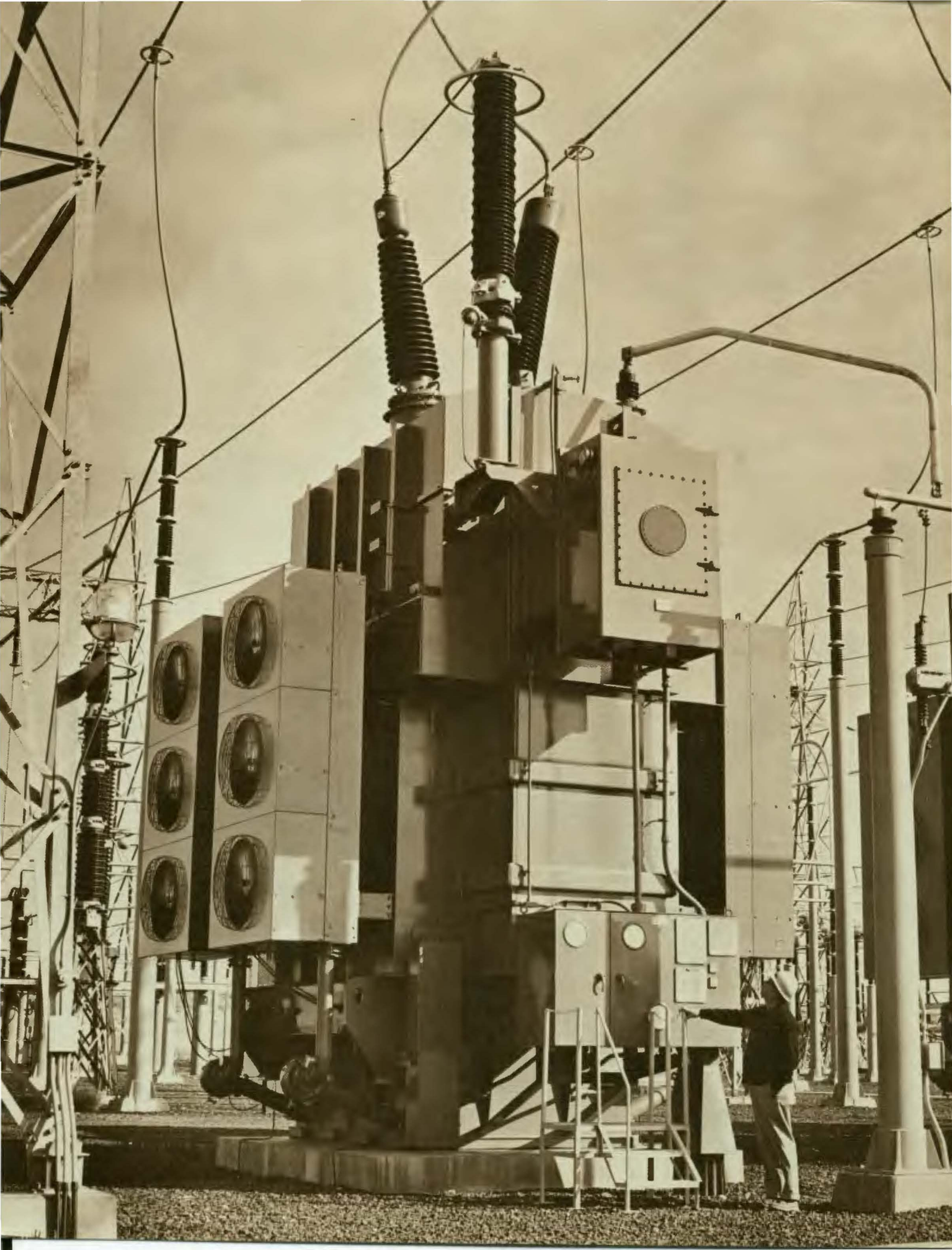
1968 ANNUAL REPORT

DEPARTMENT OF THE INTERIOR

BONNEVILLE POWER ADMINISTRATION



FEDERAL COLUMBIA RIVER POWER SYSTEM

1968 ANNUAL REPORT

DEPARTMENT OF THE INTERIOR

Stewart L. Udall, Secretary

BONNEVILLE POWER ADMINISTRATION

H. R. Richmond, Administrator

High voltage switchyard
500,000 volt transformer

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LETTER TO THE SECRETARY

December 31, 1968

Honorable Stewart L. Udall
Secretary of the Interior
Washington, D.C. 20240

Dear Mr. Secretary:

This is Bonneville Power Administration's 31st Annual report. The information presented here covers the fiscal year which ended June 30, 1968, and significant developments since then.

The challenge before Pacific Northwest utilities in 1968 was to develop a cooperative plan for the construction of new hydro and thermal plants to meet regional power requirements growing at the rate of about one million kilowatts per year.

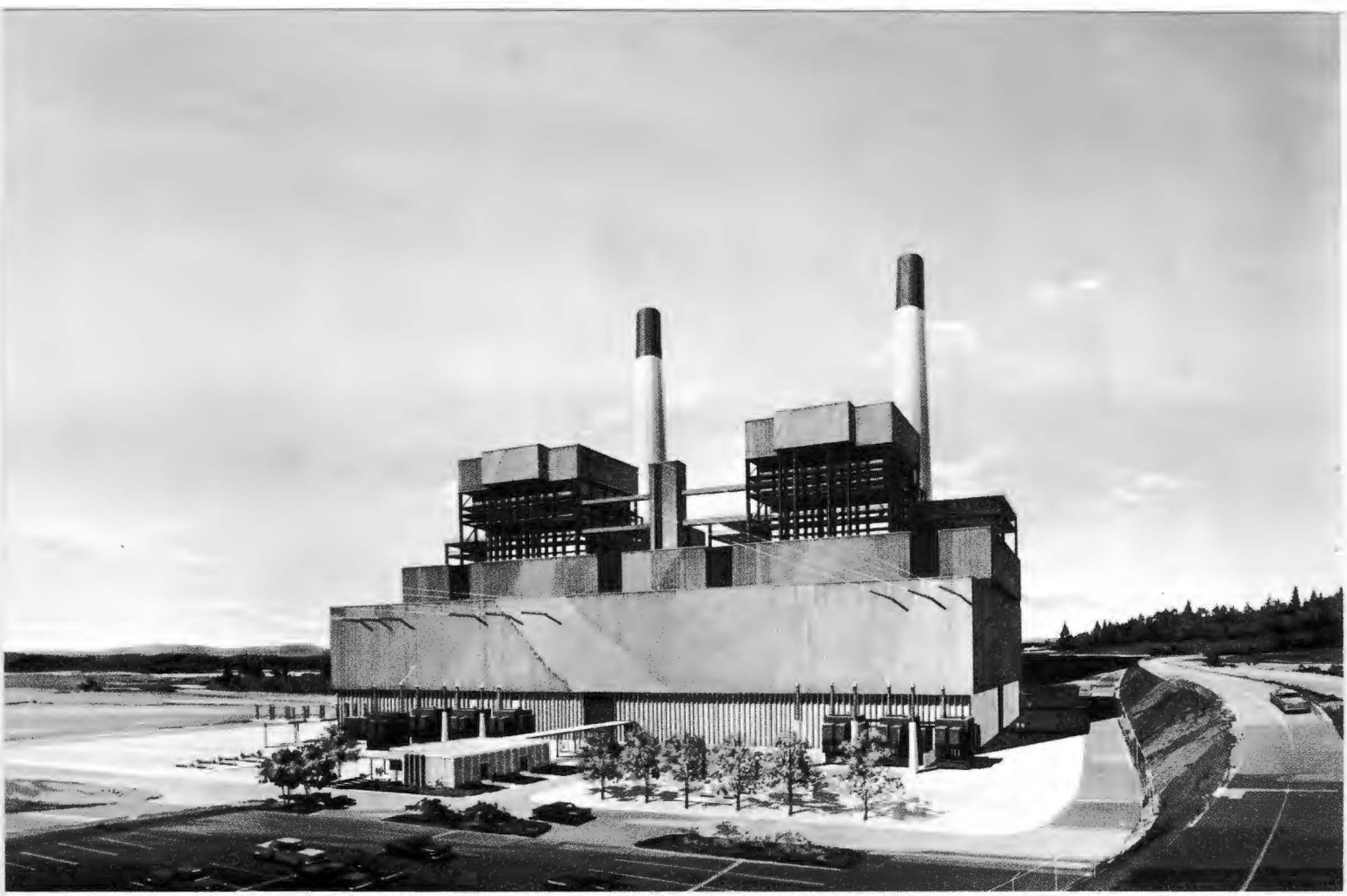
The challenge was met by late October when the private and public utilities and BPA announced agreement on a joint program. The program involves 105 publicly and cooperatively owned utilities and four major private utilities in the Northwest. All of these utilities and the Bonneville Power Administration have joined forces on a large scale, long-range effort to achieve a common goal: to secure a continuing, ample and reliable power supply for the region at the lowest practical cost.

Their accord exemplified the cooperation that has marked relations among Northwest utilities in recent years.

The plan calls for a $15 billion construction program over the next 20 years of new thermal, hydro, and transmission facilities by private and public utilities and the Federal Government.

The plan derives from the basic understanding that the Federal Government will continue to construct the high-voltage transmission system and additional hydro capacity; public and private utilities will build and operate thermal plants sized, located, and scheduled to meet regional loads; BPA will acquire or exchange power from the utilities' plants.

The hydro-thermal program envisions the construction of a series of thermal plants totaling about 21.4 million kilowatts by 1990. Each will be large enough to produce energy at the lowest practical cost. During this same period about 20 million kilowatts of new hydro peaking capacity, mostly Federal, must be provided. A special section of the annual report describes the program in detail.



The coal-fired thermal plant near Centralia.

As this program goes forward, generation schedules must not slip if the Northwest is to avoid power shortages.

The region in recent months erased the prospect of possible power deficiencies on the BPA system. In the winters of 1971-1972 and 1972-1973, due to slippage in the scheduled completion of several Federal hydro projects, we would be short of power over the winter months in those years if Northwest rivers were to drop to critical levels. To alleviate this situation, a group of utilities and BPA arranged to bring the first 700,000-kilowatt unit of the coal-fired plant at Centralia, Washington, on the line in time to help serve 1971-1972 winter loads. This is two years sooner than was originally scheduled. The completion date for the second 700,000-kilowatt unit also will be advanced so that it will be operational by September 1972.

During 1968, negotiations among private and public utilities and the Department of the Interior ended 10 years of contention over who should build a dam on the Middle Snake River. All parties agreed to support before Congress a proposal for a Federal project. The output of the project would be split 50-50 between public and private utilities for 50 years. A unique prepayment plan was agreed upon under which the utilities, in effect, would pay in advance for a 50-year supply of power equivalent to the project's output. This would provide up to 80 percent of the funds for construction of the project,

thereby greatly reducing the need for Federal appropriations. Federal funds would be required, of course, for project features needed for flood control, fish and wildlife, recreation, etc. As a result of this understanding, Federal Power Commission proceedings on license applications will be suspended for up to two years to permit Congress to review the proposal.

Last year's report dwelled at length on reliability. It is appropriate to stress again that one of BPA's main concerns is to build a strong grid that will deliver power economically and reliably within the region.

Reliability between regions is also of continuing concern. Because of interconnections with adjoining systems, actions and events in one region may seriously influence or readily disrupt operations in neighboring regions.

Weak points on the various systems, including our own, must be detected and corrected if power is to be supplied by all the interconnected systems with the degree of reliability the public demands. Commitments resulting from the Columbia River Treaty and the Pacific Northwest-Pacific Southwest Intertie have added greatly to our interregional reliability responsibilities.

The Intertie lines provide a strong electrical interconnection between the Pacific Northwest and Pacific Southwest. Preliminary studies have shown that stronger ties with systems to the east are desirable. All such ties should be planned on an interregional, coordinated basis.

Progress is being made in interregional planning through efforts of the Western Systems Coordinating Council. This organization was formed to coordinate the planning and operation of the generating and interconnecting transmission facilities of 41 private, public, and Federal systems in 14 western states and British Columbia.

With regard to reliability, I should also mention our long-range program to use more effective and sophisticated methods for control and dispatch of the BPA transmission system. We are moving steadily toward the day when computers will be the heart of the control system. The computers will acquire, store, interpret, and display data essential to operations. We are developing new display techniques so that operators may analyze system conditions at all times and override the computers when necessary in emergencies.

The annual report includes a financial statement on a payout basis for the Federal Columbia River Power System as required by Public Law 89-448. This statement shows that rates continue to be adequate to meet our repayment obligations.

In conclusion, I want to acknowledge with appreciation the support which you, Under Secretary Black, and Assistant Secretary Holum have given us.

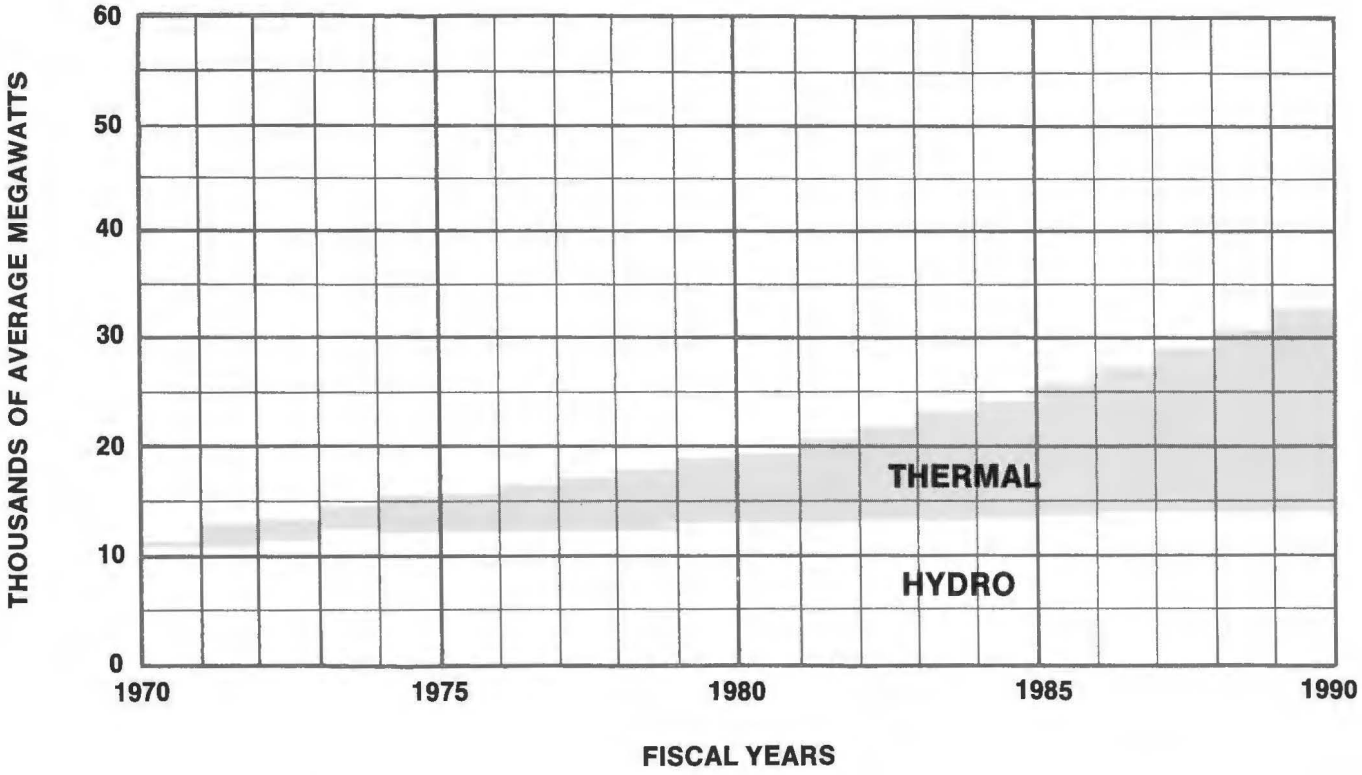
Sincerely yours,

H R Richmond

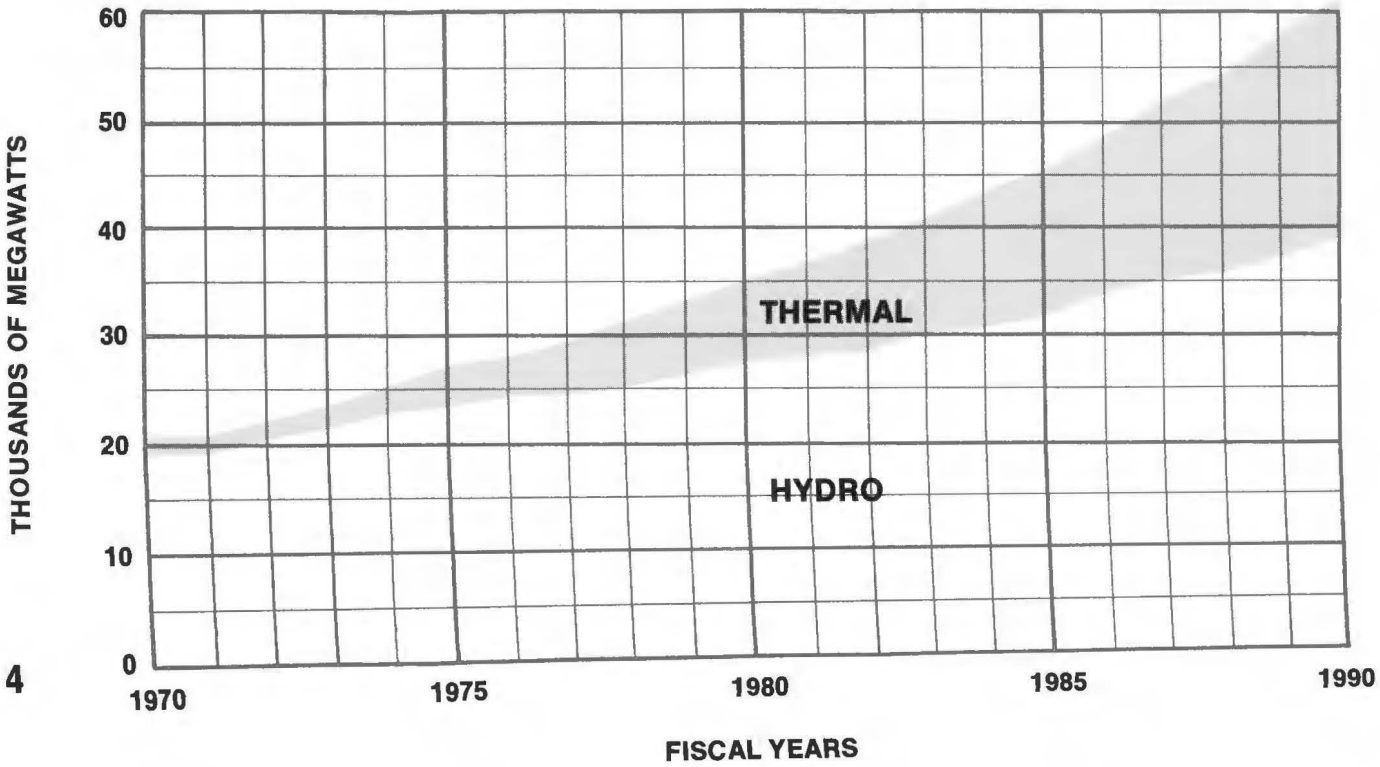
H. R. Richmond
Administrator

HYDRO-THERMAL POWER PROGRAM

FIRM ENERGY RESOURCES



FIRM PEAK CAPACITY RESOURCES



HYDRO-THERMAL

The Pacific Northwest has long enjoyed the benefits of the Federal and non-Federal developments that have harnessed the Columbia River and its tributaries, the source of one-third of the hydro-electric potential on the North American Continent. There remains considerable potential for future development of additional hydro peaking power and reserves at existing dams. However, the Northwest is now running out of sites where it is feasible to build dams to generate sufficient firm energy to meet future load growth. The region must construct thermal plants to augment its hydro resources.

