

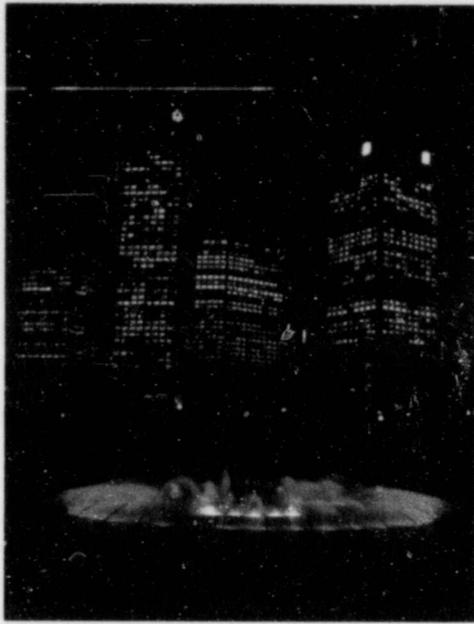
Los Angeles Department of Water and Power 1985-1986 Annual Report



*City of
Los Angeles
Board of
Water and Power
Commissioners*

*Serving the
customer*





Water and electricity have been vital elements in the growth of Los Angeles, one of the world's great cities.

Front Cover: Youngsters at Sunrise Elementary School learn the basics of power generation with the aid of a DWP exhibit. The Department furnishes a broad range of educational materials to Los Angeles schools.



Tom Bradley
Mayor of
Los Angeles

Los Angeles City Council†

Pat Russell, Sixth District
President, City Council
Joel Wachs, Second District
Joy Picus*, Third District
John Ferraro, Fourth District
Zev Yaroslavsky*, Fifth District
Ernani Bernardi, Seventh
District
Robert C. Farrell, Eighth
District
Gilbert W. Lindsay, Ninth
District
Marvin Braude, Eleventh
District
Hal Bernson, Twelfth District
Michael Woo, Thirteenth
District
Richard Alatorre, Fourteenth
District
Joan Milke Flores, Fifteenth
District

*Member, City Council's
Energy and Natural
Resources Committee

†First and Tenth council
district seats are vacant

City Controller
Rick Tuttle

City Attorney

James Kenneth Hahn

The Department in Brief

The Los Angeles Department of Water and Power (DWP) is the largest municipally owned utility in the United States.

A unit of the Los Angeles city government, the DWP has more than 10,600 employees serving the 3.1 million residents of the second most populous American city in a 464-square-mile area.

The Department's operations are financed solely by the sale of water and electricity; they are not tax supported.

The DWP is administered by the Board of Water and Power Commissioners, whose five members are appointed by the mayor and confirmed by the City Council for terms of five years. The Board establishes the DWP's rates, subject to approval by the council.

Los Angeles obtains about 75 percent of its water from the Owens River and other sources in the Eastern Sierra Nevada via the Los Angeles Aqueduct, 15 percent from the San Fernando Valley and other local groundwater basins, and 10 percent from the Metropolitan Water District of Southern California, whose water comes from the Colorado River and the State Water Project.

A vast network of power stations and transmission facilities, some located outside California, supplies electrical energy to DWP customers. Power sources include coal, hydroelectric, steam, oil and natural gas. Nuclear power, imported from Arizona, became available to the DWP for the first time in fiscal 1986.

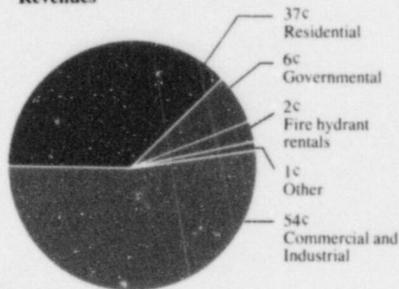
Comparative Highlights

SERVICE	WATER		POWER	
	Fiscal Year 1986	Fiscal Year 1985	Fiscal Year 1986	Fiscal Year 1985
Sales	204.3 billion gallons	203.4 billion gallons	20.3 billion kilowatt hours	19.9 billion kilowatt hours
Average number of customers	630,105	630,353	1,261,972	1,251,206
FINANCIAL (in thousands)				
Revenue from water and electric sales, and other income — Net	\$234,195	\$220,440	\$1,386,118	\$1,319,943
Operation costs of the water and electric systems*	133,674	118,697	991,260	907,963
Net income	61,844	63,322	193,585	213,630
Transferred to City of Los Angeles reserve fund	10,415	9,885	64,353	58,867

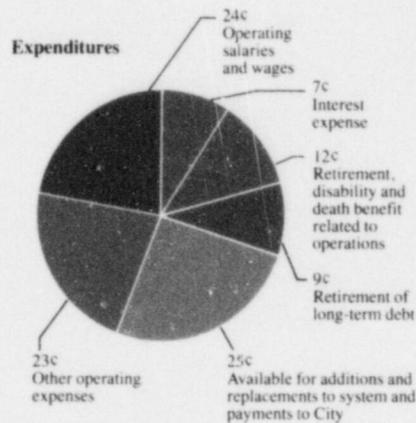
*Excluding depreciation expense

The 1985-86 Water Dollar

Revenues

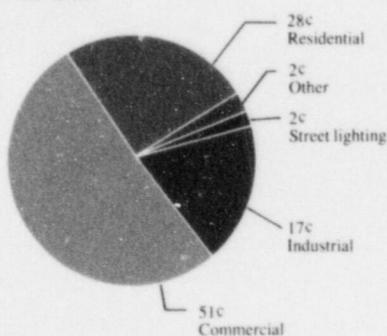


Expenditures

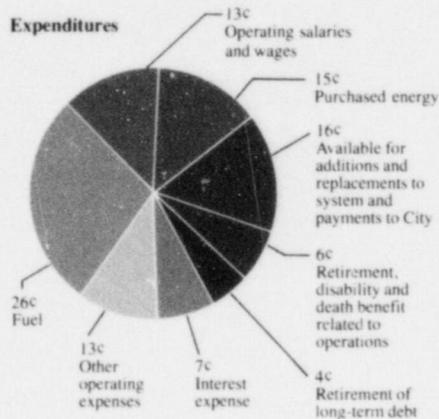


The 1985-86 Power Dollar

Revenues



Expenditures



The City of Los Angeles
Honorable Tom Bradley, Mayor
Honorable Members of the City Council

We take great pleasure in transmitting this 85th annual report which reviews the accomplishments and progress of the Department of Water and Power during the 1985-86 fiscal year, in accordance with the City Charter.

As the gateway to the Pacific, the setter of trends and the center for a growing and diverse population, the City of Los Angeles is dynamic and ever-changing. It is a constant challenge to meet the water and electrical needs of residents, businesses and industries.

We have been successful in this endeavor through proper planning and reliable service at reasonable rates. We take pride in our accomplishments, but know each year we must renew our efforts to continue meeting customers' needs.

Water and electricity have helped Los Angeles grow into a modern metropolis. Today, we serve a population of more than 3.1 million while keeping an eye toward the needs of the future. This year we contributed more than \$74 million to the city's general reserve fund in addition to meeting all operating expenses.

We are grateful for the support and cooperation received from you and the City Council. Our appreciation is also extended to other elected city officials and boards and managements of other city departments. We also commend the efforts of our own management and personnel for their continued service and dedication.



Rick J. Caruso
President
Board of Water and Power Commissioners



Rick J. Caruso
President



Jack W. Leeney
Vice President



Angel M. Echevarria



Carol Wheeler



Walter A. Zelman

General Manager's Report

Fiscal 1986 was an especially significant year for the Department. I am pleased to report that we completed several long-term projects that will make a profound impact on our operations in three critical areas: the improvement of water quality, the improvement of customer service, and the development of cost-saving power sources as alternatives to oil and natural gas.

The highlights for the year were as follows:

Water System Developments

—Construction neared completion on the \$150 million Los Angeles Aqueduct Filtration Plant, the largest of its type in the country. The plant will remove turbidity from all water delivered through the aqueduct—about 75 percent of the city's supply.

—We greatly expanded our water conservation activities.

—We continued programs to protect water in the San Fernando Valley Groundwater Basin from further contamination and to clean up existing contamination.

—We also continued an intensive program to repair and replace older water lines, pumping stations and reservoirs. This involved an outlay of \$52 million during the year.

—We made significant progress in our work with Inyo County to protect and enhance the

environment of Owens Valley, our principal water source. In addition, we continued to defend the city's Mono Basin water rights in various lawsuits.

Power System Developments

—The Palo Verde Nuclear Generating Station, a 3,800-megawatt facility in Arizona became an important source of power for Los Angeles when the first of its three units began commercial operation in fiscal 1986. The Department exchanged its 30 percent ownership in a coal-fueled plant, also in Arizona, for an approximately 6 percent interest in the larger Palo Verde facility.

—The 1,600-megawatt Intermountain Power Project (IPP), a \$5 billion coal-fueled plant in Utah for which the DWP served as project designer and construction manager, also went on-line, with Unit 1 and the Northern and Southern Transmission Systems being placed in service. Under a long-term contract, we will operate the facility and receive about 45 percent of the project's output.

IPP and Palo Verde represent major steps toward one of the Department's key objectives, to become less dependent on oil and natural gas to produce electricity.

DWP top management: Duane L. Georgeson, assistant general manager—water; Daniel W. Waters, assistant general manager—external affairs; Paul H. Lane, general manager and chief engineer; Norman J. Powers, chief financial officer; and Norman E. Nichols, assistant general manager—power.



Administration and Personnel

—We installed a state-of-the-art, \$2.5 million telephone system in the headquarters building to handle customer inquiries faster. The system has increased our efficiency and significantly reduced customer complaints about long delays, enabling us to be more responsive to our customers' needs.

—Computer operations were upgraded with the addition of a \$4.5 million mainframe computer that increases our processing capacity 45 percent.

—There were four major executive appointments during the year.

Daniel W. Waters, who began his career with us as a civil engineer in the Power System in 1962, was appointed to the new position of assistant general manager—external affairs. His responsibilities include public affairs, management services, legislative affairs and executive office administration.

Eldon A. Cotton, a 20-year veteran of the Department who had headed the Power System's System Development Division for four years, succeeded Mr. Waters as assistant chief electrical engineer.

Vernon L. Pruett, who joined the DWP in 1963, succeeded Mr. Cotton. In his previous assignment, he served as assistant project director for the Intermountain Power Project.

Lloyd B. Dennis, former senior vice president and director of public affairs for First Interstate Bank of California, was named to the new post of executive director of public affairs. His appointment reflects the increasing importance the Department attaches to effective organizational communications.

Financial Results

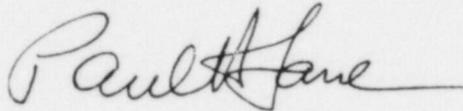
—Sales of water and electric power attained record levels, although net income for both the Water System and the Power System declined from the previous year's all-time highs owing to increased expenses. The financial condition of both units is very strong; their combined total assets at year-end stood at \$4.8 billion, with all obligations amply covered.

Our operating budget for fiscal 1987 is \$2.4 billion. Transfers to the city reserve fund will amount to a record \$79 million (5 percent of the 1985-86 fiscal year gross revenues.)

In other internal matters, we increased emphasis on improving our safety record, our affirmative action program continued to produce good results as more women and minority group members gained employment and promotion, and we expanded our supplier relationships with female and minority businesses.

I wish to thank Mayor Bradley, the City Council, and the Board of Water and Power Commissioners for their counsel and support. Their assistance has been most valuable to the DWP, not only in the past year but over a period of many years. I also would like to express my appreciation to my fellow employees for their excellent, dedicated work.

