035</u>
NET REVENUES	<u>\$13,554,456</u>	<u>\$11,911,941</u>

* Denotes deduction

"Notes to the Financial Statements" are an integral part of this statement.

SOUTHEASTERN FEDERAL POWER PROGRAM

STATEMENT OF CHANGES IN FINANCIAL POSITION
 FOR THE FISCAL YEARS ENDED JUNE 30, 1974 AND JUNE 30, 1973
 (NOTES 1, 2, and 3)

	June 30	
	1974	1973
SOURCE OF FUNDS:		
Net revenues available for repayment (Exhibit 1)	\$ 16,835,398	\$ 14,943,976
Prior year adjustments (Note 11)	226,341	317,514
Net funds from operations	<u>17,061,739</u>	<u>15,261,490</u>
Federal investment:		
Congressional appropriations	46,657,709	66,084,159
Transfers from other Federal agencies, net	266,530	219,133
Interest on Federal investment (a)	17,243,740	16,932,571
Transfers to continuing fund	23,761	-
Total funds from Federal investment	<u>64,191,740</u>	<u>83,235,863</u>
Other sources:		
Decrease in current assets net of current liabilities	6,570,876	-
Decrease in other assets and deferred charges	1,162	-
Increase in contributions in aid of construction	7,387	7,387
Total other sources	<u>6,579,425</u>	<u>7,387</u>
Total source of funds	<u>\$ 87,832,904</u>	<u>\$ 98,504,740</u>
APPLICATION OF FUNDS:		
Investment in electric utility plant and facilities, net (a)	\$ 49,166,645	\$ 53,862,564
Increase in current assets net of current liabilities	-	9,422,158
Funds returned to U. S. Treasury	<u>38,666,259</u>	<u>35,220,018</u>
Total application of funds	<u>\$ 87,832,904</u>	<u>\$ 98,504,740</u>

(a) Includes capitalized interest on projects in service, and on projects under construction.

"Notes to the Financial Statements" are an integral part of this statement.

SOUTHEASTERN FEDERAL POWER PROGRAM
AMOUNT AND ALLOCATION OF PLANT INVESTMENT
AS OF JUNE 30, 1974
(NOTES 1, 2, and 3)