Unless this new thermal generation is planned and scheduled so that it is coordinated with the hydro system and unless BPA can acquire a supply of this thermal generation, these things would occur:

—BPA would be unable to meet the load growth of publicly owned systems after about 1977.

—BPA would have no firm power to supply new direct service industry.

H. R. Richmond, Bonneville Power Administration

—BPA would be unable to renew existing industrial contracts when they expire starting in 1973. This is because public agencies may elect to exercise their preference rights to this supply.

—The economy of the region would be adversely affected by an increase in power costs.

The end of the all-hydro era will have a double impact on the private utilities. BPA will not be able to meet their load growth beginning in 1973. In addition BPA will be withdrawing power, previously purchased by the private utilities, in order to meet the load growth of preference customers. Accordingly, the private utilities must supply generation both to meet their own load growth and also to replace the power withdrawn by BPA.

BPA supplies about 50 percent of the region's energy and 80 percent of the transmission. The existing and potential peaking capacity of the Federal projects are vital to the construction and operation of large thermal generating units. Of at least equal importance is the BPA transmission grid which ties all Pacific Northwest systems together and will move the great bulk of the generation from the new thermal plants to the load centers where it is needed.

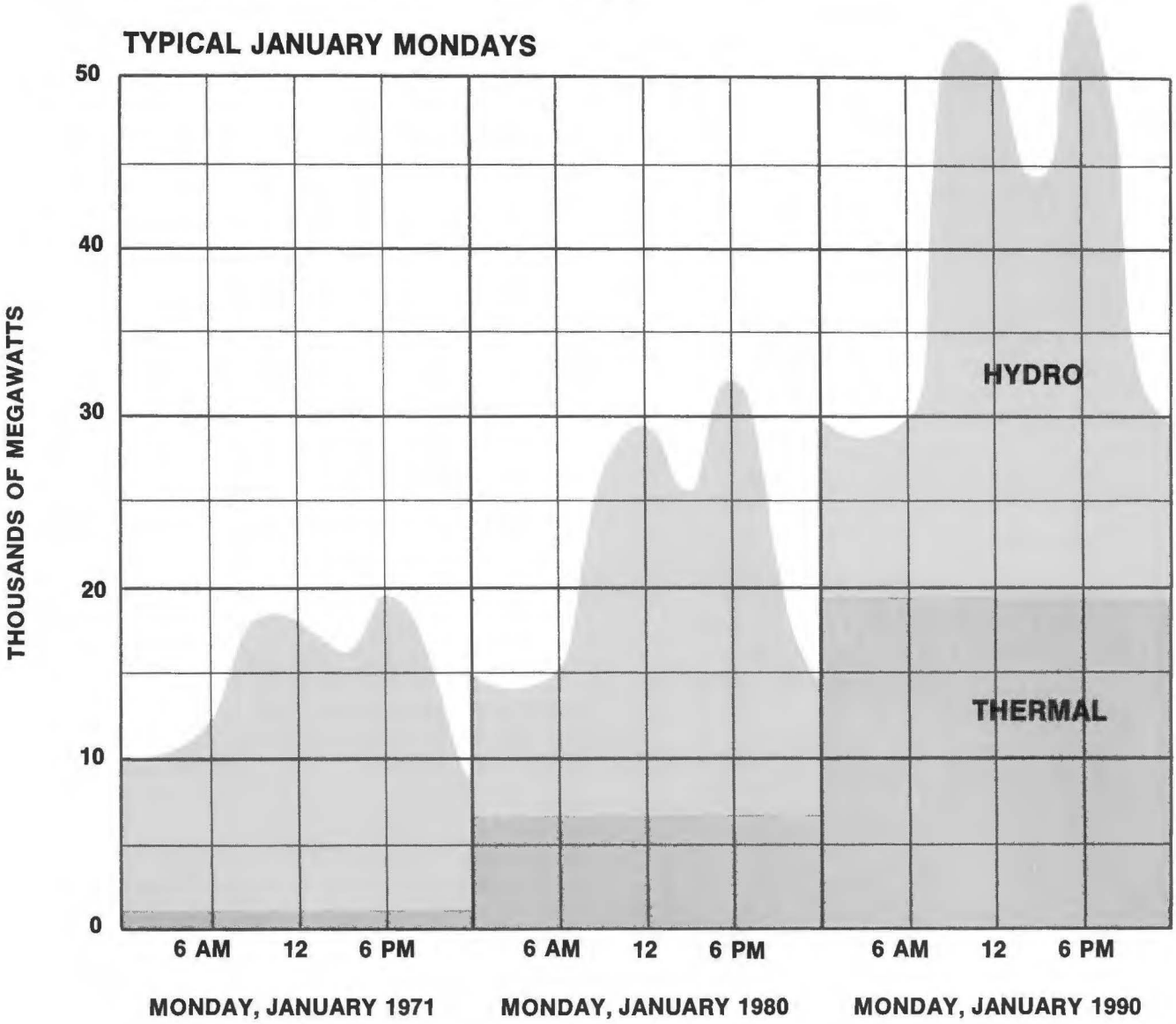
For these reasons it was difficult for the non-Federal utilities to plan without knowing what part BPA would play in the transition from an all-hydro era to a hydro-thermal era. One possible course of action would be for BPA to market power from only the Federal hydro system, and let the non-Federal utilities solve their power supply problem as best they could. Another possible approach would be to seek authorization to construct Federal thermal projects. For a variety of reasons BPA rejected these two extremes.

Norman L. Krey, Manager, Northwest Operations, Kaiser Aluminum & Chemical Corporation

"We think that real progress is being made to meet the long-term needs of the Northwest on a basis that recognizes the necessity for an adequate power supply at the lowest cost."

—Bonneville Regional Advisory Council Meeting, Oct. 25, 1968.

ESTIMATED HOURLY HYDRO & THERMAL GENERATION



Instead BPA and the non-Federal utilities attacked the problem with the same cooperative effort that was used to bring into being the Hanford Project, the developments under the Columbia River Treaty with Canada, and the Pacific Northwest-Pacific Southwest Intertie. They solved it with a plan in which each segment of the utility industry participates. Jointly they achieve a result which none can do by itself—an adequate power supply for everyone at a cost lower than otherwise would be possible.

The hydro-thermal program was announced October 22, 1968, by the Joint Power Planning Council which is made up of 109 public and private utilities in the Northwest and the Bonneville Power Administration. Alan Jones, Chairman of the Public Power Council, which represents the 105 public utilities of the Planning Council, commented: ". . . the hydro-thermal program establishes a blueprint for regionwide involvement in the challenge of the thermal era." On October 25 the hydro-thermal program was discussed with the Bonneville Regional Advisory Council whose membership includes representatives of the Northwest business and industrial community.

The private utilities, the public utilities, and BPA first agreed on what would be done to meet the region's power needs at the lowest cost if the entire electric system in the region were under a single ownership. Under this concept, they developed a plan for the construction of about 21.4 million kilowatts of thermal capacity, 20 million kilowatts of hydro peaking capacity,

and related transmission facilities by 1990.

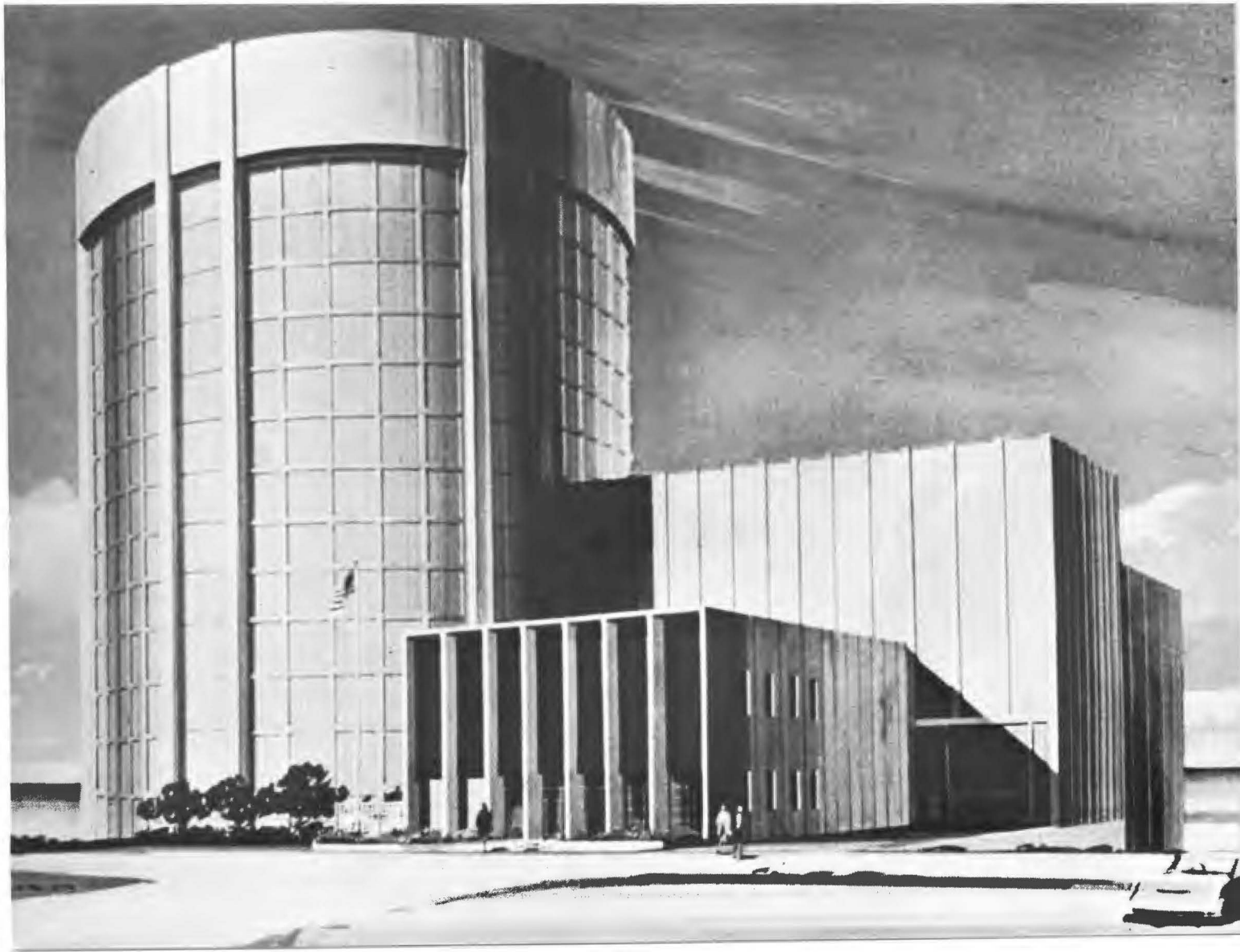
Regional power requirements are growing at the rate of about one million kilowatts per year. This rate of growth coincides almost ideally with the fact that a thermal plant of approximately one million kilowatts is the most efficient in today's technology. A thermal plant of a million kilowatts or more can produce power at a substantially lower cost per kilowatt-hour than smaller plants. Yet no single utility, private or public, has a load growth that would permit it to build a million-kilowatt plant and thereby achieve the lower unit cost of the

United States Senator Henry M. Jackson

"We should have industrial and thermal plant sanctuaries just as we have recreation sanctuaries."

—Bonneville Regional Advisory Council Meeting, Oct. 25, 1968.

Typical nuclear power station.



large plants. Neither could it supply the forced-outage reserves, peaking capacity, and transmission for such a large plant except at an exceedingly high cost. Yet the region will need a plant of this size virtually every year.

By cooperative action BPA and the non-Federal utilities, public and private, have solved this problem. The non-Federal utilities will build the thermal plants. They will be located, sized, and scheduled to best meet the needs of the region rather than the needs of the owner or owners of the plant. BPA will supply forced-outage reserves, peaking capacity, reserves for unanticipated load growth, and most of the transmission. It will act as a regional balance wheel between the supply and the needs of the individual utilities. The major elements of the plan are described more specifically on page 51.

This regional approach, which is the culmination of two years of intensive study and negotiations, will assure proper coordination and integration of hydro and thermal developments. Higher cost thermal power will be melded with lower cost hydro power; the region's power supply will be adequate for an indefinite period; rates will be maintained at a lower level than otherwise would be possible.

Implementation of the plan is already underway. The coal-fired plant now under construction near Centralia, Washington, is the initial thermal plant of the hydro-thermal program. The plant is sponsored by Pacific Power & Light Company and the Washington Water Power Company. The first 700,000-kilowatt unit is scheduled for completion in September 1971. The second 700,000-kilowatt unit is scheduled for completion in September 1972.

Portland General Electric Company will build the second thermal plant, a 1,100,000-kilowatt nuclear plant at the Company's Trojan site near Rainier, Oregon. The plant is scheduled for completion in 1974.

Other public and private utilities are actively planning an additional 3 million kilowatts of capacity by 1979.

Meanwhile, the Federal Government by 1974 plans to add 6.7 million kilowatts of capacity at existing hydro plants or those under construction. By 1979 the Federal system will have 17.6 million kilowatts of capacity, as compared with 6.8 million kilowatts today.

John M. Nelson, Superintendent of Seattle City Light

"It seems to me that the Hydro-Thermal Program is the best way of accomplishing the financing and marketing of the output of large thermal plants that could possibly be suggested."
—Bonneville Regional Advisory Council Meeting, Oct. 25, 1968.

A. J. Porter, Vice President, Portland General Electric Company

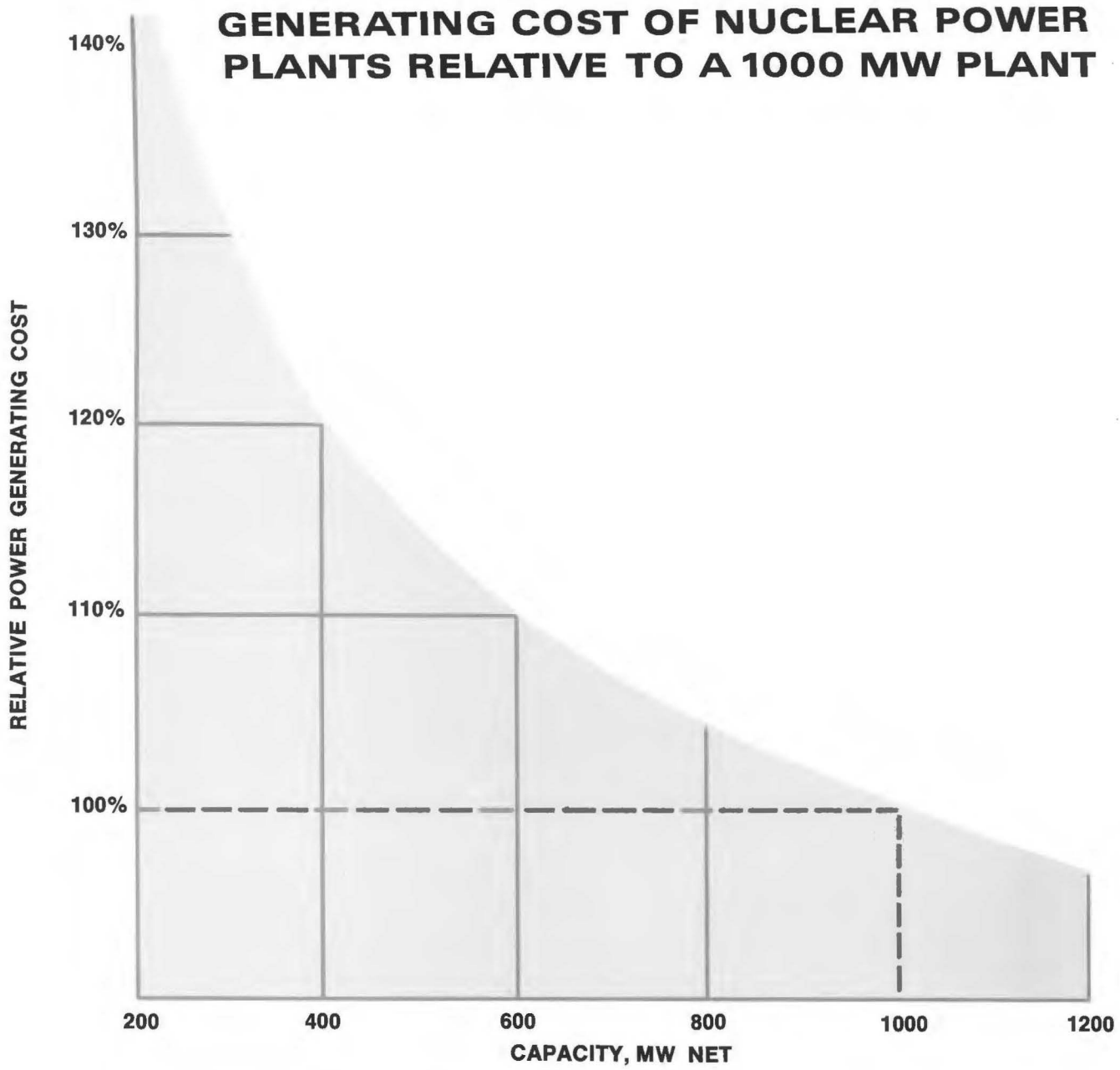
"We believe that this Hyro-Thermal Program offers a framework which we can all get behind for the good of the area."
—Bonneville Regional Advisory Council Meeting, Oct. 25, 1968.

SUMMARY

1. The region will continue to have the lowest cost power supply in the nation.

2. BPA power rates should not have to be increased for the period 1969 through 1979 under current assumptions.

3. The BPA obligations, as proposed, will not require additional Congressional legislation.



4. The value of the Federal system will be enhanced with minimum Federal appropriations.

5. The large-scale generating plants, transmission lines, and other facilities, as proposed, will tend to hold down power costs and minimize the impact of power facilities on the environment.

6. Ample supplies of power will be available in the Pacific Northwest for the needs of publicly and privately owned utilities and the electroprocess industry.

7. The ability of BPA to renew existing industrial contracts will be assured.

8. Firm power supply for new BPA direct-service industrial load above present levels will be available starting in 1974.

9. Industries will be served by BPA with a new class of power under a new rate schedule and contract provisions.

10. Privately owned utility systems will achieve economies through the construction of large-scale generating plants.

11. The privately owned utilities constructing thermal plants will be assured of (a) a market for surplus energy, and (b) low-cost peaking, transmission, and forced-outage reserves.

Celilo Converter Terminal with The Dalles Dam in background.