All of us in the Department look forward to expanding and improving our service to the people of Los Angeles during fiscal 1987.



Paul H. Lane
General Manager
and Chief Engineer

The Water System

A Prime Objective: Improving Water Quality

Chief among the Department's concerns in its water-related activities in fiscal 1986 as it probably will be for at least several more years, was improving water quality. There were notable accomplishments in this area.

Additionally, we undertook important environmental programs in the Owens Valley, continued our efforts to resolve water rights litigation, expanded our conservation activities, and continued an intensive program to repair and replace older water facilities.

Filtration Plant Nears Completion

Construction on the Los Angeles Aqueduct Filtration Plant, a landmark project for the Department, was substantially completed. After three years of construction, testing is now underway, and the plant is scheduled to begin full-scale operation next spring.

Located in Sylmar in the north San Fernando Valley, the plant will treat up to 600 million gallons of water daily. This constitutes the entire flow of the two Los Angeles aqueducts, which bring water some 340 miles to Los Angeles from the Owens Valley and Mono Basin. The plant forms the terminus of the aqueduct system and the beginning of the water distribution system.

The plant, built at a cost of \$150 million, is one of the largest and most advanced water treatment facilities in the world. Filtration will remove turbidity, or cloudiness, found naturally in surface water supplies, making the water clearer and more easily disinfected.

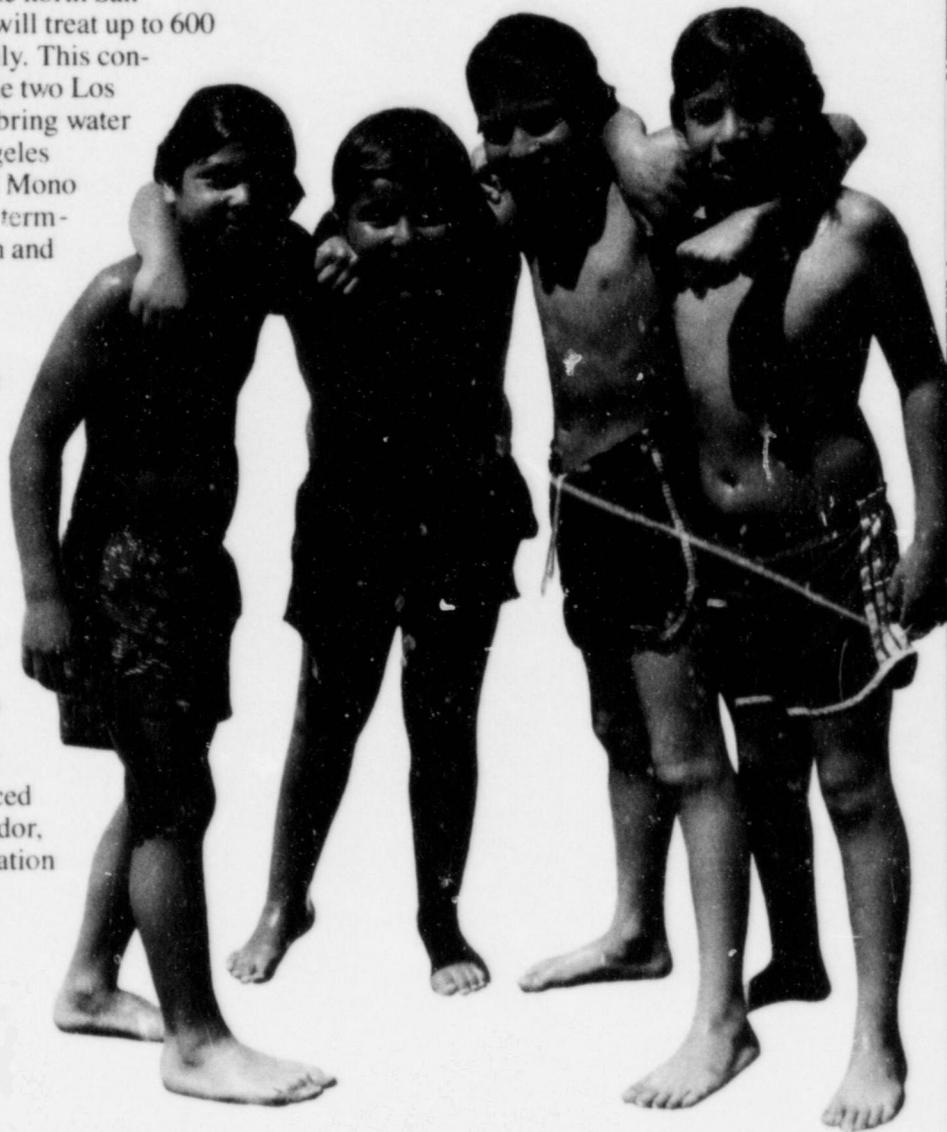
Ozone will be added as an aid to filtration. It will also provide the benefits of superior disinfection, reduced color, improved taste and odor, and a reduction in the formation of chlorinated organic compounds.

Los Angeles municipal pools rely on water supplied by the DWP.

Protecting San Fernando Valley Groundwater

A Precious Source. The San Fernando Valley Groundwater Basin, made up of layers of clay, sand and gravel, naturally contains large quantities of water. About 15 percent of the Los Angeles water supply is drawn from wells located in this basin. It normally serves about 500,000 people, but because of its storage capacity it can supply 1 million people during a drought or emergency.

Several years ago, when sensitive monitoring equipment became available for water testing, trace amounts of two industrial solvents, trichloroethylene (TCE) and perchloroethylene (PCE), were found in a sizable number of the basin's wells. These contaminants probably had been present for many years but previously were undetectable.



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While water consumption by DWP customers is safe, the spread of contamination in the San Fernando Basin is reducing the number of wells available for use.

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The Department has minimized the potential risks posed by these chemicals through two measures: shutting down certain wells, and blending contaminated water with clean water so that the contamination level is below permissible state and federal levels.

While water consumed by DWP customers is safe, the spread of contamination in the San Fernando Basin is reducing the number of wells available for use. We are moving on several fronts to control this situation.

Working With the EPA. The Department signed an agreement with the U.S. Environmental Protection Agency (EPA) to conduct a study on how best to clean up the San Fernando Valley groundwater and prevent further contamination. We estimate the study will cost about \$4 million and take two years to complete.

Four well fields within the San Fernando Valley Basin have been placed on the EPA's national priorities list for hazardous waste cleanup and are eligible for EPA Superfund financing. Because these funds have not yet been made available, the DWP plans to proceed with the first stage of the study using \$300,000 of its own money.

Aeration Tower Approved. A major element in our groundwater protection plan is an aeration tower to be built in the San Fernando Valley community of North Hollywood. The 48-foot-high tower would remove trace levels of contaminants, mainly TCE and PCE, from the water.

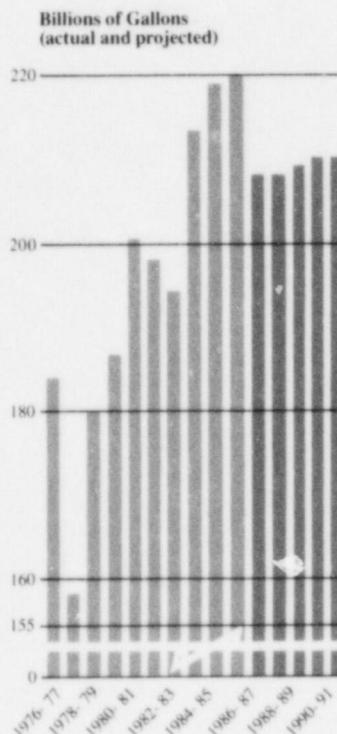
A lengthy process of governmental review and public hearings on the environmental effects of the tower was completed. With the necessary permits for the \$2.5 million project in hand, construction will begin early in 1987. The facility will be in operation by late 1987.

In the aeration process, contaminated underground water is pumped through pipes to the top of the tower. As the water falls by gravity through packing material in the tower, it is blasted with air. This causes the contaminants, volatile organic compounds, to separate and vaporize. Granular activated carbon filters, added to the end of this treatment process, will remove the contaminants from the air emissions.

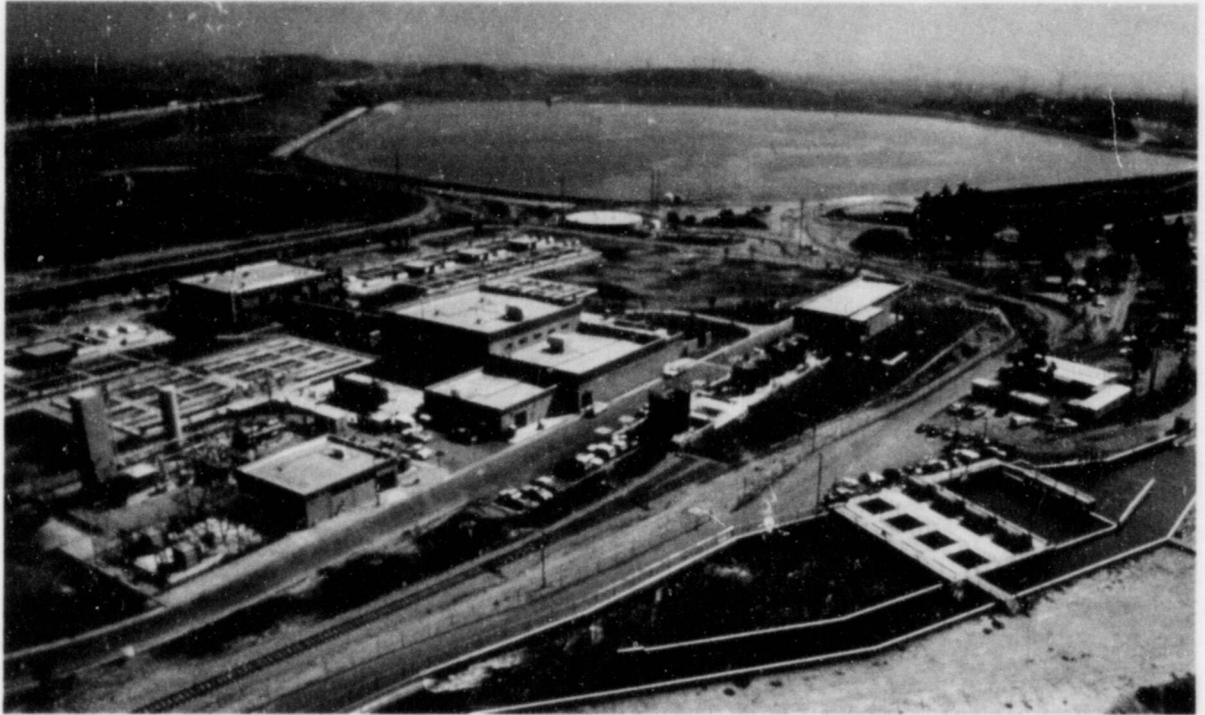
The aeration facility proposal was the product of a two-year study of groundwater management in the San Fernando Valley that the Department completed in 1983 under an EPA grant. Other measures recommended in that study that are now being carried out include educating the public on toxic waste, monitoring toxic waste storage facilities, eliminating certain septic disposal systems, and increasing enforcement of hazardous waste disposal laws.

Protecting and Enhancing the Owens Valley Environment. In 1984 Inyo County and Los Angeles, in an attempt to resolve their long-standing differences over water rights, entered into an agreement to set aside litigation and to jointly conduct vegetation and ground-

Water Use Deliveries



The Los Angeles Aqueduct Filtration Plant, located at Sylmar in the San Fernando Valley, begins full-scale operation in December 1986. The \$150 million complex is one of the world's most advanced water treatment facilities.



water studies, implement several enhancement and beautification projects in the Owens Valley, and develop a long-term groundwater management plan.