SCHEDULE A

SCHEDULE A

Project	PCWER				NONREIMBURCABLE					Percent of Total Plant Investment Returnable from Power Revenues
	Total	Completed Plant (Notes 6 & 8)	Construction Work in Progress	Total	Navigation	Flood Control	Fish and Wildlife	Recreation	Other	
Projects in Service										
Marketing Facilities	\$ 93,120	\$ 93,120	-	\$ 93,120	-	-	-	-	-	100.0
Allatoona	36,018,761	25,895,976	\$ 354,817	26,250,793	-	\$ 7,585,306	-	\$ 1,950,646	\$ 232,016 ^{b/}	72.9
Buford	52,969,887	43,693,778	94,832	43,788,610	\$ 1,840,143	4,114,030	-	3,227,104	-	82.7
Clark Hill	87,419,528	76,135,611	-	76,135,611	4,395,206	4,043,406	-	2,845,305	-	87.1
Walter F. George	99,064,671	54,324,314	445,371	54,769,685	41,911,497	-	\$ 348,012	2,035,477	-	55.3
Hartwell	95,650,819	86,728,785	-	86,728,785	2,194,263	4,191,237	-	2,536,534	-	90.7
Millers Ferry	68,077,665	40,125,974	177,957	40,303,931	25,573,570	-	-	2,200,164	-	59.2
Total Ga. Ala. Projects	439,201,331	326,904,438	1,072,977	327,977,415	75,914,679	19,933,979	348,012	14,795,230	232,016	74.7
Jim Woodruff Project	55,440,417	25,032,668	44,314	25,076,982	28,534,026	-	-	1,829,409	-	45.2
Barkley	157,089,513	45,456,799	20,480	45,477,279	86,524,122	19,493,686	-	5,594,426	-	28.9
J. Percy Priest	59,087,412	11,032,891	5,071	11,037,962	-	23,558,239	-	24,491,211	-	18.7
Cordell Hull	82,084,199	48,990,864	321,037	49,311,901	14,582,695	-	-	8,672,971	9,516,632 ^{d/}	60.1
Cheatham	34,112,043	18,951,841	-	18,951,841	14,728,829	-	-	431,373	-	55.6
Old Hickory	54,682,979	32,996,370	31,750	33,028,120	19,461,586	-	-	2,193,273	-	60.4
Center Hill	52,573,741	28,592,441	615,133	29,207,574	-	18,323,652	-	4,345,965	696,550 ^{e/}	55.6
Dale Hollow	28,860,443	17,785,942	73,093	17,859,035	-	10,204,465	-	796,943	-	61.7
Wolf Creek (Note 12)	92,060,526	61,130,678	160,631	61,291,309	-	29,651,143	-	872,374	245,700 ^{e/}	66.6
Total Cumberland Basin	560,550,856	264,937,826	1,227,195	266,165,021	135,297,232	101,231,185	-	47,398,536	10,458,882	47.5
John H. Kerr	93,246,596	72,758,864	-	72,758,864	-	18,662,238	-	1,825,494	-	78.0
Philpott	14,863,147	7,419,593	-	7,419,593	-	6,772,255	-	671,299	-	49.9
Total Kerr-Philpott Proj.	108,109,743	80,178,457	-	80,178,457	-	25,434,493	-	2,496,793	-	74.2
Total Operating Projects	1,163,395,467	697,146,509	2,344,486	699,490,995	239,745,937	146,599,657	348,012	66,519,968	10,690,898	60.1
Projects under Construction										
Carters	103,726,604	-	87,891,886	87,891,886	-	14,403,047	-	1,431,671	-	84.7
Jones Bluff	42,343,613	-	41,329,145	41,329,145	206,017	-	-	808,451	-	97.6
Laurel River	31,879,486	-	13,073,673	13,073,673	-	-	-	10,643,966	8,161,847 ^{d/}	41.0
West Point	103,717,330	-	41,437,567	41,437,567	1,592,065	20,794,720	11,248,933	28,644,045	-	40.0
Total Proj. under Const.	281,667,033 ^{a/}	-	183,732,271	183,732,271	1,798,082	35,197,767	11,248,933	41,528,133	8,161,847	65.2
Total	\$1,445,062,500	\$697,146,509	\$186,076,757	\$883,223,266	\$241,544,019	\$181,797,424	\$11,596,945	\$108,048,101	\$18,852,745	61.1

(a) Costs of \$2,127,689 have been incurred on the Richard B. Russell project but are not included above as percentages have not been determined for allocation of joint costs to project purposes.

"Notes to the Financial Statements" are an integral part of this schedule.

(b) Water Supply
(c) World War II Suspension Costs
(d) Area Redevelopment

SOUTHEASTERN FEDERAL POWER PROGRAM

NOTES TO THE FINANCIAL STATEMENTS

Note 1. Basis for Southeastern Federal Power Program Financial Statements

The Southeastern Federal Power Program (SEFPP) as used herein consists of all Federal activities associated with the production, transmission, and disposition of all Federal power marketed under Section 5 of the Flood Control Act of 1944 in the ten southeastern states of Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, and Kentucky. The SEFPP is not an official Government agency, nor is it an individual legal entity. Rather, it encompasses the power activities of two separate Government agencies, the Southeastern Power Administration of the Department of the Interior and the U. S. Army Corps of Engineers, which are separately managed and financed. The agencies maintain separate accounting systems. However, by combining activities related to electric power marketed under the 1944 Flood Control Act, the financial statements prepared for the SEFPP show the combined financial results of the total Federal power program in the area administered by the Southeastern Power Administration and the Corps of Engineers.

Note 2. Power Production, Transmission, and Marketing Activities of the Southeastern Federal Power Program

As of June 30, 1974, there were seventeen hydro-electric generating projects in commercial service which had been constructed and were being operated by the U. S. Army Corps of Engineers. These projects had a total installed generating capacity of 2,010,000 kilowatts and are listed in Schedule A, together with those additional projects which are presently under construction by the Corps of Engineers. The total output from all these projects is marketed by the Southeastern Power Administration, whose physical facilities are composed entirely of general plant required in the operations of its office in Elberton, Georgia, for a work force composed of 37 people. While Southeastern Power Administration has no power production or transmission facilities, it does incur costs for the purchase of power and for transmission service charges under contracts with various power customers and such costs are included in the financial statements.