PACIFIC NORTHWEST-
PACIFIC SOUTHWEST INTERTIE

The Intertie's two 500,000-volt alternating-current lines are now in service.

The first line went into operation in January 1968 and the second in May 1968. These lines, about 2,000 miles in length, were constructed by six different power organizations.

As this report went to press, approximately 2.4 billion kilowatt-hours of energy has been sold by the Pacific Northwest to the Pacific Southwest.

Initially the capacity of these lines was limited to 400,000 kilowatts because of the lack of generating capacity and transmission backup to the Intertie on the main grid. In October 1968 the Hanford-John Day line was completed which reinforced the main grid, and the capacity was increased to 800,000 kilowatts. With the scheduled addition of generator units at John Day Dam, and with the completion of additional electrical facilities, we expect the two lines to reach their ultimate power transfer capabilities of 2 million kilowatts.

December 1969 will see the United States first 750,000-volt direct-current line in full commercial operation. This, the first of two 750,000-volt direct-current lines, originates at Celilo near The Dalles, Oregon, and terminates at Sylmar near Los Angeles, California. The Los Angeles Department of Water and Power is building the Sylmar terminal and a 560-mile portion of the line south of the Oregon-Nevada border. BPA is building the 267-mile section in Oregon.

The other 750,000-volt direct-current line also originates at Celilo, but it will terminate at the U.S. Bureau of Reclamation's Mead Substation near Hoover Dam. This line is scheduled for commercial operation in January 1973. In addition to the terminal at Celilo, BPA will build the 267-mile section of line in Oregon. The Bureau is building the southern 551 miles and the Mead terminal. The entire line has been surveyed and the Bureau has under construction the alternating-current switchyard which is a part of the Mead terminal. The Bureau has placed its order for the converting equipment with the joint contracting venture, General Electric Company (GE) and Allmanna Svenska Electriska Atkiebolaget (ASEA) of Sweden.

Consistent with the January 1973 scheduled completion date, BPA has recently negotiated an extension to its option with the joint venture (GE and ASEA) to purchase the converter equipment for the Celilo terminal of the Mead line. Construction of the Celilo Converter Station, which will ultimately house the converter equipment for both direct-current intertie lines, is progressing well. The central core and the south wing of the building are nearing completion. The north wing will be completed to meet the operation of the second line.

When all four lines of the Intertie are complete, the total power transfer capability will be 4.5 million kilowatts. This is more than twice the present total generating capacity of Grand Coulee Dam.

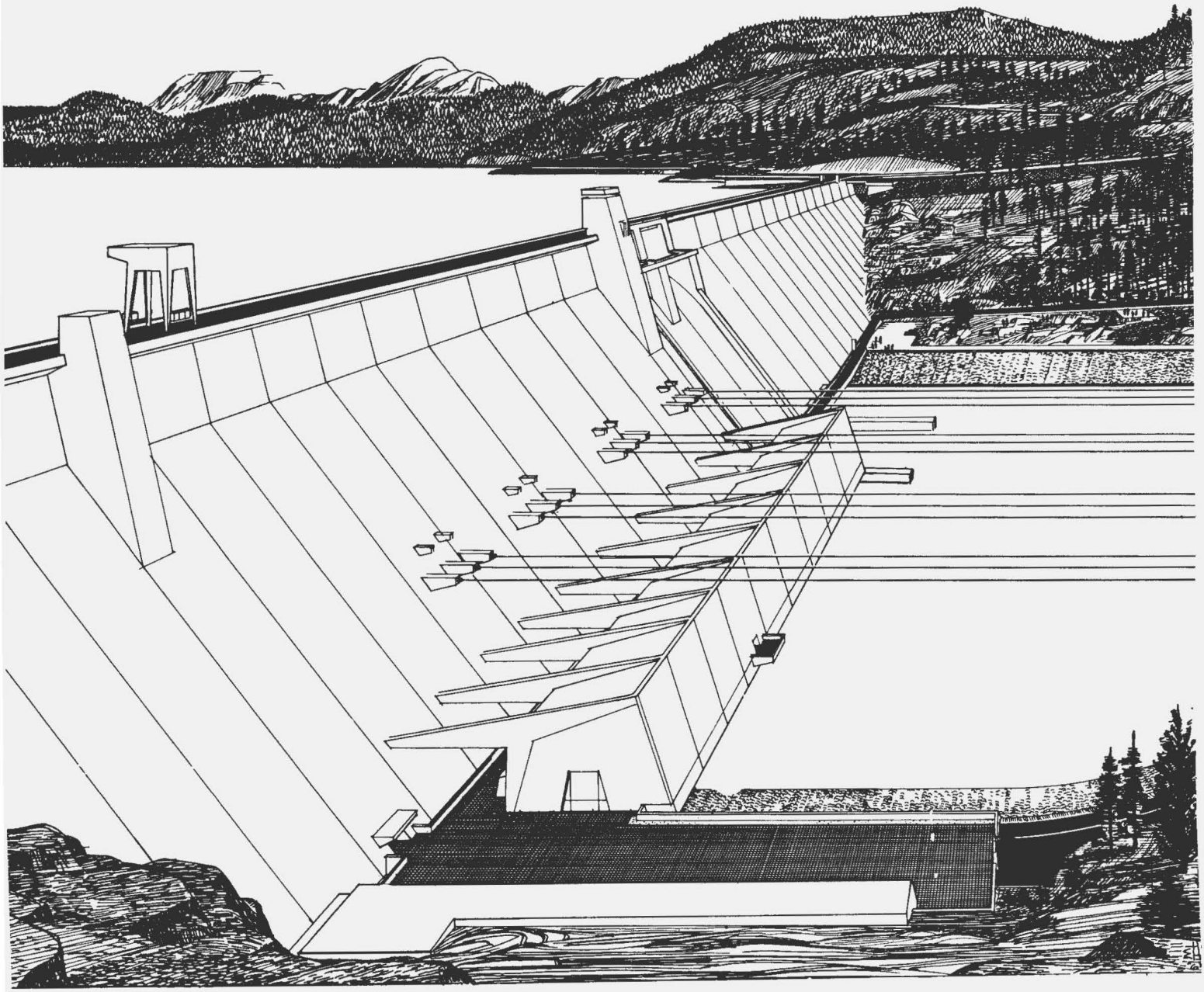
Completion of the lines means increased reliability to all regions since power can be dispatched to any one of the areas in time of critical need.

The Intertie permits the exchange and sale of surplus Northwest secondary energy and peaking capacity. The Intertie is being used to "firm up" with Southwest power a large block of Northwest power which otherwise would be available only when river flows are up. This results in better economic use of resources throughout the western region and conservation of exhaustible fuels.

The Intertie also permits the two regions to exchange energy to take advantage of diversities in peak loads. It will make it possible for the Northwest to transmit its summer surpluses to the Southwest; the Southwest can send power back during the winter months. Each region will be able to meet its peak loads with a lower investment in generation.

Lineman climbing steel tower.

Libby Dam



COLUMBIA RIVER TREATY PROJECTS

Two of the four Columbia River Treaty projects are now complete; the other two are under construction.

Duncan Dam, at the outlet of Duncan Lake in Canada, has been operational since July 31, 1967, one year ahead of schedule. This earthfill dam, a half-mile long and 130 feet high, stores 1.4 million acre-feet of water.

Arrow Dam, five miles upstream from Castlegar, British Columbia, on the Columbia River, became fully operational on October 10, 1968—six months ahead of schedule. The 170-foot high concrete and earthfill dam will provide storage of 7.1 million acre-feet in Arrow Lakes.

Mica Dam, the largest of Canada's three Treaty dams, is under construction 85 miles north of Revelstoke. An earth and rockfill project 645 feet high, it will store 7 million acre-feet of water for use in the United States in addition to storage exclusively for use in British Columbia. Mica is scheduled for completion by April 1, 1973.

Under the Treaty provisions, the United States is building Libby Dam on the Kootenai River in Montana. Libby will back water 42 miles into Canada. Construction of Libby began April 1966 under direction of the Corps of Engineers. By winter of 1968, half a million cubic yards of concrete had been placed behind the cofferdam. Libby will store 5 million acre-feet of water and will make it possible to generate 750,000 kilowatts at-site and downstream in the United States, and 200,000 kilowatts downstream in Canada. The project will begin generating electricity in 1973.

The Canadian projects are designed to store 15.5 million-acre feet of water usable for power purposes in the United States which is more than the storage capacity on the Columbia and its tributaries today. Water released from the Canadian projects will increase the dependable capacity at 11 U.S. dams downstream by a total of 2.8 million kilowatts. The United States and Canada are dividing equally the additional power; Canada has sold her half to purchasers in the United States for a period of 30 years.

Dr. H. L. Keenleyside, Co-Chairman, British Columbia Hydro and Power Authority

The Columbia River Treaty projects will almost complete the job of harnessing the Columbia River. They will also make it possible to control a flood as great as any in the Columbia's recorded history.

COLUMBIA RIVER TREATY PROJECTS

Arrow Dam

Duncan Dam

Construction site for Mica Dam.

Early concrete work at Libby Dam.

CONSTRUCTION

BPA is in the midst of the largest construction program in its 30-year history. The 1968 construction budget totalled over $110,000,000.

For 30 years BPA has built transmission lines at a pace dictated by growing power needs. The completion of 820 circuit miles of line in fiscal 1968 as compared to 280 miles in fiscal 1967 reflects this growth. At the end of fiscal 1968, the circuit miles in this network totaled 10,644.

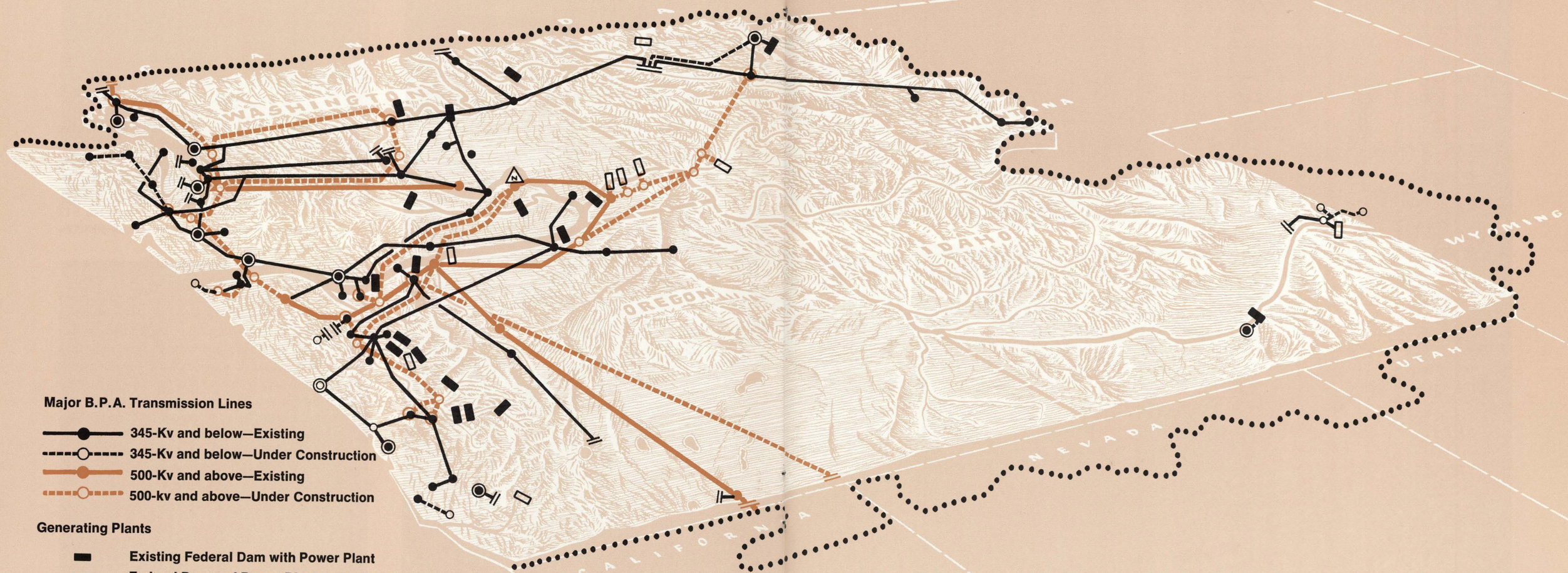
Most of the lines being built are designed for 500,000 volts and are a part of a 500,000-volt grid which will overlay the 230,000-volt transmission system. Within 10 years BPA will have about 3,000 miles of 500,000-volt lines in operation.

As of June 30, 1968, BPA had completed 913 miles of 500,000-volt lines. In addition, eleven 500,000-volt substations were completed.

BPA has gone to 500,000-volt transmission because electric power can be transmitted more economically at this higher voltage. A 230,000-volt line requires a right of way 125 feet wide. A 500,000-volt line requires a right of way only 25 feet wider, yet it delivers four times as much power as a single 230,000-volt line. Thus the impact of transmission lines on the environment is kept to a minimum. For example, additional transmission capacity is required between Chief Joseph Dam and the Seattle area. Rather than construct another line, we are replacing two Chief Joseph-Snohomish 230,000-volt lines by a single 500,000-volt line. When this line is energized in the fall of 1971, the new line will double the capacity with no increase in right of way.

Construction workers in Eastern Oregon.

FEDERAL COLUMBIA RIVER POWER SYSTEM



Major B.P.A. Transmission Lines

- 345-Kv and below—Existing
- 345-Kv and below—Under Construction
- 500-Kv and above—Existing
- 500-kv and above—Under Construction

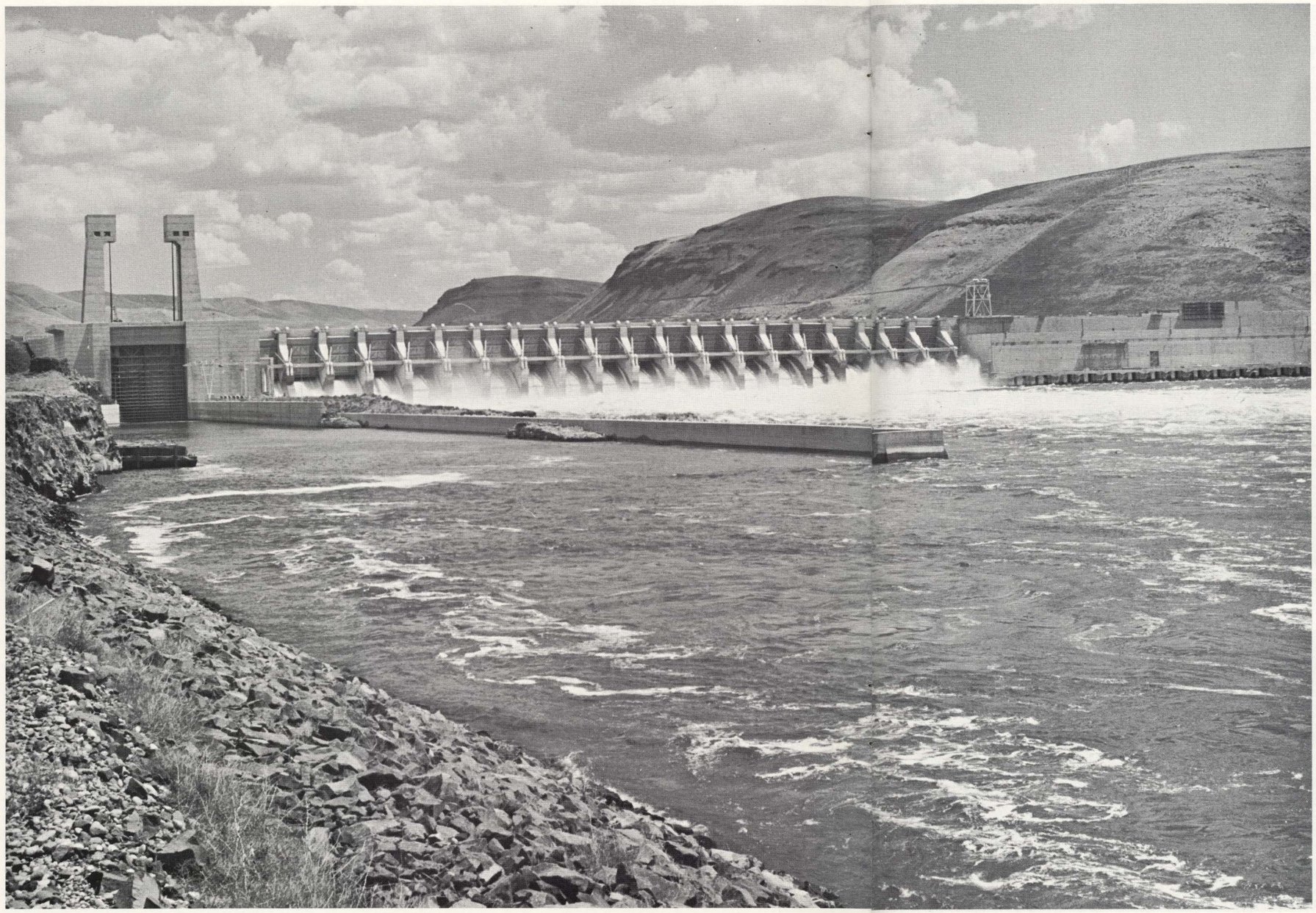
Generating Plants

- Existing Federal Dam with Power Plant
- Federal Dam and Power Plant under Construction
- Hanford Nuclear Power Plant

Bonneville Power Administration Service Area

June 30, 1968

John Day Dam, navigation channel, and spillway.



GENERATION

Federal dams producing electricity in the Northwest numbered 22 as of June 30, 1968, and had a total installed capacity of 6.8 million kilowatts. This compares with a total generating capacity of 16.9 million kilowatts for the Pacific Northwest which includes both Federal and non-Federal projects.

On September 28, 1968, John Day Dam was dedicated with two units operating at a rating of 135,000 kilowatts each. By the end of 1971 John Day will have an installed capacity of 2.2 million kilowatts and for about two years will be the largest power-producing project in the United States, exceeding even Grand Coulee Dam.

Work has already started on the third powerhouse at Grand Coulee. Units will become operational starting in 1973 and by 1978 the third powerhouse alone will add 3.6 million kilowatts to the system. Subject to further Congressional authorization, additional generator units may be added and the capacity raised to 7.2 million kilowatts. Grand Coulee would then have a capacity of more than 9.5 million kilowatts.

By 1974, when all the generation is installed at new Federal dams now under construction — Foster, John Day (16 units), Lower Monumental, Little Goose, Lower Granite, Dworshak, Lost Creek, Libby, and Teton —a total of 4.3 million kilowatts will be added to the Federal system. By 1974, additions under construction at The Dalles will add 688,000 kilowatts.

In addition, Congress has authorized two new hydro projects (Asotin 540,000 kilowatts and Strube 4,500 kilowatts) with a total capacity of 544,500 kilowatts. Additional authorized generation at Chief Joseph, Ice Harbor, McNary, Bonneville, Cougar and Anderson Ranch Dams, and a pump-turbine project at Grand Coulee Dam will provide 2.4 million kilowatts to the Federal Columbia River Power System.

With these additions by 1979, the total Federal generation in the Pacific Northwest will be 17.6 million kilowatts. Non-Federal utilities plan to add 2.8 million kilowatts at projects that are under construction or licensed. In addition, they are actively planning more than 4 million kilowatts of thermal power over the next 10-year period. The Northwest as a whole will then have a generation capacity of approximately 35 million kilowatts.