At present, various projects ranging from revegetation, to providing wildlife habitat, to

A major element in our groundwater protection plan is an aeration tower to be built in the San Fernando Valley community of North Hollywood.

the creation of recreation areas are under way. Other programs will be implemented in the future.

Last year saw the culmination of the most ambitious of these programs—the \$750,000 Lower Owens River Project—which established a warm water fishery and wildlife habitat along the normally dry riverbed. On June 5, water was released from the Los Angeles Aqueduct into a 25-mile section of the river that had been essentially dry since the early 1900s.

Using about 18,000 acre-feet of water annually from the aqueduct, the project will provide a continuous flow of water from Black Rock Springs downstream to Owens Lake. New wells under construction elsewhere in the valley will replace the diverted water.

In addition to reviving the river, the project will sustain water fowl habitat in five small lakes and ponds. The new fishery will support such warm-water species as largemouth bass, bluegill, catfish, and carp. In the next few years, the DWP will work with the state Department of Fish and Game to develop a wildlife management plan for the Lower Owens River area.

Water Rights Litigation

The Department is involved in a number of court cases in which our long-standing water rights in the Mono Basin are being challenged. We are defending ourselves vigorously in these matters. Mono Basin is of great importance to the DWP since it supplies about 17 percent of our water supply and large amounts of hydroelectric power.

Following is a brief summary of the suits that proceeded in fiscal 1986:

—**Mono Lake.** This suit was filed by the Audubon Society in 1979, challenging our rights to the entire Mono Basin water supply. Separate appeals, relating to the site of an eventual trial,

The DWP conducts a rigorous testing program to help ensure the high quality of its water supply.



were filed by the society and California and have delayed resolution of this issue.

—**Lower Rush Creek.** The environmental groups are seeking to have the DWP maintain a trout fishery that developed in the normally dry creek during several years of unusually heavy run-off in the Mono Basin. Additional studies ordered by the court will be conducted over the next two years.

Conservation Efforts Increased

DWP completed a sweeping plan designed to increase water conservation in Los Angeles. Designated as the Urban Water Management plan, it was prepared in response to 1983 state legislation.

The plan includes numerous conservation measures that will be expanded or newly implemented to promote efficient water usage in the city through the year 2010. The plan was compiled over two years with the assistance of environmental organizations, community groups, water conservation agencies, and other groups and individuals knowledgeable about conservation.

Key measures under the plan include:

- Seasonal water rates implemented in December 1985.
- A pilot program to distribute free conservation kits, including low-volume shower heads, to 110,000 lifeline customers.
- Participation in the Large Turf Audit program of the state Department of Water Resources, which is aimed at increasing the efficiency of irrigation for areas such as golf courses and cemeteries. This effort can be significant, since landscaping accounts for almost one-fourth of all water use in Los Angeles.
- Distributing thousands of lawn watering guides to residential customers.
- Speaking programs to promote residential conservation.
- A biannual business and industry water conservation awards program.

Major Computer System Set for Start-Up

A \$15 million computer system that will monitor and control DWP water distribution facilities from our headquarters building neared completion. Under design and development for more than three years, the system, scheduled to begin operating early in 1987, will improve the Water System's reliability as well as substantially reduce its operating costs.

Initially, we will be able to monitor reservoir levels, water flow and pressure, and the condition of pumps and valves at 77 locations throughout the Water System. That number eventually will rise to 250.

The new equipment will enable us to flag minor problems and correct them before they escalate to cause major damage or service interruptions. We also will be able to assess the effects of earthquake tremors on our facilities.

An important attribute of the system is that it will allow better regulation of power usage by wells and pumping stations, thus significantly reducing our electricity costs. The system includes two identical computers, either of which can perform all critical tasks if the other is down.



A DWP representative gives conservation and water energy efficiency advice to a customer at her home. This service is provided free on request to all residential customers.

Water System Facts in Brief

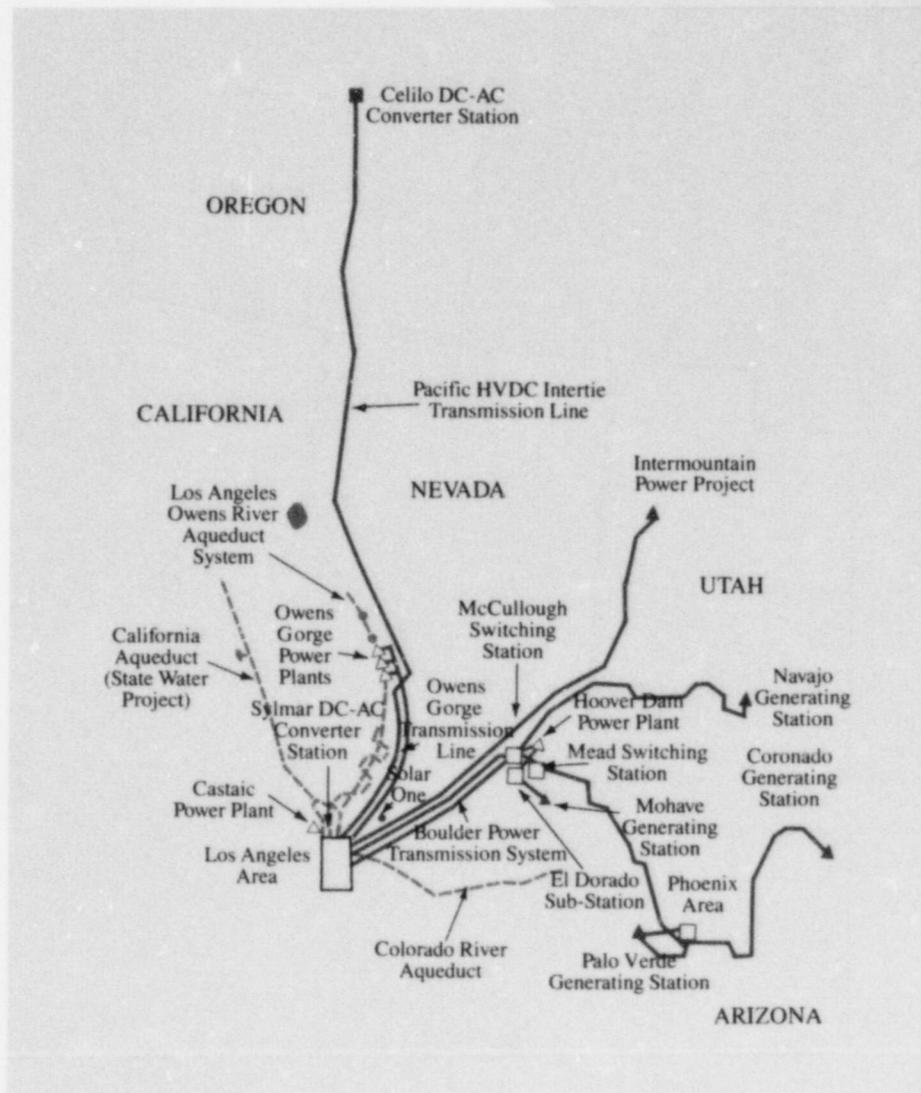
	1985-86	1984-85
Use of Water		
Average Los Angeles population served*	3,214,000	3,103,000
Average daily use per capita, gallons	187.2	193.6
Water sales for fiscal year, billion gallons	204.3	203.4
Maximum daily demand, million gallons	915.2	882.9
Water Supply to City Area		
From local supply, cu. ft. per second (c.f.s.)	144.5	164.8
From DWP Aqueduct, c.f.s.	671.8	709.3
From Metropolitan Water District, c.f.s. (California Aqueduct and Colorado River Aqueduct)	123.9	64.8
Gross supply, c.f.s.	940.2	938.9
Diversion from (to) local storage, c.f.s.	(6.6)	(6.4)
Net supply to distribution systems, c.f.s.	933.6	932.5

*Includes 28,000 people in certain areas, contiguous to Los Angeles which are served by the Water System. Excludes 2,000 residents of the City not served by the Water System.

The City of Los Angeles encompasses 464 square miles and has a population of 3.1 million. A vast network of facilities is in place to serve customers with a reliable supply of water and electricity. Water is imported from hundreds of miles away and brought to Los Angeles through aqueducts. Generating facilities in other western states are playing a larger role in the City's power supply income.

California Aqueduct
(West Branch)

Castaic
Power Plant



The Power System

Developing New Energy Sources

In pursuing its overall goal of supplying Los Angeles with energy that is clean, safe, reliable and economical, the Department has several interrelated, long-term objectives.

For reasons both of economy and stability of supply, we continuously seek to develop new fuel sources other than oil or natural gas. The long-term price increases of both oil and gas probably will exceed the inflation rate, and both the price and availability of our oil supplies depend on unpredictable world economic and political developments.

Therefore coal, which is abundant domestically and relatively inexpensive, figures importantly in our energy future. Similarly, but to a lesser degree, nuclear power will be part of that future energy mix.

During the early 1970s, the Department produced about 80 percent of its energy from oil and natural gas-fueled generators in the Los

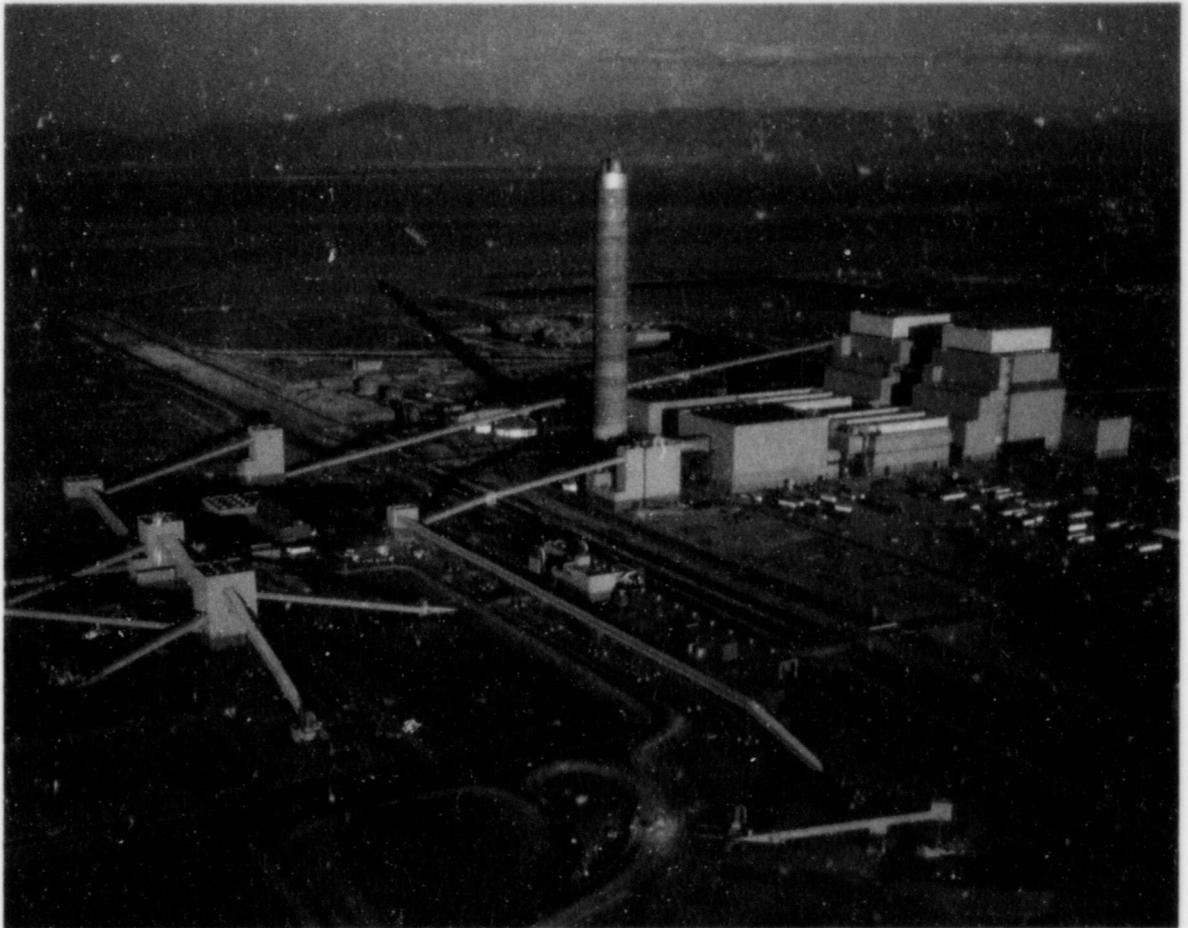
Angeles Basin. By contrast, in fiscal 1986 those sources accounted for only 31.5 percent of our energy, with DWP-owned hydroelectric (5.4 percent), Hoover Dam power (11.2 percent), coal (26.1 percent), purchased energy (25.3 percent), and nuclear (.5 percent) making up the rest of the supply.