Note 3. Relationship of Financial Statements to Repayment Studies

The financial statements are presented on an accrued cost accounting basis, which includes depreciation computed under the compound interest method as one of the elements of cost. These statements do not show financial results on a repayment basis. Power rates are established by using a separate repayment analysis. The major difference between the financial statements and the historical data on the repayment analysis is the treatment of fixed assets. In the financial statements fixed assets are depreciated over service lives up to a maximum of 100 years but, for rate making purposes

the investment in such assets must be repaid within 50 years. Accumulated net revenues as given in the financial statements are not, therefore, a measure of the adequacy of the overall power structure to accomplish repayment of project costs within a 50-year period.

The investment allocated to power in the Corps accounting records and shown in these financial statements is approximately \$9,000,000 more than the completed plant shown on the repayment studies prepared by the Southeastern Power Administration for rate making purposes. The difference relates primarily to adjustments that the Southeastern Power Administration has made for repayment purposes, to the Corps' tentative cost allocations and to the firm cost allocations which have not been recorded in the Corps' accounting records as of June 30, 1974. The amount of the investment allocated to power may change when the Corps makes retroactive adjustments to its financial records for firm cost allocations (see note 6).

Note 4. Depreciation Costs

Southeastern Power Administration and the Corps of Engineers in fiscal year 1967 adopted the compound interest method of depreciation for the Southeastern Federal Power Program. Under the compound interest method of depreciation a significant feature is that depreciation charges applicable to a project are lower in the early years of the project's life and higher in the later years. The average number of years in operation is 15.9 for the seventeen hydroelectric plants in the southeastern power marketing area.

Note 5. Interest Costs

Interest costs in the financial statements include both capitalized interest during construction for all projects and annual expensed interest on the unpaid Federal investment. An interest rate of 2.5% was used for all interest computations made for projects in operation as of June 30, 1969. A rate of 2.625% was used for both J. Percy Priest and Millers Ferry projects which became operational during fiscal year 1970, and for Cordell Hull in fiscal year 1974. The interest rates applicable to the projects under construction as of June 30, 1974, are as follows:

Carters	2 5/8%	Laurel River	3%
Jones Bluff	2 5/8%	West Point	3%

The interest rates have been set by law or by administrative policies pursuant to law. They have not necessarily been designed to recover the interest costs to the U. S. Treasury to finance the investment. The interest rates included in these financial statements are the same as the interest rates used by the Southeastern Power Administration in preparing repayment studies, with the following exception:

For the Cumberland projects, Center Hill, Dale Hollow, and Wolf Creek, a 2% interest rate was used prior to June 30, 1964, in the repayment studies. As stated in the FPC Order, Document No. E 7188, approving the rates and charges for these projects, the additional interest costs which would result from applying a 2.5% interest rate prior to June 30, 1964, are to be repaid by revenues from these projects received immediately following the initial repayment period. For this reason a portion of the interest costs included in the financial statements is considered to be deferred costs in the repayment studies. Approximate amounts for these deferred costs were \$265,000 in FY 1974 and \$10,900,000 cumulative to date.

Interest expense for John H. Kerr, Philpott, Clark Hill, Hartwell, and Millers Ferry projects has been revised since initial submission of Corps data to correct about \$1 million in understatements of interest expense. The Corps plans to adjust its records for these corrections during fiscal year 1975.

Note 6. Cost Allocations

Cost of facilities which serve only one purpose are assigned to that purpose. For projects which serve more than one purpose (e.g., power, navigation, flood control, etc.,) it is necessary to allocate the costs of joint-use facilities among the purposes served. The term "cost allocation" is used to describe this process and result. The discussion which follows pertains to the cost allocation of joint-use facilities.

Cost allocations are designed as firm or tentative. A tentative allocation is one which may be adjusted retroactively when it is made firm. A firm allocation may be changed in the future, if conditions warrant, but only prospectively. All allocations for the projects under construction are considered to be tentative at this time. The following table presents the status of cost allocation for the generating projects in operation at June 30, 1974.

STATUS OF COST ALLOCATIONS

<u>Project</u>	<u>Status</u>
1. John H. Kerr	Firm
2. Philpott	Firm
3. Clark Hill	Firm
4. Allatoona	Firm
5. Buford	Firm
6. Hartwell	Tentative
7. Walter F. George	Firm <u>1/</u>
8. Millers Ferry	Firm <u>2/</u>

<u>Project (Cont'd)</u>	<u>Status (Cont'd)</u>
9. Jim Woodruff	Firm
10. Dale Hollow	Firm
11. Center Hill	Firm
12. Wolf Creek	Firm
13. Old Hickory	Firm
14. Cheatham	Firm
15. Barkley	Firm <u>2/</u>
16. J. Percy Priest	Tentative
17. Cordell Hull	Tentative

1/ This allocation was adopted May 9, 1973, and revised costs based on the firm allocation were estimated by the Corps for these statements. Detailed computations of the revised costs will be reflected in next years financial statements.