Portland Control Center

COMPUTERS

A new large multipurpose computer was installed and turned over to BPA just before the end of fiscal 1968. The computer, valued at $3,300,000, is used to solve a myriad of problems in engineering, design, power scheduling, load forecasting, simulating streamflows, recording inventories, and many other areas.

This computer is called a "third generation" computer because the technology used in its design and construction represents the third major level of improvement in computer technology since digital computers first came into large-scale use about 12 years ago.

ADVANCED CONTROL AND DISPATCH

Computers will be one of the main tools in the BPA Advanced Control and Dispatch Program. Steady progress is being made in the planning, development, and implementation of this important program—introduced and described in detail in last year's annual report.

A special-purpose control computer at the Portland Control Center and smaller control computers at three key 500,000-volt substations will begin operating in 1969.

Our widespread telecommunication system has been partly updated with solid-state microwave equipment. A high-speed series capacitor station will go into operation in early 1969. Preliminary design of the new System Control Center building and facilities is well underway. This control center is scheduled to be operational by July 1973. We are initiating a prototype program to evaluate new systems such as information display, remote hydrometeorological automatic reporting stations, and programable supervisory control. We are also developing methods of monitoring the moment-to-moment conditions over the entire power system. These methods will require advanced digital computer techniques.

During the past year we have established the Branch of Power System Control. This move brought together appropriate engineering personnel in a project-oriented organization to effect the most efficient use of manpower to assure orderly development of the ACD program.

The ACD program offers an economical approach to system reliability and a method for improving our use of natural resources and transmission facilities. Its goal is to make the BPA system as efficient and reliable as advanced technology will permit.

REORGANIZATION

The basic organization structure of BPA had not been studied thoroughly since 1954 nor had any substantial organization changes been made for more than five years. Recognizing that growth, evolution, and new technologies might all have major implications for changes in organization and administration patterns, it was determined that a thorough study of our operations by an independent consultant was in order. We hired the firm of Cresap, McCormick and Paget to do the job.

As a result of the study, a new Division of Operation and Maintenance was formed consisting of the Area Offices, System Operations, and Maintenance. The Division of Engineering was reorganized and renamed the Division of Engineering and Construction. There are now three major components in the Division—Engineering, Supply, and Construction and Services. A management planning and analysis organization was established in the Administrator's Office.

More than a score of additional study recommendations have been approved and 11 studies are currently underway to effect major improvements. Improvement projects include the establishment of an engineering Reliability Board, development of written reliability standards, reorganization and improvement of supply systems, streamlining the budget and planning processes, establishing a central materials yard, and installation of improved ADP work process and project controls.

Construction workers

POWER SALES, REVENUES & FINANCIAL RESULTS

BPA sold 44.7 billion kilowatt-hours of electric energy in fiscal 1968, a 1.7 percent increase over last year.

Total revenues of the Federal Columbia River Power System for fiscal 1968 were $117.9 million. This was $5.1 million or 4.5 percent higher than fiscal 1967. However, for reasons discussed later in this section, revenues fell short of estimates by $8.7 million.

Breaking the overall total down—power sales revenues were $106.6 million, a 2.1 percent increase over fiscal 1967. Revenues from sources other than sales —mainly wheeling and coordination payments—totaled $8.1 million. Revenues received directly by the generating projects, principally from the sale of irrigation pumping power and headwater benefits, were $3.2 million.

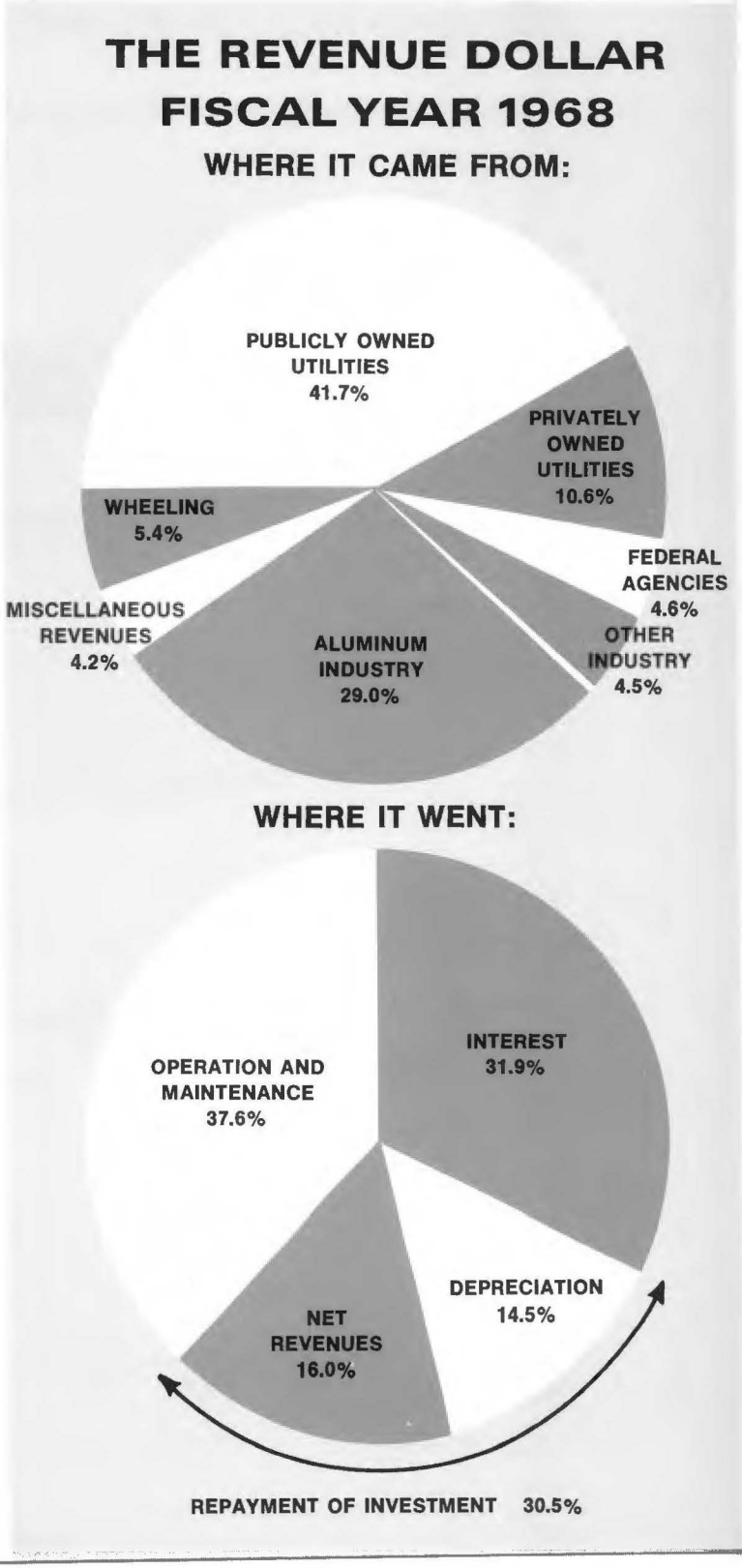
All revenues are used to repay the cost of producing, transmitting, and marketing power. Each year, interest and operation and maintenance expenses are paid in full, and substantial payments are made to amortize the capital investment in the power system. Our 1968 revenues enabled us to cover current year operating costs of $44.3 million and interest expense of $37.6 million. In addition, $36.0 million was applied to repay the Government's investment in the power system.

Table 6 gives a breakdown of revenues and expenses on the repayment basis, with comparisons to fiscal 1967. It shows that total operating expenses increased by 14.8 percent and total interest by 5.7 percent, while revenues increased by only 4.5 percent. This was the principal reason the balance available for repayment of the power system investment decreased by $2.7 million in 1968 as compared to 1967.

Several factors affected the relative increases of both costs and revenues for fiscal 1968 as compared to fiscal 1967. The most pertinent were:

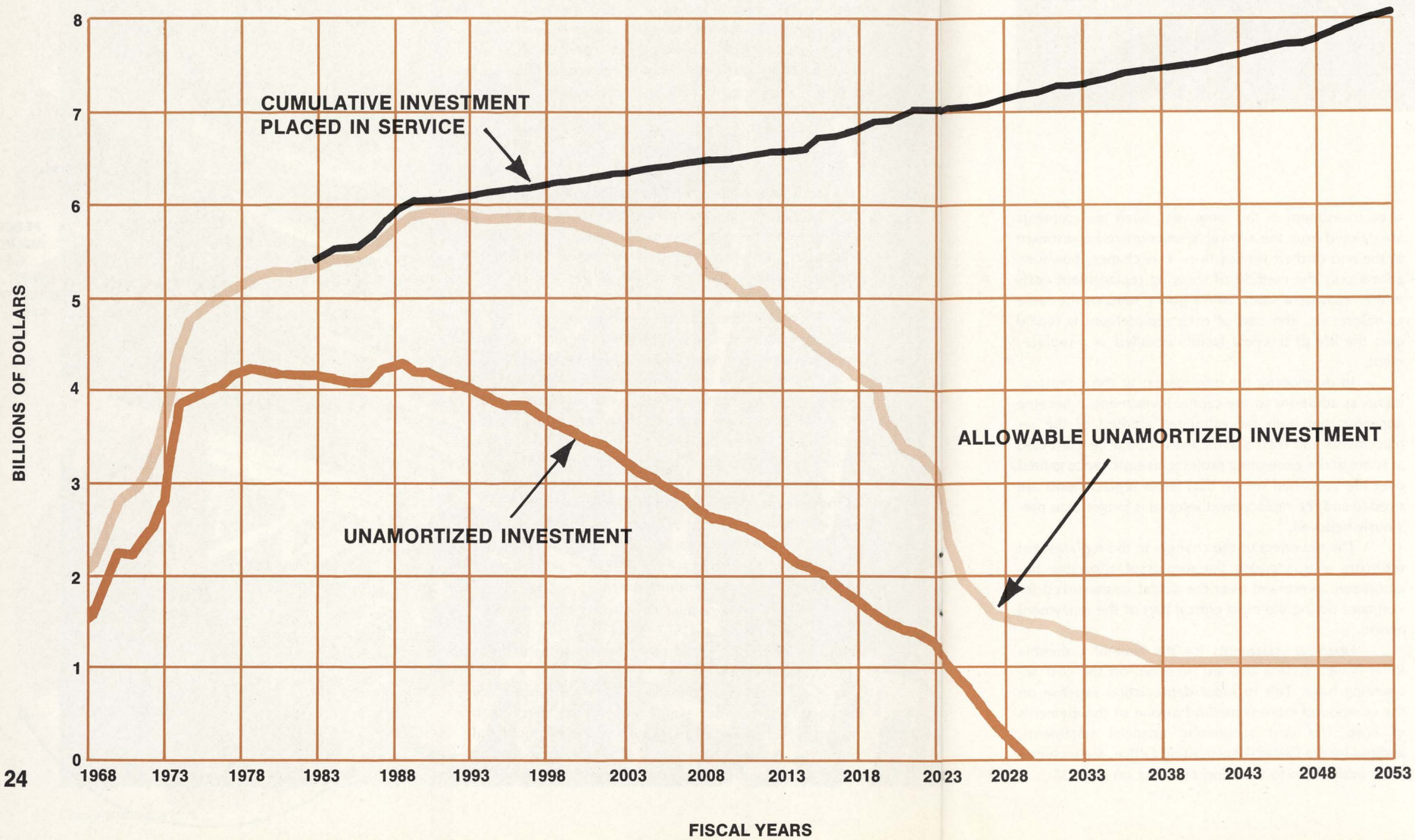
—Hanford exchange costs were higher by $1.4 million because fiscal 1967 costs included only 10 months based on the initial operating budget which was effective September 1, 1966.

—The Hanford-John Day 500,000-volt line, which supports the Intertie, went into service later than originally scheduled. This, together with operational problems, limited the amount of power the Intertie could carry and prevented BPA from realizing the



REPAYMENT OF PLANT INVESTMENT ALLOCATED TO COMMERCIAL POWER

Authorized projects of the Federal Columbia River Power System as of June 30, 1968



amount of revenues from Intertie sales previously estimated.

—The amount of nonfirm power available was cut when: the reservoir behind Grand Coulee Dam was pulled down so that workmen could start building the third powerhouse, the reservoir at John Day Dam was filled, and Hanford was shut down by a four-month strike. All of these factors tended to hold down revenues.

The balance of the increases in cost, such as interest and operation and maintenance, were due to the normal effects of adding new facilities to the power system during the year.

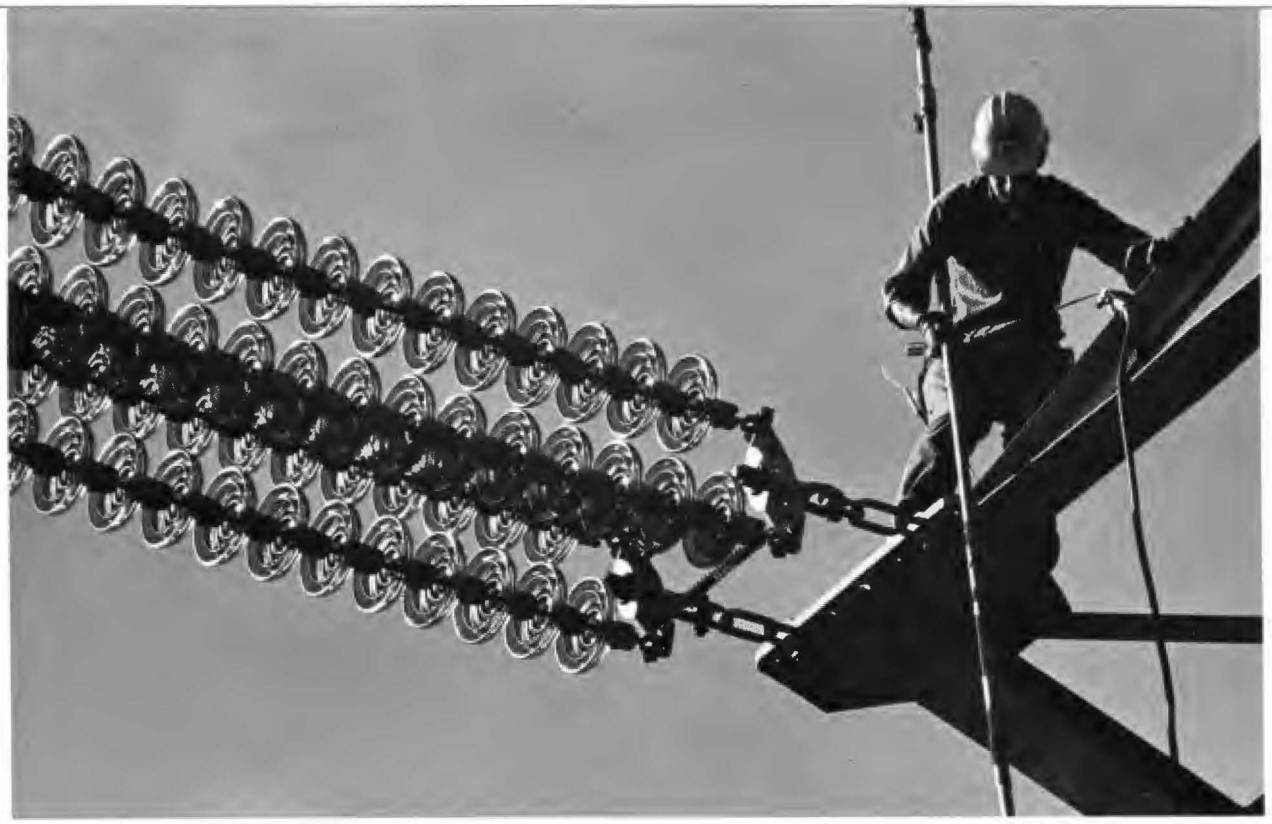
Revenue per kilowatt-hour sold averaged 2.39 mills. By class of customer, this ranged from an average of 2.03 mills for industries (including at-site deliveries) to 2.84 mills for publicly owned utilities.

Sales to publicly-owned utilities accounted for 41.7% of total power system revenues, aluminum plants accounted for 29.0%, and privately-owned utilities 10.6%. Sales to Federal agencies and industries other than aluminum accounted for 9.1% of the total, and the remaining 9.6% comes from wheeling, miscellaneous revenues, and revenues at the generating projects.

Cumulative revenues from the beginning of BPA's operations through June 30, 1968, have totaled $1,485,222,000. This total has been applied as follows: $529,637,000 to amortization of the capital investment, $505,975,000 for interest, and $449,610,000 for operation and maintenance expenses.

The consolidated financial statement required by Public Law 89-448 for the Federal Columbia River Power System is provided by the repayment study shown as Table 7 on page 33. This study tests the adequacy of BPA's wholesale power rates to meet its obligation to repay all power costs, as well as certain irrigation costs, to the U.S. Treasury. It shows that rates continue to be adequate. This is demonstrated by the unamortized investment remaining below the allowable unamortized investment in all years covered by the study. (See chart).

The repayment study is based upon the same criteria used since BPA's rate adjustment in 1965, and recognized by Congress in the enactment of P.L. 89-448. The repayment criteria are:



Hot-stick work high in the sky.

1. The system power expenses of operation, maintenance, and interest are to be paid annually as they are incurred.

2. The power investment for each generating project, or each stage of a project, is to be repaid within 50 years after completion of the project or stage.

3. Each annual increment of transmission investment is to be repaid within its estimated average service life, which currently is 45 years.

4. The irrigation assistance is to be paid within the same period available to the water users for making their payments.

However, there is one change in this year's repayment study. A new method has been employed to show the costs of the replacement of facilities. The footnotes to the repayment studies for fiscal 1965 and 1966 stated that BPA planned to discontinue using the annuity method to calculate replacement costs for the generating projects and the transmission system. Those notes indicated that as soon as information was available to do so, future replacements would be shown as additions to the capital investment in the years that such replacements are expected to occur. The necessary information became available during fiscal 1968. Accordingly, the repayment study for this year shows the estimated future replacements as being added to the capital investment in the year they are expected to occur, and also being added to the allowable unamortized investment in the same year. Such replacements are deleted from the allowable unamortized investment at the end of their service lives. This change, however, affects only the method of showing replacement costs in the repayment study. BPA's policy remains the same as before; i.e., the cost of each replacement is repaid over the life of the new facility installed as a replacement.

In developing the information to show replacements as additions to the capital investment, it became apparent that both the estimated amount of the replacements and their service lives should be corrected at some of the generating projects, as experience gained over the years had shown that fewer replacements are needed and the replacement interval is longer than previously believed.

The net effect of the changes in the replacement estimates is to increase the surplus of allowable unamortized investment over the actual unamortized investment during the most critical part of the repayment period.

Financial statements for the Federal Columbia River Power System also are prepared on the cost accounting basis. This includes depreciation expense on the compound interest method as one of the elements of cost. The cost accounting financial statements, audited by the General Accounting Office, are included as an addendum to this report starting on page 35.

