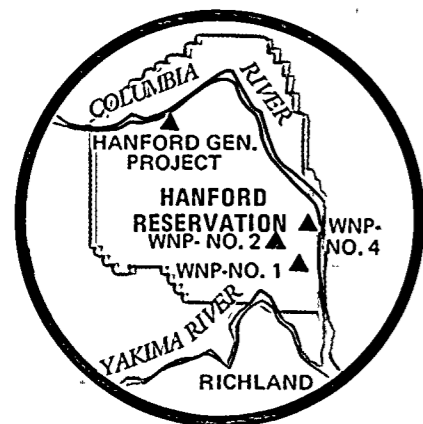
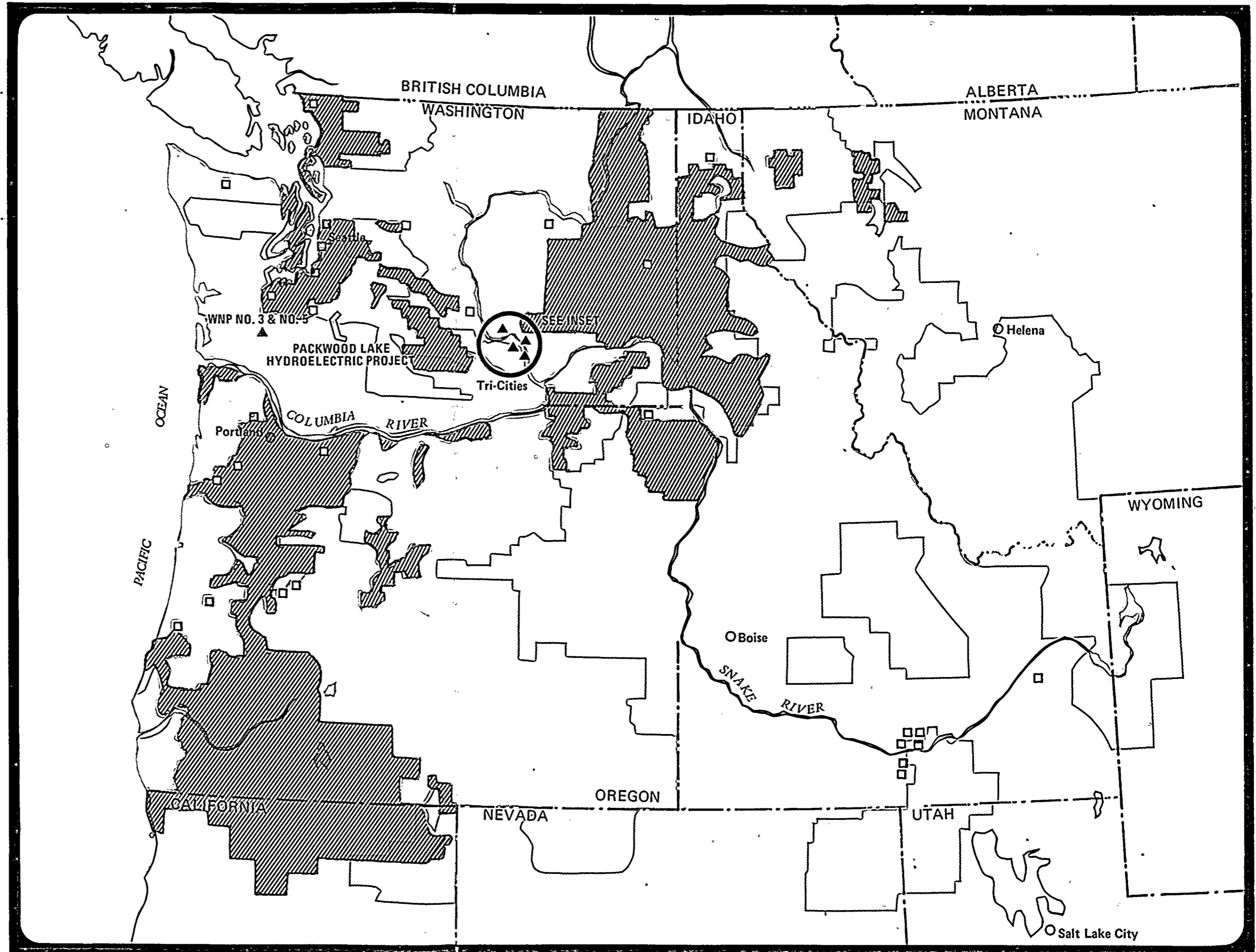


Participants

-  Public Agencies
-  Private Utilities
-  Municipalities
-  Nuclear Power Plants
-  Hydroelectric Projects



Annual Report WASHINGTON PUBLIC POWER SUPPLY SYSTEM



Table of Contents

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Highlights of 1977	1
The Board of Directors	2
Board of Directors/Executive Committee Report	3
WPPSS; It's Organization and Mission	4
Report from the Managing Director	5
The Year in Review	6
Regional Power Program	9
Role of WPPSS in the Regional Power Program	12
Projects in Operation	14
Projects in Construction	16
Special Programs and Studies	22
Financing Activities	24
Balance Sheets	26
Notes to Balance Sheets	28
Project Expenditures	35
Project Participants	36

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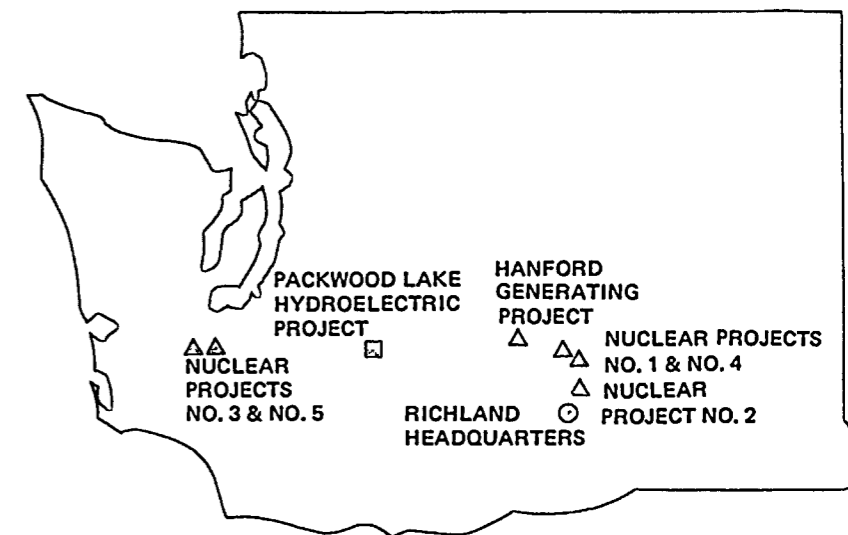
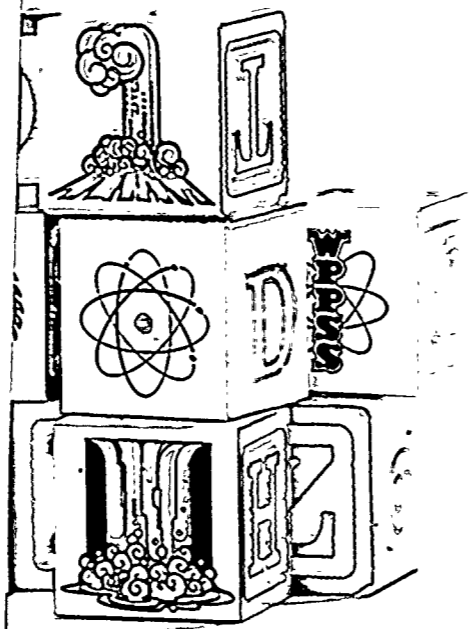
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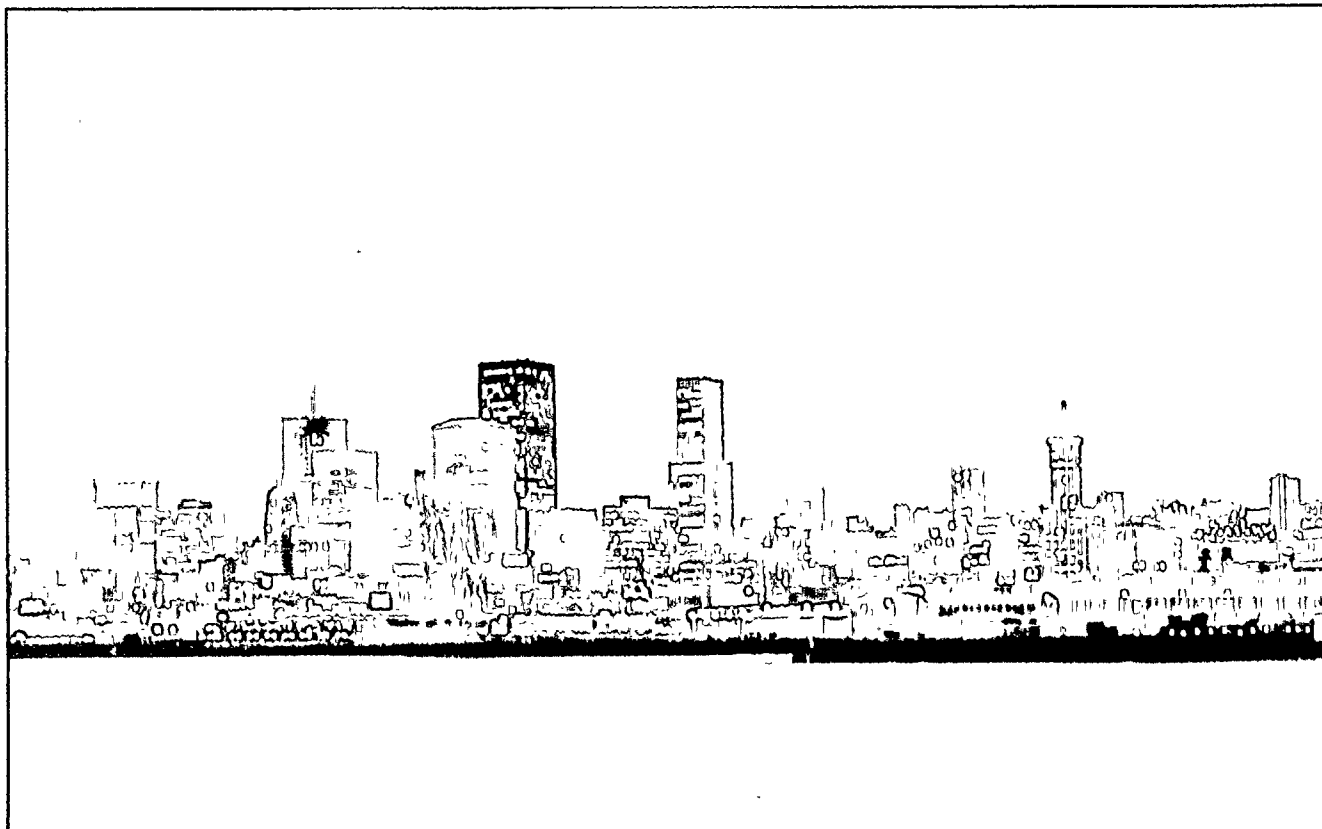
RECORDS FACILITY BRANCH



Washington Public Power Supply System, a non-profit municipal corporation and joint operating agency of Washington State, is made up of 19 public utility districts and three municipal electrical systems. Established in January 1957, the Supply System is empowered to acquire, construct and operate plants and facilities for the generation and/or transmission of electric power. Principal office of the Supply System is at 3000 George Washington Way, P.O. Box 968, Richland, Washington 99352.

Highlights of 1977

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



● \$615 million par value of bonds were sold in four separate trips to the market, bringing the total bonds issued since inception of the five Supply System nuclear power projects to \$2.125 billion. Bonds outstanding totaled \$1.989 billion at the end of the fiscal year.

● A later sale of \$230 million in revenue bonds, on July 12, 1977, is believed to be the largest ever accomplished under competitive bidding procedures.

● The permanent, long-term financing program for WNP-4 and WNP-5 was launched. Two revenue bond issues totaling \$235 million were sold. The bonds were rated "A-1" and "A+" by Moody's and Standard and Poor's rating services.

● The Hanford Generating Project (HGP) completed 11 years of operation and generated its 37 billionth kilowatt hour. Only one other nuclear plant in the free world has generated a greater amount of electricity from a single unit.

● The Supply System and the Energy Research and Development Administration (ERDA) reached an agreement to extend HGP operation.

● The 966-ton WNP-2 Reactor Pressure Vessel was successfully lifted 150 feet and lowered into the Reactor Containment Building for positioning. It was the heaviest lift of its kind made to date.

● Agreements were reached with 14 of 15 craft unions working on WNP-2, WNP-1 and WNP-4.

● Construction was started on the Diesel Generator Building, the last major structure for WNP-2.

● The Nuclear Regulatory Commission (NRC) issued Limited Work Authorizations for WNP-3 and WNP-5 on April 8, 1977. Preliminary site work began on April 11.

● Exploratory drilling in search of uranium for the Supply System began in the Red Desert area of Wyoming. Some uranium mineralization was located.

● Continuation and expansion of a study of an extensive area in the Pacific Northwest for sites for possible future generating projects was approved.

The Board of Directors

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



Gathered for a quarterly meeting of the Supply System's Board of Directors were, clockwise around the table from the bottom left: C. K. Jolly, Glenn C. Walkley, Assistant Secretary, Glen R. Benjamin, (alternate from Klickitat County), Howard Prey, Don Hughes, A. E. Fletcher, Robert O. Keiser, T. R. Teitzel, E.W. Taylor, Secretary, N.O. Strand, Managing Director; John Goldsbury, President; John J. Welch, Vice President; Ed Fischer, Chairman of the Executive Committee; Dr. C.E. Emerick, J.D. Cockrell, Ed O'Sullivan (alternate from Seattle), W.G. Hulbert, Rolf E. Jemtegaard, Lane Bray, Quentin Mizer and Stanton H. Cain.

Management and control of the Supply System is vested in a Board of Directors consisting of one representative from each of 19 consumer-owned utilities and three municipal electrical systems in Washington State. The Directors are:

JOHN GOLDSBURY, Commissioner, Benton County PUD.

ROBERT KEISER, Commissioner, Chelan County PUD.

A.E. FLETCHER*, Commissioner, Clallam County PUD.

ED FISCHER*, Commissioner, Clark County PUD.

D.E. HUGHES*, Manager of Engineering & Planning, Cowlitz County PUD.

HOWARD PREY, Commissioner, Douglas County PUD.

RICHARD H. WINDSOR, Commissioner, Ferry County PUD.

GLENN C. WALKLEY*, Commissioner, Franklin County PUD.

C.K. JOLLY, Commissioner, Grant County PUD.

JOHN J. WELCH, Commissioner, Grays Harbor County PUD.

HAROLD W. JENKINS, Commissioner, Kittitas County PUD.

GERALD C. FENTON, Commissioner, Klickitat County PUD.

T.R. TEITZEL, Commissioner, Lewis County PUD.

EDWIN W. TAYLOR, Commissioner, Mason County PUD No. 3.

STANTON H. CAIN, Commissioner, Okanogan County PUD.

JOHN DUNSMOOR, Manager, Pacific County PUD.

LANE BRAY, Mayor, City of Richland.

GORDON VICKERY*, Superintendent, Seattle City Light.

ROLF E. JEMTEGAARD, Commissioner, Skamania County PUD.

W.G. HULBERT, JR.*, Manager, Snohomish County PUD.

J.D. COCKRELL*, Light Superintendent, Department of Public Utilities, City of Tacoma.

DR. CHARLES F. EMERICK, Commissioner, Wahkiakum County PUD.

*Member of Executive Committee.

Board of Directors/Executive Committee Report

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Those dramatic photographs of earth taken from the moon some eight years ago pointed out to all of us that earth is indeed a lonely ship floating in space and we are all passengers.

The world has become increasingly aware of and concerned about the earth's environment and the need to preserve and protect those resources which sustain life.

The National Environmental Protection Act establishes a policy, some purposes of which are to:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural and natural aspects of our national heritage and maintain, where possible, an environment which supports diversity and variety of individual choice.
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Supply System is dedicated to these same principles. The environment is of major concern to us.

Extensive environmental studies were carried out to assess the potential effects on fish, wildlife, agriculture, forestry and archaeology which might result from construction or operation of the five nuclear power projects. An exhaustive environmental statement was prepared for each.

The goal of the studies, which will continue throughout the years of operation of the projects, is to identify potential problems and find methods to alleviate or surmount them.

Policies have been established to protect the environment. Substantial sums, amounting to millions of dollars, are being spent to assure that there will be no adverse effects from those plants now being built, or those in operation.

Project facility designers have and must continue to carefully consider environmental impacts and design the facilities and equipment so that there will be little or no impact from such activities as water intake or discharge.

Construction activities are planned with the environment in mind. An extensive system of dikes and ponds is being constructed at the site of two projects in Grays Harbor County to control erosion. All land areas disturbed during construction will be returned to their natural states, or landscaped if they are not used for project facilities.

Structures also are designed to be compatible aesthetically with their surroundings.