2/ These allocations were adopted May 24, 1974, and revised costs will be reflected in next years financial statements.

Note 7. Cost Incurred by Other Agencies

Current year costs charged to power reflect imputed General Services Administration rents of \$22,243 and Field Office of Solicitor costs of \$49,080 for a total of \$71,323. These imputed costs are included in the operation expenses for the Southeastern Power Administration. These statements do not include imputed rent costs for facilities provided by the General Services Administration to the Corps because the Corps believes that such costs are not significant.

Note 8. Preliminary Survey and Investigation Costs

The Corps of Engineers does not include preliminary survey and investigation costs prior to project authorization as part of project costs. The amount of such costs reported by the Corps of Engineers totals \$1,095,799 for the seventeen projects operating on June 30, 1974, and \$205,165 for four projects under construction.

Note 9. Other Revenues and Nonoperating Revenues - Exhibit 1

This account, for Other Revenues, includes the following:

Corps of Engineers			
Inter-Departmental sales of Electricity		\$25,782	
Sale of water from Allatoona project		50,751	
Headwater Benefit Revenues applicable to projects:			
Buford	\$585,797		
Clark Hill	45,847		
Hartwell	31,253		
John H. Kerr	819,548		
Philpott	<u>33,522</u>	<u>1,515,967</u>	\$1,592,500
Miscellaneous Nonoperating Revenues are from thirteen of the operating projects			<u>3,042</u>
Total Other Revenues and Nonoperating Revenues			<u>\$1,595,542</u>

Note 10. Contingent Liabilities

Estimated contingent liabilities total \$6,980,595 and represent various contractors' claims and claims under the Federal Tort Claims Act.

Note 11. Adjustments to Accumulated Net Revenues

The following tabulation summarizes the adjustments made during fiscal year 1974 which result in the net increase in the accumulated net revenues of \$226,341 as shown in Exhibit 2.

Corps of Engineers:

(a) Net loss on retirement of land at two operating projects		(\$15,789)
(b) Adjustment due to prior year rounding		(2)
(c) Prior year adjustment due to revised percentage for allocation of joint costs at W. F. George project		242,111

Southeastern Power Administration:

(d) Prior Year Revenue Adjustments: Kerr-Philpott Projects		66
(e) Prior Year Expense Adjustments: Jim Woodruff Project		(3)
(f) Depreciation adjustment		<u>(42)</u>
Total Adjustments		<u>\$226,341</u>

Note 12. Major Rehabilitation at Wolf Creek Dam

The Corps of Engineers estimates that about \$71 million may be required to construct a concrete wall near the center line of the earth embankment portion of the Wolf Creek Dam for most of its 3,940 feet length. The rehabilitation work is needed to correct a leakage problem which could affect the stability of the structure. During the rehabilitation work, which may require several years to complete, power generation and related revenues probably will be reduced below present levels. The amount of costs and revenue reductions will depend on conditions found to exist as the rehabilitation work progresses.

SOUTHEASTERN FEDERAL POWER PROGRAM
STATUS OF REPAYMENT BASED ON COMPOUND INTEREST
AMORTIZATION OF COMMERCIAL POWER INVESTMENT
JUNE 30, 1974