TABLES

TABLE 1

ELECTRIC ENERGY SALES TO CUSTOMERS OF THE BONNEVILLE POWER ADMINISTRATION

Fiscal Year Ended June 30, 1968

Customers	Energy Delivered for Year (000) KWH	Revenue from Sales of Energy
Publicly Owned Utilities		
Municipalities		
Albion, Idaho	2,270	$ 7,298
Bandon, Oregon	32,939	115,072
Blaine, Washington	15,100	49,663
Bonners Ferry, Idaho	9,830	46,195
Burley, Idaho	52,022	163,944
Canby, Oregon	31,040	107,886
Cascade Locks, Oregon	14,801	40,387
Centralia, Washington	64,197	258,397
Cheney, Washington	49,010	157,896
Consolidated Irrigation District #19	689	3,886
Coulee Dam, Washington	20,507	69,986
Declo, Idaho	1,408	4,657
Drain, Oregon	21,902	74,431
Ellensburg, Washington	99,273	318,589
Eugene, Oregon	820,232	1,892,332
Forest Grove, Oregon	80,954	267,860
Grand Coulee, Washington	28,526	91,811
Heyburn, Idaho	37,239	116,930
Idaho Falls, Idaho	148,259	452,416
McCleary, Washington	23,281	76,946
McMinnville, Oregon	115,813	388,195
Milton-Freewater, Oregon	69,278	226,841
Minidoka, Idaho	676	2,293
Monmouth, Oregon	37,792	129,583
Port Angeles, Washington	343,451	948,622
Richland, Washington	245,404	790,099
Rupert, Idaho	34,565	108,609
Sacramento Municipal Utility District	32,846	65,692
Seattle, Washington	486,977	1,106,606
Springfield, Oregon	171,654	524,720
Tacoma, Washington	1,520,837	3,270,856
Vera Irrigation District #15	55,755	178,434
Washington Public Power Sup. System	11,265	28,166
Total Municipalities (33)	4,679,792	$12,085,298
Public Utility Districts		
Benton Co. PUD No. 1	458,888	1,326,058
Central Lincoln PUD	662,346	1,995,156
Chelan Co. PUD No. 1	186,320	493,586
Clallam Co. PUD No. 1	146,392	443,980
Clark Co. PUD No. 1	1,224,909	3,793,082
Clatskanie PUD	501,166	1,408,644
Cowlitz Co. PUD No. 1	1,543,693	3,623,041
Douglas Co. PUD No. 1	246,154	666,549
Ferry Co. PUD No. 1	28,983	86,605
Franklin Co. PUD No. 1	256,198	801,793
Grant Co. PUD No. 2	394,497	1,235,410
Grays Harbor Co. PUD No. 1	717,090	1,979,210
Kittitas Co. PUD No. 1	19,408	60,193
Klickitat Co. PUD No. 1	121,148	358,998
Lewis Co. PUD No. 1	277,578	855,341
Mason Co. PUD No. 1	20,595	63,978
Mason Co. PUD No. 3	169,954	526,912
Northern Wasco Co. PUD	46,260	152,339
Okanogan Co. PUD No. 1	231,002	685,540
Pacific Co. PUD No. 2	137,877	461,244
Pend Oreille Co. PUD No. 1	25,516	56,606
Skamania Co. PUD No. 1	56,993	193,329
Snohomish Co. PUD No. 1	2,291,781	6,894,595
Tillamook PUD	212,558	717,369
Wahkiahum Co. PUD No. 1	26,966	91,592
Whatcom Co. PUD No. 1	71,787	175,842
Total Public Utility Dist. (26)	10,076,059	$29,146,992
Cooperatives		
Benton Rural Elec. Asn.	92,732	275,129
Big Bend Elec. Coop.	179,226	479,832
Blachly-Lane. Co. Coop. Elec. Assn.	61,542	210,051
Central Elec. Coop.	54,885	159,512
Clearwater Power Company	74,199	248,361
Columbia Basin Elec. Coop.	56,932	177,158
Columbia Power Coop. Assn.	27,457	91,369
Columbia Rural Elec. Assn.	56,102	156,603
Consumers Power	173,060	583,275
Coos-Curry Elec. Coop.	169,830	564,208
Douglas Elec. Coop.	63,363	216,316
East End Mutual Elec. Co.	3,313	10,950
Fall River Elec. Coop.	25,096	94,498
Farmers Elec. Coop.	2,791	8,783
Flathead Elec. Coop.	42,572	130,996
Harney Elec. Coop.	73,794	194,325
Hood River Elec. Coop.	52,965	170,501
Idaho Co. L & P Coop. Assn.	23,060	76,775
Inland P & L Co.	195,425	619,973
Kootenai Elec. Coop.	40,110	125,103
Lane Co. Elec. Coop.	163,043	549,825
Lincoln Elec. Coop.—Montana	51,649	164,226
Lincoln Elec. Coop.—Washington	64,628	189,796
Lost River Elec. Coop.	14,707	42,766
Lower Valley P & L Inc.	62,322	209,292
Midstate Elec. Coop.	35,913	98,611
Missoula Elec. Coop.	30,706	93,044
Nespelem Valley Elec. Coop.	15,470	46,884
Northern Lights	54,825	178,249
Okanogan Co. Elec. Coop.	10,529	32,070
Orcas P & L Co.	39,107	127,068
Prairie Power Coop.	2,019	7,208
Raft River Rural Coop.	91,468	239,294
Ravalli Co. Elec. Coop.	31,126	101,126
Riverside Elec. Co.	2,531	8,627
Rural Elec. Co.	24,158	77,963
Salem Electric	16,767	388,976
Salmon River Elec. Coop.	13,099	37,518
South Side Elec. Lines	9,474	27,594
Surprise Valley Elec. Coop.	32,433	100,878
Tanner Electric	5,256	17,842
Umatilla Elec. Coop. Assn.	90,982	272,092
Unity Light & Power Co.	18,177	58,775
Vigilante Elec. Co.	19,768	61,535
Wasco Elec. Coop.	68,500	219,770
West Oregon Elec. Coop.	34,225	112,339
Total Cooperatives (46)	2,571,336	8,057,086
Federal & State Agencies (11)	2,005,077	5,470,904
Other Public Agencies		
B C Hydro & Pwr. Authority	34,235	293,470
Total Pub. Owned (106)	17,361,422	49,582,846
Privately Owned Utilities		
California-Pacific Utilities	27,997	67,636
Idaho Power Co.	170,627	431,557
Montana Power Co.	886,345	2,008,662
Pacific Power & Light Co.	2,363,663	5,123,726
Portland General Elec. Co.	2,211,684	4,717,644
Puget Sound Power & Light Co.	16,573	41,432
Southern California Edison Co.	6,966	13,932
Utah Power Co.	0	0
Washington Water Power Co.	192,795	470,277
Total Priv. Owned Utilities (9)	5,876,650	$12,874,866
Industries		
Aluminum		
Aluminum Co. of America		
Vancouver Plant	2,082,349	4,285,629
Wenatchee Plant	1,253,920	2,584,191
Anaconda Aluminum Co.	2,038,445	3,717,330
Harvey Aluminum (Inc.)	1,603,008	2,733,256
Intalco Aluminum Co.	2,256,991	4,864,981
Kaiser Aluminum & Chem. Corp.		
Spokane Reduction Plant	3,869,803	7,876,662
Spokane Rolling Mill	416,201	992,935
Tacoma Reduction Plant	723,135	1,497,621
Reynolds Metals Co.		
Longview Plant	1,259,658	2,585,816
Troutdale Plant	1,528,394	3,084,952
Other Industries		
Carborundum Co.	215,441	454,694
Cominco American, Inc.	44,297	143,784
Crown Zellerbach Corp.	85,757	204,075
Foote Mineral Co.—Kemco Div.	107,613	237,479
Georgia-Pacific Corp.	157,058	352,209
Hanna Nickel Smelting Co.	724,090	1,594,423
Ida Gem Dairymen 1/	5	28
Pacific Carbide & Alloys	50,883	112,955
Pennsalt Chemical Corp.	368,138	759,401
Rayonier, Incorporated	44,177	98,306
Stauffer Chemical Co.	470,433	1,060,832
Stewart Elsner	44	270
Union Carbide Corp. (Mem. Div.)	126,163	277,162
Total Industries (22)	19,426,003	$ 39,518,991
Total Sales of Electric Energy (148)	44,719,152	$107,447,607

1/ Discontinued Service July 7, 1967

2/ Differs from the $106,623,000 shown on table 6 because of prior year statistical adjustments.

TABLE 2

FEDERAL COLUMBIA RIVER POWER SYSTEM

General Specifications, Projects Existing, Under Construction and Authorized
Nameplate Rating of Installations as of June 30, 1968

				Existing			Under Construction		Authorized		Total		
Project	Operating Agency 1/	Location	Stream	Initial Date in Service	Number of Units	Total Capacity Kilowatts	Number of Units	Total Capacity Kilowatts	Number of Units	Total Capacity Kilowatts	Number of Units	Total Capacity Kilowatts	
Bonneville	CE	Ore.-Wash.	Columbia	June 1938	10	518,400	—	—	6	324,000	16	842,400	
Grand Coulee	BR	Washington	Columbia	Sept. 1941	18	2,008,000 2/	6	3,600,000	6	291,000	36	9,499,000	3/
Hungry Horse	BR	Montana	S. Fk. Flathead	Oct. 1952	4	285,000	—	—	—	—	4	285,000	
Detroit	CE	Oregon	North Santiam	July 1953	2	100,000	—	—	—	—	2	100,000	
McNary	CE	Ore.-Wash.	Columbia	Nov. 1953	14	980,000	—	—	6	420,000	20	1,400,000	
Big Cliff	CE	Oregon	North Santiam	June 1954	1	18,000	—	—	—	—	1	18,000	
Lookout Point	CE	Oregon	M. Fk. Willamette	Dec. 1954	3	120,000	—	—	—	—	3	120,000	
Albeni Falls	CE	Idaho	Pend Oreille	Mar. 1955	3	42,600	—	—	—	—	3	42,600	
Dexter	CE	Oregon	M. Fk. Willamette	May 1955	1	15,000	—	—	—	—	1	15,000	
Chief Joseph	CE	Washington	Columbia	Aug. 1955	16	1,024,000	—	—	11	1,045,000	40	3,642,000	4/
Chandler	BR	Washington	Yakima	Feb. 1956	2	12,000	—	—	—	—	2	12,000	
The Dalles	CE	Ore.-Wash.	Columbia	May 1957	16	1,119,000	8	688,000	—	—	24	1,807,000	
Roza	BR	Washington	Yakima	Aug. 1958	1	11,250	—	—	—	—	1	11,250	
Ice Harbor	CE	Washington	Snake	Dec. 1961	3	270,000	—	—	3	270,000	6	540,000	
Hills Creek	CE	Oregon	M. Fk. Willamette	May 1962	2	30,000	—	—	—	—	2	30,000	
Minidoka	BR	Idaho	Snake	May 1909	7	13,400	—	—	—	—	7	13,400	
Boise Diversion	BR	Idaho	Boise	May 1912	3	1,500	—	—	—	—	3	1,500	
Black Canyon	BR	Idaho	Payette	Dec. 1925	2	8,000	—	—	—	—	2	8,000	
Anderson Ranch	BR	Idaho	S. Fk. Boise	Dec. 1950	2	27,000	—	—	1	13,500	3	40,500	
Palisades	BR	Idaho	Snake	Feb. 1957	4	114,000	—	—	—	—	6	249,000	5/
Cougar	CE	Oregon	S. Fk. McKenzie	Feb. 1964	2	25,000	—	—	1	35,000	3	60,000	
Green Peter	CE	Oregon	Middle Santiam	June 1967	2	80,000	—	—	—	—	2	80,000	
Foster	CE	Oregon	South Santiam		—	—	2	20,000	—	—	2	20,000	
John Day	CE	Ore.-Wash.	Columbia		—	—	16	2,160,000	4	540,000	20	2,700,000	
Lower Monumental	CE	Washington	Snake		—	—	3	405,000	3	405,000	6	810,000	
Little Goose	CE	Washington	Snake		—	—	3	405,000	3	405,000	6	810,000	
Lower Granite	CE	Washington	Snake		—	—	3	405,000	3	405,000	6	810,000	
Teton	BR	Idaho	Teton		—	—	2	22,000	—	—	2	22,000	
Lost Creek	CE	Oregon	Rogue		—	—	2	49,000	—	—	2	49,000	
Dworshak	CE	Idaho	N. Fk. Clearwater		—	—	3	400,000	3	660,000	6	1,060,000	
Strube	CE	Oregon	S. Fk. McKenzie		—	—	—	—	1	4,500	1	4,500	
Libby	CE	Montana	Kootenai		—	—	4	420,000	4	420,000	8	840,000	
Asotin	CE	Wash.-Ida.	Snake		—	—	—	—	4	540,000	4	540,000	
Total number of projects and Installed Capacity					22	6,822,150	9	8,574,000	2	5,778,000	33	26,482,150	3/4/5/

1/ CE—Corps of Engineers: BR—Bureau of Reclamation.
2/ Includes three service units and increase of 17,000 kw each for two rewound main units.
3/ Includes a recommended 3,600,000 kw at the Third Powerhouse in addition to that under construction and 291,000 kw from six authorized pump-turbine units.
4/ Includes a recommended 1,573,000 kw at the Chief Joseph Project.
5/ Includes a recommended 135,000 kw at the Palisades Project.

TABLE 3

PACIFIC NORTHWEST GENERATION

Nameplate Rating of Plants Existing, Under Construction and Authorized or Licensed

Kilowatts

June 30, 1968

Ownership	Existing		Under Construction		Authorized or Licensed		Total	
	No. of Plants	Nameplate Rating	No. of Plants	Nameplate Rating	No. of Plants	Nameplate Rating	No. of Plants	Nameplate Rating
Federal Columbia River Power System								
Hydro	22	6,822,150	9	8,574,000 1/	2	5,778,000 1/	33	21,174,150 1/
Publicly Owned Agencies								
Hydro	40	4,978,411	1	532,290 1/	3	734,100 1/	44	6,244,801 1/
Thermal	18	985,705	0	0	0	0	18	985,705
Total Publicly Owned Agencies	58	5,964,116	1	532,290 1/	3	734,100 1/	62	7,230,506 1/
Privately Owned Agencies								
Hydro	94	3,870,992	1	64,000	1	100,000	96	4,034,992
Thermal	14	269,928	1	1,400,000	0	0	15	1,669,928
Total Privately Owned Agencies	108	4,140,920	2	1,464,000	1	100,000	111	5,704,920
Pacific Northwest Agencies								
Hydro	156	15,671,553	11	9,170,290 1/	6	6,612,100 1/	173	31,453,943 1/
Thermal	32	1,255,633	1	1,400,000	0	0	33	2,655,633
Total Pacific Northwest Agencies	188	16,927,186	12	10,570,290 1/	6	6,612,100 1/	206	34,109,576 1/

1/ Includes additions to projects existing or under construction.

TABLE 4

ELECTRIC ENERGY ACCOUNT FOR FISCAL YEAR 1968

Energy Received (millions of kilowatt-hours)	
Energy Generated for BPA	
Bureau of Reclamation	15,509
Corps of Engineers	28,902
Washington Public Power Supply System	2,668
Power interchanged in	27,218
Total received	74,297
Energy delivered (millions of kilowatt-hours)	
Sales	44,719
Power interchanged out	26,165
Used by the Administration	45
Total delivered	70,929
Energy losses in transmission and transformation	3,368
Total	74,297
Losses in percent of total received	4.5%
Maximum demand on Federal plants (kilowatts)	
January 8, 1968, 6-7 p.m. PST	7,106,000
Load factor in percent of total generated for BPA	75.4%

TABLE 5

GENERATION BY THE PRINCIPAL ELECTRIC UTILITIES SYSTEMS OF THE PACIFIC NORTHWEST 1/

Fiscal Year 1968

Utilities	Kilowatt-hours (Billion)	Of Total Generation (Percent)
Publicly Owned:		
Federal Columbia River Power System 2/	47.1	50.1
Grant County PUD	9.4	10.0
Chelan County PUD	6.0	6.4
Seattle City Light	5.4	5.7
Douglas County PUD	2.6	2.8
Tacoma City Light	1.5	1.6
Pend Oreille County PUD	0.5	5.0
Eugene Water & Electric Board	0.4	0.4
Total Publicly Owned	72.9	77.5
Privately Owned:		
Idaho Power Company	6.4	6.8
Pacific Power & Light Co.	4.2	4.5
Montana Power Company	3.9	4.1
Washington Water Power Co.	3.5	3.7
Portland General Electric Co.	2.1	2.2
Puget Sound Power & Light Co.	1.1	1.2
Total Privately Owned	21.2	22.5
Total Generation	94.1	100.0

1/ Generation shown is for members of the Northwest Power Pool plus Pend Oreille County PUD and Washington Public Power Supply System. Utah Power & Light Co., British Columbia Hydro and Power Authority and West Kootenay Power & Light, who are members of the Power Pool, are not included because their service area lies outside the Pacific Northwest.

2/ Includes generation from the Washington Public Power Supply System's Hanford steam plant (NPR).