These are just a few examples of the attention given to protection of the environment by the Supply System planners and builders at all projects.

The nation has gone through two energy transitions in the past 100 years. First, wood, waterwheels and windmills gave way to coal; later, in the 1950s, coal gave way to oil and natural gas. Technological progress has solved many of our energy problems, but energy technology develops slowly. Finding substitutes for oil and natural gas is difficult and time consuming and the economic, social, health and environmental constraints must be considered.

While we seek harmony with nature, we must strive for a balance of resources to meet the economic, industrial and social needs of generations yet to come.

Environmental protection is a complex process which must be matched with technological progress to maintain that balance.



President
Board of Directors



Chairman
Executive Committee



JOHN GOLDSBURY



ED FISCHER

WPPSS; Its Organization and Mission

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

The Washington Public Power Supply System (WPPSS) is a non-profit municipal corporation whose membership consists of 19 public utility districts and three municipal electric systems which operate within the State of Washington. The main offices are in Richland, Washington.

WPPSS was organized as a Joint Operating Agency in 1957, to be the vehicle for cooperative, joint action by its members. Its mission is to develop and operate electric power facilities for its members and other utilities of the Pacific Northwest.

WPPSS is owned and controlled by its member utilities. All power generation projects must be approved by the members, acting through the Board of Directors. Each member utility has one representative on the Board. Members are either elected PUD commissioners who represent and are responsible to the other commissioners of their districts and to their customers, or managers who represent their utilities.

The WPPSS organization might be compared to that of a city with a council-manager form of government. The City Council sets policy and authorizes projects; the City Manager carries them out with the city staff.

With WPPSS, the Board of Directors sets policy and determines if projects are desirable, based on forecasts of power needs by the 115 members of the Pacific Northwest Utilities Conference Committee which is made up of public and investor-owned utilities and the Bonneville Power Administration (BPA).

The WPPSS staff of more than 700 then carries out the policies and directives of the Board of Directors.

By itself, WPPSS does not forecast loads, operate distribution systems, or establish retail rates. Power is distributed over the BPA transmission system to the participating utilities. Power which is surplus to the needs of members may be sold to others, with preference being given to public bodies.

WPPSS is not a government agency in the sense of levying taxes or making law, but it is a political subdivision of the state and is subject to all state laws governing public bodies. No Federal or State money is utilized. All projects are financed by the sale of tax-exempt revenue bonds which are redeemed with revenue received from members or project participants for power they have contracted to purchase.

As with other "public" corporations, WPPSS is largely exempted from direct taxation, although an excise tax is paid on the electricity produced. In almost all other respects, its relations with State and Federal agencies are much the same as those which would exist if WPPSS were privately owned.

WPPSS built and operates a 27,500-kilowatt hydroelectric project in the Gifford Pinchot National Forest in the Cascade Mountains of Washington and the 860,000-kilowatt HGP on the Hanford Reservation in Southeastern Washington. HGP utilizes by-product steam purchased from an adjacent ERDA-owned reactor known as N Reactor.

Under construction are five large nuclear-electric generating projects -- three on the Federal Hanford Reservation in Southeastern Washington and two on a 2,170-acre site in Grays Harbor County in Western Washington.

The total commitment for construction of these five projects is about \$7 billion.

While WPPSS sponsors the projects, other non-member utilities are participating by contracting to buy shares of the power to be generated. The revenue from power sales will be used to redeem the revenue bonds. All projects are fully subscribed and the sale of all power guaranteed.

In preparing a financing program for two of the five projects, participants authorized spending up to \$50 million to establish an "energy program".

The objective of the program is to conduct long-range studies which will enable the participants to determine the best method of serving the prospective needs of their customers for power and energy in the future whether it be coal, nuclear, hydro, solar, geothermal, wind or any other method.

In short, WPPSS is an organization with a commitment to service -- service to the utilities of the Pacific Northwest and, through them, to all the people.

Report from the Managing Director

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Fiscal year 1977 will go down in history as the year of the worst drought ever in the Pacific Northwest and throughout the West. Water for both irrigation and power production was scarce.

Conservation became the byword of the entire region; conservation of both water and electricity.

The Pacific Northwest is heavily dependent upon hydro sources for its electrical energy—nearly 90 percent of all electricity in the region is from hydroelectric projects. A shortage of water and consequently electricity, can disrupt the entire economy—agriculture, commerce, industry, and even the life styles of people. Curtailment of electrical usage to industries during the year resulted in the loss of jobs for many workers in the primary metals field.

Even though the drought is a temporary condition, the problem is not going to disappear with the fall rains. Demand is growing as our population and industrial development increases. The hydroelectric system will reach its ultimate capacity and BPA will be unable to provide for any additional growth of its customers after 1983. The prospect of potential electric energy shortages faces the region for years to come, even with a return to "normal" water years.

The question of where to get more energy can be answered partially by conservation. BPA, WPPSS member utilities, and our project participants are pursuing an aggressive program of encouraging conservation.

At the request of project participants, the Supply System also is pursuing studies of alternate energy sources.

These include solar, hydro, wind, geothermal, coal, various nuclear technologies, non-generating alternatives such as conservation and rate schedule adjustments. They also include keeping up with such emerging technologies as municipal waste incineration, in-place coal gasification and nuclear fusion.

The participants authorized spending up to \$50 million for these long-range studies so that they may be prepared to make use of the best available methods of producing power at the lowest cost for the nearly 6.5-million people who live in the 300,000-square-mile region served by project participants.



Managing Director
Washington Public Power Supply System



Directing the activities of the Supply System staff of more than 700 are these executives: seated, left, Managing Director N. O. Strand, right, James D. Perko, Assistant Director, Finance and Administration. Standing, left to right, F. D. McElwee, Assistant Director,

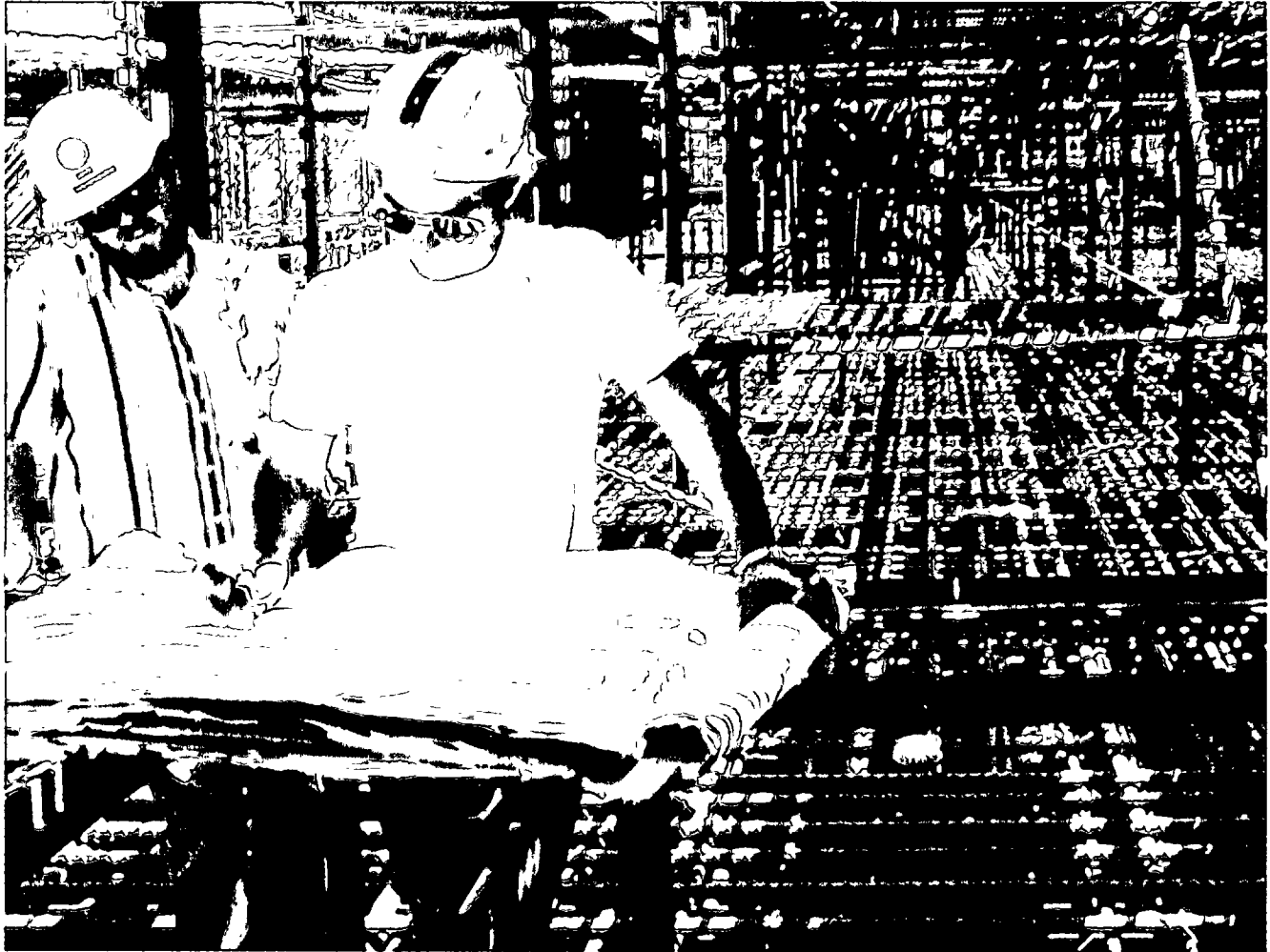
Projects; Richard Q. Quigley, Chief Counsel; P. C. Otness, Manager, Public Affairs and Duane L. Renberger, Assistant Director, Generation and Technology.



NEIL STRAND

The Year in Review

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



Engineering drawings were studied by two engineers in a maze of reinforcing steel placed for the foundation of WNP-1.

Fiscal Year 1977 was a year of "coming of age" for the Washington Public Power Supply System as it passed its 20th anniversary and moved into its 21st year of operation.

With its activities in construction of five nuclear power projects, at a cost of some \$7 billion, the Supply System has become one of the largest construction utilities in the nation.

The impact of this construction work is apparent nationwide. Hundreds of industrial firms from coast to coast and border to border, as well as overseas, are working to manufacture material and equipment used in building the five power projects. Dozens of construction firms, large and small, have contracts to build various portions of the projects.

For construction, the typical problems were encountered at the start of the fiscal year, but there was encouraging progress in several areas as the year ended.

The fiscal year began in the midst of a strike by pipefitters and a concurrent lockout by major contractors at the

Stainless steel fuel pool liners arrived at the Hanford site by barge on the Columbia River.

Supply System's No. 2 project. The strike, which had begun in June, ultimately resulted in the suspension of certain construction contracts on the project.

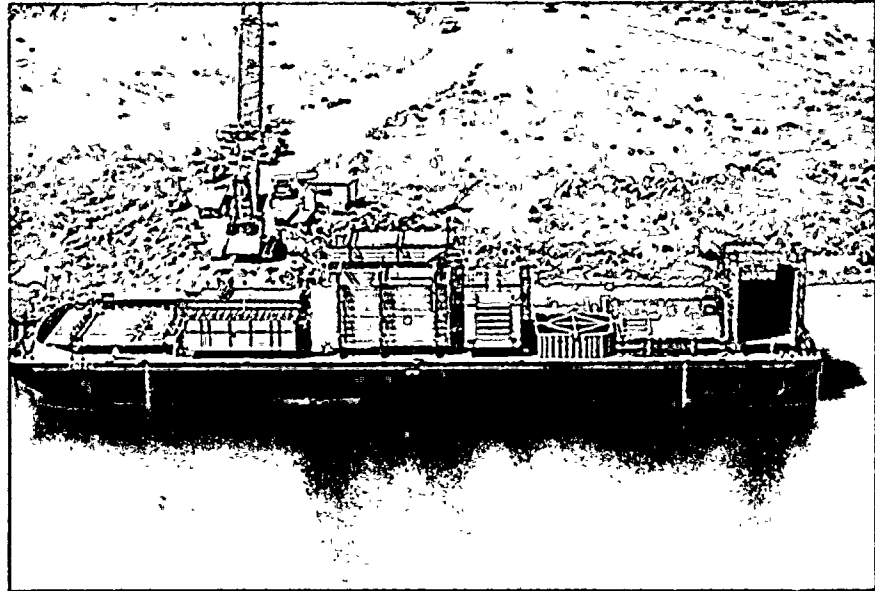
After an agreement was reached in November, the pace of construction gradually accelerated. However, the six-month-long strike, and other factors, caused a postponement of the project completion date for several months.

Negotiations with 15 other craft unions whose contracts were to expire during the year progressed without work stoppages and agreements were reached with 14 crafts, promising uninterrupted work for the next several years on the three nuclear projects under construction on the Hanford Reservation.

Progress was shown on the Supply System's two other projects, WNP-3 and WNP-5, in western Washington with the signing of a State Site Certification Agreement in October 1976 and the receipt of Limited Work Authorizations from the Nuclear Regulatory Commission (NRC) in April 1977, permitting work to begin. By the end of the fiscal year, site preparation work was well underway. Construction permits are expected to be received from the NRC in the fall to permit work to proceed to completion.

WNP-5 is a duplicate of WNP-3, but is financed with WNP-4 as a single system. While arrangements were being made for the financing of WNP-4 and WNP-5 during the summer of 1976, equipment was being ordered on option for both. When the financing arrangements were completed through a series of agreements with the 88 participating utilities and the large industrial users, the purchase options for about \$100 million worth of material were exercised and firm orders placed.

The Supply System is a major participant in the money market, particularly in the public power revenue bond



sector. Since inception of the nuclear projects, the Supply System has issued \$2.125 billion of revenue bonds. During Fiscal 1977 alone, \$615 million par value bonds were issued in four sales. Investor acceptance continued to be very good, with interest rates comparing favorably with appropriate bond index values.

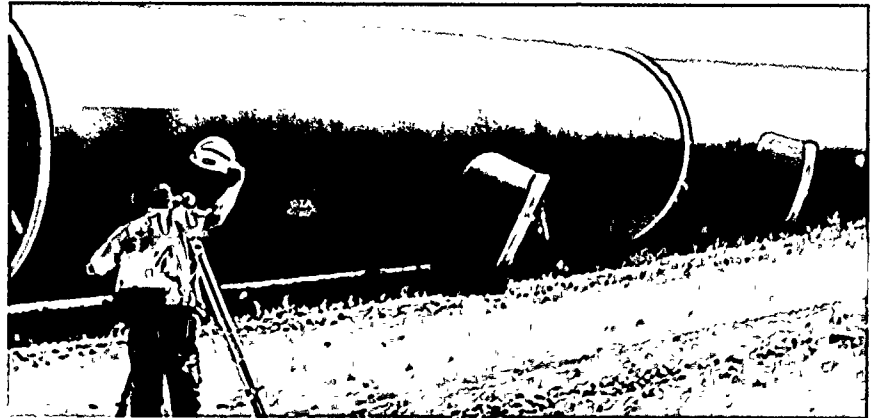
Fiscal 1977 was a year of change in the organizational structure. Officers of the Board of Directors, which develops the policies that guide Supply System activities, are elected for two-year terms by the 22 members of the Board.

At the biennial election in January, 1977, officers elected were: President, John Goldsbury, Benton County PUD Commissioner and a member of the Board for five years; Vice President, John J. Welch, Grays Harbor County PUD Commissioner and a member of the board for three years; re-elected

Secretary, Edwin Taylor, Mason County PUD No. 3 Commissioner and a member of the Board for 15 years, and Assistant Secretary, Glenn Walkley, Franklin County PUD Commissioner and a member of the Board since 1957. Collectively, the Board officers represent 43 years of experience in Supply System policy making and project construction and operation.

Okanogan County PUD rejoined the Supply System to become the 22nd member utility. Okanogan County PUD was one of the original 17 which formed the Supply System in 1957, but it withdrew from membership in 1958. Its application for readmission was approved in July 1976.

A surveyor marked the route for massive water pipes to serve WNP-1 at Hanford.



The administrative staff structure was refined to improve the Supply System's capability to manage construction of five large nuclear power projects, with emphasis on the addition of contract administration specialists and experienced construction engineers and managers.

Managing Director J.J. Stein retired on January 31, 1977, after 5½ years as the chief executive officer and more than 30 years of public utility experience. Neil O. Strand was appointed by the Board of Directors to become the Supply System's third Managing Director in its 20-year history.

Mr. Strand, who previously was Assistant Director, Projects, is a registered professional engineer, with 25 years of experience in the nuclear power field, including design, construction and management duties.

Mr. F.D. McElwee, a 25-year Army Corps of Engineers construction veteran and later a nuclear project construction manager, was appointed to succeed Mr. Strand as Assistant Director, Projects. Mr. James D. Perko, Supply System Treasurer, was appointed Assistant Director, Finance and Administration. With Mr. Duane L. Renberger as Assistant Director, Generation and Technology, the executive level ranks were completed.

Fiscal 1977 also was a year of growth for the Supply System staff because of increased activities and responsibilities. Applications or inquiries about employment were received at a rate of almost 1,000 a month.