Intermountain Power Project Comes On-Line

A major new source of clean and economical energy became available to Los Angeles last spring when the first of two generators of the Intermountain Power Project (IPP) near Delta, Utah, began commercial production.

A 1,600-megawatt, coal-fueled facility owned by the Intermountain Power Agency (IPA), a Utah public authority, IPP will distribute power to 36 project participants in Utah, Nevada, Wyoming, Idaho, and Southern California.

The DWP is by far the largest buyer of IPP output. Initially we will purchase more than 62



The Intermountain Power Project, a huge coal-fueled power plant in Utah, began supplying electricity to Los Angeles last spring.

Like IPP, Palo Verde constitutes an important step in the Department's efforts to develop alternative fuel resources.

percent of the project's power, although our long-term entitlement is about 45 percent. Our power will be delivered through one of the major components of the project, the 490-mile long Southern Transmission System, to our converter station at Adelanto, California, 100 miles northeast of Los Angeles, in the Mojave Desert.

All IPP facilities, except the Southern Transmission System, have been financed by the sale of IPA bonds and commercial paper. The transmission system was funded by bonds issued by the Southern California Public Power Authority (SCPPA), of which DWP is the largest member.

The start-up of the first IPP generating unit—ahead of schedule and well below budget—marked an extraordinary achievement by the Department, which has served as the project's manager since its inception in the 1970s.

DWP employees have been deeply involved in the \$5 billion project since it was first conceived. At one time, as many as 4,200 people (including a small DWP contingent) worked on the construction site at IPP, one of the largest and most complex power projects undertaken in the United States in many years. About 70 Department employees were assigned to the project as of last year.

In addition to the two generating units (Unit 2 is scheduled to go on-line next summer), which include state-of-the-art air quality control devices, IPP comprises two transmission systems, converter facilities, a microwave communication and control system, and a railcar service center in Provo, Utah.

The plant, whose fuel requirements will average 4 million tons of coal a year, is highly automated. It is the first power plant to use decentralized computers to run all major operations. Each computer controlling a major system has a back-up to assure that system's reliability.

DWP Acquires Interest in Nuclear Plant

After ten years of planning, designing, construction, and testing, the Palo Verde Nuclear Generating Station, located about 50 miles west of Phoenix, Arizona, began producing commercial power for utilities in Arizona, Texas, New Mexico, and California last winter.

Los Angeles will be a beneficiary of the \$5.9 billion facility (this figure excludes financing costs), since the DWP has a 5.7 percent ownership—equivalent to about 217 megawatts—in it.

According to a 1977 agreement between the Department and the Salt River Project, an Arizona agency, we exchanged our 30 percent interest in the coal-fueled Coronado power plant, located near St. Johns, Arizona, for equivalent electrical capacity in the new Palo Verde facility when it went on-line.

In addition to that entitlement, the DWP will receive an energy and capacity interest of almost 4 percent, or about 151 megawatts, though SCPPA.

Like IPP, Palo Verde constitutes an important step in the Department's efforts to develop alternative fuel resources. When fully operational, it should supply about 8 percent of our power requirements.

Palo Verde, a joint venture of six public utilities, is comprised of three identical 1,270-megawatt generating units. Unit 1 went into operation in January 1986. The project will be completed when Unit 3 begins service next year. The plant is expected to generate about 23 million megawatt-hours annually by the early 1990s.



This store and thousands of other facilities in Los Angeles depend on electricity furnished by the Department.

Expansion of Transmission System

The Department spent about \$39 million improving and expanding the high voltage transmission system in fiscal 1986. The most important of these projects was the award of a contract to expand the electrical capacity of the Sylmar Converter Station, the southern terminus of the 846-mile Pacific Intertie Transmission System, which is a major power link between Southern California and the Pacific Northwest.

The \$171 million expansion, scheduled for completion in 1989, will increase the transmission system's capacity 55 percent, to 3,100 megawatts. It calls for the construction of parallel valve groups, converter valve halls, a control building and related equipment.

Work also began on the new Victorville-to-Rinaldi Transmission Line, a 500-kilovolt, single-circuit line that will be used to transmit power from coal-fueled generating stations in the southwest. Expected to be completed next July, the 86-mile project represents a \$67 million investment, including the purchase of rights-of-way.

In the Future: Alternative Energy

In addition to relying on a variety of conventional energy sources, the Department also is seeking to develop alternative sources such as geothermal, solar and biomass energy and other emerging technologies to address the future power needs of Los Angeles.

Although these methods are not now technically or economically feasible for our operations, they hold promise for the future. Last year we spent \$5.4 million on alternative energy research and development.

Geothermal Projects. The Department continued its development of geothermal power (underground steam or hot water) in the China Lake region of the Coso Range in Inyo County.

We began exploring the Coso Known Geothermal Resource Area in 1981, when we acquired leases to 6,825 acres located a few miles from DWP transmission lines.

Three exploratory wells were drilled in 1985 with favorable results, and more wells will be drilled to define the reservoir. Our long-range plans call for a demonstration plant to be operating in the early 1990s, and for commercial units to operate later in that decade.

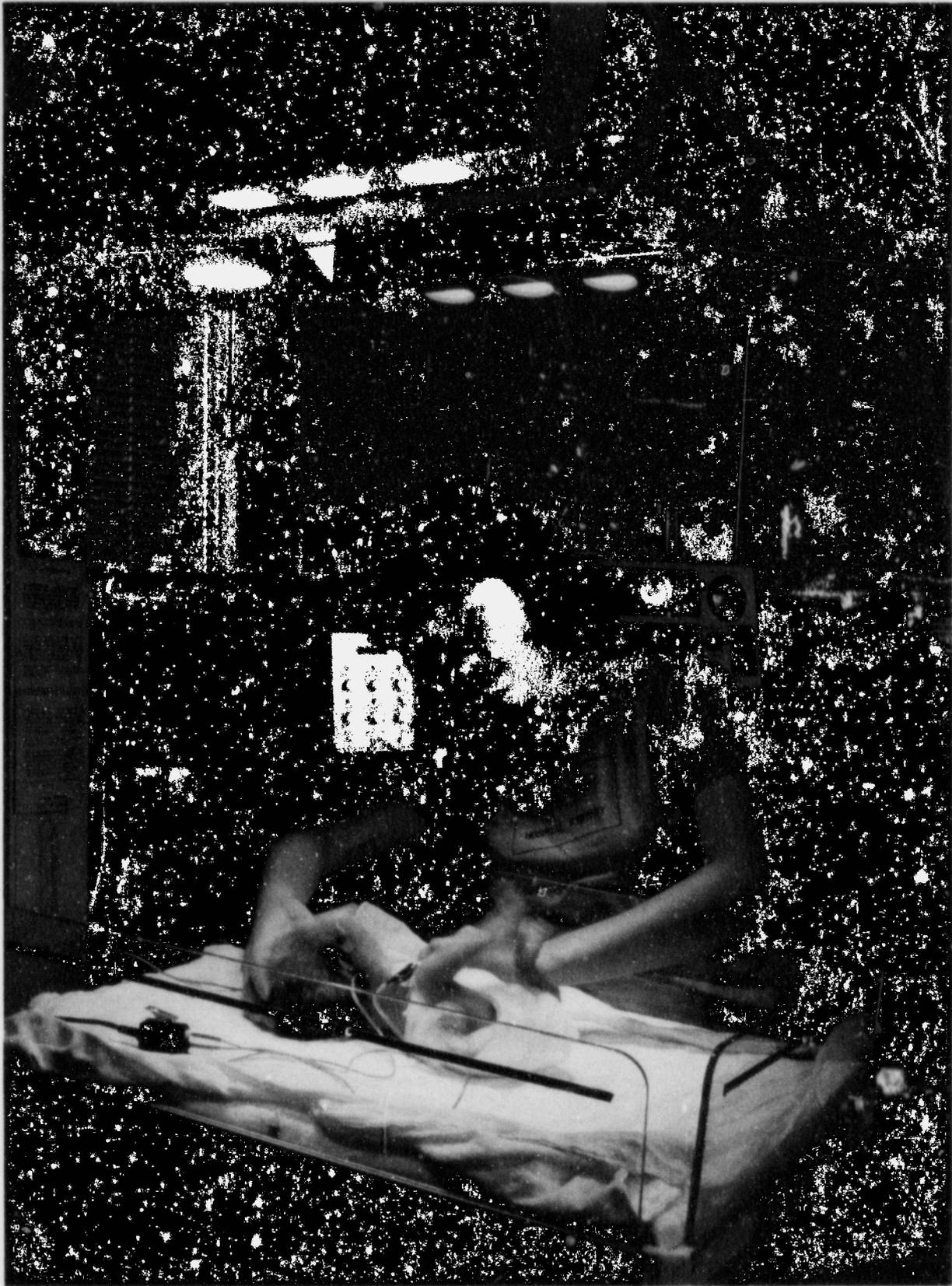
Geothermal is a proven technology. Commercial plants have been operating in the United States and other countries for many years.

White Pine County Power Project. To be located near Ely, Nevada, the White Pine Power Project is a proposed coal-fueled generating station that would be jointly owned by White Pine County and two Nevada power companies. Development work on White Pine continued last year. Under current plans, the DWP will acquire a portion of the project's output.

Hydroelectric. Environmentally clean and reliable, hydroelectric power has long been an important element in the Department's energy sources. Under a recent agreement, the city will continue to receive power from Hoover Dam for the next 30 years.

The DWP was a close partner of the federal Bureau of Reclamation in conceiving and building the dam, which was the main source of power for Los Angeles for many years. The Department, which has been operating 13 of the dam's 17 huge generators for the Bureau since 1935, began phasing out of its involvement in this work last year.

Landfill Gas Recovery. The Department has tested a 40-kilowatt fuel cell powered by landfill gas to produce electricity and heat. The DWP and Southern California Edison were joint participants in this project, part of a program sponsored by the federal Department of



A reliable supply of energy can be a matter of life and death as well as routine convenience. At California Hospital, this newborn is warmed and protected by DWP electricity.