	<u>Georgia- Alabama projects</u>	<u>Kerr- Philpott projects</u>	<u>Jim Woodruff project</u>	<u>Cumberland Basin projects</u>	<u>Total</u>
COMPUTATION OF FUNDS AVAILABLE FOR REPAYMENT OF COMMERCIAL POWER INVESTMENT (note a):					
Operating revenues	<u>\$243,392,987</u>	<u>\$98,519,149</u>	<u>\$27,104,032</u>	<u>\$159,168,599</u>	<u>\$528,184,767</u>
Revenue deductions:					
Operation and maintenance expense	41,503,664	18,031,477	5,283,647	34,982,223	99,801,011
Purchased power	3,271,870	13,090,409	920,509	42,123	17,324,911
Transmission service charges	23,787,808	11,632,799	3,981,178	-	39,401,785
Interest expense	<u>99,503,188</u>	<u>37,658,909</u>	<u>8,367,262</u>	<u>^d70,921,833</u>	<u>216,451,192</u>
Total expenses	<u>168,066,530</u>	<u>80,413,594</u>	<u>18,552,596</u>	<u>105,946,179</u>	<u>372,978,899</u>
Total funds available for repayment of investment	<u>\$ 75,326,457</u>	<u>\$18,105,555</u>	<u>\$ 8,551,436</u>	<u>\$ 53,222,420</u>	<u>\$155,205,868</u>
APPLICATION OF AVAILABLE FUNDS TO REPAYMENT OF COMMERCIAL POWER INVESTMENT:					
Commercial power investment at June 30, 1974 (note b)	<u>\$323,616,944</u>	<u>\$80,387,564</u>	<u>\$25,108,603</u>	<u>\$257,786,259</u>	<u>\$686,899,370</u>
Funds available for repayment of investment at June 30, 1974	\$ 75,326,457	\$18,105,555	\$ 8,551,436	\$ 53,222,420	\$155,205,868
Less total repayment required at June 30, 1974 (note c)	<u>55,698,119</u>	<u>21,360,423</u>	<u>5,015,320</u>	<u>47,180,941</u>	<u>129,254,803</u>
Status of repayment, surplus or deficit(-)	<u>\$ 19,628,338</u>	<u>\$-3,254,868</u>	<u>\$ 3,536,116</u>	<u>\$ 6,041,479</u>	<u>\$ 25,951,065</u>

^a Data for this computation was based on costs used by SEPA in preparing repayment studies. These costs are the same as those reported in the Southeastern Federal Power Program financial statements except for those projects where SEPA and the Corps used different cost allocations and for the difference in interest expense on the Cumberland Basin projects, as explained in note d.

^b Commercial power investment excludes \$258,635 of work done for other agencies at the Wolf Creek project.

^c Total repayments required do not include payments on power investment added during fiscal year 1974.

^d Interest expense for the Wolf Creek, Center Hill and Dale Hollow projects was computed using an interest rate of 2 percent through fiscal year 1964 and 2-1/2 percent thereafter. See note 5, financial statements.

SEP
2 1975

IN REPLY REFER TO:

Mr. Henry Eschwege
Director, Resources and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

AUG 28 1975

Dear Mr. Eschwege:

This refers to your letter of August 4, 1975, transmitting for our comments a copy of the draft report on the Southeastern Federal Power Program -- Financial Progress and Problems. The draft report contains two recommendations that concern activities of the Federal Power Commission. These relate to the Commission's determinations of headwater benefits, and its participation in the cost allocations of water resources projects.

It is recommended in the draft report that the FPC intensify its efforts to reduce the large backlog of headwater benefits determinations, and that it provide the Federal power agencies with written criteria to be used in proposing negotiated settlements of headwater benefits with non-Federal utilities. The report notes that headwater benefits determinations are not current for four of the six reservoir projects for which the Southeastern Power Administration is the marketing agency. These are the Kerr, Philpott, Allatoona, and Buford projects.

For the Kerr and Philpott projects, collections for headwater benefits were made in 1974 for the period 1963 through 1968. Staff studies have been completed for the period 1969 through 1972 and the results of the studies will soon be sent to the affected parties for review and comments. Based on the responses to the previous determination, it is anticipated that collections for this period can be made during this calendar year.

The delays in headwater benefits assessments for the Allatoona and Buford projects result primarily from major differences in possible gains in dependable



Mr. Eschwege

- 2 -

capacity at downstream hydroelectric plants resulting from operation of the Federal reservoirs, as determined by the beneficiaries and by the Commission staff. A key question in this matter is the assurance that the downstream non-Federal owners have in the operation of the Federal reservoir projects. When this problem surfaced at a staff conference held on September 12, 1972, it was agreed that the Southeastern Power Administration and the non-Federal utilities would undertake negotiations toward agreements that would provide for the future coordinated operation of all facilities. Such agreements could assure optimum operation of facilities as well as provide a firm basis for future headwater benefits determinations and a possible guide for the settlement of headwater benefits in past years. Proposed settlement agreements covering headwater benefits determinations have been filed with the Commission. Public notices of the agreements have been issued by the Commission in which the comments of all parties, including the Commission staff, are requested to be filed by September 15, 1975. Future Commission actions will depend upon the comments received.