As of June 30, 1977, the Supply System had 714 permanent, full-time employees, an increase of 189 during the fiscal year. Many of those added to the staff were on a professional, management or scientist level.

The staff overflowed from the main headquarters office building in Richland and into leased portions of four other nearby office buildings. Staff increases are expected to continue for some years as new responsibilities such as security and project operation are added.

The Supply System maintains continuous and active Equal Employment Opportunity and Affirmative Action programs. There also are management training and development programs and a tuition refund program for employees who wish to improve their job skills with additional education or training.

Planning continued for design and construction of the "Mid-Columbia Energy Exhibit Center," expected to cost about \$1.5 million, in Richland. Construction is expected to start in late 1977.

The center will have exhibits to show the evolution of man's use of energy, as well as the technological, economic and environmental aspects of various energy sources for the present and future. Exhibit space will be leased to other organizations associated with the Government's Hanford Project to present a comprehensive display of all forms of energy use, research and development.

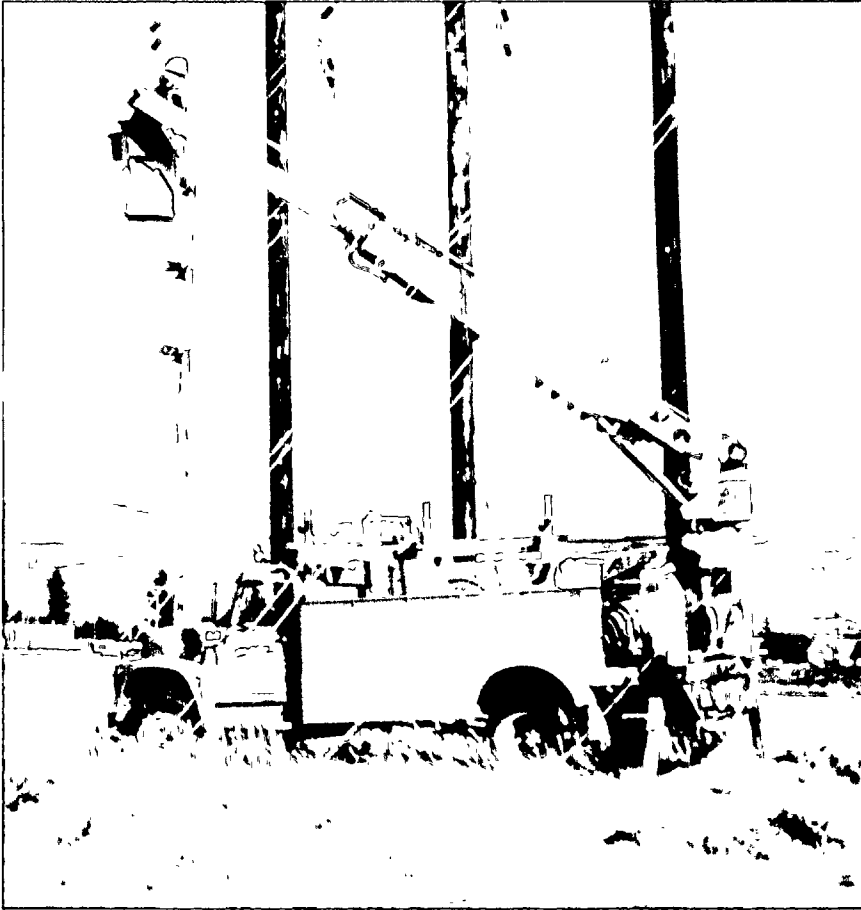
Land also was purchased for a future visitors' center near the Supply System's office in Elma, which is headquarters for engineering of WNP-3 and WNP-5 in Grays Harbor County.

Through exhibits, audio-visual displays and other material, the centers will enhance public knowledge of nuclear generated energy and the role of the Supply System and its participants in seeking the most practical and economical methods of providing energy for homes, farms, industries and businesses of the region.

The many other significant milestones passed in Fiscal 1977 are described in other sections of this report on Projects, Finance, Energy and the Uranium Bearing Lands Acquisition Program.

WPPSS and the Regional Power Programs

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



Workmen from the Flathead Electric Cooperative, Kalispell, Montana, worked against a backdrop of the Rocky Mountains. Flathead REA is one of 110 public agencies which will share in power to be produced by WPPSS projects.

The average Pacific Northwest resident uses about the same amount of total energy as the national average, but he uses nearly twice as much electric energy as the national average and pays about half as much per kilowatt hour for it.

Historically, power development in the region has concentrated on putting the vast Columbia River system to work. Multipurpose Federal dams for flood control, irrigation, recreation and power generation have been coordinated with public and private utility

dams to provide a generation system unequaled in size, reliability, flexibility and low cost. However, there is a limit to the total energy which can be extracted from the rain and snow which fall over the Pacific Northwest to run into the river system and make power generation possible.

The realization that the full utilization of this basic solar system (evaporation of moisture at lower elevations and reprecipitation at higher elevations) was near, led power planners to begin to consider thermal resources in the early 1960s.

HGP is one of the earliest examples of the cooperative program which began to supplement the hydro base with

new thermal resources. In this project, the nuclear reactor to supply steam was built by the Federal Government.

Based on agreements with public and private utilities, the generating facility was financed and built by the Supply System, making use of a resource that otherwise would have been wasted. The electrical energy is transmitted through the region by BPA and integrated into the total regional power resource system by multi-party Exchange Agreements.

The Hanford Exchange Agreements provided the framework for similar arrangements between BPA and the public utilities for the Supply System's Nuclear Projects 1, 2 and 3. The decisions to build these thermal plants were the result of the Hydro-Thermal Program developed by joint action of public and private utilities, BPA and major power users in the Pacific Northwest in the late 1960s.

The first phase of this program was designed to meet projected power requirements into the early 1980s. The proposals of various plant sponsors were coordinated and scheduled so that the expected needs of all power users could be served best while, at the same time, the number of projects which would be needed was minimized.

In addition to WNP-1, 2 and 3, other thermal projects and their chief sponsors in this phase of the program were the Jim Bridger coal-fired plants in Wyoming and the Centralia coal-fired plants in Washington by Pacific Power and Light Co., and the Trojan and Pebble Springs nuclear projects in Oregon by Portland General Electric Co. With the exception of the Pebble Springs unit, all the projects of the first phase of the program are completed or under construction.

Regional Loads and Resources

Figure 1

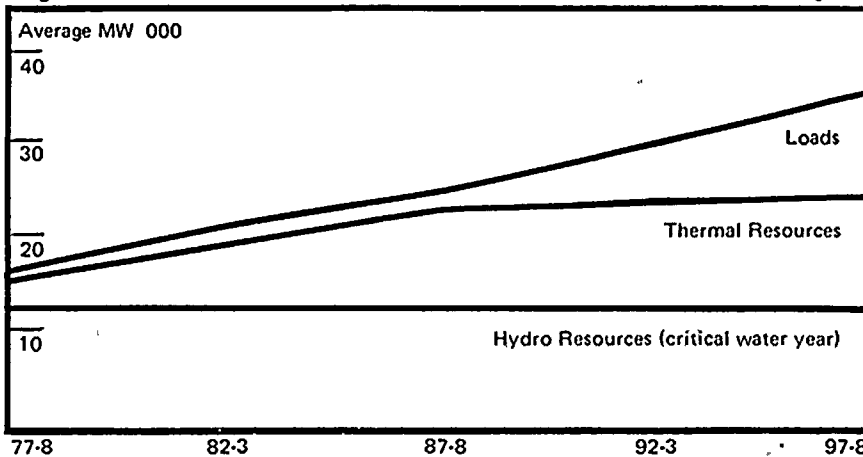


Chart shows the relative growing importance of the thermal resource to meet the total regional needs. Hydro resources shown are for a critical water year which causes deficits to be shown.

Regional Thermal Resources

Figure 2

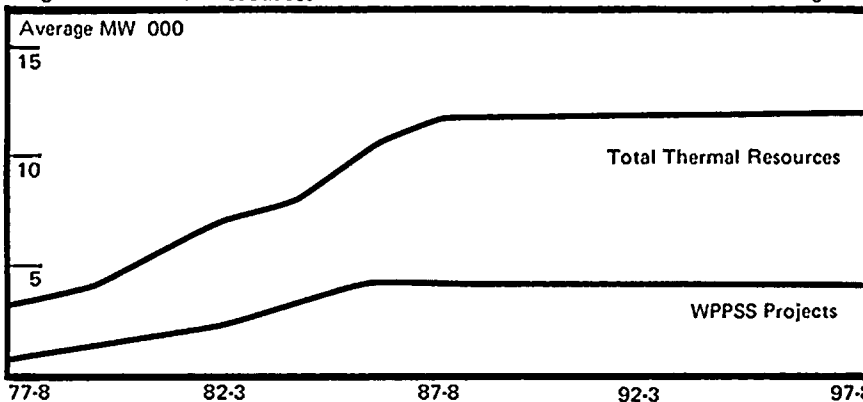


Chart shows the relative proportion of the total thermal resource which is supplied by WPPSS projects.

Public Utilities Resources

Figure 3

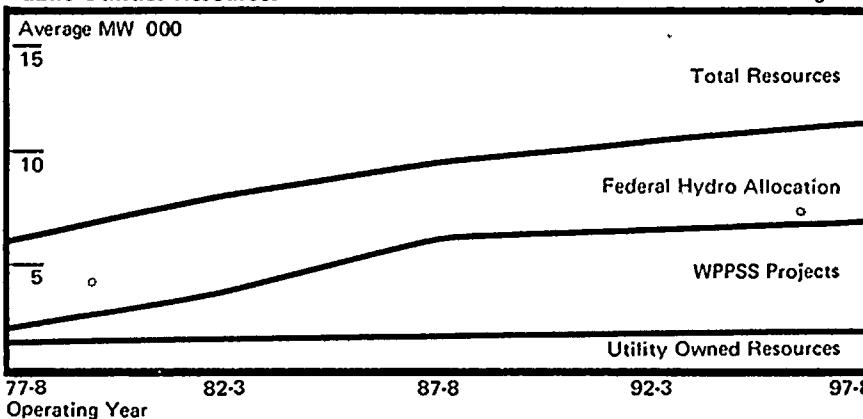


Chart shows the makeup of resources available to the public utilities and the growing importance of the WPPSS projects to supply the needs of these utilities.

The first phase will produce an additional 8,400,000 kilowatts of generating capacity.

In the early 1970s, a second phase of the program began to develop to meet projected needs until the late 1980s, with an additional 8,600,000 kilowatts of generating capacity.

This second phase includes the Supply System's Nuclear Projects 4 and 5. Other projects and their chief sponsors are the Colstrip coal-fired plants in Montana by Montana Power Co.; a fourth unit of the Jim Bridger coal-fired plant in Wyoming by Pacific Power and Light Co.; the Boardman coal-fired plant in Oregon by Portland General Electric Co.; the two Skagit nuclear projects in Washington by Puget Sound Power and Light Co.; and a second unit of the Pebble Springs nuclear project in Oregon by Portland General Electric Co.

In addition to cooperation in scheduling the time of construction of these projects, most have cooperative, joint utility ownership. Since no single utility in the region has an annual growth at the generating capacity level of the projects -- 500,000 to 1-million kilowatts -- joint ownership better meets their individual growth requirements and diversifies their resource base.

Large industrial users -- Direct Service Customers -- who receive their power directly from BPA also make up an integral part of the cooperative planning process. They have signed unique short-term Power Sales Agreements with the Supply System in which they agree to purchase power from WNP-4 and -5 which might be surplus to the public utility participants during the early project operating years, but agree to relinquish this power upon proper notice if the Participants find their needs growing or other expected resources do not materialize.

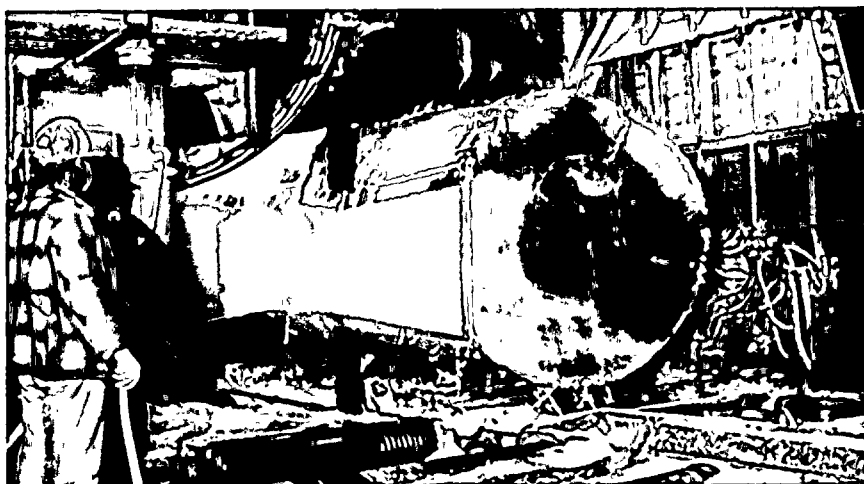
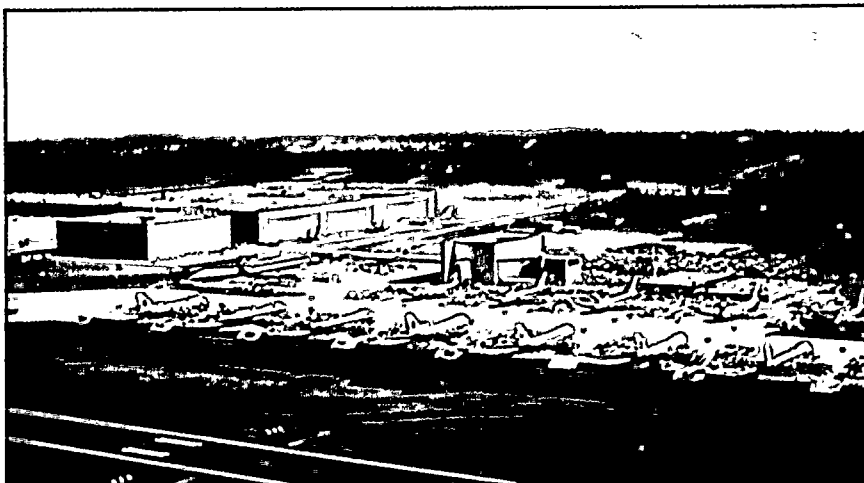
This cooperative arrangement allowed the Supply System to begin building slightly in advance of projected public

Airliners were lined up at the fabrication plant which obtains its power from the Snohomish County Public Utility District.

agency needs in order to meet regional power needs and yet helped support or firm-up parts of contracts between the Direct Service Customers and BPA for interruptible power.

While all of the projects of the second phase of the hydro-thermal programs are either under construction or under application for construction permits, a more formal Regional Power Plan has been developed for consideration. The plan will permit renewal of contracts with BPA in conjunction with an allocation of the Federally controlled hydro-thermal base of about 9,500,000 average kilowatts. A significant principle of the proposed program is the right of BPA to purchase power from plant sponsors on life-of-project contracts and resell the power to public, private and industrial users. These purchase contracts should give added assurance of support for the extensive financing which will be required to continue to meet the growing demands of the Pacific Northwest Region.

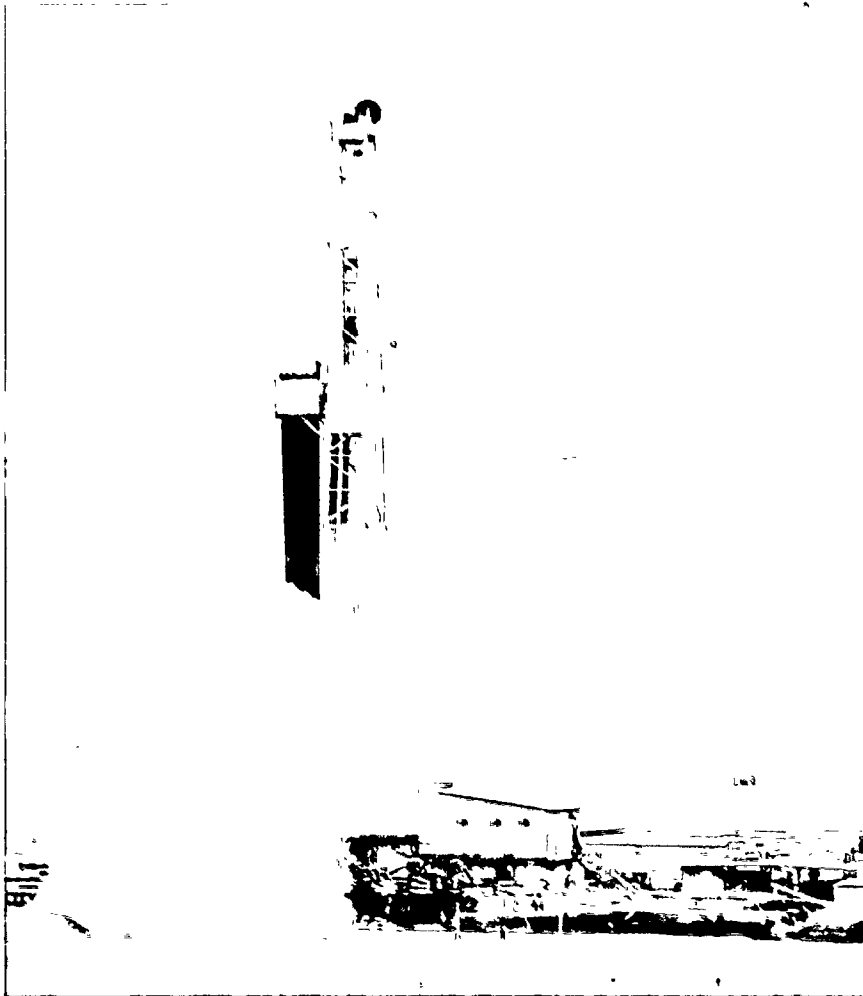
This program will require Congressional approval and will be subject to extensive discussion and possible modification before it would be accepted. Whatever the form of the final program, it is clear that the unique cooperation which exists among key parties in the Pacific Northwest Region will continue and the Supply System can be expected to play an increasingly important role.