Energy and the Gas Research Institute that is testing more than 40 fuel cells in the United States and Japan. The program was highly successful.

We continue to use landfill gas as supplemental boiler fuel at our Valley Generating Station. Landfill gas is recovered at a nearby landfill and piped to the station.

Conservation Programs Continue

Besides the activities cited above, the Department has operated a comprehensive energy conservation program since 1971. At present, these efforts mainly comprise free, customer-requested audits for both residential and business customers designed to improve energy efficiency, and a broad education campaign for both customer groups.

Largely as a result of these programs, Los Angeles has one of the lowest per capita energy

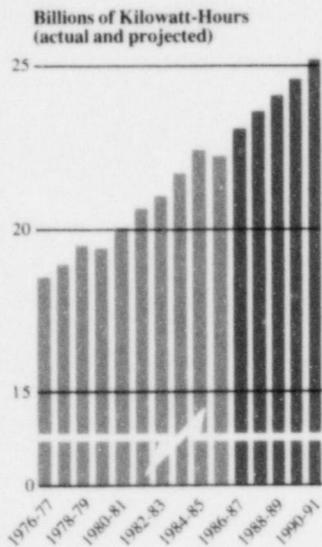
consumptions of any California city.

In the seven years that the Department has been surveying business and industrial establishments, which consume about 80 percent of the energy used in the city, about 800 audits have been completed through the year-end. These saved an estimated 250 million kilowatt hours.

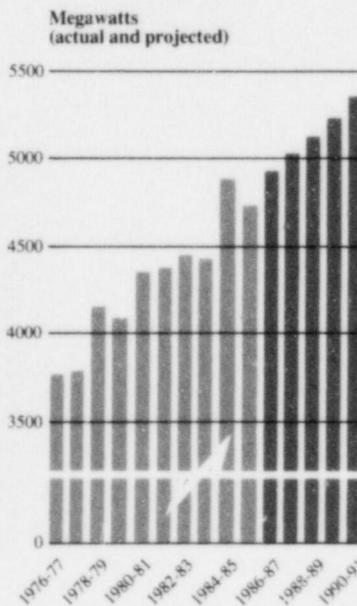
Through our conservation loan program, 119 loans totaling \$539,000 were granted during fiscal 1986 for solar and heat pump installations and master-meter conversions. Since its inception, the program has provided \$4.3 million in loans to residential customers.

The Department presented awards to 167 businesses for their achievements in energy efficiency management during the year.

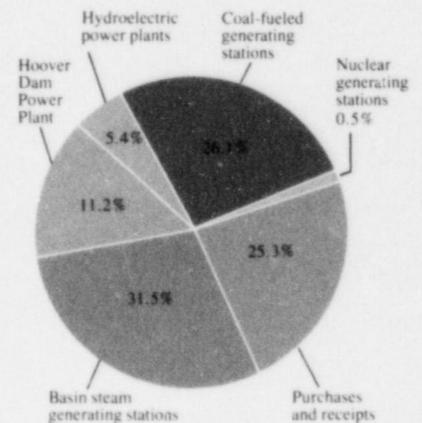
Electric Energy Requirements



Power System Peak Demand Forecasts



Electric Energy Sources



Power System Facts in Brief

Power production in kilowatt-hours (including all generation of Hoover units connected to DWP system)

	1985-86	1984-85
Power Use		
Domestic Customers	1,078,074	1,069,622
Commercial Customers	157,484	155,176
Industrial Customers	20,233	20,434
Total Customers — All Classes	1,261,972	1,251,206
Sales to Ultimate Consumers —		
Kilowatt-hours	20,034,676,000	19,554,854,000
Sales to Other Utilities —		
Kilowatt-hours	215,819,000	337,857,000
Average Annual Kilowatt-hours per Domestic Customer	5,102	5,185
Status of System		
Utility Plant (Less Accumulated Provision for Depreciation)	\$2,943,900,000	\$2,656,056,000
Generating Stations —		
Net Dependable Capability, Kilowatts	7,309,000*	6,534,000*

*Includes purchased capacity; does not deduct short-term sales of excess capacity.

Customer Service

The Year Sees Important Advances

The continuing, paramount objective of the Department is to provide ever-improving service to our customers, the people of Los Angeles. Last year we achieved much in that regard.

A New Telephone System Is Installed

A highly advanced telephone system that will provide much faster response to customer calls for service and information went into operation last spring.

The computer-controlled system, which cost about \$2.5 million, does something our previous electro-mechanical system could not: It assures that customers get first-call, first-served treatment. It also can answer a call immediately and place a customer on hold until a service representative is available to take the call.

The new equipment also continuously provides our service supervisors with information such as call length, volume and location which enables them to manage the system more efficiently.

In order to implement the new system, the telephone service operations of our Van Nuys and headquarters offices were consolidated, and the new unit was relocated to a remodeled area of the headquarters building lobby floor.

The telephone service staff consists of about 175 representatives, including about 40 who work part-time during high volume periods and 12 "leads," or supervisors. These people handle, on average, a total of 7,000 to 8,000 calls a day.

Computer Services Improved

In most large business and governmental organizations, there is an important, if sometimes indirect, relationship between the quality of the enterprise's computer services and the quality of its end product. This is the case with the DWP.

A very large, sophisticated computer services operation—the operating budget is about \$33 million—enhances all aspects of the Department's administrative work, and that, in turn, is reflected in improved customer service.

Last year we purchased a powerful mainframe computer which increased our processing capacity by about 45 percent. The new machine, which cost about \$4.5 million, processes information at the rate of 30 million instructions per second—twice as fast as the larger of our two older mainframes. Department personnel operating more than 1,600 remote terminals access these computers to carry out myriad administrative tasks.

In 1983, the Department initiated a program to train and assist employees in using personal computers. About 90 PCs were installed throughout the DWP last year, bringing the total at year-end to about 230. Each of these machines is used by a cluster of employees.

Assisting Low-Income Customers

Project ANGEL, the Department's program to assist customers who because of hardship cannot pay their DWP bills, distributed more than \$130,000 during the year.

Funding for Project ANGEL, an acronym for Assist Neighbors by Giving Energy for Living, comes from contributions by DWP customers and employees and other city employees. The program is administered by the United Way.

Since the program's inception in 1983, grants of more than \$566,000 have been made to some 5,500 families. Assistance is limited to \$150 per family in any 12-month period.



A new, computerized telephone system has improved greatly the Department's response to service and information calls.

Developing Our Most Important Asset

Among the more important responsibilities of the DWP are safeguarding the on-the-job welfare and nurturing the talents and capabilities of the more than 10,600 men and women comprising the workforce. Last year the Human Resources Division began several major new programs to help accomplish those ends.

Management Development Program Launched

Working with a consulting firm, we completed the first phase of the most comprehensive management training program the Department has ever undertaken.

The task was a complex one, involving more than 350 managers representing the entire Department. Surveys, focus groups and individual interviews were analyzed to determine the program's major areas of concentration.

The findings of this study will help us both identify the needs of individual managers and chart the course for a complete management development program for the Department.

In a related development, we also introduced a formal performance evaluation and development system for all engineering management personnel.

The system seeks to promote regular, open communication between superiors and subordinates on job performance, with a view toward developing better performance by the subordinate and increasing the job satisfaction and professional growth of both parties. This program was developed with the help of many of our engineering personnel at various levels.

Dealing With Substance Abuse

Recognizing that drug and alcohol abuse among DWP employees can pose serious health risks for them as well as create hazardous working conditions which could affect the public, we instituted a firm policy on the use of these substances.

The policy, which was agreed to by our various employee unions, is aimed at maintaining safe and efficient working conditions that are alcohol and drug free. It also provides employees involved in substance abuse with a full opportunity for rehabilitation. Referral of employees through the Department's Employee Assistance Program to a variety of community-based rehabilitation programs is an integral part of the policy.

The Department has provided extensive training to more than 1,700 supervisors in recognizing the signs of drug use and in the referral techniques necessary for rehabilitation.

Safety Record Improves

The Department expanded its safety programs considerably in fiscal 1986.

Department-wide recognition of outstanding safety records occurred with the establishment and first presentation of the General Manager's Safety Awards, which will be presented annually. The General Services, Water Operating, and Power Distribution Divisions won the awards for reducing their serious accidents by 25 percent to 34 percent.

We also established an Industrial Hygiene unit that is responsible for assuring that DWP operations involving hazardous chemicals are conducted safely and in compliance with government regulations. The unit developed and presented "right-to-know" training for 7,000 DWP field employees. It is now monitoring Department worksites and preparing evaluations for operating managers.

Additionally, we invested substantial sums in new safety equipment, carried out employee tests under Occupational Safety and Health Administration (OSHA) standards, and expanded our safety awareness programs.



DWP crews demonstrate electrical safety practices to students at Los Angeles schools.

Finances Operations for fiscal year 1985-86 produced increases of .5 percent in water sales and 1.8 percent in the sales of electric energy.

Operating revenues of the Department's Water and Power Systems totaled more than \$1.58 billion, a gain of \$88 million over the previous fiscal year. The Water System accounted for \$18 million of the increase due primarily to higher energy and purchased water costs billed to customers. The Power System added \$70 million to the total. This came mainly from an increase in energy costs billed to customers combined with the November 1985 rate increase.

Higher Water System operating revenues partially offset by an increase in operating and maintenance expenses resulted in net income of \$61.8 million.

A total of \$112.8 million was spent by the Water System on capital construction, most of which went towards the improvement of the water distribution system and continued construction of the Los Angeles Aqueduct Filtration Plant project. Water filtration is necessary to comply with federal and state drinking water quality regulations.

The operating revenue of the Power System increased by 5.4 percent from 1984-85 to a total of \$1.36 billion. Net income amounted to \$193.6 million.

The Power System invested \$404.4 million in capital construction for the year. Major expenditures were for additions and modifications to the electrical distribution system in Los Angeles, additions and improvements to transmission facilities, and the Coronado/Palo Verde power generation project.

Two \$50 million issues of Power System revenue bonds were sold during the year. Interest rates for these issues averaged 8.6 percent. The Water System sold two advance refunding bond issues for almost \$67 million. Proceeds of the sales were pledged to retire the higher-interest cost Water Works Revenue Bond issues of 1982 and 1984. This transaction will ultimately yield interest cost savings in excess of \$18 million over the life of the refunding issues.

Outstanding bonds, notes and revenue certificates on June 30, 1986, totaled \$1.63 billion for the Power System and \$324.4 million for the Water System. Both systems met their maturing payments on bonds and notes.

Totaled assets of the Department at June 30, 1986, were approximately \$4.84 billion. Of this amount, \$3.70 billion was recorded in the Power System and the remainder in the Water System.

In accordance with its basic fiscal policy, the Department pays all costs of operation, debt service and part of the cost of capital improvements from current revenues. The remainder of the cost of capital improvements is met through sales of revenue bonds or notes and from contributions in aid of construction.

Besides meeting all costs of operation from current revenues, the Department paid more than \$74 million into the Reserve Fund of the city in support of general city government. Almost 90 percent of that amount came from the Power Revenue Fund. Operations of the Water and Power Systems are entirely self-supporting and no financial obligation or tax burden is placed on the citizens of Los Angeles.