The Commission recognizes the desirability of making the headwater benefits determinations on a timely basis. It has taken several actions to expedite the determinations. As noted in the draft report, however, there are a number of reasons for the long time frame in making the determinations. Among these is the necessity in some cases for formal hearings, which can not only resolve conflicts but can establish useful precedents for future determinations.

The draft report states that delays in collections for headwater benefits result in unnecessary interest costs to the power marketing agency and its customers, as well as to the Federal Government. The Commission is concerned about this matter and has directed that the question of interest on unpaid headwater benefits charges be an issue in the hearing provided by order issued July 2, 1975, in Docket No. E-7671, relating to the Upper Mississippi River basin.

Mr. Eschwege

- 3 -

There is some misunderstanding in the draft report regarding the Commission's regulations allowing negotiated settlement agreements. Such agreements are provided for when benefits to downstream non-Federal projects are attributable to non-Federal headwater reservoirs operated by Licensees or permittees. The proposed agreements are submitted to the Commission for review and, if found to be reasonable, are accepted in lieu of Commission determinations. The regulations do not provide for Federal power marketing agencies to negotiate settlement agreements where headwater benefits are provided by Federal reservoirs. The Commission has retained its responsibility for determining headwater benefits payments creditable to Federal reservoirs to assure appropriate compensation to the Federal Government. The existing regulations, though not allowing negotiated settlements, as discussed above, where headwater benefits are provided by Federal reservoirs, provide criteria which, under conditions of assured reservoir operation, would allow the affected parties to determine the appropriate compensation.

Thus, GAO's recommendation in the draft report that criteria be developed is unnecessary, since a major factor causing delays in collecting headwater benefits has been the inability or unwillingness of those involved to meet the existing criteria.

The draft report also discusses the need to firm up cost allocations and recommends that the Corps of Engineers, the Department of the Interior, and the Federal Power Commission take steps to improve the procedures by which mutually acceptable firm cost allocations can be adopted.

The Commission agrees that there is a need for speeding up the process by which a cost allocation may be finalized after a project is completed and all costs and benefits are firm. Moreover, it appears that it would be desirable to institute the review by the Interagency Committee on Cost Allocation at the earliest possible point in the planning or construction stage of the project.

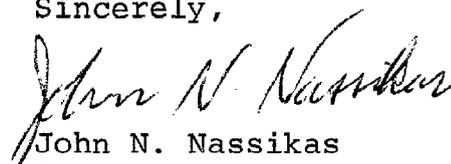
Mr. Eschwege

- 4 -

[See GAO note.]

The opportunity to comment on this draft report is appreciated.

Sincerely,



John N. Nassikas
Chairman

GAO note: Deleted material suggests changes which
have been incorporated in the report.



APPENDIX III

APPENDIX III

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

SEP 16 1975

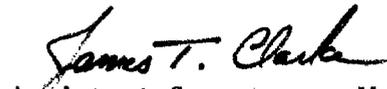
Mr. Henry Eschwege
Director, Resources and
Economic Development Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

We have reviewed your proposed report to the Congress entitled "Southeastern Federal Power Program -- Financial Progress and Problems". Our comments are attached.

We appreciate the thoroughness with which your staff examined a wide range of diverse matters relating to the Federal Power Program in the Southeast.

Sincerely,


Assistant Secretary - Management

Attachment



DEPARTMENT OF THE INTERIOR COMMENTS
ON COMPTROLLER GENERAL'S
DRAFT REPORT TO THE CONGRESS
"SOUTHEASTERN FEDERAL POWER PROGRAM--
FINANCIAL PROGRESS AND PROBLEMS"

The principal recommendations contained in the draft report relating to the Department of the Interior, and our comments, follow.

GAO Recommendation

The report recommends, on page 38, that the Secretaries of the Interior and the Army and the Chairman of the Federal Power Commission institute procedural improvements for firming up cost allocations for water resources projects such as requiring monthly meetings of the Interagency Cost Allocation Committee; detailed minutes of committee meetings which clearly set forth the disagreements, basis for the disagreements, actions needed to resolve such disagreements, and followup actions taken to resolve matters previously considered; and followup procedures for a system of assuring that disagreements are aggressively pursued and timely resolution is achieved.