An electrically powered band saw carved a giant forest log in a lumber mill served by a WPPSS member public utility district.

Role of WPPSS in the Regional Power Program

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



Steam from geothermal heat rose in the air above the Idaho plain as drilling proceeded on the Raft River Project.

The Supply System might be described as a synergist in the regional energy supply program, bringing together individual utilities to produce an effect greater than the sum of the effects of the individual agencies -- generating more power by operating jointly than could be produced by the utilities acting individually.

In the Pacific Northwest, where the Supply System serves, there are 115 publicly owned electric utilities, some large, but many that are small. All are looking for a source of the energy they know will be needed in the future. The Supply System provides that source.

A high percentage of these public utilities participate in the Supply System's projects. This broad base of utilities helps make possible the financing of large power generating stations.

There are three major classification of these public utilities: Public Utility Districts (PUDs), Municipalities and Cooperatives.

Each utility is self-governed and independent. They are geographically dispersed throughout Washington, Oregon, Idaho, western Montana and one each in the fringe areas of Wyoming, Nevada and California. These utilities have long histories of efficient and reliable service to the people they serve and who elect their governing bodies.

In addition to the public utilities, there are four investor-owned utilities which are partial owners in two Supply System projects. They are: Pacific Power and Light Co., Portland General Electric Co., Puget Sound Power and Light Co. and The Washington Water Power Co., operating in Washington, Oregon, Montana, Idaho and Wyoming.

There also is indirect participation by the large industries of the region and, in particular, the aluminum producers, which have contracted to buy any surplus power from several projects.

Thus, the financial backing for Supply System projects is broad and diverse. The utilities involved operate in several states and participation is spread among public and private utilities, as well as private industry.

The role of BPA is especially significant. First, the extensive BPA transmission system ties the projects to the utilities' service areas. Second,

Center pivot irrigation systems, in wide use in the semi-arid regions of the west, require large supplies of power.

the contractual arrangements for three of the Supply System's projects puts BPA, and thus the Federal Government, in a supporting financial role. Third, the Federal hydro system, which BPA coordinates and whose power it markets, provides an ideal power base for maximum utilization of the Supply System's thermal power projects.

The low cost of this large hydro base, which is a substantial portion of the public utility resources, dilutes the higher cost of new thermal resources and provides for their melding into the utilities' cost base in an economically acceptable manner.

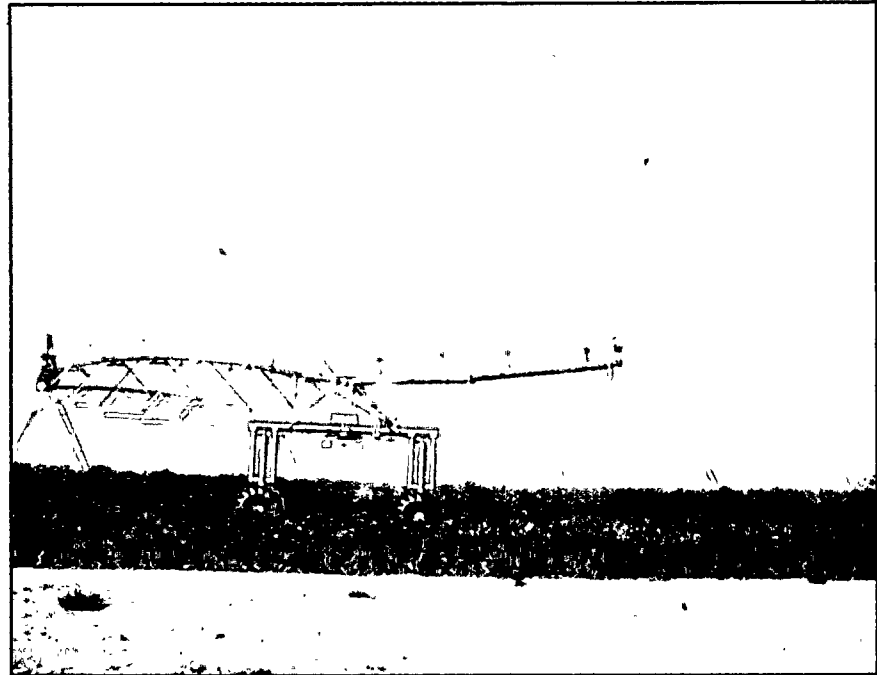
In the total system, power from Supply System projects will be used throughout a 300,000-square-mile region and, in different ways, will reach almost all of the nearly 6.5-million people in the region.

Of the 110 public utilities presently served, there are 26 PUDs, 32 Municipalities, and 52 Cooperatives. The financial obligation of each of these public utilities has a common thread -- an absolute agreement to pay its share of the project costs, independent of whether the project ever operates.

Further, each utility agrees to an automatic increase in its mandatory obligation by as much as 25 percent if one or more participants are unable to meet their obligation.

Each utility also agrees to set rates at a level necessary to meet its obligation. Because each utility sets its own rates independent of any outside rate review agency and, since the utilities currently have some of the lowest rates in the nation, there is a strong confidence that they can and will meet their financial obligations to the Supply System. This is a key factor in the ability of the Supply System to attract the capital needed to construct its projects.

The real base of the ability to meet these obligations is the economy of the region which the utilities serve



and this economy is strong and growing faster than the U.S. average.

The economy is highly diversified. Key areas are:

- Agriculture, with primary products of wheat, fruit, potatoes and beef and important secondary activities in food processing.
- Timber products, principally lumber and paper.
- Aircraft manufacturing.
- Primary metals, principally aluminum.
- Mining.
- Fishing.
- Foreign trade with Pacific rim countries.
- Military activities, with major Navy, Army, and Air Force bases in the Puget Sound area.

Almost all of these activities are growing at a rapid rate, but there is considerable room in the Pacific Northwest for additional growth. There are millions of acres available for new irrigation projects and there are sizable timber reserves.

Even though current and projected population growth rates in the Pacific Northwest exceed that of the U.S. average, the population density of the region is still very low.

The expectation of a continuing rapid expansion of the region's economy is very reasonable and a vital key to this expansion is a continuing, reliable source of energy. The Supply System, with its strong base of project participants, is moving ahead to match the expected energy demands.

Projects in Operation

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



Deer are almost daily visitors to the Hanford Generating Project lawn, adjacent to the Federal Government's N Reactor.

Hanford Generating Project

The Supply System's 860,000-kilowatt HGP completed 11 years of operation as the 1977 operating year ended. During the year, the project passed a milestone with the generation of its 37-billionth kilowatt hour. Only one other nuclear plant in the free world has generated a greater amount of electricity from a single unit.

HGP's gross generation for the Fiscal Year was 3,985,710,000 kilowatt hours at a cost of 7.3 mils per kilo-

watt hour. This compares with the 1976 electrical production of 2,608,440,000 kilowatts at a cost of 11.9 mils per kilowatt hour. The improvement in electrical production in 1977 resulted from the restoration of the turbine generators to full production capability following problems with cracks in some turbine blades.

The daily production of HGP, about 20-million kilowatt hours, meets the needs of a city with a population of 531,000, or the size of Seattle, and is equivalent to the daily electrical production of the hydroelectric plant at The Dalles Dam on the lower reach of the Columbia River.

Because of a region-wide drought which drastically reduced water flow in the rivers which provide about 80 percent of the region's power through hydroelectric projects, the HGP operation was extended from the normal shutdown in mid-May until mid-July to supply power to the region and to permit maximum conservation of water resources.

The Supply System reached agreement with ERDA to extend HGP operation five years beyond the scheduled expiration date of October, 1977. The new agreement calls for annual increases in the amount paid for the steam from the ERDA's "N-Reactor" which is utilized to generate power in the HGP turbines.

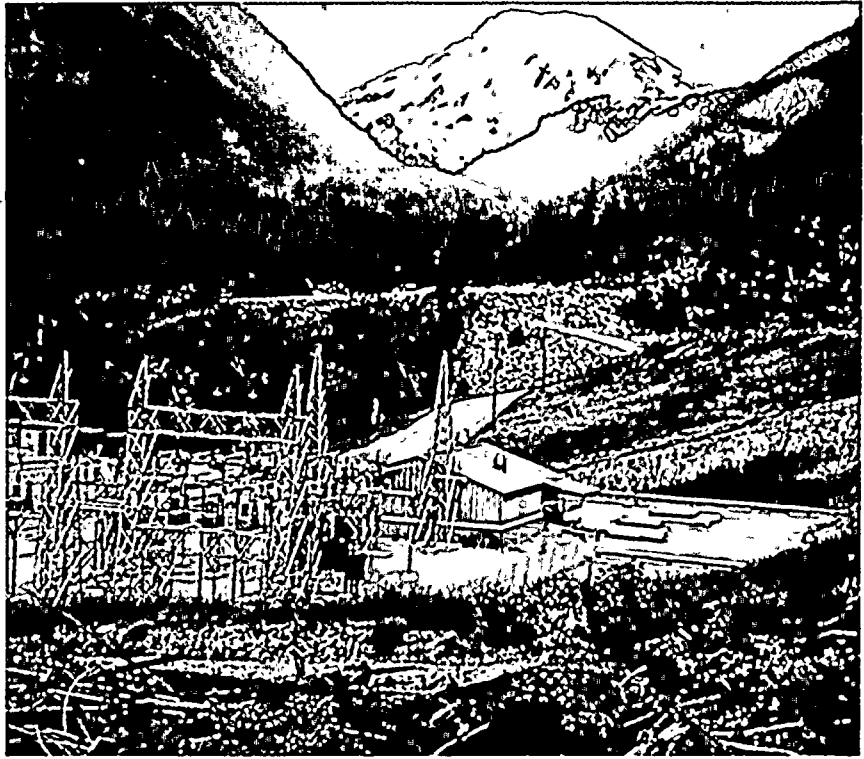
The Supply System paid almost \$20 million for steam during the 1977 operating year. Under the new contract, for a year in which about 4.5-billion kilowatt hours are generated, the payment will rise from \$34 million in 1979 to about \$45 million in 1983.

Until the next nuclear power plant becomes operational in 1980, power produced by HGP fills about 30 percent of the projected deficit in the BPA service area.

Packwood Lake Project

The Packwood Lake Project was affected by a lack of precipitation during the 1977 Fiscal Year. In most years, snow lies as much as 6 feet deep on the shore of Packwood Lake and ice may still cover the lake surface well into the spring months. Snow has been measured 16 feet deep in some years on some of the rugged mountain peaks that surround the lake in the Gifford Pinchot National Forest of the Cascade Mountains.

Fiscal Year 1977 was an extraordinary year of very little snow or rain, resulting in little runoff water to generate power in the Supply System's Packwood Hydroelectric Project. The generation of 82,922,700 kilowatt hours during the year was 27.4 percent less than in Fiscal 1976 and 18 percent less than the historical average annual generation. Generation fell to as low as 5,000 kilowatts during the late winter months before the scant snowpack, measured at 16 inches in March,



began to melt. It was increased to 19,100 kilowatts as the operating year drew to a close.

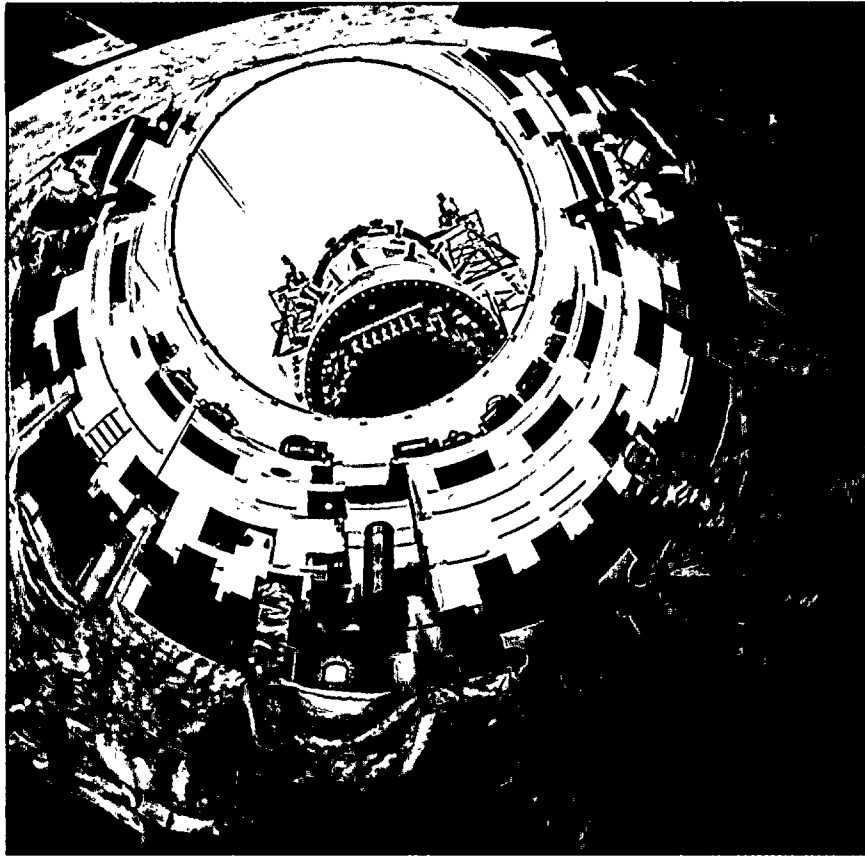
The 27,500-kilowatt project has generated a total net 1,327,195,800 kilowatt hours in its 13 years of operation.

In the fall of 1976, repairs were completed to the tailrace lining and mechanical screens which were damaged in severe flooding in 1974. Repairs were also completed to a damaged 100-foot section of tunnel lining which is part of the pipeline-tunnel-penstock system which delivers water from the 450-acre lake, 2,850 feet high in the mountains, to the powerhouse near Packwood, 1,800 feet below.

Majestic, snow-covered Mt. Rainier provides a scenic view from the 27,500-kilowatt Packwood hydroelectric power generating station.

Projects in Construction

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



The 966-ton Reactor Pressure Vessel for WNP-2 was suspended over the containment shell before being lowered into position.

Nuclear Project No. 2

The Washington Public Power Supply System's Nuclear Project No. 2 (WNP-2) will use a General Electric Co. nuclear steam supply system with a boiling water reactor and a Westinghouse turbine generator with a net electrical output of 1,100,000 kilowatts. The plant will have a system of six circular, mechanical draft cooling towers for off-stream cooling of the turbine condenser. The project site is about 10 miles north of the City of Richland and 3 miles west of the Columbia River on the Federally-owned Hanford Reservation. WNP-2 is expected to be in commercial operation in 1980.

In the chilly, gray, early dawn of March 31, 1977, the "Hanford Giant" began the work day.

The "Hanford Giant" was the nickname for the twin 325-foot-long boomed luffing rig hoist which was to lift the 966-ton Reactor Pressure Vessel (RPV) more than 150 feet into the air and then down into the reactor containment building, to be positioned precisely on preset mounting bolts on the reactor pedestal.

Months of preparation preceded the lift. Tons of concrete were poured as a foundation for the twin booms. The hoist was assembled on site, erected and tested to 1,344 tons, providing a capacity 39 percent above that required.

The lift was made several days ahead of schedule with the early morning start scheduled to take advantage of most favorable weather conditions. The whole task was completed in 11 hours.