Water System Statement of Income

Year ended June 30

(In Thousands)	1986	1985	1984
Operating revenues:			
Sales of water	\$220,433	\$203,042	\$180,851
Fire hydrant rentals	4,042	4,015	3,926
Other operating revenues	1,544	1,243	965
Total operating revenues	226,019	208,300	185,742
Operating expenses:			
Purchased water	17,192	9,139	6,775
Purchased energy	8,050	7,524	6,006
Purchased water and energy costs	25,242	16,663	12,781
Other operation	78,715	72,308	69,107
Maintenance	27,145	27,351	25,919
Provision for depreciation	22,983	21,844	20,956
Taxes on property outside the City	2,572	2,375	2,342
Total operating expenses	156,657	140,541	131,105
Operating income	69,362	67,759	54,637
Other income — net	8,176	12,140	7,715
Income before debt expenses	77,538	79,899	62,352
Debt expenses:			
Interest on debt	23,239	23,254	18,263
Allowance for borrowed funds used during construction	(7,545)	(6,677)	(2,392)
Net debt expenses	15,694	16,577	15,871
Income before nonrecurring credit	61,844	63,322	46,481
Nonrecurring credit related to accounting changes	—	—	11,962
Net income	\$ 61,844	\$ 63,322	\$58,443

Statement of Retained Income Reinvested in the Business

Balance at beginning of year	\$357,757	\$304,320	\$253,673
Net income for the year	61,844	63,322	58,443
	419,601	367,642	312,116
Less — Payments to the reserve fund of the City	10,415	9,885	7,796
Balance at end of year	\$409,186	\$357,757	\$304,320

The accompanying notes are an integral part of these financial statements.

Water System Balance Sheet

	June 30	
(In Thousands)	1986	1985
Assets		
Utility plant, at original cost:		
Source of water supply	\$ 223,350	\$ 220,698
Pumping	23,656	22,489
Purification	9,654	9,323
Distribution	904,277	864,406
General	97,614	83,793
	1,258,551	1,200,709
Less — Accumulated provision for depreciation	453,695	429,510
	804,856	771,199
Construction work in progress	183,941	131,048
	988,797	902,247
Long-term receivables	1,076	1,573
Current assets:		
Deposits with City Treasurer —		
Revenue fund	64,227	103,514
Bond redemption and interest funds	2,772	6,837
Cash on hand and revolving funds	556	249
Customer and other accounts receivable, less \$600 allowance for losses	35,009	32,231
Accrued unbilled revenue	17,890	15,817
Materials and supplies, at average cost	13,423	13,304
Prepayments and other current assets	13,826	2,289
	147,703	174,241
Unamortized debt expenses	409	846
	\$1,137,985	\$1,078,907
Liabilities and Equity		
Equity:		
Retained income reinvested in the business, per accompanying statement	\$ 409,186	\$ 357,757
Contributions in aid of construction	302,946	284,884
	712,132	642,641
Long-term debt, excluding advance refunding bonds:		
Revenue bonds	296,546	309,242
Revenue notes	27,861	34,801
	324,407	344,043
Less — Long-term debt due within one year (see below)	19,370	19,450
	305,037	324,593
Current liabilities:		
Long-term debt due within one year (see above)	19,370	19,450
Accrued interest	6,746	6,226
Accounts payable and accrued expenses	66,873	61,281
Customer deposits	27,827	24,716
	120,816	111,673
	\$1,137,985	\$1,078,907

The accompanying notes are an integral part of these financial statements.

Water System Statement of Changes in Financial Position

Year ended June 30

(In Thousands)	1986	1985	1984
Financial resources provided by:			
Operations—			
Net income	\$ 61,844	\$ 63,322	\$ 58,443
Charges and credits to income not affecting working capital—			
Depreciation	26,291	25,793	25,270
Other, net	748	570	489
Resources provided by operations	88,883	89,685	84,202
Sale of revenue bonds and notes	—	34,706	49,471
Sale of advance refunding bonds	65,928	18,597	—
Amount received from escrow account	13,025	20,600	—
Contributions in aid of construction	18,062	18,945	15,890
	185,898	182,533	149,563
Financial resources used for:			
Expenditures for plant and equipment	112,841	101,482	90,788
Reduction of long-term debt	19,370	19,450	12,375
Amount deposited in escrow accounts and offset against advance refunding bonds (Note B)	65,928	18,597	—
Long-term debt redeemed, including call premium	13,025	20,600	—
Payments to the reserve fund of the City	10,415	9,885	7,796
	221,579	170,014	110,959
Increase (decrease) in working capital	\$ (35,681)	\$ 12,519	\$ 38,604
Increase (decrease) in components of working capital:			
Deposits with City Treasurer—			
Revenue fund	\$ (39,287)	\$ 19,712	\$ 40,673
Bond redemption and interest funds	(4,065)	5,219	(497)
Cash on hand and revolving funds	307	21	(159)
Customer and other accounts receivable	2,778	4,853	4,664
Accrued unbilled revenue	2,073	647	15,170
Materials and supplies	119	2,350	805
Deferred purchased water costs	—	—	(2,024)
Prepayments and other current assets	11,537	(153)	592
Net change in current assets	(26,538)	32,649	59,224
Long-term debt due within one year	80	(7,075)	250
Accrued interest	(520)	(144)	2
Accounts payable and accrued expenses	(5,592)	(10,110)	(16,727)
Customer deposits	(3,111)	(2,801)	(4,145)
Net change in current liabilities	(9,143)	(20,130)	(20,620)
Increase (decrease) in working capital	\$ (35,681)	\$ 12,519	\$ 38,604

The accompanying notes are an integral part of these financial statements.

Water System Notes to Financial Statements

NOTE A—Summary of significant accounting policies:

The Department—The Department of Water and Power of the City of Los Angeles exists under and by virtue of the City Charter enacted in 1925 as a separate proprietary agency of the City. The Water System is responsible for delivering water to the City's inhabitants.

Financial statement presentation—The financial statements of the Water System are presented in conformity with generally accepted accounting principles, and substantially in conformity with accounting principles prescribed by the California Public Utilities Commission except for the method of accounting for contributions in aid of construction described below. The Department is not subject to regulations of such commission.

Utility plant and depreciation—The costs of additions to utility plant and replacements of retired units of property are capitalized. Costs include labor, materials and allocated indirect charges such as engineering, supervision, transportation and construction equipment, retirement plan contributions and other fringe benefits, and certain administrative and general expenses.

For projects over a specified dollar amount, the Water System also capitalizes an allowance for funds used during construction equivalent to the cost of long-term debt incurred to finance plant under construction. Research and development costs directly related to current and future construction projects are capitalized and all other such costs are expensed as incurred. The cost of relatively minor replacements is included in maintenance expense. The original cost of property retired, together

with removal cost, less salvage, is charged to accumulated depreciation when property is removed from service.

Utility plant depreciation is provided by the straight-line method based on estimated service lives. The depreciation expense was 2.28%, 2.28% and 2.36% of average depreciable plant for the years ended June 30, 1986, 1985 and 1984.

Deposits with City Treasurer—Of the deposits with the City Treasurer, \$57,584,000 and \$101,396,000 at June 30, 1986 and 1985, were invested in short-term securities under the City Treasurer's pooled investment program, whereby available funds of the City and its independent operating departments are invested on a combined basis. These investments are valued at cost, which approximates market.

Contributions in aid of construction—Under the provisions of the City Charter, amounts received from customers and others for constructing utility plant are combined with retained income reinvested in the business to represent equity for purposes of computing the Water System's borrowing limits. Accordingly, contributions in aid of construction are shown in the accompanying balance sheet as an equity account and are not offset against utility plant; depreciation provided for the related utility plant is expensed.

Revenues—The Water System's rates are fixed by the Department and approved by the City Council. Revenues include amounts resulting from a purchased water cost adjustment formula designed to permit full recovery of purchased water costs. The Department projects these costs to establish the purchased water cost recovery component of customer billings. Any difference between

amounts billed and actual purchased water costs results in over- or under-recovered purchased water costs, which are adjusted in subsequent billings.

Under the rate ordinance approved August 30, 1983, the Water System changed its method of recognizing purchased water costs to expense and bill these costs in the period incurred; previously, billable purchased water costs were deferred until actually billed. To provide a better matching of costs and revenues, effective June 30, 1984, the Water System changed its accounting policy for recognizing revenue to a method which provides for accruing estimated unbilled revenues for water sold but not billed at the end of a fiscal period; previously, revenues were recognized when billed. At June 30, 1984, as required by the rate ordinance, deferred purchased water costs of \$3,208,000 were charged to expense. The net effect of the two changes was to increase net income for the year ended June 30, 1984 by \$11,962,000.

Under a rate ordinance approved November 24, 1985, to be effective January 1, 1986, the Water System will recover all energy purchased as part of the purchased water cost recovery rates. Previously, purchased energy was recovered through base rate billings. This change had no significant effect on net income for the year ended June 30, 1986.

The Water System sells water to other departments of the City at regular rates provided in the ordinance.

Shared operating expenses—The Water System shares certain administrative functions with the Department's Power System. Generally, the cost of these functions is allocated on the basis of benefits provided to the Systems.

Debt expenses—Debt premium, discount, and issue expenses are deferred and amortized to income over the lives of the related issues.

Payments to the reserve fund of the City—Under the provisions of the City Charter, the Water System transfers funds at its discretion to the reserve fund of the City. Such payments are not in lieu of taxes and are recorded as distributions of retained income.

NOTE B—Long-term debt:

Long-term debt outstanding at June 30, 1986, consisted of revenue bonds and notes due serially in varying annual amounts through 2024. Interest rates, which vary among individual maturities, averaged approximately 7.14% and 7.59% at June 30, 1986 and 1985. The revenue bonds are callable generally ten years after issuance. Scheduled principal maturities during the five years succeeding June 30, 1986 are \$19,370,000, \$19,560,000, \$20,270,000, \$20,180,000, and \$12,460,000, respectively.

In fiscal years ended June 30, 1986, 1985 and 1977, the Water System sold advance refunding bonds totaling \$66,585,000, \$18,785,000 and \$33,625,000, respectively. Until the bonds to be refunded are called, interest on the advance refunding bonds is payable from interest earned on securities of the United States government purchased out of the proceeds of the sales and held in escrow accounts with Citibank, N.A., New York. At June 30, 1986 and 1985, \$85,370,000 and \$31,810,000 of these escrow accounts have been offset against the advance refunding bonds in the accompanying balance sheet (\$12,650,000 face value was redeemed during the year ended June 30, 1986). After the monies in the escrow accounts are applied to redeem the bonds to be called (\$82,890,000 face value to be re-

deemed through 1994), the advance refunding bonds will be payable from Water System revenues.

NOTE C—Shared operating expenses:

Operating expenses shared with the Power System were \$216,276,000, \$197,265,000 and \$165,089,000 for the years ended June 30, 1986, 1985 and 1984, of which \$74,347,000, \$67,139,000 and \$51,033,000 were allocated to the Water System.

NOTE D—Employees' retirement plan:

The Department has a funded contributory retirement, disability and death benefit insurance plan covering substantially all of its employees. The Water System was allocated approximately 26% of the plan's total costs for the years ended June 30, 1986, 1985 and 1984 amounting to \$32,247,000, \$29,156,000 and \$30,618,000. These costs include amortization of prior service costs generally over a 30-year period ending June 30, 2003. The Department funds retirement plan costs in accordance with the recommendations of the plan's independent actuary. In 1986, no significant amendments were made to the plan.

The actuarially computed present value of accumulated retirement plan benefits attributable to the Water System aggregated \$461,000,000 and \$434,000,000 at June 30, 1986 and 1985, of which \$459,000,000 and \$433,000,000 were vested. An assumed rate of return of 8% was used in determining these actuarially computed values. The retirement plan's assets at market value allocated to the Water System were \$397,000,000 and \$313,000,000 at such dates.