TABLE 6

FEDERAL COLUMBIA RIVER POWER SYSTEM

Operating Results on the Repayment Basis
Fiscal Years 1968 and 1967

(In thousands of dollars)

	F.Y. 1968	F.Y. 1967	Increase (Decrease) Amount	Increase (Decrease) Percent
REVENUES				
Bonneville Power Administration				
Sales of electric energy:				
Publicly owned utilities	49,135	51,126	(1,991)	(3.9)
Privately owned utilities	12,516	12,753	(237)	(1.9)
Federal agencies	5,474	5,310	164	3.1
Aluminum industry	34,202	30,371	3,831	12.6
Other industry	5,296	4,905	391	8.0
Total	106,623	104,465	2,158	2.1
Other operating revenues:				
Wheeling revenues	6,363	4,504	1,859	41.3
Other revenues	1,689	1,195	494	41.3
Total	8,052	5,699	2,353	41.3
Total Bonneville Power Administration revenues	114,675	110,164	4,511	4.1
Associated Projects				
Other operating revenues	3,213	2,664	549	20.6
Total power system operating revenues	117,888	112,828	5,060	4.5
EXPENSES				
Purchase and exchange power	12,755	9,644	3,111	32.3
Operating expenses	20,504	18,122	2,392	13.2
Maintenance and other expenses	11,075	10,869	206	1.9
Total power system expenses	44,334	38,625	5,709	14.8
INTEREST				
Interest on Federal investment	42,240	38,004	4,236	11.1
Less interest charged to construction	4,648	2,451	2,197	89.6
Total power system interest	37,592	35,553	2,039	5.7
Total power system expenses and interest	81,926	74,178	7,748	10.4
BALANCE AVAILABLE FOR REPAYMENT OF POWER SYSTEM INVESTMENT AND REPLACEMENTS	35,962	38,650	(2,688)	(7.0)

TABLE 7

FEDERAL COLUMBIA RIVER POWER SYSTEM
REPAYMENT STUDY FOR F.Y. 1968

Authorized Projects

(All Amounts in $1,000)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				Investment Placed in Service			Cumulative Investment Placed in Service	Plant Allocated to Commercial Power				Allowable Unamortized Investment			Irrigation Assistance				
Fiscal Year	Revenues	Operation and Maintenance Expense	Interest Expense	Initial Project	Replacements	Total	Initial Project	Replacements	Total	Amortization	Unamortized Investment	Initial Project	Replacements	Total	Cumulative Amount in Service	Amortization	Unamortized Amount	Allowable Unamortized Amount	Cumulative Surplus Revenues
Cumulative to 6-30-68	1,485,222	449,610	505,975	2,023,150		2,023,150	2,023,150		2,023,150	529,637	1,493,513	2,023,150		2,023,150	370,544		370,544	370,544	
1969	130,200	45,384	47,200	408,432	2,557	410,989	2,431,582	2,557	2,434,139	37,616	1,866,886	2,431,582	2,557	2,434,139	370,544		370,544	370,544	
1970	153,900	48,675	58,200	481,617	3,341	484,958	3,913,199	5,898	2,919,097	47,025	2,304,819	2,913,199	5,898	3,919,097	370,544		370,544	370,544	
71	168,000	51,931	64,800	46,000	3,190	49,190	2,959,199	9,088	2,968,287	51,269	2,302,740	2,959,199	9,008	2,968,287	370,544		370,544	370,544	
72	178,500	65,610	64,700	222,158	3,653	225,811	3,181,357	12,741	3,194,098	48,190	2,480,361	3,181,357	12,741	3,194,098	370,544		370,544	370,544	
73	189,400	72,450	67,714	625,384	3,962	629,346	3,806,741	16,703	3,823,444	49,236	3,060,471	3,806,741	16,703	3,823,444	376,019		376,019	376,019	
74	206,000	73,134	83,550	749,243	4,443	753,686	4,555,984	21,146	4,577,130	49,316	3,764,841	4,555,984	21,146	4,577,130	414,212		414,212	414,212	
1975	213,900	72,488	102,780	174,457	9,696	184,153	4,730,441	30,842	4,761,283	38,632	3,910,362	4,730,441	30,846	4,761,287	427,050		427,050	427,050	
76	223,300	76,471	106,753	156,425	5,538	161,963	4,886,866	36,380	4,923,246	40,076	4,032,249	4,886,866	36,381	4,923,247	442,297		442,297	442,297	
77	230,300	77,264	110,080	159,190	8,154	167,344	5,046,056	44,534	5,090,590	42,956	4,156,637	5,046,056	44,536	5,090,592	462,678		462,678	462,678	
78	242,000	78,456	121,374	118,495	6,212	124,707	5,164,551	50,746	5,215,297	42,170	4,239,174	5,164,551	50,749	5,215,300	481,999		481,997	481,997	
79	249,000	80,337	123,784	73,410	8,231	81,641	5,237,961	58,977	5,296,938	44,879	4,275,936	5,237,961	58,973	5,296,934	499,600		499,600	499,600	
1980	254,700	81,335	124,857		12,410	12,410	5,237,961	71,387	5,309,348	48,508	4,239,838	5,237,961	71,025	5,308,986	518,609		518,609	518,609	
81	259,700	81,730	123,803	7,000	8,352	15,352	5,244,961	79,739	5,324,700	54,167	4,201,023	5,244,961	79,335	5,324,296	534,094		534,094	534,094	
82	263,000	81,721	122,670	13,000	9,729	22,729	5,257,961	89,468	5,347,429	58,609	4,165,143	5,257,961	89,052	5,347,013	548,171		548,171	548,171	
83	267,200	81,944	122,872	50,819	10,912	61,731	5,308,780	100,380	5,409,160	62,384	4,164,490	5,308,780	99,958	5,408,738	562,388		562,388	562,388	
84	269,000	82,556	122,852	41,000	12,057	53,057	5,349,780	112,437	5,462,217	63,592	4,153,955	5,348,233	112,009	5,460,242	577,520		577,520	577,520	
1985	271,400	82,911	122,542	27,960	14,900	42,860	5,377,740	127,337	5,505,077	65,947	4,130,868	5,372,509	126,428	5,498,937	591,244		591,244	591,244	
86	279,200	83,631	121,861	101,050	14,589	115,639	5,478,790	141,926	5,620,716	73,708	4,172,799	5,461,222	141,067	5,602,289	605,321		605,321	605,321	
87	289,000	85,347	123,098	148,030	14,413	162,443	5,626,820	156,339	5,783,159	80,555	4,254,687	5,599,047	155,679	5,754,726	619,398		619,398	619,398	
88	292,700	86,662	125,513	100,889	17,126	118,015	5,727,709	173,465	5,901,174	80,525	4,292,177	5,694,931	173,125	5,868,056	632,067		632,067	632,067	
89	298,600	87,545	129,195	76,560	15,487	92,047	5,804,269	188,952	5,993,221	81,860	4,302,364	5,737,885	188,372	5,926,257	646,848		646,848	646,848	
1990	300,500	88,054	120,501		24,910	24,910	5,804,269	213,862	6,018,131	82,945	4,244,329	5,727,343	225,792	5,953,135	659,517		659,517	659,517	
91	300,500	88,054	127,754		19,961	19,961	5,804,269	233,823	6,038,092	84,692	4,179,598	5,720,589	245,669	5,966,258	671,482		671,482	671,482	
92	301,000	88,054	125,806		30,615	30,615	5,804,269	264,438	6,068,707	87,140	4,123,073	5,713,210	275,624	5,988,834	684,151		684,151	684,151	
93	301,500	88,054	124,104		19,405	19,405	5,804,269	283,843	6,088,122	89,342	4,053,136	5,700,544	286,337	5,986,881	697,525		697,525	697,525	
94	302,000	88,054	121,999		29,088	29,088	5,804,269	312,931	6,117,200	91,947	3,990,277	5,627,913	323,685	5,951,598	713,713		713,713	713,713	
1995	302,500	88,054	120,107		34,483	34,483	5,804,269	347,414	6,151,683	94,339	3,930,421	5,593,000	344,243	5,937,243	732,018		732,018	732,018	
96	303,100	88,054	118,306		21,045	21,045	5,804,269	368,459	6,172,728	96,740	3,854,726	5,568,454	368,217	5,936,671	752,663		752,663	752,663	
97	291,300	70,417	116,027		30,025	30,025	5,804,269	398,484	6,202,753	93,783	3,790,968	5,537,298	398,074	5,935,372	752,663	11,073	741,590	741,590	
98	290,200	66,890	114,108		25,663	25,663	5,804,269	424,147	6,228,416	109,202	3,707,429	5,482,244	420,889	5,903,133	752,663		741,590	741,590	
99	290,200	66,890	111,594		28,730	28,730	5,804,269	452,877	6,257,146	111,716	3,624,443	5,437,223	449,150	5,886,373	752,663		741,590	741,590	
2000	290,300	66,890	109,096		33,920	33,920	5,804,269	486,797	6,291,066	114,314	3,544,049	5,402,196	482,115	5,884,311	752,663		741,590	741,590	
01	290,400	66,890	106,676		24,525	24,525	5,804,269	511,322	6,315,591	99,373	3,469,201	5,361,674	503,903	5,865,577	752,663	17,461	724,129	724,129	
02	290,600	66,890	104,423		26,843	26,843	5,804,269	538,165	6,342,434	119,287	3,376,757	5,162,676	526,770	5,689,446	752,663		724,129	724,129	
03	290,500	66,890	101,640		25,783	25,783	5,804,269	563,948	6,368,217	121,970	3,280,570	5,130,383	548,969	5,679,352	752,663		724,129	724,129	
04	290,900	66,890	98,745		24,204	24,204	5,804,269	588,152	6,392,421	124,484	3,180,290	4,989,470	569,064	5,558,534	752,663	781	723,348	723,348	
2005	290,900	66,890	95,727		32,854	32,854	5,804,269	621,006	6,425,275	128,283	3,084,861	4,938,394	597,173	5,535,567	752,663		723,348	723,348	
06	290,900	66,890	92,854		25,619	25,619	5,804,269	646,625	6,450,894	131,156	2,979,324	4,881,849	620,770	5,502,619	752,663		723,348	723,348	
07	290,900	66,890	89,678		32,600	32,600	5,804,269	679,225	6,483,494	134,332	2,877,592	4,588,923	647,798	5,236,721	752,663		723,348	723,348	
08	290,900	66,890	86,616		44,587	44,587	5,804,269	723,812	6,528,081	134,437	2,787,742	4,561,252	669,160	5,230,412	752,663	2,957	720,391	720,391	
09	290,900	66,890	83,911		39,773	39,773	5,804,269	763,585	6,567,854	133,149	2,694,366	4,388,551	702,946	5,091,497	752,663	6,950	713,441	713,441	
2010	290,900	66,890	81,100		60,902	60,902	5,804,269	824,487	6,628,756	142,910	2,612,358	4,355,346	754,088	5,109,434	752,663		713,441	713,441	
11	290,900	66,890	78,632		33,523	33,523	5,804,269	858,010	6,662,279	145,378	2,500,503	4,095,961	783,248	4,879,209	752,663		713,441	713,441	
12	290,900	66,890	75,265		29,609	29,609	5,804,269	887,619	6,691,888	148,220	2,381,892	3,946,216	802,794	4,749,010	752,663	525	712,916	712,916	
13	290,900	66,890	71,695		38,068	38,068	5,804,269	925,687	6,729,956	121,261	2,298,699	3,829,829	844,320	4,674,149	752,663	31,054	681,862	681,862	
14	290,900	66,890	69,191		36,175	36,175	5,804,269	961,862	6,766,131	121,665	2,213,209	3,684,788	870,378	4,555,166	752,663	33,154	648,708	648,708	
2015	290,900	66,890	66,618		38,600	38,600	5,804,269	1,000,462	6,804,731	129,525	2,122,284	3,539,788	896,278	4,436,066	752,663	27,867	620,841	620,841	
16	290,900	66,890	63,881		31,173	31,173	5,804,269	1,031,634	6,835,904	124,748	2,028,709	3,493,788	913,668	4,407,456	752,663	35,381	585,460	585,460	
17	290,900	66,890	61,064		25,011	25,011	5,804,269	1,056,646	6,860,915	132,852	1,920,868	3,307,119	929,122	4,236,241	752,663	30,094	555,366	555,366	
18	290,900	66,890	57,818		28,406	28,406	5,804,269	1,085,052	6,889,321	148,661	1,800,613	3,141,119	947,252	4,088,371	752,663	17,531	537,835	537,835	
19	290,900	66,890	54,198		29,029	29,029	5,804,269	1,114,081	6,918,350	129,283	1,700,359	2,800,687	963,128	3,763,815	752,663	40,529	497,306	497,306	
2020	290,900	66,890	51,181		35,596	35,596	5,804,269	1,149,677	6,953,946	154,144	1,581,811	2,426,070	984,162	3,410,232	752,663	18,685	478,621	478,621	
21	290,900	66,890	47,613		31,064	31,064	5,804,269	1,180,741	6,985,010	169,380	1,443,495	2,370,070	995,094	3,365,164	752,663	7,017	471,604	471,604	
22	290,900	66,890	43,449		29,909	29,909	5,804,269	1,210,650	7,014,919	170,964	1,302,540	2,263,912	1,005,078	3,268,990	752,663	9,697	461,907	461,907	
23	290,900	66,890	39,206		36,698	36,698	5,804,269	1,247,348	7,051,617	178,287	1,160,951	1,698,528	1,021,755	2,720,283	752,663	6,517	455,390	455,390	
24	290,900	66,890	34,945		29,070	29,070	5,804,269	1,276,418	7,080,687	177,750	1,012,271	937,285	1,032,686	1,969,971	752,663	11,315	444,075	444,075	
2025	290,900	66,890	30,469		34,358	34,358	5,804,269	1,310,776	7,115,045	179,411	867,218	800,828	1,048,173	1,849,001	752,663	14,130	429,945	429,945	
26	290,900	66,890	26,103		27,961	27,961	5,804,269	1,338,737	7,143,006	186,117	709,002	693,403	1,054,792	1,748,195	752,663	11,730	418,215	418,215	
27	290,900	66,890	21,341		37,749	37,749	5,804,269	1,376,486	7,180,755	201,163	545,588	573,213	1,058,476	1,631,689	752,663	1,506	416,709	416,709	
28	290,900	66,890	16,422		29,557	29,557	5,804,269	1,406,043	7,210,312	190,544	384,601	541,718	1,063,352	1,605,070	752,663	17,044	399,665	399,665	
29	290,900	66,890	11,576		31,973	31,973	5,804,269	1,438,016	7,242,285	208,309	208,265	518,308	1,065,751	1,584,059	752,663	4,125	395,540	395,540	
2030	290,900	66,890	6,269		41,544	41,544	5,804,269	1,479,560	7,283,829	249,809		518,308	1,065,751	1,586,138	752,663	6,684	388,856	388,856	38,752*
31	290,900	66,890			26,477	26,477	5,804,269	1,506,037	7,310,306	26,477		469,308	1,069,899	1,539,207	752,663	1,498	387,358	387,358	157,283
32	290,900	66,890			29,323	29,323	5,804,269	1,535,360	7,339,629	29,323		379,308	1,071,123	1,450,431	752,663	8,349	379,009	379,009	343,621
33	290,900	66,890			26,317	26,317	5,804,269	1,561,677	7,365,946	26,317		316,489	1,073,329	1,389,818	752,663	15,154	363,855	363,855	526,160
34	290,900	66,890			24,325	24,325	5,804,269	1,586,002	7,390,271	24,325		267,489	1,073,803	1,341,292	752,663	12,908	350,947	350,947	712,937
2035	290,900	66,890			27,709	27,709	5,804,269	1,613,711	7,417,980	27,709		239,529	1,075,311	1,314,840	752,663	25,334	325,613	325,613	883,904
36	290,900	66,890			26,236	26,236	5,804,269	1,639,947	7,444,216	26,236		187,479	1,075,198	1,262,677	752,663	15,247	310,366	310,366	1,066,431
37	290,900	66,890			31,029	31,029	5,804,269	1,670,976	7,474,245	31,029		116,449	1,074,728	1,191,177	752,663	17,510	292,856	292,856	1,241,902
38	290,900	66,890			25,325	24,325	5,804,269	1,696,301	7,500,570	25,325		46,560	1,074,125	1,120,685	752,663	19,059	273,797	273,797	1,421,528
39	290,900	66,890			28,103	28,103	5,804,269	1,724,404	7,528,673	28,103			1,073,435	1,073,435	752,663	17,210	256,587	256,587	1,600,225
2040	290,900	66,890			40,729	40,729	5,804,269	1,756,133	7,569,402	40,729			1,072,687	1,072,687	752,663	19,009	237,578	237,578	1,764,497
41	290,900	66,890			23,085	23,085	5,804,269	1,788,218	7,592,487	23,085			1,071,918	1,071,918	752,663	19,009	218,569	218,569	1,946,413
42	290,900	66,890			30,120	30,120	5,804,269	1,818,338	7,622,607	30,120			1,071,164	1,071,164	752,663	14,077	204,492	204,492	2,126,226
43	290,900	66,890			42,126	42,126	5,804,269	1,860,464	7,664,733	42,126			1,070,449	1,070,449	752,663	14,217	190,275	190,275	2,293,893
44	290,900	66,890			36,832	36,832	5,804,269	1,897,296	7,701,565	36,832			1,069,797	1,069,797	752,663	15,132	175,143	175,143	2,465,939
2045	290,900	66,890			51,919	51,919	5,804,269	1,949,215	7,753,484	51,919			1,069,210	1,069,210	752,663	13,724	161,419	161,419	2,262,306
46	290,900	66,890			36,285	36,285	5,804,269	1,985,500	7,789,769	36,285			1,068,694	1,068,694	752,663	14,077	147,342	147,342	2,797,954
47	290,900	66,890			25,748	25,748	5,804,269	2,011,248	7,815,517	25,748			1,068,305	1,068,305	752,663	14,077	133,265	133,265	2,982,139
48	290,900	66,890			24,602	24,602	5,804,269	2,035,850	7,840,119	24,602			1,067,953	1,067,953	752,663	12,669	120,596	120,596	3,168,878
49	290,900	66,890			29,619	29,619	5,804,269	2,065,469	7,869,738	29,619			1,067,677	1,067,677	752,663	14,781	105,815	105,815	3,348,488
2050	290,900	66,890			30,063	30,063	5,804,269	2,095,532	7,899,801	30,063			1,067,460	1,067,460	752,663	12,669	93,146	93,146	3,529,766
51	290,900	66,890			25,007	25,007	5,804,269	2,120,539	7,924,808	25,007			1,067,292	1,067,292	752,663	11,965	81,181	81,181	3,716,804
52	290,900	66,890			30,843	30,843	5,804,269	2,151,382	7,955,651	30,843			1,067,167	1,067,167	752,663	12,669	68,512	68,512	3,897,302
53	290,900	66,890			40,028	40,028	5,804,269	2,191,410	7,995,679	40,028			1,067,065	1,067,065	752,633	13,374	55,138	55,138	4,067,910
54	290,900	66,890			32,517	32,517	5,804,269	2,223,927	8,028,196	32,517			1,066,976	1,066,976	752,663	16,188	38,950	38,950	4,243,215
2055	290,900	66,890			40,505	40,505	5,804,269	2,264,432	8,068,701	40,505			1,066,889	1,066,889	752,663	18,305	20,645	20,645	4,408,415
56	290,900	66,890			30,355	30,355	5,804,269	2,294,787	8,099,056	30,355			1,066,795	1,066,795	752,663	20,645			4,581,425
TOTALS	25,976,522	6,660,497	5,882,881	5,804,269	2,294,787	8,099,056				8,099,056						752,663			

*Denotes deduction

TABLE 8

UNITED STATES DEPARTMENT OF THE INTERIOR
BONNEVILLE POWER ADMINISTRATION
REVENUE AND REVENUE TRENDS

Sales of energy, firm and nonfirm
by class of customer and miscellaneous power revenues

(In thousands of dollars)

Class of Customer	F.Y. 1959	F.Y. 1960	F.Y. 1961	F.Y. 1962	F.Y. 1963	F.Y. 1964	F.Y. 1965	F.Y. 1966	F.Y. 1967	F.Y. 1968
Aluminum Industry										
Firm	$14,228	$15,293	$14,978	$14,341	$14,382	$15,733	$16,068	$17,299	$21,652	$27,530
Nonfirm	2,384	2,168	1,982	3,042	3,715	5,297	6,930	8,994	8,719	6,672
Total aluminum industry	16,612	17,461	16,960	17,383	18,097	21,030	22,998	26,293	30,371	34,202
Trend percentages 1/	100%	105%	102%	105%	109%	127%	138%	158%	183%	206%
Other Industry										
Firm	3,138	3,163	3,205	3,194	2,927	3,431	3,608	3,801	3,776	4,334
Nonfirm	680	868	613	855	625	1,064	1,342	1,569	1,129	962
Total other industry	3,818	4,031	3,818	4,049	3,552	4,495	4,950	5,370	4,905	5,296
Trend percentages 1/	100%	106%	100%	106%	93%	118%	130%	141%	128%	139%
Publicly Owned Utilities										
Firm	24,861	28,304	29,520	32,598	35,466	36,965	41,231	46,643	50,215	41,931
Nonfirm	768	357	583	1,340	682	746	507	1,873	911	7,204
Total publicly owned utilities	25,629	28,661	30,103	33,938	36,148	37,711	41,738	48,516	51,126	49,135
Trend percentages 1/	100%	112%	117%	132%	141%	147%	163%	189%	199%	192%
Privately Owned Utilities										
Firm	11,846	9,907	8,338	5,678	6,900	4,974	4,874	7,743	11,062	8,418
Nonfirm	2,552	2,659	1,301	1,536	332	781	663	1,519	1,691	4,098
Total privately owned utilities	14,398	12,566	9,639	7,214	7,232	5,755	5,537	9,262	12,753	12,516
Trend percentages 1/	100%	87%	67%	50%	50%	40%	38%	64%	89%	87%
Federal Agencies										
Firm	6,015	5,986	6,194	6,217	6,646	7,088	5,874	3,346	5,199	5,132
Nonfirm	388	239	281	253	303	183	872	2,225	111	342
Total Federal agencies	6,403	6,225	6,475	6,470	6,949	7,271	6,746	5,571	5,310	5,474
Trend percentages 1/	100%	97%	101%	101%	109%	114%	105%	87%	83%	85%
Sales of Electric Energy										
Firm	60,088	62,653	62,235	62,028	66,321	68,191	71,655	78,832	91,904	87,345
Nonfirm	6,772	6,291	4,760	7,026	5,657	8,071	10,314	16,180	12,561	19,278
Total sales of electric energy	66,860	68,944	66,995	69,054	71,978	76,262	81,969	95,012	104,465	106,623
Trend percentages 1/	100%	103%	100%	103%	108%	114%	123%	142%	156%	159%
Miscellaneous Revenues										
Wheeling revenues	1,445	1,798	2,317	4,019	3,878	4,359	4,397	4,314	4,504	6,363
Downstream benefits	38	—	—	1,100	1,460	1,881	112	271	103	160
All other	131	256	390	310	388	349	807	864	1,092	1,529
Total miscellaneous revenues	1,614	2,054	2,707	5,429	5,726	6,589	5,316	5,449	5,699	8,052
Trend percentages 1/	100%	127%	168%	336%	355%	408%	329%	338%	353%	499%
Total Revenues	68,474	70,998	69,702	74,483	77,704	82,851	87,285	100,461	110,164	114,675
Trend percentages 1/	100%	104%	102%	109%	113%	121%	128%	147%	161%	167%

1/ F.Y. 1959 base year.