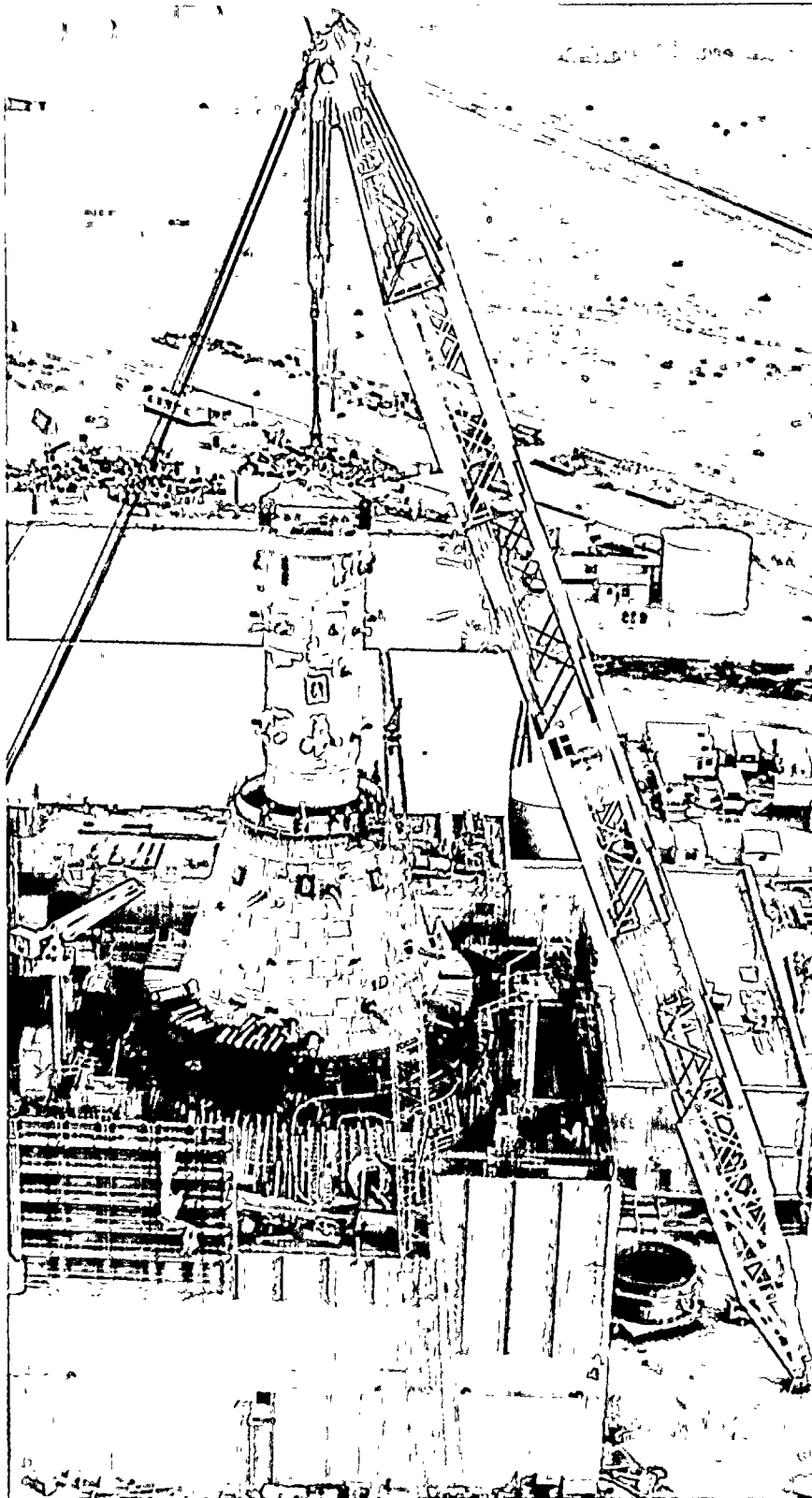
It was described as only a short distance of travel, but a major milestone of construction.

It was the first time a reactor had been set in place with the internal components already installed. This made it the heaviest lift of its kind to date. It is expected this will save months of critical path time and savings amounting to millions of dollars.

As the fiscal year drew to a close, construction was accelerating after a costly strike by plumbers and steamfitters, coupled with a lockout by national contractors, which continued from June until November 23, 1976.

Most workers of other crafts did not cross the picket line and the number of craft workers dropped to about 150 from the peak of about 1,000 before the strike began. The buildup of craft workers after the strike ended was slowed by the holiday season and the 1,000 mark was not reached again until late April. It was approaching 1,100 as the fiscal year ended.

The "Hanford Giant" was the nickname given the luffing rig used to lift the 966-ton Reactor Pressure Vessel into WNP-2.



Because of the lengthy strike, and other factors, the commercial operating date was rescheduled for the fall of 1980 instead of June 1980.

During the year, construction progress advanced 11 percent to 43 percent completion and design engineering advanced to 87 percent completion.

Three major construction contracts and one contract for pre-purchased equipment were awarded for a total of more than \$313 million. Only six equipment and eight construction contracts remained to be awarded to complete the project.

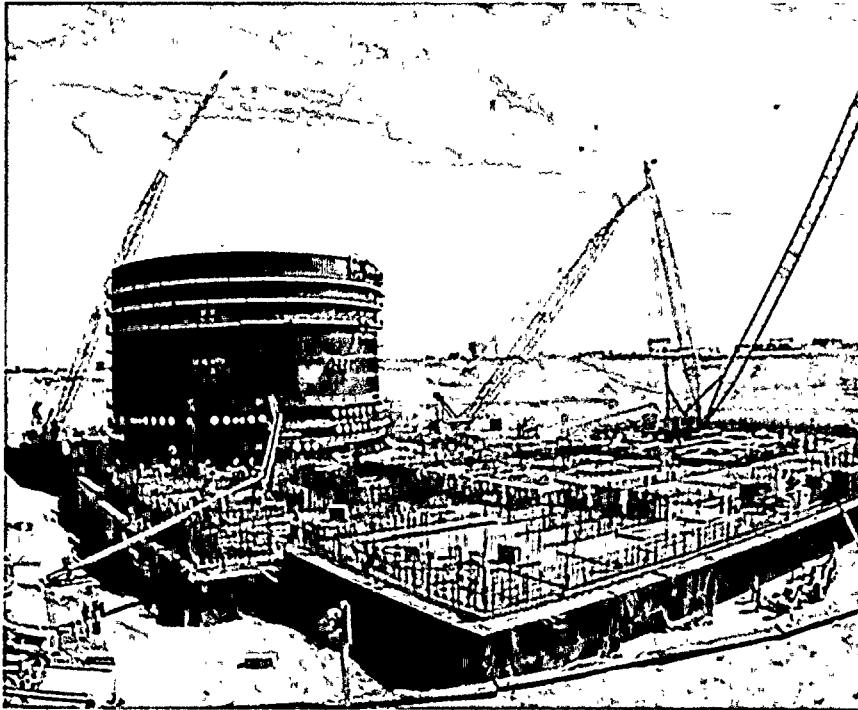
In terms of work completed during the year, about 15,000 cubic yards of concrete were placed, 40,000 linear feet (8 miles) of large diameter pipe and 132,000 linear feet (25 miles) of cable tray were put in place. In addition, 310,000 pounds of heating and ventilating duct work were installed.

Construction of the six cooling towers, the condenser circulating water piping, installation of the cooling tower makeup-water, circulating-water blow-down piping, river makeup-water inlet and the civil and structural portions of the Recycle Building were completed.

Transformers were set in the main transformer yard and the turbine makeup-water pumphouse was essentially completed. Warehouses were built and filled with equipment for subsequent installation.

The Diesel Generator Building -- last major structure in the project -- was started.

The Final Environmental Report was submitted and accepted by the NRC for review in December 1976. Work continued on preparation of the Final Safety Analysis Report.



The shape of WNP-1 began to become apparent with the construction of the steel liner for the reactor containment shell.

Nuclear Projects No.1 and No.4

The Washington Public Power Supply System's Nuclear Projects No. 1 (WNP-1) and No. 4 (WNP-4) are duplicate 1,250,000-kilowatt nuclear power plants. Each plant will use a Babcock and Wilcox nuclear steam supply system with a pressurized water reactor and a Westinghouse turbine generator. Each will also have a system of three mechanical draft cooling towers for off-stream cooling of the turbine condenser water. WNP-1 and WNP-4 will share a pumphouse on the Columbia River to provide water to make up for evaporative and other losses from each plant's cooling system. The two power plants will be about 3,000 feet apart on sites about 10 miles north of the City of Richland and about 2.5 miles west of the Columbia River. WNP-1 is expected to be in commercial operation in December 1982 and WNP-4 in June 1984.

Fiscal Year 1977 was the year in which WNP-1 and WNP-4 began to take shape and form.

With the excavation of more than 1.5-million cubic yards of earth completed the previous year, placement of concrete began to accelerate. The containment building foundations each required 27,000 cubic yards of concrete.

The projects also will have structures that are the first of their kind in the nation -- steel plate lined reinforced concrete containment shells, designed to meet all the requirements of the American Society of Mechanical Engineers Code for nuclear purposes. A \$67,363,970 contract for the containment structures was awarded during the year. It is one of the largest field construction contracts on the projects.

Meanwhile, engineering advanced by 21 percent to 73.6 percent complete, and emphasis continued to shift from engineering, planning and licensing activities toward physical construction. More than 400 craftsmen were working at the site by the end of the fiscal year.

Construction of WNP-1 increased to 4.6 percent complete and WNP-4 to 1.6 percent complete at the end of the fiscal year. The two projects have been scheduled for completion 18 months apart to permit more efficient use of the labor force.

Work on WNP-1 is proceeding under a full Construction Permit from the NRC which allows construction to completion. WNP-4 work is progressing under an extended Limited Work Authorization.

Issuance of a Construction Permit for WNP-4 was delayed pending further investigation of an earthquake which took place in the northern Cascade Mountains in 1972.

No detection instruments were available at the time of the earthquake so the only sources of information for

Reinforcing steel was put in place in preparation for a concrete pour at WNP-4.

investigators were reports in newspapers of the time and other limited written records.

A panel of expert geologists commissioned to evaluate all the available historical information concluded that the earthquake was centered somewhere between Lake Chelan and the Canadian border and that the maximum intensity that could be assigned was VIII on the Modified Mercalli scale.

Later the NRC and the U.S. Geological Survey concluded that additional data would be required before any determination could be made as to the earthquake source and its impact on the seismic design of WNP-1 and WNP-4.

The Supply System renewed and expanded the study effort using detailed geologic mapping, geophysical studies, remote sensing evaluations and airborne magnetometer surveys.

The data will be submitted to the NRC in the fall of 1977 with the expectation that the Construction Permit will be issued in early 1978.

During the year, 99 contracts with a value of \$99 million were awarded for prepurchased equipment, bringing the total awarded for equipment to \$364,668,589. In addition, 13 construction contracts with a value of \$110 million were awarded, bringing the total for construction to \$219,213,763.

In activities not associated directly with construction, the first annual progress report of a continuing three-year socioeconomic impact study was issued. The study is to assess the effects that large numbers of project workers -- many from other areas -- have on the social and economic services and agencies provided by the various taxing districts.

The first progress report noted that impacts were limited because of a lower than expected employment level



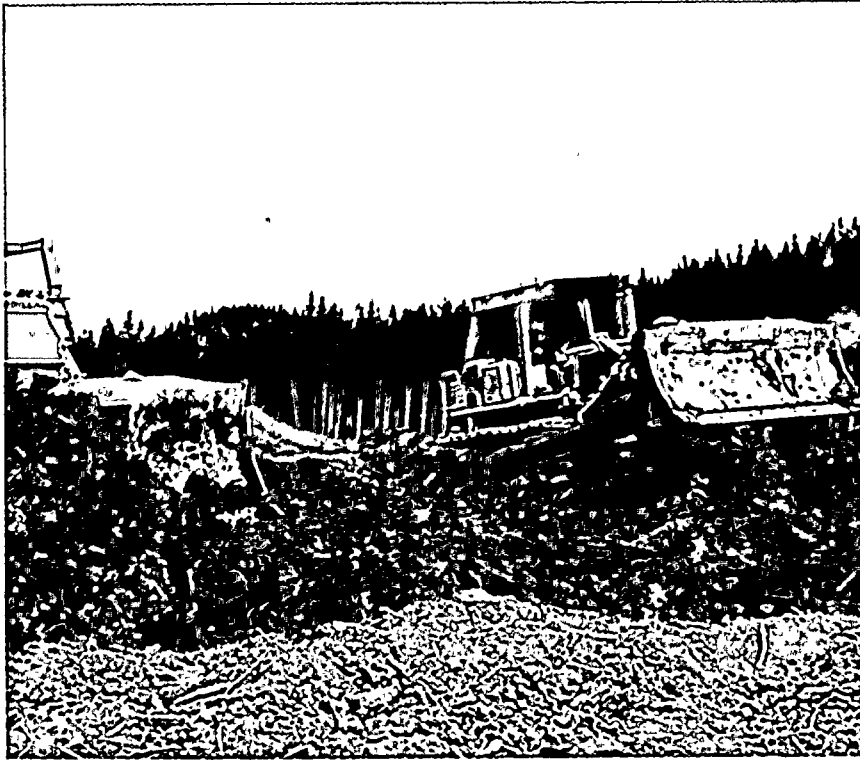
in the first year and that only a small proportion of the workers were new residents.

However, a group of 11 taxing districts requested impact payments totaling \$11.8 million. The Supply System proposed an agreement for \$1,228,000 for impacts that could be demonstrated.

The matter was taken to the State Energy Facility Site Evaluation Council (EFSEC) after an impasse was reached. The matter had not been resolved at the end of the fiscal year.

Hearings also began before EFSEC on a petition by the State Department of Fisheries related to a study of the Columbia River under low-flow conditions in April 1976. The Department

of Fisheries claimed some impact to emerging Chinook salmon fry as a result of the study and asked EFSEC to conduct a hearing and set a value for damages. Hearings took place intermittently from March 8 through April 28 and then recessed while the Supply System and the Department of Fisheries attempted negotiations for a settlement. This matter also was pending resolution at the end of the fiscal year.



Bulldozers were at work clearing the site where WNP-3 and WNP-5 will be built.

Nuclear Projects No.3 and No.5

The Washington Public Power Supply System's Nuclear Projects No. 3 (WNP-3) and No. 5 (WNP-5) are duplicate 1,240,000-kilowatt nuclear power plants. Each plant will use a Combustion Engineering nuclear steam supply system with a pressurized water reactor and a Westinghouse turbine generator. The plants will use hyperbolic, natural-draft cooling towers for off-stream cooling of the turbine condenser. The plants will be built end to end on a site about 16 miles east of Aberdeen, 27 miles west of Olympia and 3 miles south of the town of Satsop in Grays Harbor County. WNP-3 is expected to be in commercial operation in September 1983 and WNP-5 in March 1985.

On April 11, 1977, men and machinery moved onto the land that will be the site of duplicate nuclear power plants, moving the WNP-3 and WNP-5 projects beyond the planning stage and into the construction stage.

It was the beginning of an 8-year construction project and the end of a 3-year effort to obtain a Limited Work Authorization (LWA) from the NRC to begin work. Issuance of the LWA had been expected in early August 1976, but on July 21, the District of Columbia Circuit Court of Appeals issued a directive that environmental considerations of various elements of the nuclear fuel cycle, such as fuel reprocessing and waste management, be more fully incorporated into NRC deliberations before a license could be issued.

Resumption of licensing was authorized on November 5, 1976, and the LWA for WNP-3 and WNP-5 was issued April 8, 1977 after further reviews of possible environmental impact and geological and seismological adequacy of the site as related to an earthquake which occurred in the Pacific Northwest in 1872.

On May 24 and 25, the Atomic Safety and Licensing Board conducted formal hearings to take up health and safety issues and other information required in advance of the issuance of a Construction Permit.

While awaiting the proper permits to begin work, materials such as large concrete pipe began to arrive. Space had to be leased for storage. Special permission was received from the NRC for an on-site laydown area for equipment.

Between the time the LWA was received and June 30, 1977, five contractors had started work at the site on clearing and grubbing, erosion control facilities, major excavation, soil testing and monitoring and development of the open-storage laydown areas.

Workmen prepared a drain system to prevent erosion at the WNP-3 and WNP-5 site.

Between July 1, 1976 and July 1, 1977, 42 contracts were awarded for WNP-3 and 5 totaling \$141,422,824. Effective contracts at the close of the fiscal year totaled \$474,978,773.

Work has been divided into 64 different tasks, each of which will form the basis of a separate construction contract, ranging in value from \$250,000 to \$24 million.

At the end of the fiscal year, engineering design had progressed to 63.5 percent complete on WNP-3 and 60.9 percent complete on WNP-5.

As with its projects WNP-1 and WNP-4 near Richland, the Supply System is obligated to make assistance payments to offset social and economic impacts in the region surrounding the WNP-3 and WNP-5 projects.

Negotiations with school districts and other taxing districts were begun and it was expected that agreement would be reached before the end of calendar year 1977.

In environmental studies, migrating salmon assisted engineers.

Each fall, Coho and Chum salmon swim from the ocean into the Chehalis River and then into the Satsop River to spawn. Many of the salmon are headed for a State Department of Fisheries hatchery, about 20 miles upstream from the confluence of the Satsop and Chehalis Rivers.

A team of scientists retained by the Supply System captured some of the 8-to-10-pound fish and fitted them with small, battery-operated sonic transmitters. The fish were then taken back to the Chehalis River, to a point about 2½ miles downstream from the mouth of the Satsop River. There, they were released to repeat the final stage of their migration, with the scientists tracking their route by using sound detection equipment to pick up the signals.

The fish-tracking study will be used to locate the water discharge pipes where



they will least affect the migrating fish in the Chehalis River.