NOTE E—Commitments and contingencies:

Capital program and other—The Department's budget for the year ending June 30, 1987 provides

for capital expenditures of approximately \$114,000,000 in the Water System. Also, the Department has budgeted payments of \$11,391,000 for the year ending June 30, 1987 from the Water System's revenue fund to the reserve fund of the City.

Litigation—A number of claims and suits are pending against the Department for alleged damages to persons and property and for other alleged liabilities arising out of its operations. In the opinion of management, the uninsured liability under these actions would not materially affect the Water System's financial position as of June 30, 1986.

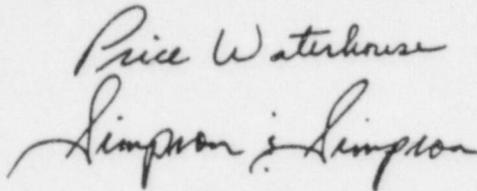
Report of Independent Accountants

To the Board of Water and Power Commissioners
Department of Water and Power
City of Los Angeles

We have examined the balance sheet of the Water System of the Department of Water and Power of the City of Los Angeles as of June 30, 1986 and 1985, and the related statements of income, of retained income reinvested in the business and of changes in financial position for each of the three years in the period ended June 30, 1986. 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.

As more fully described in Note A to the financial statements, effective June 30, 1984, the Water System of the Department changed its method of accounting for unbilled revenues and the method of recognizing purchased water costs.

In our opinion, the financial statements examined by us present fairly the financial position of the Water System of the Department of Water and Power of the City of Los Angeles at June 30, 1986 and 1985, and the results of its operations and the changes in its financial position for each of the three years in the period ended June 30, 1986, in conformity with generally accepted accounting principles consistently applied during the period except for the changes, with which we concur, referred to in the preceding paragraph.



Los Angeles, California
October 10, 1986

Power System Statement of Income

Year ended June 30

(In Thousands)	1986	1985	1984
Operating revenues:			
Sales of electric energy	\$1,349,579	\$1,280,632	\$1,170,953
Other operating revenues	8,555	7,335	6,516
Total operating revenues	1,358,134	1,287,967	1,177,469
Operating expenses:			
Fuel for generation	348,069	347,591	313,850
Purchased power	203,116	181,951	169,615
Energy costs	551,185	529,552	483,465
Other operation	288,954	240,090	232,525
Maintenance	142,461	129,425	110,598
Provision for depreciation	107,419	105,483	98,521
Taxes on property outside the City	8,660	8,896	10,965
Total operating expenses	1,098,679	1,013,446	936,074
Operating income	259,455	274,521	241,395
Other income — net	27,984	31,976	22,032
Income before debt expenses	287,439	306,497	263,427
Debt expenses:			
Interest on debt	97,464	96,075	98,548
Allowance for borrowed funds used during construction	(3,610)	(3,208)	(575)
Net debt expenses	93,854	92,867	97,973
Net income	\$ 193,585	\$ 213,630	\$ 165,454

Statement of Retained Income Reinvested in the Business

Balance at beginning of year	\$1,432,156	\$1,277,393	\$1,167,259
Net income for the year	193,585	213,630	165,454
	1,625,741	1,491,023	1,332,713
Less — Payments to the reserve fund of the City	64,353	58,867	55,320
Balance at end of year	\$1,561,388	\$1,432,156	\$1,277,393

The accompanying notes are an integral part of these financial statements.

Power System Balance Sheet

June 30

(In Thousands)	1986	1985
Assets		
Utility plant, at original cost:		
Production	\$1,379,279	\$1,483,086
Transmission	501,453	508,148
Distribution	1,571,148	1,471,489
General	235,012	210,213
	3,686,892	3,672,936
Less — Accumulated provision for depreciation	1,157,138	1,106,040
	2,529,754	2,566,896
Construction work in progress	383,904	89,160
Nuclear fuel, at amortized cost	30,242	—
	2,943,900	2,656,056
Current assets:		
Deposits with City Treasurer—		
Revenue fund	355,565	283,118
Bond redemption and interest funds	17,226	40,872
Cash on hand and revolving funds	1,166	1,222
Customer and other accounts receivable, less \$3,300 and \$2,900 allowance for losses	140,043	148,752
Accrued unbilled revenue	83,729	57,483
Materials and supplies, at average cost	61,820	57,149
Fuel for generation	61,819	83,851
Deferred energy costs	26,784	40,537
Prepayments and other current assets	9,397	9,569
	757,549	722,553
Unamortized debt expenses	1,045	2,118
	\$3,702,494	\$3,380,727
Liabilities and Equity		
Equity:		
Retained income reinvested in the business, per accompanying statement	\$1,561,388	\$1,432,156
Contributions in aid of construction	84,708	79,625
	1,646,096	1,511,781
Long-term debt, excluding advance refunding bonds:		
Revenue bonds	1,512,710	1,465,200
Revenue notes	24,955	60,000
	1,537,665	1,525,200
Less — Long-term debt due within one year (see below)	61,526	84,996
	1,476,139	1,440,204
Current liabilities:		
Long-term debt due within one year (see above)	61,526	84,996
Revenue certificates	90,000	90,000
Accrued interest	26,504	23,746
Accounts payable and accrued expenses	315,519	209,934
Over-recovered energy costs	69,261	13,102
Extension and other deposits	17,449	6,964
	580,259	428,742
	\$3,702,494	\$3,380,727

The accompanying notes are an integral part of these financial statements.

Power System Statement of Changes in Financial Position

Year ended June 30

(In Thousands)	1986	1985	1984
Financial resources provided by:			
Operations—			
Net income	\$ 193,585	\$213,630	\$165,454
Charges and credits to income not affecting working capital—			
Depreciation	115,599	113,328	104,832
Amortization of nuclear fuel	925	—	—
Other, net	(32)	385	582
Resources provided by operations	310,077	327,343	270,868
Sale of revenue bonds	98,566	49,586	—
Amount received from escrow account	72,920	88,786	—
Contributions in aid of construction	5,083	15,489	4,576
	486,646	481,204	275,444
Financial resources used for:			
Expenditures for plant and equipment	404,368	177,674	150,926
Reduction of long-term debt	61,526	84,996	79,126
Long-term debt redeemed, including call premium	72,920	88,786	—
Payments to the reserve fund of the City	64,353	58,867	55,320
	603,167	410,323	285,372
Increase (decrease) in working capital	\$ (116,521)	\$ 70,881	\$ (9,928)
Increase (decrease) in components of working capital:			
Deposits with City Treasurer—			
Revenue fund	\$ 72,447	\$ 71,000	\$ 35,038
Bond redemption and interest funds	(23,646)	32,534	(7,273)
Cash on hand and revolving funds	(56)	(5)	318
Customer and other accounts receivable	(8,709)	44,738	1,054
Accrued unbilled revenue	26,246	(4,397)	61,880
Materials and supplies	4,671	1,919	1,515
Fuel for generation	(22,032)	6,174	(14,242)
Deferred energy costs	(13,753)	(10,481)	(59,213)
Prepayments and other current assets	(172)	475	207
Net change in current assets	34,996	141,957	19,284
Long-term debt due within one year	23,470	(5,870)	(7,315)
Accrued interest	(2,758)	(169)	8,399
Accounts payable and accrued expenses	(105,585)	(49,352)	(28,909)
Over-recovered energy costs	(56,159)	(13,102)	—
Extension and other deposits	(10,485)	(2,583)	(1,387)
Net change in current liabilities	(151,517)	(71,076)	(29,212)
Increase (decrease) in working capital	\$ (116,521)	\$ 70,881	\$ (9,928)

The accompanying notes are an integral part of these financial statements.

Power System Notes to Financial Statements

NOTE A—Summary of significant accounting policies:

The Department—The Department of Water and Power of the City of Los Angeles exists under and by virtue of the City Charter enacted in 1925 as a separate proprietary agency of the City. The Power System is responsible for delivering electric power to the City's inhabitants.

Financial statement presentation—The financial statements of the Power System are presented in conformity with generally accepted accounting principles, and substantially in conformity with accounting principles prescribed by the Federal Energy Regulatory Commission and the California Public Utilities Commission except for the method of accounting for contributions in aid of construction described below. The Department is not subject to regulations of such commissions.

Utility plant and depreciation—The costs of additions to utility plant and replacements of retired units of property are capitalized. Costs include labor, materials and allocated indirect charges such as engineering, supervision, transportation and construction equipment, retirement plan contributions and other fringe benefits, and certain administrative and general expenses.

For projects over a specified dollar amount, the Power System capitalizes an allowance for funds used during construction equivalent to the cost of long-term debt incurred to finance plant under construction. Research and development costs directly related to current and future construction projects are capitalized and all other such costs are expensed as incurred. The cost of relatively minor replacements is included in maintenance expense. The original cost of property retired, together with removal cost, less salvage, is

charged to accumulated depreciation when property is removed from service.

Utility plant depreciation is provided for a large portion of the facilities by the 5% sinking fund method based on the estimated service lives. The straight-line method is used for major projects completed after July 1, 1973 and for all office and shop structures, related furniture and equipment, and transportation and construction equipment. The aggregate provision was 3.27%, 3.24% and 3.13% of average depreciable plant for the years ended June 30, 1986, 1985 and 1984. Nuclear fuel is amortized and charged to Fuel for Generation on the basis of actual thermal energy produced relative to total thermal energy expected to be produced over the life of the fuel. A contract has been entered into with the United States Department of Energy for the disposal of the spent fuel.

Nuclear decommissioning—Decommissioning of the Palo Verde Nuclear Generating Station (PVNGS) is projected to commence in approximately 35 to 40 years. The Power System is providing for estimated future decommissioning costs over the life of the PVNGS through annual charges to expense.

Deposits with City Treasurer—Of the deposits with the City Treasurer, \$337,034,000 and \$279,025,000 at June 30, 1986 and 1985 were invested in short-term securities under the City Treasurer's pooled investment program, whereby available funds of the City and its independent operating departments are invested on a combined basis. These investments are valued at cost, which approximates market.

Fuel for generation—Coal inventories are stated at average cost. Fuel oil inventories are stated at cost, using the last-in, first-out method.

Contributions in aid of construction—Under the provisions of the City Charter, amounts received from customers and others for constructing utility plant are combined with retained income reinvested in the business to represent equity for purposes of computing the Power System's borrowing limits. Accordingly, contributions in aid of construction are shown in the accompanying balance sheet as an equity account and are not offset against utility plant; depreciation provided for the related utility plant is expensed.

Revenues—The Power System's rates are fixed by the Department and approved by the City Council. Revenues include amounts resulting from an energy cost adjustment formula designed to permit the full recovery of energy costs. The Department projects these costs to establish the energy cost recovery component of customer billings. Any difference between amounts billed and actual energy costs results in over- or under-recovery of energy costs, which are adjusted in subsequent billings.

Under the rate ordinance approved August 30, 1983, the Power System changed its method of recognizing energy costs to expense and bill these costs in the period incurred; previously, billable energy costs were deferred until actually billed. Also, to provide a better matching of costs and revenues, effective June 30, 1984, the Power System changed its accounting policy for recognizing revenue to a method which provides for accruing estimated unbilled revenues for energy sold but not billed at the end of a fiscal period; previously, revenues were recognized when billed. At June 30, 1984, as required by the rate ordinance, an amount of deferred energy cost equal to the accrued unbilled revenues was charged to expense and, therefore, has no effect on net

income. Deferred energy costs will be billed in future periods.

The Power System sells electric energy to other departments of the City at regular rates provided in the ordinance.

Shared operating expenses—

The Power System shares certain administrative functions with the Department's Water System. Generally, the cost of these functions is allocated on the basis of benefits provided to the Systems.