FINANCIAL STATEMENTS

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

December 16, 1968

Dear Mr. Secretary:

The General Accounting Office has examined the accompanying financial statements prepared by the Bonneville Power Administration (BPA), Department of the Interior, for the Columbia River Federal Power System for fiscal year 1968.

The designation "Columbia River Federal Power System" (System) is used to describe the integrated Federal power system in the Pacific Northwest, consisting of (1) power generating facilities of the Corps of Engineers (Civil Functions), Department of the Army, and of the Bureau of Reclamation, Department of the Interior, and (2) the transmission facilities of BPA. BPA markets the power generated by the integrated System. Our examination was made 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).

The statements present the financial results of operations and the source and application of funds in the generating, transmitting, and marketing of electric power for fiscal year 1968 and the financial position of the System at June 30, 1968.

Our examination of the financial statements was made in accordance with generally accepted auditing standards and included such tests of the accounting records of the Corps of Engineers, the Bureau of Reclamation, and BPA and such other auditing procedures as we considered necessary in the circumstances. Our previous examination of financial statements of the System was made for fiscal year 1967.

The fiscal year 1968 statements include, for the first time, a reference to the Columbia River Treaty with Canada (referred to in note 9 of the financial statements as the Canadian Treaty), which will have a significant effect on future operations.

Under the terms of the Columbia River Treaty, which was ratified in 1964, Canada agreed to construct, operate, and maintain three storage dams in the upper Columbia River Basin in Canada. Controlled release of the water from these storage dams for use at generating plants in the United States will add a significant amount of dependable capacity. As shown in note 9 to the financial statements, it is estimated that the maximum extra dependable capacity will amount to nearly 2.8 million kilowatts during the period 1974-75 and will decline to about 740,000 kilowatts by the year 2003. The Columbia River Treaty specifies that the additional power will be divided equally between the United States and Canada. Two of the three storage dams are presently in operation.

Owners of the generating projects in the United States will retain the United States' entitlement. Canada, however, sold its share of the additional power, for a period of 30 years following the scheduled completion of each storage dam, to the Columbia Storage Power Exchange (CSPE) for $253,930,000, paid in advance. CSPE, a nonprofit corporation, financed this purchase through the sale of bonds and resold the power to 41 public and private utilities in the Pacific Northwest.

The 41 participating utilities have assigned their rights to the power purchased from CSPE to BPA, which will return an agreed amount of power to the utilities, according to the exchange agreements. The specified amounts to be returned by BPA are based on Canada's share of the estimated additional power resulting from the three Canadian storage dams.

The accounts and financial statements are subject to retroactive adjustment, because firm allocations of the cost of joint-use facilities to power and other purposes were not made for eight of the 17 generating projects as of June 30, 1968. (See note 3 to the financial statements.) The costs of joint-use facilities of the eight projects amounted to about $460 million at June 30, 1968, of which about $216 million was tentatively allocated to power. In prior years, such changes in allocations have sometimes resulted in significant adjustments to (1) the cost of joint-use facilities allocated to power and (2) the reported results of power operations.

After the close of fiscal year 1968, firm allocations were adopted for four of the eight projects mentioned above. The required adjustments will be made on a retroactive basis in fiscal year 1969 and will result in a transfer of about $6 million of the cost of joint-use facilities from non-power to power purposes and in a decrease in the allocation of operation and maintenance costs to power purposes at three of the four

projects. Net power revenues accumulated through fiscal year 1968 will increase by about $200,000 as the result of these adjustments.

We were advised by the Corps that it considered the cost allocation for another project--Chief Joseph Dam--to be firm. The Department of the Interior advised us that it had the cost allocation under consideration for approval and that it expected to have the allocation firmed up during fiscal year 1969. Studies are being made by the Corps and by the Department to firm up the remaining tentative allocations.

In addition to the need for firm cost allocations, there are other matters discussed in the notes to the financial statements that remain to be resolved for improved disclosure of the financial position and results of operations of the integrated power system. These other matters include inconsistencies (1) in computing interest expense on the Federal investment and in capitalizing interest costs during construction, (2) in capitalizing preliminary survey and investigation costs, and (3) in reporting accrued annual leave as a liability. Also, the costs of audit services provided by the General Accounting Office are not billed to BPA and are not included in the financial statements.

The rental cost of space provided by the General Services Administration to BPA was not included in the financial statements for the fiscal years 1963 through 1967 but was included for fiscal year 1968. (See note 7 to the financial statements.) No retroactive adjustment, however, was made in the fiscal year 1968 statements for fiscal years 1963 through 1967.

Subject to the financial effects, not now fully determinable, of future adjustments for adoption of firm cost allocations and of the resolution of other matters described above, the accompanying financial statements, in our opinion, present fairly the assets and liabilities of the Columbia River Federal Power System at June 30, 1968, the financial results of its power operations, and the source and application of its funds for the year then ended, in conformity with accounting principles and standards prescribed for executive agencies of the Federal Government by the Comptroller General of the United States, applied on a basis consistent with that of the preceding period, except for the cost of rental services explained above.

Copies of this report are being sent today to the Director, Bureau of the Budget; the Administrator, Bonneville Power Administration; the Commissioner of Reclamation; the Secretary of the Army; and the Chief of Engineers.

Sincerely yours,

Comptroller General
of the United States

Enclosures

The Honorable
The Secretary of the Interior

EXHIBIT 1

UNITED STATES OF AMERICA

COLUMBIA RIVER FEDERAL POWER SYSTEM

STATEMENT OF COMMERCIAL POWER REVENUES AND EXPENSES
FOR THE FISCAL YEARS ENDED JUNE 30, 1968 AND JUNE 30, 1967

(NOTES 1 AND 2)

(In thousands)

	Fiscal Year 1968	Fiscal Year 1967
OPERATING REVENUES:		
Sales of electric energy by Bonneville Power Administration:		
Publicly owned utilities	$ 49,135	$ 51,126
Privately owned utilities	12,516	12,753
Federal agencies	5,474	5,310
Aluminum industry	34,202	30,371
Other industry	5,296	4,905
Total	106,623	104,465
Other operating revenues:		
Wheeling revenues	6,363	4,504
Other revenues	4,902	3,859
Total	11,265	8,363
Total operating revenues	117,888	112,828
OPERATING EXPENSES:		
Purchase and exchange power	12,755	9,644
Operation	20,504	18,112
Maintenance	10,796	10,093
Depreciation	17,116	15,836
Total operating expenses	61,171	53,685
Net operating revenues	56,717	59,143
INTEREST AND OTHER DEDUCTIONS (Note 5)		
Interest on Federal investment	42,240	38,005
Interest charged to construction	4,648*	2,451*
Miscellaneous income deductions, net	279	775
Net interest and other deductions	37,871	36,329
NET REVENUES	$ 18,846	$ 22,814
ACCUMULATED NET REVENUES:		
Balance at beginning of year	$278,336	$222,869
Net revenues—current year	18,846	22,814
Prior years adjustments (Note 11)	625*	32,653
Balance at end of year	$296,557	$278,336

*Denotes deduction

"Notes to the financial statements"
are an integral part of this statement.

UNITED STATES OF AMERICA

COLUMBIA RIVER FEDERAL POWER SYSTEM

STATEMENT OF ASSETS AND LIABILITIES OF THE COMMERCIAL POWER PROGRAM AS OF JUNE 30, 1968, AND JUNE 30, 1967 (NOTES 1 AND 2)

(In thousands)

ASSETS

	June 30	
	1968	1967
FIXED ASSETS:		
Completed plant (Schedule A)	$1,988,280	$1,870,630
Retirement work in progress	9,380	2,916
	1,997,660	1,873,546
Less accumulated depreciation	199,562	185,011
	1,798.098	1,688,535
Construction work in progress (Schedule A)	894,884	676,987
Total fixed assets	2,692,982	2,365,522
CURRENT ASSETS:		
Unexpended funds	121,236	163,008
Special funds	4,101	1,314
Accounts receivable	17,119	16,872
Materials and supplies	11,388	8,738
Total current assets	153,844	189,932
DEFERRED CHARGE FOR PAYMENT OF IRRIGATION ASSISTANCE (Schedule A) (Note 4)	370,544	360,520
OTHER ASSETS AND DEFERRED CHARGES:		
Trust funds	1,346	894
Other assets and deferred charges (Note 4)	3,078	4,606
Total other assets and deferred charges	4,424	5,500
TOTAL ASSETS	$3,221,794	$2,921,474

*Denotes deduction

"Notes to the financial statements" are an integral part of this statement.

EXHIBIT 2

LIABILITIES

	June 30	
	1968	1967
INVESTMENT OF U.S. GOVERNMENT:		
Congressional appropriations	$3,268,890	$2,950,478
Revenues transferred to continuing fund	3,909	3,909
Transfers from other Federal agencies, net	22,462	20,173
Interest on Federal investment (Notes 5 and 6)	639,561	583,831
Gross Federal investment	3,934,822	3,558,391
Less funds returned to U.S. Treasury	1,437,669	1,333,076
Net investment of U.S. Government	2,497,153	2,225,315
ACCUMULATED NET REVENUES:		
Balance at start of year	278,336	222,869
Net revenues current year (Exhibit 1)	18,846	22,814
Prior years adjustments (Note 11)	625*	32,653
Balance at end of year	296,557	278,336
CURRENT LIABILITIES:		
Accounts payable	49,428	51,098
Employees accrued leave (Note 5)	3,691	3,452
Total current liabilities	53,119	54,550
LIABILITY OF U.S. GOVERNMENT FOR PAYMENT OF IRRIGATION ASSISTANCE(Schedule A) (Note 4)	370,544	360,520
OTHER LIABILITIES AND DEFERRED CREDITS:		
Trust fund advances	1,346	894
Other deferred credits (Note 4)	3,075	1,859
Total other liabilities and deferred credits	4,421	2,753
TOTAL LIABILITIES	$3,221,794	$2,921,474

EXHIBIT 3

UNITED STATES OF AMERICA

COLUMBIA RIVER FEDERAL POWER SYSTEM

STATEMENT OF SOURCE AND APPLICATION OF FUNDS OF COMMERCIAL POWER PROGRAM FOR FISCAL YEAR ENDING JUNE 30, 1968 (NOTES 1 AND 2)

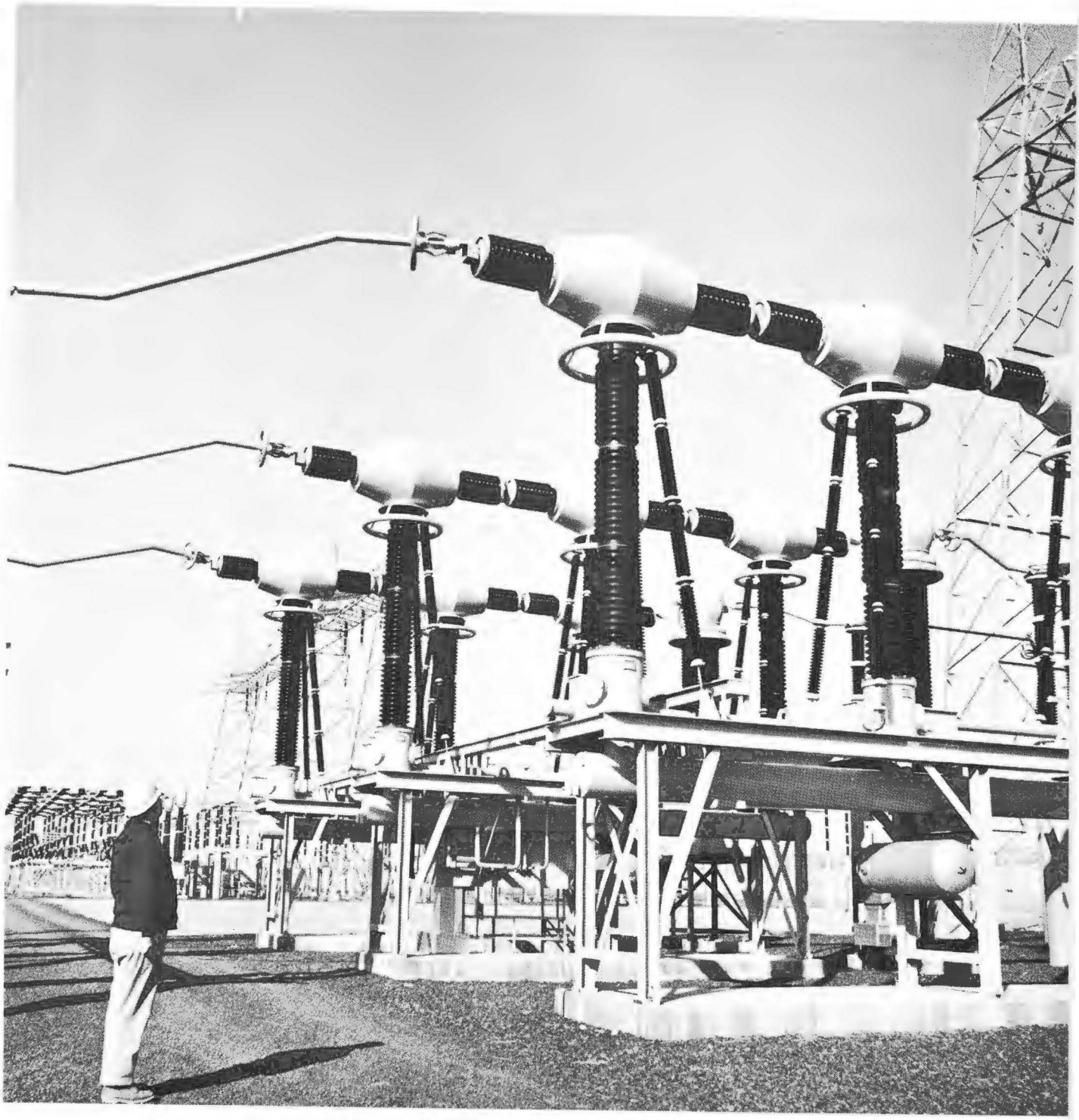
(In thousands)

SOURCE OF FUNDS:		
Congressional appropriations	$318,412	
Transfers from other Federal agencies	2,289	
Gross investment		$320,701
Revenues from sale of electrical energy	106,623	
Other operating revenue	11,265	
Total revenue		117,888
Total source of funds		$438,589
APPLICATION OF FUNDS:		
Operation and maintenance expense (does not include current year's depreciation expense of $17,116, less prior years' adjustment of $52, and current year's interest expense of $37,592)		$ 45,011
Investment in electric utility plant (does not include capitalized interest of $18,138)		326,386
Return of funds to U.S. Treasury for:		
Operation and maintenance expense	$ 45,011	
Interest on Federal investment	37,592	
Repayment of capital investment	21,990	
Total funds returned to U.S. Treasury		104,593
Decrease in current assets and liabilities, net		34,657*
Decrease in other assets and deferred charges, net of other liabilities and deferred credits (excluding irrigation assistance)		2,744*
Total application of funds		$438,589

*Denotes deduction

"Notes to the financial statements" are an integral part of this statement.

Circuit breakers at BPA's Vantage Substation.