Department of the Interior Comments

We have no objection to your recommendation regarding the firming up of cost allocations through aggressive pursuit and resolution of problems by the Interagency Cost Allocation Committee. In fact, we believe that this committee is the proper vehicle for obtaining firm cost allocations, and we concur with GAO's identification of the procedural deficiencies in committee activities. We will support the recommended improvements.

Interior representatives from both the Washington and bureau levels had a meeting on August 13, 1975 with Corps of Engineers' representatives from the Office of the Chief of Engineers and Division offices. This meeting was for the purpose of identifying areas of agreement and disagreement between the two agencies and establishing priorities for problem solutions. Matters discussed included both the finalization of cost allocations and cost allocation problems associated with new projects where firm allocations will be needed in the near future. As a result of this preliminary meeting, a full meeting of the Interagency Committee is being scheduled for early October.

GAO Recommendation

It is recommended that the Secretary of the Interior require the issuance of uniform methodology and guidelines to be used by Interior's power marketing agencies in preparing rate and repayment studies. (Page 73)

Department of the Interior Comments

The Department has been actively working on this matter for some time. The Assistant Secretary - Energy and Minerals requested on June 11, 1974 that the Financial Practices Committee serve as a Departmental Task Force to draft proposed uniform guidelines for annual rate and repayment studies. This task force submitted its recommendations to the Assistant Secretary - Energy and Minerals on May 16, 1975.

Subsequently, under the direction of the Assistant Secretary - Management, draft Departmental Manual sections were developed covering financial policies related to power activities. These manual provisions utilized the recommendations of the task force, as appropriate. Presently, these proposed policies are under review within the Department. After this review, we expect to issue uniform guidelines, as recommended by GAO.

Other Comments

In addition to the above comments on specific recommendations proposed in the report, we offer the following comment relating to the last sentence of the penultimate paragraph on page 33 which states: "We were advised by Corps and SEPA officials that corrective actions would be taken to assure that the same tentative cost allocations will be used in the future." SEPA officials advise us that they plan to make every effort to utilize the latest tentative cost allocations prepared by the Corps of Engineers even where they do not agree in every detail with such allocations. However, where major differences exist due to disagreements on cost allocation content or procedures, SEPA reserves the right to disagree with the tentative allocations until the differences are resolved by the Interagency Cost Allocation Committee.



APPENDIX IV

APPENDIX IV

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D.C. 20310

3 OCT 1975

Mr. Harold Pichney
Assistant Director, Resources and
Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Pichney:

This letter is furnished on behalf of the Secretary of Defense in response to your request for comments on a draft report entitled, "Southeastern Federal Power Program--Financial Progress and Problems," (OSD Case #4137). Your draft report is highly informative on the financial status of our hydropower projects in the Southeastern Federal Power region and on the fiscal and operational problems which currently, or may eventually, affect the financial position of the marketing agency.

Your report covered many aspects of the financial progress and problems of the Southeastern Federal Power Program. Comments on the portion of your report which address the Army's area of responsibility are inclosed. The opportunity to review the draft report is appreciated.

Sincerely,

Victor V. Veysey
Assistant Secretary of the Army
(Civil Works)

1 Incl
as



Comments on the Department of the Army
on
GAO Report entitled, "Southeastern Federal
Power Program--Financial Progress and Problems"
(OSD Case #4137)

Concur that a formal procedure be developed for informing power marketing agencies in a timely manner of any operations or anticipated conditions which may affect power availability or costs. A Corps regulation will be developed for this purpose. Annual notification of scheduled changes in operation will also be provided.

[See GAO note 1, p. 76.]

[See GAO note 1, p. 76.]

With respect to frequency of the Interagency Committee meetings, the availability of allocation reports is not at a constant level and therefore, committee meetings are scheduled on an irregular basis. Further, disagreements surfaced by the Interagency Cost Allocation Committee often require additional work at field level for indeterminate periods of time. For these reasons, it is considered that monthly meetings would be too frequent. Quarterly meetings would be more realistic, at least until the backlog of tentative allocations has been reduced. Hopefully, this can be accomplished within two years. Meetings could then be semiannual or as needed. In past years, it was the practice to keep detailed Memorandum of Record of each meeting. This practice will be reinstated. Every effort will be made to reduce the time required to resolve differences as the Washington level to less than 1 year for each final cost allocation. This, of course, is dependent on the degree and substantiveness of the differences and the frequency of meetings. Field offices will be encouraged to have cost allocations ready for review as soon as final costs can reasonably be projected.