The Site Certification Agreement for the projects allows withdrawal of 80 cubic feet of water per second from the Chehalis River when the river flow is more than 550 cubic feet per second, a condition that is normal except for an average of 14 days a year. This constraint was considered a limiting factor on plant operation and the scheduling of plant refueling. A petition was filed in Thurston County Superior Court for modification of this section of the site agreement.

The Supply System will own 70 percent of WNP-3 with the remainder owned by Portland General Electric Co., (10 percent), Pacific Power and Light Co., (10 percent), Puget Sound

Power and Light Co., (5 percent), and The Washington Water Power Co., (5 percent).

The Supply System portion of the electrical output of WNP-3 will be purchased by 103 consumer-owned utilities and delivered to them over BPA's high voltage transmission system.

WNP-5 will be jointly owned with Pacific Power and Light Co., which will have a 10-percent share. The Supply System's share of power from WNP-5 will be purchased by 88 consumer-owned utilities.

Special Programs and Studies

WASHINGTON PUBLIC POWER SUPPLY SYSTEM



A crew operated a drilling rig in the search for uranium ore in the Red Desert of Wyoming.

On the Snake River Plain in south central Idaho, well drillers probe 6,000 feet deep into a geothermal reservoir.

In Richland, Washington, some Supply System employees do their work in a building partially heated and cooled with solar energy.

Others work on a study comparing the economics of coal-fired and nuclear power plants.

On the Red Desert land of Wyoming, in the Great Divide Basin, exploratory drilling goes on in search of uranium ore to be converted into fuel for Supply System nuclear power projects.

In Florida, a phosphate fertilizer manufacturer considers installation of facilities to extract uranium from the residue under an agreement with the Supply System.

In California, a consulting firm makes preparations for an extensive study of the Pacific Northwest for suitable sites for possible future thermal power projects of the Supply System.

These are examples of activities taking place under several different Supply System programs aimed at making it possible for participants in Supply System projects to determine the best methods of meeting the projected needs of their customers for power and energy . . . of making sure sites are available for future projects . . . and assuring a continued future fuel supply for projects now under construction.

One such activity is the Energy Program, with about \$1 million budgeted for calendar year 1977. The short-term objective of this program is to plan for the possible addition of power projects, or other means, such as conservation, to equal about 2.5-million kilowatts in the Pacific Northwest.

The long-term portion of the program involves studies in many different areas of energy resources. They include: hydroelectric, geothermal, central station solar, central station wind, fusion, liquid metal fast breeder reactor, high temperature gas cooled reactor, gas cooled fast breeder reactor, light water breeder reactor, in-place coal gasification, fuel cells, municipal waste utilization, decentralized solar system, conservation, pumped hydro storage and others.

The studies will have a Pacific Northwest orientation and an emphasis on demonstrated technologies. Research and technological development are felt to be the province of the large national associations while the utilities concentrate their efforts on demonstrating new technologies on the utility grid.

The Energy Program is financed with WNP-4 and WNP-5 bond proceeds. Participants authorized up to \$50 million for the program.

This comprehensive program allows a thorough evaluation of the economies and impacts of various alternatives, permits the orderly selection of the optimum next project and then provides the financing necessary to begin that project and carry it until permanent financing can be arranged.

In Idaho, the Supply System is acting for the Public Power Council during the design and planning stages, providing design and procurement review and consultation with project sponsors of the Raft River Geothermal Project. The project is a joint program of the Federal Government and the Raft River Rural Electric Cooperative. The project, near Malta, will provide a test facility for evaluating the performance of a binary system as a means of extracting electrical energy from a medium temperature geothermal resource.

The search for uranium is taking place under the "Uranium Bearing Lands Acquisition Program" (UBLA), also authorized for up to \$45 million by WNP-4 and WNP-5 proceeds. The objective is to secure at least 10-million pounds of proven reserves by the mid-1980s.

The Supply System has contracts which entirely fulfill uranium requirements for three nuclear power projects through 1986 and half of their requirements for another 8 years, through 1994. In addition, for the other two nuclear projects, the Supply System has contracts for uranium to meet their needs into the early 1990s.

However, increasing difficulty in obtaining firm contracts for the remaining needs brought about the Supply System plans to conduct its own exploration.

Rights were acquired to explore on a total of 363,000 acres in Wyoming's Red Desert and exploratory drilling began in June 1977. Some uranium mineralization has been located, but deposits found to date are of a grade or thickness which do not warrant commercial exploitation. However, discovery of any mineralization so early in the program is considered favorable.

After the exploration program was announced in December 1976, the Supply System quickly began receiving proposals from mining claim owners. Some came to the Supply System offices bringing samples of ore.

By the end of the fiscal year, nearly 100 proposals for development had been received. Most were rejected for various reasons such as possible legal restrictions, negative evaluation, limited potential or time restrictions, but several proposals showed promise and were being evaluated for possible further action.

Earlier in the year, the Supply System entered into a contract with a phosphate fertilizer manufacturing firm in Florida to supply uranium as a by-product of their phosphate operations. The contract, believed to be one of the first of its kind in the nation, provides for the sale of uranium concentrates to the Supply System for 15 years, beginning in 1980. Production and sale of the concentrates is contingent upon continued operation of those facilities. Although the firm has until near the end of 1977 to make a decision, expectations are that it will proceed.

Late in 1975, the first phase of a siting program for future thermal generating plants was completed. More than a year had been spent surveying an area of 170,000 square miles. Twelve candidate sites, ranging in size from 400 to 1,000 acres, were identified as example sites within favorable siting areas for future consideration.

Late in Fiscal 1977, a continuation and expansion of the study was approved. The continuing study will first rank the possible nuclear project sites for discussion with local, state and regional agencies, organizations and individuals. The sites then will be submitted for prequalification and "banking" for possible future use.

A second phase will continue the coal-siting portion of the previous study over a larger geographic area. It also will include identification of possible sites, ranking and selection for future evaluation and "banking."

The study is expected to take a year to complete.

Financing Activities

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

The Supply System sold \$615 million par value of bonds during fiscal year ended June 30, 1977. These sales increased total bonds outstanding to \$1.989 billion. The projected future financing program requires approximately \$5.0 billion to be raised through 1983.

Nuclear Projects Nos. 1, 2 and 3 Financing Effort

During the fiscal year that ended June 30, 1977, the Supply System sold \$380 million par value of bonds for Nuclear Projects Nos. 1 and 2 in two separate trips to the municipal revenue bond market. These revenue bonds were rated "Triple A" by Moody's and Standard and Poor's rating services. The average weighted borrowing cost for these two issues was 6.1 percent. These sales increased total bonds outstanding for Nuclear Projects Nos. 1 through 3 to \$1.585 billion. The borrowing cost for these issues over a four year period ranged from 5.7 percent to 7.86 percent.

On July 12, 1977, after the close of the fiscal year, the Supply System sold \$230 million par value of revenue bonds for Nuclear Project No. 3. The borrowing cost for this issue was 5.71 percent. WPPSS has been advised that this sale was the largest ever accomplished under competitive bidding procedures in the history of the municipal revenue bond market. This sale brought the total debt outstanding for Nuclear Project No. 3 to \$480 million at an average borrowing cost of 6.55 percent. Table III shows that

Accumulated Financing Resources

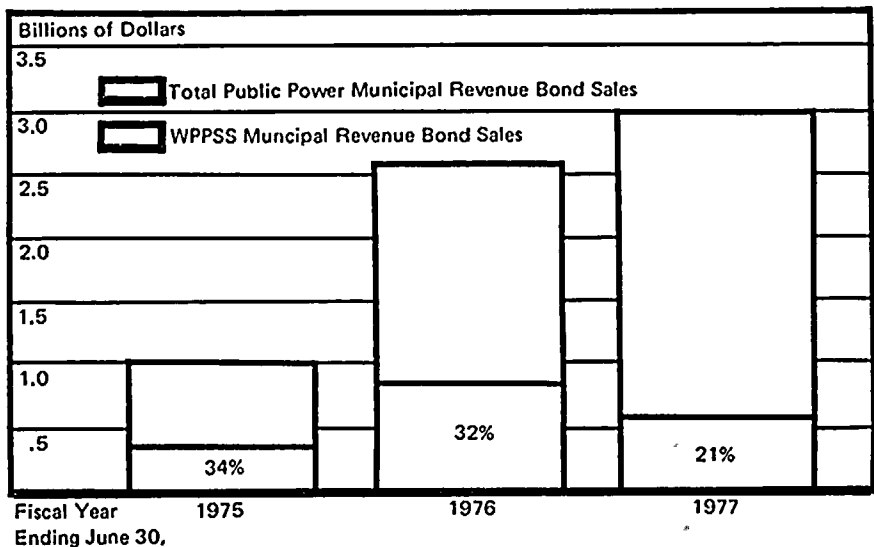
WNP Nos. 1-5, Inception through June 30, 1977
(\$ In Millions)

Table I

	Proceeds Bond & Note Sales	Investment Income Earned	Accumulated Financing Resources	Percentage Change
From Inception through 6-30-74	\$340	\$14	\$354	Base
7-1-74 through 6-30-75	331	26	712	+101%
7-1-75 through 6-30-76	840	46	1,597	+125%
7-1-76 through 6-30-77	614	63	2,274	+42%
Total Accumulated Financing Resources	\$2,125	\$149		

WPPSS Municipal Bond Sales Compared to Other Public Power Municipal Bond Sales

Table II



the financing programs for Nuclear Projects No. 1, 2 and 3 are 42 percent, 78 percent, and 51 percent completed respectively.

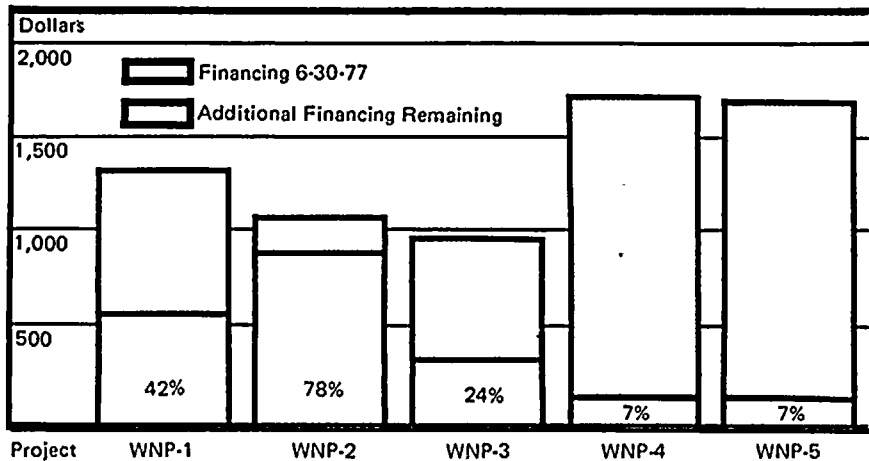
Nuclear Projects Nos. 4 and 5 Financing Effort

The major achievement of the financing program was the successful launching of the permanent, long-term

financing program for WNP-4 and WNP-5 which are being financed as a separate single system. During the fiscal year ending June 30, 1977 the System sold \$235 million par value of revenue bonds in two separate trips to the market at an average weighted borrowing cost of 6.08 percent. These revenue bonds were rated "A-1" and "A+" respectively by Moody's and Standard and Poor's rating services. Table III shows that the financing program for Projects Nos. 4 and 5 is in its initial stages.

WPPSS Estimated Financing Requirements
(\$ In Millions)

Table III



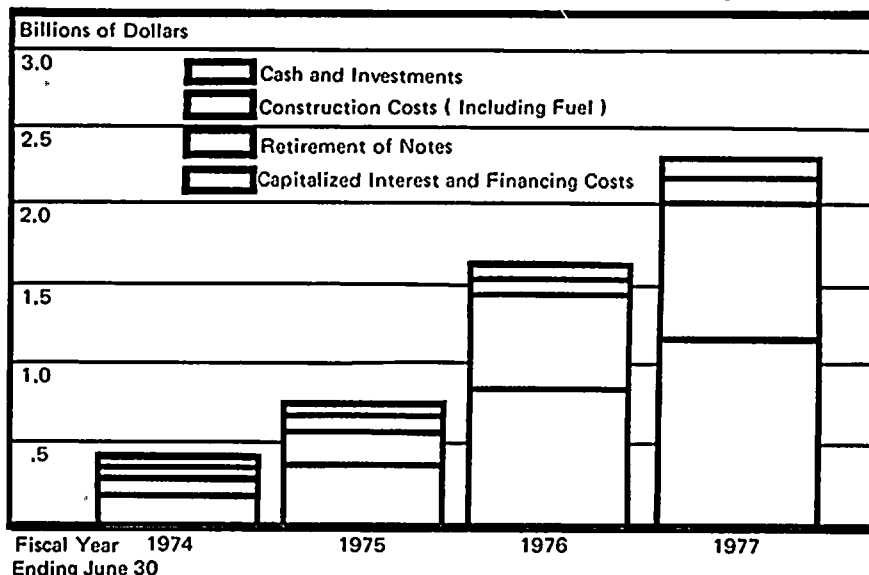
current financing program is one of the largest financing programs for construction of generating facilities of any corporation, municipal or private, in the U.S.

Application of Funds

The Supply System is responsible for the stewardship of all funds pending their ultimate disbursement. To this end, a major investment program is conducted.

Interest income from the investment program is credited to projects as required by Bond Resolutions or Municipal Codes of the State of Washington.

Accumulated Uses of Resources For Nuclear Projects Nos. 1 through 5 Table IV



The impact of the investment program has been to offset 84 percent of the capitalized interest and financing costs incurred from the sale of bonds. The Supply System has earned \$149 million in interest income for WNP-1 through WNP-5 from inception, while incurring \$178 million interest and financing costs.

Efficient operation of the investment program requires a sophisticated cash management plan and the implementation of an extensive interdepartmental communication network. The use of accumulated resources of WNP-1 through WNP-5 through June 30, 1977 are illustrated in Table IV.

For Fiscal Year 1977, the Supply System invested an average of \$951 million per day which produced a rate of return of 6.62 percent. Comparing this to the borrowing costs of 6.59 percent per day, the investment program provided .03 percent greater income than cost incurred.

Resources

The only major source of funds for the Supply System, prior to the collection of operating revenue, is proceeds from revenue bond sales and the investment income earned from these proceeds pending disbursement.

As shown in Table I, approximately \$354 million of financing resources were accumulated from inception of the projects through June 30, 1974. However, since this period, financing resources have increased approximate-

ly \$1.9 billion, equivalent to a 90 percent compounded average growth rate in 3 years.

This growth has brought the Supply System to the forefront as a major participant in the municipal revenue bond market, specifically in the Public Power Revenue Bond sector.

Table II demonstrates the impact of the financing program of the Supply System on the Municipal Public Power Revenue market. The Supply System's

Balance Sheets

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

JUNE 30, 1977 (AMOUNTS IN THOUSANDS)

ASSETS	Hanford Project	Packwood Lake Hydroelectric Project	Nuclear Project No. 1	Nuclear Project No. 2	Nuclear Project No. 3 Note A	Nuclear Projects Nos. 4 & 5 Note A	General Fund (Unaudited)
Utility Plants and Equipment - at cost:							
In service	\$67,013	\$12,205	-	\$2,608			\$1,659
Modifications and additions to facilities owned by the U.S. Government	14,411						
Less allowances for depreciation and amortization	(36,485)	(3,337)		(178)			(1,414)
	44,939	8,868		2,430			245
Construction work in progress			\$142,649	489,455	\$98,674	\$147,167	
Nuclear fuel - at cost			24,892	12,878	11,346		
Prepayments for nuclear fuel enrichment services			4,986	4,615	4,887	10,220	
Less amount charged to other joint owners					(33,364)	(4,613)	
	44,939	8,868	172,527	509,378	81,543	152,774	245
Special Funds - Note C:							
Cash	3	2	1,762	11,983	2,591	1,040	
Investment securities - Note B	55	230	210,462	291,821	55,230	190,433	
Prepaid insurance and other assets			21	8	3	21	
Due from other Projects and General Fund - Note D			34,242	619	19,568		
Net amounts due from other funds			7,111	1,605	6,067	538	
Receivable from other joint owners					3,254	480	
	58	232	253,598	306,036	86,713	192,512	
Sinking Funds - Note C:							
Cash	13	7	1	2	6	21	
Investment securities - Note B	6,784	695	142,165	10,168	107,340	67,462	
	6,797	702	142,166	10,170	107,346	67,483	
Current Assets:							
Cash	8	38		133			19
Investment securities	3,227	175		26,767			1,310
Accounts receivable	114	98					52
Supplies and spare parts inventories	207						
Prepaid insurance	166	3					200
Due from other funds	492	46					
Due from power purchasers	695						
Special cash deposit - interest	7	3	219	27,067	307	2,592	
	4,916	363	219	53,967	307	2,592	1,581
Other Asset - unbilled reimbursable cost	4,949	2,837					
Deferred Charges:							
Costs associated with abandoned plant site - Note B			6,847				
Preliminary survey and investigation costs						1,508	89
Unamortized debt expense	197	36	723	1,085	458	834	
	197	36	7,570	1,085	458	2,342	89
	\$61,856	\$13,038	\$576,080	\$880,636	\$276,367	\$417,703	\$1,915

LIABILITIES	Hanford Project	Packwood Lake Hydroelectric Project	Nuclear Project No. 1	Nuclear Project No. 2	Nuclear Project No. 3 Note A	Nuclear Projects Nos. 4 & 5 Note A	General Fund (Unaudited)
Revenue Notes and Bonds - Note C:							
Principal amount	\$56,710	\$12,591	\$535,000	\$800,000	\$250,000	\$335,000	
Unamortized debt discount	(1,082)	(134)	(3,942)	(1,743)	(3,076)	(1,974)	
	55,628	12,457	531,058	798,257	246,924	333,026	
Accrued interest on debt	595	155	18,299		8,936	6,460	
Special Funds - Note C:							
Accounts payable and accrued expenses			14,724	13,144	11,158	20,995	
Amounts withheld from contractors			4,669	13,663	2,975	2,712	
Amounts due to other Projects and General Fund						53,972	
Net amounts due to other funds	36						
	36		19,393	26,807	14,133	77,679	
Sinking Funds - Net amounts due to other funds - Note C	302	46	7,111	1,605	6,067	538	
Current Liabilities:							
Accounts payable and accrued expenses	2,370	21					\$1,160
Net amounts due to other funds	154						
Due to other Projects	3	4					450
Due power purchasers		220					
Matured interest on debt	7	3	69	27,067	307		
Matured long-term debt			150				
	2,534	248	219	27,067	307		1,610
Deferred Credits and Advances:							
Deferred gain on revenue bonds	2,479	132					
Advances from participants	282			26,900			
Advances from members and participants and accrued interest							305
	2,761	132		26,900			305
Commitments and Contingencies - Note D							
	\$61,856	\$13,038	\$576,080	\$880,636	\$276,367	\$417,703	\$1,915

See notes to balance sheets

Notes to Balance Sheets

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Note A - Organization

The Washington Public Power Supply System is a municipal corporation and joint operating agency of the State of Washington and was organized in 1957. Its membership consists of 19 public utility districts and 3 municipalities which own and operate electric systems within the State of Washington. It is empowered to acquire, construct and operate facilities for the generation and transmission of electric power and energy.