UNITED STATES OF AMERICA

COLUMBIA RIVER FEDERAL POWER SYSTEM

AMOUNT AND ALLOCATION OF PLANT INVESTMENT
AS OF JUNE 30, 1968 (NOTES 2 AND 3)
PROJECTS IN SERVICE AND UNDER CONSTRUCTION

(In thousands)

Project	Total	COMMERCIAL POWER: Completed Plant (Notes 3 and 5)	COMMERCIAL POWER: Construction Work in Progress	COMMERCIAL POWER: Total	Returnable from Commercial Power Revenues	ALLOCATED TO: IRRIGATION: Returnable from Other Sources (Note 4)	IRRIGATION: Total Irrigation	NONREIMBURSABLE: Navigation	NONREIMBURSABLE: Flood Control	NONREIMBURSABLE: Fish and Wildlife	NONREIMBURSABLE: Recreation	NONREIMBURSABLE: Other	Percent of Total Returnable from Commercial Power Revenues
Projects in Service													
Transmission facilities (BPA)	$ 920,688	$ 754,681	$166,007	$ 920,688									100.00
Albeni Falls (CE)	32,694	31,896		31,896				$ 134	$ 173		$ 491		98.3
Boise (BR)	65,533	4,833	34	4,867	$11,072	$ 34,640	$ 45,712		14,954				24.3
Bonneville (CE)	90,051	61,288	633	61,921				28,065			65		68.8
Chief Joseph (CE)	156,406	155,592	681	156,273							133		99.9
Columbia Basin (BR)	607,896	165,638	26,795[a]	192,433	305,311	65,537	370,848	1,000	43,075			$ 540	81.9
Cougar (CE)	57,162	17,040	11	17,051		2,788	2,788	577	36,746				29.8
Detroit-Big Cliff (CE)	66,328	41,916	43	41,959		3,398	3,398	131	20,429			411	63.3
Green Peter-Foster (CE)	85,282	31,669	14,417	46,086		6,337	6,337	352	30,628		237	1,642	54.0
Hills Creek (CE)	48,720	14,017		14,017		4,987	4,987	623	29,093				28.8
Hungry Horse (BR)	102,135	77,391	80	77,471					24,664				75.9
Ice Harbor (CE)	138,914	93,788	577	94,365				43,724			825		67.9
Lookout Point-Dexter (CE)	94,308	41,963	6	41,969		5,073	5,073	853	46,323		90		44.5
McNary (CE)	303,784	256,391	63	256,454				46,885			445		84.4
Minidoka (BR)	36,619	1,858	382	2,240		34,057	34,057				28	294	6.1
Palisades (BR)	59,880	10,403	123	10,526	17,437	9,316	26,753		22,456		145		46.7
The Dalles (CE)	266,208	223,337	1,180	224,517				41,252			439		84.3
Yakima (BR)	63,223	4,579	15	4,594	9,720	47,757	57,477			$1,152			22.6
Projects under Construction													
John Day (CE)	436,544		318,013	318,013				77,769	13,101		3,206	24,455[b]	72.8
Dworshak (CE)	70,313		63,145	63,145				2,509	3,760		899		89.8
Libby (CE)	104,604		81,991	81,991					22,613				78.4
Little Goose (CE)	111,831		76,967	76,967				34,809			55		68.8
Lost Creek (CE)	3,612		417	417		54	54		1,325	586	1,027	203	11.5
Lower Granite (CE)	25,061		20,213	20,213				4,819			29		80.7
Lower Monumental (CE)	159,461		123,091	123,091				36,364			6		77.2
Irrigation assistance at 11 projects having no power generation	26,145				26,145		26,145						100.0
Subtotal plant investment	4,133,402	1,988,280	894,884	2,883,164	369,685	213,944	583,629	319,866	309,340	1,738	8,120	27,545	78.7
Repayment obligation retained by Columbia Basin Project (Note 4)	2,211	1,352		1,352	859		859						100.0
Total	$4,135,613	$1,989,632	$894,884	$2,884,516	$370,544	$213,944	$584,488	$319,866	$309,340	$1,738	$8,120	$27,545	78.7

BPA—Bonneville Power Administration
CE—Corps of Engineers Project
BR—Bureau of Reclamation Project
[a]Includes $24,104 construction costs of third power plant
[b]Nonreimbursable road costs
"Notes to the financial statements" are an integral part of this statement.

Tower for the Sickler-Raver line.

UNITED STATES OF AMERICA
COLUMBIA RIVER FEDERAL POWER SYSTEM
NOTES TO THE FINANCIAL STATEMENTS

Note 1. Basis of Financial Reporting

The accompanying financial statements for the Columbia River Federal Power System are prepared on the cost accounting basis which includes depreciation by the compound interest method as one element of cost. The statements do not show financial results on a repayment basis either for the fiscal year or cumulatively.

The average depreciation life of fixed assets allocated to power is about 85 years for the generating projects and 46 years for the transmission system. The average composite life for the entire system is about 66 years. A separate repayment analysis is prepared for the Columbia River Federal Power System based upon repayment periods of 50 years for the generating projects and 45 years for the transmission system. As a result of the difference between depreciation and repayment periods, depreciation charges accumulated during the repayment periods are much less than repayment requirements for the same periods. Wholesale power rates are based upon the repayment analysis rather than on these cost based statements.

Note 2. Composition of the Columbia River Federal Power System

The Columbia River Federal Power System (CRFPS) is the name applied to the facilities and operations of the Bonneville Power Administration (BPA) and the hydroelectric generating plants constructed and operated by the Corps of Engineers (Corps) or the Bureau of Reclamation (Bureau) for which BPA transmits and markets the power.

The CRFPS is neither an official government agency, nor is it an individual legal entity. BPA, the Corps, and the Bureau are separate agencies, each separately managed and financed, and each having a separate accounting system, However, the generating plants and the BPA transmission facilities are operated as an integrated power system, and the financial statements showing the results of power operations for the three agencies are consolidated under the name of the Columbia River Federal Power System.

The projects in service and under construction at June 30, 1968, are listed in Schedule A.

Note 3. Cost Allocations

The term "cost allocation" is used to describe the process of assigning the costs of a multipurpose project to the individual purposes it serves. In such a process, joint-use costs of plant and operations are allocated among the purposes served such as power, irrigation, navigation, and flood control. The portion of total project costs allocated to power is included in the CRFPS financial statements.

Cost allocations are designated as tentative or firm. A tentative allocation of costs among purposes may be adjusted retroactively when it is replaced with a firm allocation. A firm allocation may be adjusted, if conditions warrant, but only on a prospective basis.

Of the 17 projects in service at June 30, 1968, firm allocations have been adopted for all except the following:

Chief Joseph	Hills Creek
Cougar	Lookout Point-Dexter
Detroit-Big Cliff	Palisades
Green Peter-Foster	The Dalles

On July 8, 1968, firm allocations were adopted for the Hills Creek, The Dalles, Lookout Point-Dexter, and Cougar projects. The firm allocations adopted vary from the tentative allocations used in these statements. As a result the allocation of plant investment to power for the four projects will increase an estimated $6,000,000 (2.0%) and accumulated net revenues at June 30, 1968, will increase an estimated $200,000. The required adjustments will be made and applied retroactively during fiscal year 1969. Studies were also under way in fiscal year 1968 to firm up the remaining tentative allocations.

Note 4. Additional Repayment Responsibility

CRFPS revenues must repay to the United States Treasury the cost of irrigation facilities which benefiting water users are unable to repay. At June 30, 1968, this amount was $370,544,000.

In addition CRFPS has retained repayment responsibility for the portion of joint cost allocated to power for facilities which have been transferred to the Bureau of Sport Fisheries and Wildlife. At June 30, 1968, this amount was $1,352,000 and is included in the statement line items Other Assets and Deferred Charges, and Other Liabilities and Deferred Credits.

Joint project costs of $22,583,000 for the Cougar, Detroit-Big Cliff, Hills Creek, Lookout Point-Dexter, and the Green Peter-Foster projects have been allocated to irrigation pursuant to project authorizations. A determination of water users' repayment ability will be made at the time the irrigation facilities are proposed for authorization and development. If water users' repayment ability is insufficient to meet the repayment requirements, irrigation assistance may be required from power revenues, if authorized by Congress. These costs are not included in the accompanying statements because a final determination as to potential repayment from power revenues has not been made.

Note 5. Variations in Practices Among Reporting Entities

Each entity of CRFPS maintains a separate accounting system designed to meet its individual operating requirements. As a result, variations in reporting practices exist among the entities. However, cooperation among the entities in prior years has led to the adoption of standard practices such as use of the compound interest method of depreciation. The unresolved variations existing during fiscal year 1968 are listed below:

a. The base upon which the computation of interest expense is made by the Bureau does not include interest during construction for four projects and one division of a fifth, and other items such as working capital. Similar elements are included by the Corps and BPA. In addition, the Bureau's interest base does not include interest from the period of initial allocation to fiscal year 1963 on plan costs of the Columbia Basin Project allocated to future downstream river regulation.

   These elements were excluded by the Bureau based on its interpretation of Federal reclamation law. However, had the Bureau included these elements in its interest base and computed interest at the rate of 2½% for the Columbia Basin and Hungry Horse Projects (the two major power generating projects), accumulated net revenues at June 30, 1968, would have been reduced about $19,700,000.

b. All entities currently recognize and capitalize interest during construction. However, for certain projects the Bureau was not required to do so. Accordingly, interest during construction was excluded for four projects and one division of a fifth. Had the Bureau recognized and capitalized interest during construction at a rate of 2½% for the Columbia Basin and Hungry Horse Projects, plant costs, net of depreciation, would be increased by about $11,800,000 at June 30, 1968. The Bureau did not capitalize interest during construction for the two projects but computed interest expense at a rate of 3% upon their completion. At that time the Corps and BPA used a 2½% interest rate.

c. It is the policy of the Corps not to include for CRFPS purposes costs incurred for general investigation and development of projects prior to the time of Congressional authorization. At June 30, 1968, it is estimated that the corps had excluded about $2,084,000 of such costs. It is the policy of the Bureau to include project costs incurred prior to project authorization.

d. The accounts of the Corps and BPA properly reflect the liability for accrued but unused annual leave. However, the accounts of the Bureau projects do not include an amount for the value of unused annual leave, estimated to be $625,000 as of June 30, 1968.

Note 6. Interest Rates

Interest rates applicable to the unpaid Federal investment for Corps and Bureau generating projects and the annual increments of BPA investment at June 30, 1968, which are in excess of 2½% are as follows:

Bureau Projects

In Service		Under Construction	
Boise	3%	Grand Coulee Third Powerplant	3⅛%
Columbia Basin	3		
Hungry Horse	3		
Minidoka	3		
Palisades	3		
Yakima-Roza Division	3		

Corps Projects

Under Construction

Dworshak	2⅝%
Libby	3⅛
Lost Creek	3⅛

Bonneville Power Administration

Included in investment in fiscal year 1964	2⅞%
Included in investment in fiscal year 1965	3
Included in investment in fiscal years 1966 through 1968	3⅛

A rate of 2½% is used for the remaining 15 projects, the Kennewick Division of the Yakima Project, and for BPA investments made prior to fiscal year 1964.

Variations in rates applicable to individual projects are the result of legislative requirements or administrative policies adopted by the various entities.

Note 7. Costs Incurred by Other Agencies

In fiscal year 1968, BPA reinstituted the policy of including the estimated cost of office space provided without charge by the General Services Administration. The decision to include these costs, applied prospectively, was based on a Department of the Interior instruction which stated that materiality of these costs should be determined on a case-by-case basis. The estimated cost of rentals included in the accounts for fiscal year 1968 is about $758,000, of which $311,000 was charged to operations and $447,000 was charged to construction.

In 1963, BPA discontinued recording these costs, also on a prospective basis, to be consistent with other Department of the Interior agencies pending clarification of Department policy. During the period from July 1, 1962, through June 30, 1967, rental costs estimated at $2,500,000 were not included in the BPA accounts.

Estimated costs of services furnished by other Federal agencies to BPA, the Bureau, and the Corps which are not included in the CRFPS statements are considered to be minor. Also excluded from the accompanying statements is the cost of the CRFPS audit, provided without charge by the General Accounting Office, estimated at $100,000 for fiscal year 1968.

Note 8. Hanford Steam Plant

Under Exchange Agreements between BPA, the Washington Public Power Supply System (WPPSS), and 76 utility participants, BPA receives the electric power generated by the Hanford Steam Plant which was constructed by WPPSS. In return, BPA furnishes the participants an amount of power equal in value, at BPA rates, to the annual costs of operating the steam plant and retiring the bonds issued in 1963 to construct the plant. At June 30, 1968, approximately $92,050,000 of the bonds were outstanding and scheduled to be fully retired by 1996. The agreements call for payments to WPPSS by each participant for its portion of the costs of the project based on the Annual Operating Budget. During the year ending June 30, 1968, the participants' shares of the Annual Operating Budget totaled about $9,212,000.

BPA will be required to make the specified power deliveries until 1996 even if the Hanford Steam Plant becomes inoperable. However, the Government may acquire ownership of the plant, subject to Congressional approval. Ownership may be acquired after 1996 without cost, with the assumption of all project assets and liabilities. BPA engineers have estimated that by 1996 the plant will have only a net salvage value.

Note 9. Canadian Treaty

Under the terms of the Canadian Treaty between the United States and Canada ratified in 1964, Canada agreed to construct, operate, and maintain three storage dams in the upper Columbia River Basin in Canada. Controlled release of the water, for use at generating plants in the United States, will add a significant amount of dependable capacity. The maximum extra dependable capacity amounts to nearly 2.8 million kilowatts during 1974-75 and declines to about 740,000 kilowatts by the year 2003. The Canadian Treaty specifies that the United States and Canada are each entitled to half of the additional power.

Owners of the generating projects in the United States will retain the United States' entitlement. However, Canada sold its share of the additional power for a period of 30 years following the scheduled completion of each storage dam to the Columbia Storage Power Exchange (CSPE) for $253,930,000, paid in advance. CSPE, a non-profit corporation, financed the purchase through the sale of bonds and resold the power to 41 public and private Northwest utilities. Payments to CSPE by the 41 utilities will be used to retire the bonds.

The 41 participating utilities have assigned their rights to the power purchased from CSPE to BPA, who will return an agreed amount of power to the utilities, according to the exchange agreements. The specified amounts to be returned by BPA are based on Canada's share of the estimated additional power resulting from the three Canadian storage dams.

At June 30, 1968, construction of the Canadian storage facilities was on schedule. Duncan Dam, scheduled for completion April 1, 1968, was in operation July 31, 1967, and Arrow Dam, scheduled for completion April 1, 1969, was in operation October 10, 1968. Construction of Mica Dam, scheduled for completion on April 1, 1973, is on schedule.

Note 10. Contingent Liabilities

Contingent liabilities applicable to commercial power at June 30, 1968, total about $16,900,000; $11,600,000 representing claims under the Federal Tort Claims Act, and $5,300,000 representing various contractor claims. Included among the tort items is a $9,700,000 claim against Bonneville Dam by the Yakima Tribe of Indians.

Note 11. Adjustments to Accumulated Net Revenues.

The following table explains the adjustments which have caused the net decrease in Accumulated Net Revenues of $625,000 shown on Exhibits 1 and 2:

	In thousands
1. Recognition of prior years' revenues and expenses (net) for six Bureau projects not previously recorded in the CRFPS statements.	$(246)
2. Write-off of repair costs incurred during fiscal years 1962 and 1963 for which expected reimbursement from the manufacturer was denied during fiscal year 1968 by the U.S. District Court of Oregon.	(432)
3. Miscellaneous minor adjustments.	53
	$(625)

NOTES ON HYDRO-THERMAL PROGRAM

The hydro-thermal accord between the various segments of the utility industry in the Pacific Northwest is based on the following principles:

1. The amounts of thermal generation to be constructed in the area by the public agencies and the private utilities and the large amounts of peaking capacity needed to serve varying load requirements have been estimated jointly. The total regional system will require forced-outage reserves and reserves for unanticipated load growth. Also, fuel for thermal plants can be saved through use of surplus hydro energy. These items can be provided by existing and planned Federal plants at low cost per unit of capability. Therefore, if the Government and the utilities plan wisely, they can jointly increase the effectiveness of both the Federal and non-Federal investment while maintaining power rates in the region at minimum levels. Joint planning, coordination, and integration are necessary to furnish a reliable power supply at lowest practical cost—the basic goal.

2. Public and private utility systems will build thermal plants located, sized, and scheduled to best satisfy regional needs.

3. BPA will acquire surplus energy from private utility shares of thermal plants under exchange arrangements on a short-term withdrawal basis and will acquire on a long-term basis the output from public agency shares of thermal plants by means of net billing. The customer's share of new thermal plant costs will be offset against amounts owing by a customer under all its obligations to BPA.

4. BPA will acquire on a withdrawal basis surpluses of the private utilities' thermal plants appropriately sized, located, and scheduled for regional needs that are completed in the period from January 1974 through December 1980. The surpluses will be those above the need of the private utilities as a group. The acquisition from each plant will be for a maximum of five years from date of completion, and BPA's maximum obligation will decrease by 20 percent per year. This will be an exchange transaction for both peak and energy under which BPA will return the amounts of power, increased by an interest component, to the private utilities when needed at a later date but no later than 10 years from date of completion of each plant. If agreed, "return" may be in firm energy, peak or surplus energy.

5. BPA will purchase by net billing the output of a plant or portion of a plant to be financed publicly, the timing to be determined by current studies which will relate resources available to BPA to its need for additional power supply.

6. Energy acquired by BPA through exchange for services or net billing will be available for service to increased requirements of public agencies, to maintain a reserve for unexpected load growth, to provide for the return of thermal exchange, to sustain present industrial requirements, and to provide an estimated 1,800,000 kilowatts of firm power for increased industrial requirements through 1990.

7. BPA will carry reserves for unanticipated load growths for all participating utilities.

8. BPA will make available forced-outage capacity reserves, peaking capacity, transmission and surplus hydro energy for thermal plant displacement to plants for which it does not purchase the output under net billing. These services will be provided under long-term exchange contracts under which BPA will accept off-peak energy as payment for its services. Alternatively, BPA will supply the services for payment in cash under long-term arrangements except when legal limitations require a shorter period. BPA will file with FPC a rate for forced-outage reserves which will reflect the cost of providing this service.

9. BPA will expand its transmission if needed to accommodate the generation program. It will wheel power from new thermal plants on a postage-stamp rate or on the basis of its wheeling formula, whichever the utilities prefer. BPA will also be willing to consider a proposal under which the parties would agree on the dollar amount of BPA's cost of wheeling from each of the private utility plants and the utilities would divide among themselves the responsibility for meeting those costs. Under any of the foregoing methods, the utilities will be free to construct transmission facilities if such facilities accord with regional needs and plans or enter into exchange arrangements. The essential basis for any of the methods or combinations thereof is to assure to BPA the recovery of the incremental costs of service provided.

10. Subject, if necessary, to the parties to the Pacific Northwest Coordination Agreement adopting appropriate amendments to that agreement, BPA will be willing to (a) determine the amount of forced-outage

reserves for the thermal plants developed under regional plans on the basis of adding those plants to the coordinated system and levelizing the reserves over the life of the plants, (b) allocate the forced-outage reserve requirement of a thermal plant among the joint owners of the plant on a percentage basis equal to the percentage of ownership by each, (c) equalize the levelized reserve requirements for each of the thermal plants completed by December 1980, and (d) modify the reserve requirements periodically based on actual experience, changes in the standards or factors utilized in determining the reserve requirements, or both.

11. BPA will purchase by net billing the output of the second unit at Centralia through August 31, 1973. Beginning September 1, 1973, BPA will acquire surpluses above the needs of the private utilities as a group from both units of the Centralia project on a withdrawal basis, under the conditions set forth in item 4 above.

12. BPA will purchase at cost by net billing that portion of the Centralia plant's output owned by public agencies on a long-term basis. Alternatively, BPA will enter into an exchange arrangement under which BPA will (a) supply the public agencies with forced-outage reserves and transmission, (b) have the right to displace their share of the generation at Centralia and receive incremental savings, and (c) have the right to the power the owner cannot use upon payment of the incremental cost.

13. Nuclear No. 1 will be a plant of 1100 megawatts on Portland General Electric's Trojan site and scheduled for completion September 1974.

14. Principal sponsors of plants will normally be determined by load requirements.

15. BPA will serve its industrial customers with a new class of power under a new rate schedule, subject to FPC approval. The provisions of the new contracts with industrial customers will reflect the following:

a. Industry would take approximately 25 percent of their load as nonfirm energy.

b. One-half of total industrial load could be interrupted for two hours when necessary to provide forced-outage reserves.

c. All or part of industrial load could be interrupted for up to five minutes to maintain system reliability.

d. Industrial rate as modified above would provide power at about the same cost level as present rate.

16. In emergencies when BPA is short of power, BPA will make short-term acquisitions (e.g., the purchase of the output of the second unit at Centralia from September 1972 to September 1973) from publicly or privately owned plants, within or without the region, depending on where the needed power is available at the lowest cost.

17. All contracts under which BPA will acquire any substantial quantity of capacity or energy from a new thermal plant by net billing will be submitted to the Department of the Interior, Bureau of the Budget, and the Congressional Appropriations Committees for review prior to execution.

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