Debt expenses—Debt premium, discount, and issue expenses are deferred and amortized to income over the lives of the related issues.

Payments to the reserve fund of the City—Under the provisions of the City Charter, the Power System transfers funds at its discretion to the reserve fund of the City. Such payments are not in lieu of taxes and are recorded as distributions of retained income.

NOTE B—Revenue certificates:

At June 30, 1986 and 1985, the average interest rate of revenue certificates outstanding was 4.55% and 4.80% with maturities ranging from 19 to 152 days and 34 to 180 days, respectively. The Department has an unsecured standby line of credit of \$90,000,000 which can be used if the certificates cannot be refinanced as they mature.

NOTE C—Jointly-owned electric utility plant:

The Power System has an undivided interest in several electrical generating stations and transmission systems which are jointly-owned with various utilities. Each participant provides its own construction financing. The Power System's proportionate share of construction and improvement costs is included in the appropriate categories of utility plant. The Power System will incur certain minimum operating costs on jointly-owned facilities, whether or not it is able to take delivery of its share of energy generated. The proportionate share of these expenses incurred is included in the appropriate categories of operating expenses.

At June 30, 1986 and 1985, the Power System's investment in such projects totaled \$853,748,000 and \$671,917,000.

NOTE D—Long-term debt:

Long-term debt outstanding at June 30, 1986, consisted of revenue bonds and notes due serially in varying annual amounts through 2026. Interest rates, which vary among individual maturities, averaged approximately 6.56% and 6.29% at June 30, 1986 and 1985. The revenue bonds are callable generally ten years after issuance. Scheduled principal maturities during the five years succeeding June 30, 1986 are \$61,526,000, \$67,916,000, \$53,545,000, \$51,930,000, and \$53,180,000, respectively.

In the fiscal year ended June 30, 1977, the Power System sold advance refunding bonds totaling \$161,700,000. Until the bonds to be refunded were called, interest on the advance refunding bonds was payable from interest earned on securities of the United States Government purchased out of the proceeds of the sales and held in escrow accounts with Citibank, N.A., New York. At June 30, 1986, all refunded bonds had been called and the related escrow accounts liquidated; the advance refunding bonds are now payable from Power System revenues. During the years ended June 30, 1986 and 1985, \$70,800,000 and \$86,200,000 face value of the refunded bonds were redeemed.

NOTE E—Shared operating expenses:

Operating expenses shared with the Water System were \$216,276,000, \$197,265,000 and \$165,089,000 for the years ended June 30, 1986, 1985 and 1984, of which \$141,929,000, \$130,126,000 and \$114,056,000 were allocated to the Power System.

NOTE F—Employees' retirement plan:

The Department has a funded contributory retirement, disability and death benefit insurance plan covering substantially all of its employees. The Power System was allocated

approximately 74% of the plan's total costs for the years ended June 30, 1986, 1985 and 1984 amounting to \$90,677,000, \$82,983,000 and \$86,744,000. These costs include amortization of prior service costs generally over a 30-year period ending June 30, 2003. The Department funds retirement plan costs in accordance with the recommendations of the plan's independent actuary. In 1986, no significant amendments were made to the plan.

The actuarially computed present value of accumulated retirement plan benefits attributable to the Power System aggregated \$1,151,000,000 and \$1,084,000,000 at June 30, 1986 and 1985, of which \$1,147,000,000 and \$1,080,000,000 were vested. An assumed rate of return of 8% was used in determining these actuarially computed values. The retirement plan's assets at market value allocated to the Power System were \$992,000,000 and \$783,000,000 at such dates.

NOTE G—Commitments and contingencies:

Capital program and other—The Department's budget for the year ending June 30, 1987 provides for capital expenditures of approximately \$478,000,000 in the Power System. Also, the Department has budgeted payments of \$67,913,000 for the year ending June 30, 1987 from the Power System's revenue fund to the reserve fund of the City.

Long-term purchased power and transmission contracts—The Department has entered into a number of energy and capacity contracts which involve substantial commitments. These include an agreement with the Intermountain Power Agency (IPA), a Utah State Agency, and two agreements with the Southern California Public Power Authority (SCPPA), a California Public Authority. Under the IPA agreement, as amended, the Power System has committed to purchase 62.8%, of which 44.6% is a "take or pay" obligation, of the energy gen-

erated by the Intermountain Power Project (IPP), a coal-fueled generating station that became operational July 1, 1986. At June 30, 1986, IPA had issued \$5,120,142,000 of Power Supply Revenue Bonds and had made expenditures of approximately \$2,592,000,000. Subsequent to June 30, 1986, IPA issued an additional \$1,635,000,000 of Special Obligation Crossover Bonds, the proceeds of which will be used to redeem \$1,532,000,000 of Power Supply Revenue Refunding Bonds.

Under a power sales agreement with SCPPA, the Power System will purchase 67% of SCPPA's entitlement to the Palo Verde Nuclear Project. At June 30, 1986, SCPPA had issued \$1,033,000,000 of Power Project Bond Anticipation Notes and Power Project Revenue Bonds and had made expenditures of approximately \$584,873,000.

Under a transmission service contract with SCPPA, the Power System is to purchase 59.5% of the capacity of the Southern Transmission System, a 500kV DC transmission line, which will transmit energy from IPP to Southern California. At June 30, 1986, SCPPA had issued \$1,058,000,000 of Transmission Project Bond Anticipation Notes and Transmission Project Revenue Bonds and had made expenditures of approximately \$636,706,000.

All these agreements require the Power System to make certain minimum payments whether or not power is produced or it is able to take delivery of the power. Minimum payments are based upon debt service requirements plus production costs and, therefore, cannot presently be determined.

Litigation — A number of claims and suits are pending against the Department for alleged damages to persons and property and for other alleged liabilities arising out of its operations. In the opinion of management, the uninsured liability under these actions would not materially affect the Power System's financial position as of June 30, 1986.

Report of Independent Accountants

To the Board of Water and Power Commissioners
Department of Water and Power
City of Los Angeles

We have examined the balance sheet of the Power System of the Department of Water and Power of the City of Los Angeles as of June 30, 1986 and 1985, and the related statements of income, of retained income reinvested in the business and of changes in financial position for each of the three years in the period ended June 30, 1986. 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.

As more fully described in Note A to the financial statements, effective June 30, 1984, the Power System of the Department changed its method of accounting for unbilled revenues and the method of recognizing energy costs. Adoption of these new accounting policies, with which we concur, had no effect on net income for 1984.

In our opinion, the financial statements examined by us present fairly the financial position of the Power System of the Department of Water and Power of the City of Los Angeles at June 30, 1986 and 1985, and the results of its operations and the changes in its financial position for each of the three years in the period ended June 30, 1986, in conformity with generally accepted accounting principles consistently applied.

*Price Waterhouse
Simpson & Simpson*

Los Angeles, California
October 10, 1986

Water Sales

	Residential	Commercial & Industrial	Irrigation	Power System	City Governmental	Other Governmental	All Classes Combined
Revenue from sales of water:							
Year ended June 30-							
1986	\$ 84,147,000	\$122,917,000	\$305,000	\$ 783,000	\$5,321,000	\$6,960,000	\$220,433,000
1985	78,960,000	111,082,000	324,000	651,000	5,880,000	6,145,000	203,042,000
Increase (decrease)	5,187,000	11,835,000	(19,000)	132,000	(559,000)	815,000	17,391,000
Percent increase (decrease)	6.57	10.65	(5.86)	20.28	(9.51)	13.26	8.57
Unit of 100 cubic feet sold:							
Year ended June 30-							
1986	102,935,903	150,414,530	783,087	1,001,851	8,789,111	9,178,955	273,103,437
1985	104,339,796	146,600,867	920,556	889,851	10,081,941	9,055,702	271,888,713
Increase (decrease)	(1,403,893)	3,813,663	(137,469)	112,000	(1,292,830)	123,253	1,214,724
Percent increase (decrease)	(1.35)	2.60	(14.93)	12.59	(12.82)	1.36	0.45
Average billing price per 100 cubic feet:							
Year ended June 30-							
1986	0.8175	0.8172	0.3895	0.7816	0.6054	0.7583	0.8071
1985	0.7568	0.7577	0.3520	0.7316	0.5832	0.6786	0.7468
Increase (decrease)	0.0607	0.0595	0.0375	0.0500	0.0222	0.0797	0.0603
Percent increase (decrease)	8.02	7.85	10.65	6.83	3.81	11.74	8.07
Average number of customers (calculated on no. of billings):							
Year ended June 30-							
1986	455,553	169,388	32	366	3,031	1,735	630,105
1985	462,384	162,631	35	404	3,719	1,180	630,353
Increase (decrease)	(6,831)	6,757	(3)	(38)	(688)	555	(248)
Percent increase (decrease)	(1.48)	4.15	(8.57)	(9.41)	(18.50)	47.03	(0.04)
Average annual consumption per customer (in units of 100 cubic feet):							
Year ended June 30-							
1986	226	888	24,471				
1985	225	901	26,302				
Increase (decrease)	0	(13)	(1,831)				
Percent increase (decrease)	0.00	(1.44)	(6.96)				

Power Sales

	Residential	Commercial	Industrial	Public Street and Highway Lighting	Water System	Other Electric Utilities	All Classes Combined
Revenue from sales of electric energy:							
Year ended June 30-							
1986	\$379,488,000	\$691,897,000	\$240,290,000	\$22,120,000	\$8,050,000	\$ 7,734,000	\$1,349,579,000
1985	372,959,000	629,013,000	230,187,000	21,595,000	7,524,000	19,354,000	1,280,632,000
Increase (decrease)	6,529,000	62,884,000	10,103,000	525,000	526,000	(11,620,000)	68,947,000
Percent increase (decrease)	1.75	10.00	4.39	2.43	6.99	(60.04)	5.38
Kilowatt hours sold (in thousands):							
Year ended June 30-							
1986	5,499,851	10,279,185	3,818,084	308,167	129,389	215,819	20,250,495
1985	5,545,726	9,754,748	3,818,476	309,679	126,225	337,857	19,892,711
Increase (decrease)	(45,875)	524,437	(392)	(1,512)	3,164	(122,038)	357,784
Percent increase (decrease)	(0.83)	5.38	(0.01)	(0.49)	2.51	(36.12)	1.80
Average billing price per kilowatt hour:							
Year ended June 30-							
1986	0.0690	0.0673	0.0629	0.0718	0.0622	0.0358	0.0666
1985	0.0673	0.0645	0.0603	0.0697	0.0596	0.0573	0.0644
Increase (decrease)	0.0017	0.0028	0.0026	0.0021	0.0026	(0.0215)	0.0022
Percent increase (decrease)	2.53	4.34	4.31	3.01	4.36	(37.52)	3.42
Average number of customers (calculated on no. of billings):							
Year ended June 30-							
1986	1,078,074	157,484	20,233	5,806	369	6	1,261,972
1985	1,069,622	155,176	20,434	5,595	372	7	1,251,206
Increase (decrease)	8,452	2,308	(201)	211	(3)	(1)	10,766
Percent increase (decrease)	0.79	1.49	(0.98)	3.77	(0.81)	(14.29)	0.86
Average annual consumption per customers (in kilowatt hours):							
Year ended June 30-							
1986	5,102	65,271	188,706				
1985	5,185	62,862	186,869				
Increase (decrease)	(83)	2,409	1,837				
Percent increase (decrease)	(1.60)	3.83	0.98				

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Water supplied by the Department of Water and Power nourishes this rooftop garden in downtown Los Angeles.