The Supply System has constructed and is now operating the Packwood Lake Hydroelectric Project (Packwood) and the Hanford Project and has five nuclear electric generating plants under construction (Nuclear Projects Nos. 1, 2, 3, 4 and 5). In addition, the Supply System has a General Fund. The Hanford Project, Nuclear Projects Nos. 1, 2 and 4 are situated on land which is leased from the Energy Research and Development Administration (ERDA). Rental for each project's property is a nominal amount for each year plus any taxes or assessments which may be imposed upon the leasehold. Nuclear Projects Nos. 3 and 5 are being constructed on land owned by the projects. The projects are further described elsewhere in this report.

Because of Bonneville Power Administration's (BPA - an agency of the United States Government) obligations under the Net Billing and Exchange Agreements as described in Note C, the Supply System and BPA have entered into Project Agreements with respect to Nuclear Projects Nos. 1, 2 and 3. The Project Agreements and Exchange Agreements, with respect to the Hanford Project, among other things, provide standards for the design, licensing, financing, construction, fueling, operation and maintenance of each of the aforementioned projects. They also provide for the approval of certain replacements, repairs or capital additions thereto.

Nuclear Project No. 3 is being constructed and will be operated by the Supply System pursuant to terms of an Ownership Agreement between the Supply System and four investor-owned utilities. The Project will be 70% owned by the Supply System and 30% by four investor-owned utilities (Pacific Power & Light Company - 10%, Portland General Electric Company - 10%, Puget Sound Power and Light Company - 5%, and The Washington Water Power Company - 5%). Each of the joint owners is responsible for providing its share of the costs of construction and operation and will be entitled to its ownership share of the Project's capability. The ownership shares may be adjusted upon the occurrence of certain events. Each owner shall defray its own financing costs. The parties to the Ownership Agreement have designated the Supply System to act as their agent to construct, operate and maintain the Project.

Nuclear Project No. 5 is being constructed and will be operated by the Supply System pursuant to terms of an Ownership Agreement between the Supply System and one investor-owned utility (Pacific Power & Light Company). The Project will be 90% owned by the Supply System and 10% owned by Pacific Power & Light Company. Each of the joint owners is responsible for providing its share of the costs of construction and operation and will be entitled to its ownership share of the Project's capability. Each owner shall defray its own financing costs. Pacific Power & Light Company has designated the Supply System to act as its agent to construct, operate and maintain the Project.

Proceeds from the Generating Facilities Revenue Bonds (Nuclear Projects Nos. 4 and 5) may also be used for paying the cost of certain work in connection with the acquisition and development of uranium-bearing lands and with the development of additional energy resources.

All projects heretofore undertaken by the Supply System except Nuclear Projects Nos. 4 and 5 have been separately financed. The obligations issued with respect to each such project are payable solely from the revenues of that project.

Note B - Accounting Policies

The Supply System has adopted accounting policies and practices which are in accordance with generally accepted accounting principles applicable to the utility industry. Except for Nuclear Projects Nos. 4 and 5 which are accounted for as one entity, separate books of account are maintained for each project. Descriptions of significant accounting policies are presented below.

Capitalization of Costs During Construction

During the construction phase of a project, the Supply System will

capitalize all costs of the project including general, administrative, interest and other overhead expenses. Overhead expenses of the Supply System are allocated to the various projects primarily on the basis of direct labor cost.

Debt Discount, Premium and Expenses

Debt discount or premium and expenses relating to the issuance of revenue bonds are amortized on the straight-line method over the terms of the respective issues. Such provisions for amortization (net of accretion of premiums) are capitalized as costs during the construction period.

Gains on Redemption of Revenue Bonds — Packwood and Hanford Projects

Gains from the early extinguishment of debt occurring prior to 1973 have been recorded in the balance sheet as a deferred credit less the annual accretion to income computed using the straight-line method over the terms of the respective bonds. Gains occurring after January 1, 1973 are recorded as income in the fiscal year in which the redemption is made.

Current Assets and Current Liabilities

Assets and liabilities shown as current in the accompanying balance sheets exclude current maturities on revenue bonds and notes and accrued interest thereon as sinking funds have been or will be provided for their payment.

Investment Securities

Investment securities include time certificates of deposit, repurchase agreements (secured by U.S. Government securities) and United States Government and Government agencies' securities. Investment securities are stated at cost or amortized cost as appropriate and include accrued interest. Investment securities owned by the Hanford and Packwood Projects' Bond Fund Reserve accounts and Reserve and Contingency funds

are stated at the lower of amortized cost or market as provided by their respective bond resolutions. Income earned on securities held in special and sinking funds is recorded as a reduction of construction costs during the period of construction.

The market value, including accrued interest, of investments held in the sinking and special funds and as current assets as of June 30, 1977, approximates or exceeds amortized costs.

Depreciation and Amortization

Provisions for depreciation of the Hanford and Packwood Projects' utility plants have been computed on the straight-line basis using an estimated life ending in 1996 and 2012, respectively, (the final redemption years of the respective project's Revenue Bonds) which approximates the estimated lives of the projects.

If the Hanford Project ceases operations after June, 1983, as discussed in Note D, the then carrying value of the plant will continue to be depreciated over the remaining term of the outstanding revenue bonds. Regardless of continued operations, the purchasers of power from the Project will continue to be obligated to pay the principal amount of bonded debt, among other costs, until 1980 when participants of Nuclear Project No. 1 assume this obligation. Consequently, if the plant ceases operations, revenues arising from the aforementioned payments will nevertheless be recorded by the Hanford Project each year thereafter in amounts which will result in full realization of the carrying value of the plant.

Provisions for amortization of modifications and additions to facilities owned by the U.S. Government are being amortized over the period covered by the contract for dual purpose operation of the New Production Reactor. As discussed further in Note D, this contract period was extended during 1977 from October 31, 1977 to June 30, 1983. Amortization for 1977 has been reduced to reflect this extension of the amortization period.

Costs associated with the abandoned plant site will be amortized by charges to income over the life of Nuclear Project No. 1 beginning with the commencement of commercial operations if they have not been recovered from certain private utilities and industrial companies benefiting from the continued operation of the Hanford Project.

The administrative office building and warehouse facilities which are accounted for on the records of Nuclear Project No. 2 are being depreciated on the straight-line basis over their estimated useful lives.

Contributions Used for Purchase of Equipment - Packwood and Hanford Projects

Monies provided by participants to acquire equipment since completion of the projects are accounted for as contributions in aid of construction and are applied as a reduction of the carrying value of such equipment included in utility plant.

Revenue Bonds

Outstanding Revenue Bonds of the various projects as of June 30, 1977 consist of the following:

Project	Series	Date of Sale	Effective Interest Rate	Offering Prices	Coupon Rate	Serial or Term Maturities	Amount Outstanding (in \$000's)
Hanford Project							
Revenue Bonds (\$2,510,000 due within one year)	1963	05-08-63	3.26%	(A) 98	2.80-3.10% 3.25	9-1-77/1986 9-1-1996	\$ 29,125 27,585 <u>\$ 56,710</u>
Packwood Lake Hydroelectric Project (\$120,000 due within one year)							
Revenue Bonds	1962	03-20-62	3.66	99.425	3.625	3-1-2012	\$ 9,641
Revenue Bonds	1965	11-04-65	3.76	100.5	3.75	3-1-2012	2,950 <u>\$ 12,591</u>
WPPSS Nuclear Project No. 1							
Revenue Bonds	1975	09-18-75	7.73	(A) 100 100	5.75-7.40 7.70 7.75	7-1-81/2000 7-1-2010 7-1-2017	\$ 42,000 58,300 74,700 <u>175,000</u>
Revenue Bonds	1976A	02-04-76	6.84	(A) 100 100	6.00-6.25 6.90 7.00	7-1-81/1998 7-1-2010 7-1-2017	37,020 66,485 76,495 <u>180,000</u>
Revenue Bonds	1976B	08-31-76	6.37	(A) 100 99.50	5.00-5.90 6.50 6.50	7-1-81/1998 7-1-2010 7-1-2017	41,825 66,940 71,235 <u>180,000</u> <u>\$535,000</u>
WPPSS Nuclear Project No. 2							
Revenue Bonds	1973	06-26-73	5.66	(A) 100	5.00-5.10 5.70	7-1-78/2010 7-1-2012	\$ 25,600 124,400 <u>150,000</u>
Revenue Bonds	1974	07-23-74	7.21	(A) 100 100	6.50-6.90 7.00 7.375	7-1-78/1994 7-1-1999 7-1-2012	28,000 15,000 37,000 <u>80,000</u>
Revenue Bonds	1974A	11-26-74	7.67	(A) 100 100	7.20 7.40 7.75	7-1-78/1994 7-1-1999 7-1-2012	32,000 15,000 78,000 <u>125,000</u>
Revenue Bonds	1975A	03-06-75	6.71	(A) 100 100	6.60 6.60 6.875	7-1-82/1994 7-1-1999 7-1-2012	32,000 15,000 78,000 <u>125,000</u>
Revenue Bonds	1976	06-03-76	6.63	(A) 99.25 100	5.40-6.25 6.625 6.75	7-1-82/1998 7-1-2006 7-1-2012	27,840 42,300 49,860 <u>120,000</u>
Revenue Bonds	1976A	11-18-76	5.87	(A) 100 99.50	5.50-5.875 6.00 6.00	7-1-82/2002 7-1-2007 7-1-2012	94,195 44,815 60,990 <u>200,000</u> <u>\$800,000</u>
WPPSS Nuclear Project No. 3							
Revenue Bonds	1975	12-03-75	7.87	(A) 100 100	5.40-7.25 7.875 7.875	7-1-83/1998 7-1-2010 7-1-2018	\$ 26,145 52,695 71,160 <u>150,000</u>
Revenue Bonds	1976	04-13-76	6.48	(A) 99.625 100	5.50-6.00 6.50 6.60	7-1-83/1998 7-1-2010 7-1-2018	19,605 35,100 45,295 <u>100,000</u> <u>\$250,000</u>
Nuclear Projects Nos. 4 and 5							
Revenue Bonds (\$22,600,000 due within one year)	1975	07-24-75	7.04	(A)	6.75-6.90	6-1-78/1981	\$100,000
Revenue Bonds	1977A	02-23-77	5.93	(A) 100 100	5.50-5.75 5.90 6.00	7-1-89/2001 7-1-2008 7-1-2015	42,105 40,605 62,290 <u>145,000</u>
Revenue Bonds	1977B	05-24-77	6.32	(A) 100	6.00-6.20 6.40	7-1-89/2001 7-1-2012	33,485 58,515 <u>90,000</u> <u>\$335,000</u>

(A) Various prices

**Note B - Accounting Policies
(Continued)**

Operating Revenues

Because member purchasers of power are contractually obligated to pay project annual costs including debt service, the Supply System records these reimbursable annual costs as operating revenues for the Hanford and Packwood Projects. In order to spread such revenues equally over the full term of the respective bonds, the Supply System has recorded as revenue each year an amount (in addition to recovery of annual costs) which is equal to the provisions for depreciation and amortization less the recorded gain on bond redemption.

Cumulative reimbursable annual costs less payments by member purchasers for future bond redemption are reflected as Unbilled Reimbursable Costs in the accompanying balance sheets.

Retirement Plan

The Supply System participates in the Washington State Public Employees' Retirement System which provides retirement benefits to eligible employees. Cost of the plan to the Supply System is determined by the Retirement System's Board. The actuarially computed value of pension benefits exceeds the fund assets for the Retirement System. However, because the Retirement System is a multi-employer system, the amount of such excess, if any, that relates to the Supply System is not available.

Note C - Revenue Bonds

Outstanding Revenue Bonds of the various projects as of June 30, 1977 are presented on Page 30.

Security for the Supply System's revenue bonds is summarized as follows:

Agreements and Contracts

The United States of America, Department of the Interior, acting by and

through the Bonneville Power Administration ("Bonneville") has purchased the entire capability of the Hanford Project and Nuclear Projects Nos. 1, 2 and 3 from its statutory preference customers (and, in addition, with respect to Project No. 1, five of its private utility customers). Each of these customers has, in turn, purchased such capability from the Supply System, all under the net billing agreements and the exchange agreements. Bonneville is obligated to pay the participants, and the participants are obligated to pay the Supply System its pro rata share of the total annual costs of the projects including debt service on the bonds, whether or not the projects are completed, operable or operating and notwithstanding the suspension, reduction or curtailment of the project's output.

The Supply System's Packwood Project Revenue Bonds are secured by power sales contracts between the Supply System and each of its 12 members. Pursuant to these agreements, each of the 12 members purchases and pays the percentage allocation of power specified therein at rates which will be sufficient to operate and maintain the Project, including debt service on the bonds. Such payments will continue until the bonds are paid or provision is made for their payment or retirement. The contracts also provide that if any of the 12 members, because of insolvency or bankruptcy, fail to pay its respective share or project annual costs, 8 of the 12 members, which account for 94.75 percent of the Project's power output, are liable for an automatic pro rata increase of the shares not so paid. The remaining four member purchasers are limited in their liability for a pro rata increase to an aggregate amount equal to double their original percentages.

As security for the Generating Facilities Revenue Bonds for Nuclear Projects Nos. 4 and 5, the Supply System has entered into Participants Agreements with 88 utilities operating principally in the western United States. Pursuant to the Participants Agreements, the participants are obligated to pay their respective share of project annual costs, including debt service. The agreements stipulate the percentages of project annual costs and of project output allocated to such utilities. Billing to the participants for Nuclear Projects Nos. 4 and 5 will begin on July 1, 1988, or the date of commercial operation for the respective projects, whichever is earlier.

The Participants Agreements provide for the redemption of the \$100,000,000 of "Development" Generating Facilities Revenue Bonds outstanding at June 30, 1977.

If the System is unable to issue and sell bonds to obtain funds to pay the principal of the revenue bonds when due, or is unable to proceed with the financing of Nuclear Projects Nos. 4 and 5 because of such matters as the inability to obtain necessary permits and licenses, each of the participants will pay its proportionate share of the principal due on the revenue bonds together with any other costs associated with the termination of the projects.

Security — Creation of Funds

Under provisions of the various bond resolutions, the Supply System has been required to establish trustee-administered sinking funds for the sole purpose of paying principal and interest on the bonds.

With respect to the projects under construction, proceeds of revenue bonds not specifically required to meet principal and interest payments have been placed in special funds. Except for the Reserve and Contingency Fund discussed below, the special funds are to be used for construction purposes. The special funds may also be used, if necessary, to make required interest and principal payments.

Hanford, Packwood and Nuclear Projects Nos. 4 and 5 have each established a Reserve and Contingency Fund (included as special funds in the accompanying balance sheets). As provided in the bond resolutions, the funds are to be used, among other things, to make up any deficiencies in the Bond Funds and to pay for extraordinary operation and maintenance costs, replacements and contingencies.