Of the seven drownings below Hartwell Dam since 1963, four were directly attributable to rapid rising water levels. On the Cheatham and Old Hickory projects, none of seven drownings were directly attributable to rapid rising water. An audible warning system would possibly have prevented four of the 14 drownings. The Corps will continue to review its endeavor to reduce adverse effects of power operations on public safety with minimum incident loss of power and take positive action as found appropriate.

Reference is made to the Southeastern Power Administration's (SEPA) new revenue allocation policy in Fiscal Year 1974 described on page 67. The Department of the Army does not agree with the new procedures implemented in SEPA at the direction of the Department of the Interior. Instead, we believe that it was the intent of Congress that all Federal power investment and generating costs be recovered by the marketing agency on a project by project basis in a reasonable time frame, including the interest on the investment costs as incurred. The new revenue allocation procedure is inconsistent with US Treasury Department lending, borrowing and debt retirement policies and procedures and assumes that the US Treasury Department pays off the highest interest bearing securities first and allows low interest securities to run indefinitely. In addition this new procedure does not treat the projects uniformly for repayment collectively or within their individual repayment periods. The Corps of Engineers has developed a power revenue allocation procedure for use in the Southwestern Power Administration (SPA) marketing area on Corps of Engineers' projects. We believe that this revenue allocation procedure for the SPA projects meets Congressional requirements, as well as being equitable, consistent and simple and therefore would be appropriate for application to Corps projects in the SEPA marketing area.

The Corps is preparing a report in response to the alleged violation of the Anti-Deficiency Act by the Savannah District which you described in Chapter 6. Upon review of Corps findings, appropriate action will be taken.

In keeping with the U.S. Army Audit Agency's policy of using its limited resources most effectively, the Agency's approach in auditing Army activities has been directed towards areas selected on the basis of priorities. The Agency concurs that it should schedule an audit of financial statements submitted by the Corps to Federal Power marketing agencies of the Department of the Interior. Since the GAO has performed such an audit as of 30 June 1974 and will present the results in this report, the Agency will plan to audit selected Corps' financial statements as of 30 June 1976. The audit is being considered for inclusion in the FY 77 schedule of audits.

- GAO notes:
1. Deleted material suggests changes which have been incorporated in the report.
 2. Page references in this appendix refer to our draft report and may not correspond to the pages of this final report.

PRINCIPAL OFFICIALSRESPONSIBLE FOR THE ADMINISTRATION OF ACTIVITIESDISCUSSED IN THIS REPORT

<u>Tenure of office</u>	
<u>From</u>	<u>To</u>

DEPARTMENT OF THE INTERIOR

SECRETARY OF THE INTERIOR:

Thomas S. Kleppe	Oct. 1975	Present
Kent Frizzell (acting)	July 1975	Oct. 1975
Stanley K. Hathaway	June 1975	July 1975
Kent Frizzell (acting)	May 1975	June 1975
Rogers C. B. Morton	Jan. 1971	Apr. 1975
Fred J. Russell (acting)	Nov. 1970	Dec. 1970
Walter J. Hickel	Jan. 1969	Nov. 1970
Stewart L. Udall	Jan. 1961	Jan. 1969

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(note a):

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C. King Mallory (acting)	May 1974	July 1974
Stephen A. Wakefield	Mar. 1973	Apr. 1974
James R. Smith	Mar. 1969	Feb. 1973
Kenneth Holum	Jan. 1961	Mar. 1969

ADMINISTRATOR, SEPA:

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Thomas H. Wigglesworth (acting)	Mar. 1969	June 1969
Charles W. Leavy	Apr. 1952	Feb. 1969

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SECRETARY OF THE ARMY:

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Robert F. Froehlke	July 1971	May 1973
Stanley R. Resor	July 1965	June 1971

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Lt. Gen. William C. Gribble, Jr.	Aug. 1973	Present
Lt. Gen. Frederick J. Clarke	Aug. 1969	July 1973
Lt. Gen. William F. Cassidy	July 1965	Aug. 1969

a/Secretary of the Interior Order No. 2951, dated February 6, 1973, established the Office of Assistant Secretary--Energy and Minerals, formerly the Office of Water and Power Resources.

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CHAIRMAN:

John N. Nassikas
Lee C. White

Aug. 1969 Present
Mar. 1966 Aug. 1969

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