As of June 30, 1977, Project No. 2 had billed and received \$26,900,213 from its participants pursuant to terms of the net billing agreements referred to above. Such amount was paid into the Prepayment Account in the Revenue Fund. Additional amounts will be billed to participants for the period from July 1, 1977 to September 1, 1977, and payments of such amounts will also be paid into the Prepayment Account. Monies in the Prepayment Account will be used to establish a Reserve Account in the Bond Fund of \$25,695,200, a Reserve and Contingency Fund of \$3,000,000, and to provide working capital of not less than \$3,000,000. These advances will reduce future amounts otherwise payable by participants for operating costs and debt service on the Project No. 2 Revenue Bonds.

In addition, amounts in special cash deposits are held in trust for the bondholders or noteholders for the payment of principal and interest on notes and bonds, as such payments are due.

Note D - Commitments and Contingencies

Contracts

The Supply System has entered into contracts covering a portion of total estimated costs for certain major equipment and material, and for services relating to financing, design, and the supply of nuclear fuel for the projects under construction. The total estimated financing requirements of each project are indicated elsewhere in this report. At June 30, 1977, the total contract commitments, less payments, by project were approximately:

WNP No. 1	\$260,000,000
WNP No. 2	183,000,000
WNP No. 3	299,000,000
WNP No. 4	296,000,000
WNP No. 5	270,000,000

Subsequent to the execution of contracts relating to the financing, construction, and operation of Nuclear Projects Nos. 1 and 3, the Supply System decided to construct a second nuclear plant (Nuclear Projects Nos. 4 and 5) at the same respective sites. Since Projects Nos. 4 and 5 will be substantially identical to Projects Nos. 1 and 3 respectively, the parties associated with each project agreed during the current fiscal year to equitably share costs of construction and operation which mutually benefit each of the projects. Consequently, Nuclear Projects Nos. 4 and 5 have been charged their share of such costs incurred through June 30, 1977, in the amount of \$34,160,177 and \$19,554,840 respectively.

Hanford Project

The Energy Research and Development Administration owns and operates the nuclear reactor which provides steam to the Hanford Project. The reactor is operated for the production of plutonium for national defense, and steam is a by-product of such production. In 1971, ERDA suspended its operation of the reactor. However, in 1971, the Supply System entered into an agreement with ERDA to continue dual-purpose operation of the reactor through June 1983. (During the current year the shutdown date of the reactor was extended from October 1977 through June 1983.)

In addition to annual payments for steam energy, the agreement provides for the Supply System to reimburse ERDA for the cost of deactivating the reactor (estimated to approximate \$6,286,000). The participants of Nuclear Project No. 1 have agreed to pay all such costs. Also, these participants have agreed to pay, commencing July 1, 1980, all debt service costs of the Hanford Project regardless of continued operation of the reactor. Outstanding revenue bonds will then aggregate approximately \$48,000,000.

The agreement to pay such costs will permit participants of Nuclear Project No. 1 to receive power from BPA to the extent of such additional costs incurred.

The U.S. Government has an option to acquire ownership of the Hanford Project upon obtaining Congressional approval. If the Government exercises its option, it must assume all rights and obligations of the Project, including the obligation to pay all revenue bonds.

Licensing

Nuclear Projects Nos. 3, 4 and 5 are being constructed under limited work authorizations issued by the Nuclear Regulatory Commission (NRC). Each of these projects have applied to the NRC for construction permits (Nuclear Projects Nos. 1 and 2 have construction permits).

The issuance of construction permits by the NRC to Nuclear Projects Nos. 3, 4 and 5 depends upon NRC review of data related to an earthquake which occurred in the North Cascades region of the Pacific Northwest in 1872.

At the present time the Supply System is unable to predict what effect, if any, the results of the NRC review will have on the designs, schedules or costs of its projects. The Supply System does not expect to be able to evaluate such impact on its projects until completion of the NRC review. Such review is not expected to be completed until late 1977 or early 1978. If information is developed that would adversely affect the adequacy of the designs of the projects, delays and increases in project costs may result.

Litigation-Nuclear Project No. 2

In January 1976, the Supply System terminated its contract with the contractor responsible for the civil construction work on Nuclear Project No. 2 for breach of contract. In February, 1976, the contractor filed a lawsuit against the Supply System. In

its complaint, the contractor is asking for damages of not less than \$24,500,000 together with interest thereon, attorney fees, and other undetermined amounts for damages alleged to have been sustained from termination of the contract. Subsequently, the Supply System filed its answer and a counterclaim against the contractor and its surety denying liability and seeking damages of \$13,970,000 plus substantial consequential damages. Legal counsel for the Supply System have confidence as to the merits of the Supply System's position, but because the case is in the early stage of discovery, they are unable to give an opinion as to the Supply System's ultimate liability, if any, or an amount to be realized, if any, of the Supply System in this case.

In a related matter, a subcontractor of the aforementioned contractor has filed suit against the contractor for alleged breach of contract and against the Supply System for alleged interference. In its complaint, the subcontractor seeks recovery of alleged damages of approximately \$11,900,000 and punitive damages of \$20,000,000. The Supply System's legal counsel is of the opinion that the punitive damages are without merit. However, because of the early stage of the proceedings, they are unable to form an opinion as to the outcome of the litigation regarding the remainder of alleged damages.

A local Plumbers and Steamfitters union has filed an action in Federal District Court against the Supply System and several other companies and individuals. The action is based upon alleged violations of the Federal anti-trust laws in connection with a strike at Nuclear Project No. 2, by plumbers and steamfitters. The relief requested includes, among other things, treble damages in an unspecified amount. The Supply System has filed an answer denying liability

and the litigation is in the discovery stages. Because of the early stage of the proceedings, the Supply System's legal counsel are unable to form an opinion as to the probable outcome or an estimate of the ultimate liability, if any, of the Supply System.

In addition there are other litigation matters related to Nuclear Project No. 2 pending against the Supply System which management and counsel believe are either without merit or if decided adversely would not have a material effect on the financial statements of the Project.

The estimated cost of Nuclear Project No. 2 may either be increased or decreased as a result of the outcome of the above litigation.

Report of Independent Accountants

Board of Directors
Washington Public Power Supply System
Richland, Washington

We have examined the individual balance sheets of Washington Public Power Supply System's Hanford Project, Packwood Lake Hydroelectric Project, Nuclear Project No. 1, Nuclear Project No. 2, Nuclear Project No. 3, and Nuclear Projects Nos. 4 and 5 as of June 30, 1977. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the balance sheets referred to above present fairly the respective financial positions of Washington Public Power Supply System's Hanford Project, Packwood Lake Hydroelectric Project, Nuclear Project No. 1, Nuclear Project No. 2, Nuclear Project No. 3, and Nuclear Projects Nos. 4 and 5 at June 30, 1977, in conformity with generally accepted accounting principles applied on a consistent basis.

The individual balance sheet of the General Fund as of June 30, 1977 was not audited by us and, accordingly, we do not express an opinion on it.

Seattle, Washington
September 15, 1977

Ernst & Ernst
E&E

Statement of the State Auditor

TO WHOM IT MAY CONCERN:

The Washington State Auditor's Division of Municipal Corporations conducts a continuous examination of all of the operations of the Washington Public Power Supply System, including each and every project. Reports are issued covering each calendar year.

On every such examination, state law requires that inquiry shall be made as to the financial condition and resources of the Supply System, whether the Constitution and laws of the state, the resolutions and orders of the Supply System, and the requirements of the Division of Municipal Corporations have been properly complied with; and into the methods and accuracy of the accounts and reports.

Very truly yours,

ROBERT V. GRAHAM, State Auditor

Darrell K. Russell

DARREL K. RUSSELL, CPA
Chief Examiner
Division of Municipal Corporations

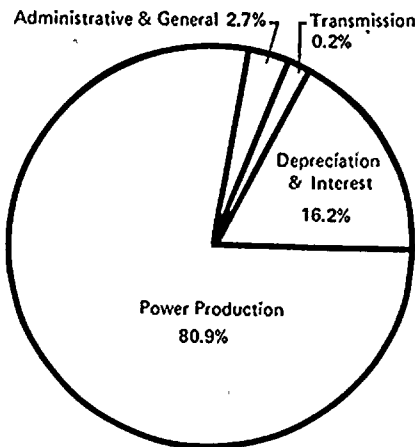
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Project Expenditures

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Operating Projects (\$ in Thousands)

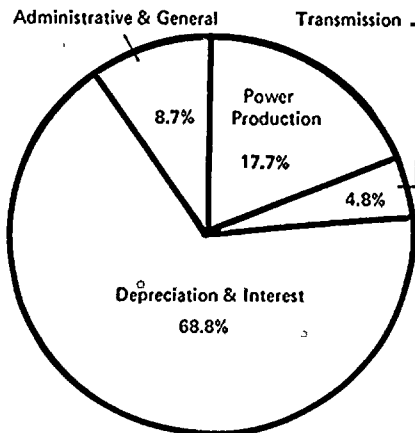
Hanford Generating Project Operating Expenses For Ten Months Ended June 30, 1977	
Depreciation & Interest	\$ 3,670
Power Production	18,431
Administrative & General	616
Transmission	44
	<u>\$22,761</u>



Packwood Project Operating Expenses

Year Ended June 30, 1977

Depreciation & Interest	\$ 726
Power Production	186
Administrative & General	92
Transmission	50
	<u>\$ 1,054</u>



Construction Projects (\$ in Thousands)

	Cumulative Costs Thru June 30, 1977	Percent of Current Estimate Expended	Estimated Project Costs	
			Current***	Prior***
Nuclear Project No. 1				
Construction and Fuel	\$125,100	12.0%	\$1,041,406	\$ 884,876
Engineering & Construction Management	31,785	41.3	76,936	60,451
Owner's Costs	7,836	8.5	92,209	67,000
Net Financing Costs*	7,806	5.0	157,449	193,673
	<u>\$172,527</u>	<u>12.6%</u>	<u>\$1,368,000</u>	<u>\$1,206,000</u>
Nuclear Project No. 2				
Construction and Fuel	\$360,178	44.1%	\$ 817,530	\$ 722,430
Engineering & Construction Management	74,076	63.6	116,439	93,356
Owner's Costs	26,276	25.8	101,710	93,000
Net Financing Costs*	48,848	118.2	41,321	56,214
	<u>\$509,378</u>	<u>47.3%</u>	<u>\$1,077,000</u>	<u>\$ 965,000</u>
Nuclear Project No. 3 - WPPSS 70% Ownership				
Construction and Fuel	57,971	8.4%	\$ 686,868	\$ 645,103
Engineering & Construction Management	17,048	31.1	54,744	49,313
Owner's Costs	3,981	6.0	65,917	58,450
Net Financing Costs*	2,543	1.3	188,471	206,134
	<u>\$81,543</u>	<u>8.2%</u>	<u>\$ 996,000</u>	<u>\$ 959,000</u>
Total WPPSS and Private Utilities Ownership**			<u>\$1,423,000</u>	<u>\$1,370,000</u>
Nuclear Project No. 4				
Construction and Fuel	\$ 61,439	5.7%	\$1,071,780	\$ 984,931
Engineering & Construction Management	31,045	48.0	64,669	64,669
Owner's Costs	7,830	8.4	93,575	67,000
Net Financing Costs*	7,185	1.5	473,725	388,784
Other	5,468	6.2	88,251	79,616
	<u>\$112,957</u>	<u>6.3%</u>	<u>\$1,792,000</u>	<u>\$1,585,000</u>
Nuclear Project No. 5 - WPPSS 90% Ownership				
Construction and Fuel	\$ 15,023	1.4%	\$1,054,910	\$ 978,135
Engineering & Construction Management	20,908	31.2	66,987	65,367
Owner's Costs	6,049	6.2	97,717	75,150
Net Financing Costs*	3,296	.7	468,825	464,590
Other	5,468	6.4	85,561	79,758
	<u>\$ 50,744</u>	<u>2.9%</u>	<u>\$1,774,000</u>	<u>\$1,663,000</u>
Total WPPSS and Private Utilities Ownership**			<u>\$1,971,000</u>	<u>\$1,847,000</u>

* Net financing costs include interest expense less reinvestment income. Interest expense on Nuclear Projects Nos. 1, 2 and 3 is capitalized to September 1, 1980, September 1, 1977 and September 1, 1982, respectively, as required by the project bond resolutions. Interest expense after the aforementioned dates will be paid from revenues received from the project participants. Reinvestment income on bond proceeds is credited to project costs until the commercial operation date.

** Assumes that net financing costs applicable to the private utilities' ownership shares are proportionately the same as the Supply System's.

*** The current estimated project costs of Nuclear Projects Nos. 1, 2 and 3 are from the Supply System's October 1, 1977 Project Construction Budgets which are currently in the approval process. The current estimates for Nuclear Projects Nos. 4 and 5 are as of September, 1977. All prior estimates are from the January 1, 1977 Project Construction Budgets.

Project Participants

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Public & Peoples Utility Districts

Oregon

Central Lincoln Peoples Utility District
 Clatskanie Peoples Utility District
 Northern Wasco County Peoples
 Utility District
 Tillamook Peoples Utility District

Washington

Benton County PUD No. 1
 Chelan County PUD No. 1
 Clallam County PUD No. 1
 Clark County PUD No. 1
 Cowlitz County PUD No. 1
 Douglas County PUD No. 1
 Ferry County PUD No. 1
 Franklin County PUD No. 1
 Grant County PUD No. 2
 Grays Harbor County PUD No. 1
 Kittitas County PUD No. 1
 Klickitat County PUD No. 1
 Lewis County PUD No. 1
 Mason County PUD No. 1
 Mason County PUD No. 3
 Okanogan County PUD No. 1
 Pacific County PUD No. 2
 Pend Oreille County PUD No. 1
 Skamania County PUD No. 1
 Snohomish County PUD No. 1
 Wahkiakum County PUD No. 1
 Whatcom County PUD No. 1

Municipalities

Idaho

Albion Heyburn
 Bonners Ferry Idaho Falls
 Burley Minidoka
 Declo Rupert

Oregon

Bandon Forest Grove
 Canby McMinnville
 Cascade Locks Milton-Freewater
 Drain Monmouth
 Eugene Springfield Utility Board

Washington

Blaine Port Angeles
 Centralia Richland
 Cheney Seattle
 Coulee Dam Steilacoom
 Ellensburg Sumas
 McCleary Tacoma

Irrigation Districts

Consolidated Irrigation District 19
 Vera Irrigation District 15

Investor Owned Utilities

Montana Power Company
 Pacific Power & Light Company
 Portland General Electric Company
 Puget Sound Power & Light Company
 The Washington Water Power Company

Total Participants by classification:

Cooperatives:	52
Irrigation Districts:	2
Municipalities:	30
Public Utility Districts:	26
Investor Owned Utilities:	5
Total	115

Cooperatives

California

Surprise Valley Electrification Corp.

Idaho

Clearwater Power Co.
 East End Mutual Electric Co., Ltd.
 Fall River Rural Electric Cooperative, Inc.
 Farmers Electric Co. Ltd.
 Idaho County Light & Power Cooperative
 Assn., Inc.
 Kootenai Electric Cooperative, Inc.
 Lost River Electric Cooperative, Inc.
 Northern Lights, Inc.
 Prairie Power Cooperative, Inc.
 Raft River Rural Electric Cooperative, Inc.
 Riverside Electric Co., Ltd.
 Rural Electric Co.
 Salmon River Electric Cooperative, Inc.
 South Side Electric Lines, Inc.
 Unity Light & Power Company

Montana

Flathead Electric Cooperative, Inc.
 Glacier Electric Cooperative, Inc.
 Lincoln Electric Cooperative, Inc.
 Missoula Electric Cooperative, Inc.
 Ravalli County Electric Cooperative, Inc.
 Vigilante Electric Cooperative, Inc.

Nevada

Wells Rural Electric Cooperative, Inc.

Oregon

Blachly-Lane County Cooperative
 Electric Assn.
 Central Electric Cooperative, Inc.
 Columbia Basin Electric Cooperative, Inc.
 Columbia Power Cooperative Assn., Inc.
 Consumers Power, Inc.
 Coos-Curry Electric Cooperative, Inc.
 Douglas Electric Cooperative, Inc.
 Harney Electric Cooperative, Inc.
 Hood River Electric Cooperative, Inc.
 Lane County Electric Cooperative, Inc.
 Midstate Electric Cooperative, Inc.
 Salem Electric
 Umatilla Electric Cooperative Assn.
 Wasco Electric Cooperative, Inc.
 West Oregon Electric Cooperative, Inc.

Washington

Alder Mutual Light Company
 Benton Rural Electric Assn., Inc.
 Big Bend Electric Cooperative, Inc.
 Columbia Rural Electric Assn., Inc.
 Elmhurst Mutual Power & Light
 Inland Power & Light Co.
 Lincoln Electric Cooperative, Inc.
 Nespelem Valley Elec. Cooperative, Inc.
 Ohop Mutual Light
 Okanogan County Electric Cooperative, Inc.
 Orcas Power & Light Company
 Parkland Light & Water Company
 Tanner Electric

Wyoming

Lower Valley Power & Light, Inc.