IMPERIAL IRRIGATION DISTRICT

1977 ANNUAL REPORT

IMPERIAL IRRIGATION DISTRICT

Report for the Year 1977

Contents

On the Cover:
Just add water. . .and the desert blooms. Hulon Wigington, an Imperial Irrigation District senior engineer, captured this bit of desert magnificence growing near the District's Pilot Knob hydro-electric plant, located on the All-American Canal. A longtime practitioner of the art of photography, Mr. Wigington not only took the photograph, he also developed the negative and made the original print from which this cover was taken.

As this indigenous desert cactus attests, even before man tamed the mighty Colorado River to turn Imperial Valley into the lush "salad bowl" it is today, Nature was busy putting forth her own displays of greenery.

PRESIDENT'S MESSAGE

For Imperial Irrigation District, 1977 marked another year of progress and achievement.

It also was a year of challenges and apprehensions. District operations were severely hampered by two devastating tropical storms. These natural disasters caused millions of dollars' worth of damage and increased the District's approved operating budgets.

Man-made challenges were faced, too. Most important--and most potentially disastrous to the economy of Imperial Valley--were the Secretary of Interior's rules and regulations dealing with the application of the acreage limitation provision of reclamation law. The District's efforts, along with those of like or companion agencies, were effective in halting implementation of the rules, which included a residency provision to be applied to all water agencies located in the 17 western states. A court action required the Secretary to file an environmental impact statement before the rules could be considered.

Another important development was the execution of a power agreement with Southern California Edison Company, City of Los Angeles Department of Water and Power, and San Diego Gas & Electric Company to begin construction of a 75-megawatt (net) geothermal power generating plant. The plant is to be located at Heber, California.

We are pleased that the District has continued to meet all demands for water and power on schedule and at the same time has maintained its high standard of service at a rate lower than that of any utility in the surrounding area.

During the year all financial obligations were met and the District continued its operations on a self-sustaining basis with no financial assistance from bonds or other financing.

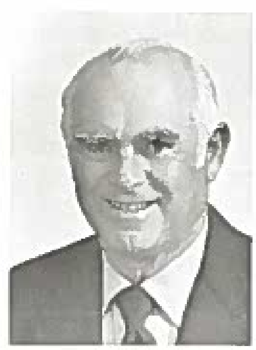
The year 1977 also saw the reorganization of our management staff. The position of the executive officer to the board of directors was re-established, and several young, well-trained management personnel joined the District. These professional additions to the staff will work toward putting board policy into practice for both immediate and long-range District operations.

We are indeed grateful to the management and personnel of the District. Their dedicated service has been effective in making this another year of successful operation.

BOARD OF DIRECTORS

Raymond L. (Lom) Thompson
Division 1

Gerald L. Moore
President of the Board
Division 2



Bernard Galleano
Vice-President
Division 3

Paul A. Mitchell
Division 4

Alfred Singh
Division 5

EXECUTIVE OFFICER'S MESSAGE

Robert F. Carter
Executive Officer to the
Board of Directors

The challenge in the capacity of executive officer to the board of directors was afforded to me in July, 1977--to become effective August, 1977--after serving 18 years as general manager of the District.

Since the assignment carried with it the supervision of the personnel assigned to the executive department, the direction in matters dealing with their assignments--namely, financial and legal--for the most part were a departure from the everyday operational problems.

One legal matter which is noteworthy is the action taken by the Secretary of Interior to promulgate rules and regulations dealing with the application of certain sections of reclamation law, including features such as leasing and residency. The Secretary was compelled by court order to file an environmental impact statement following suit filed by Imperial County, Imperial Valley Pioneers Society, Imperial Irrigation District and others which requires that a determination be made to assess the impact said rules and regulations would have on lands located within the 17 western states, if the same were permitted to be initiated.

Other litigation in which the District is heavily involved is the Salton Sea cases and those filed as a result of serious flooding created by storms "Kathleen" and "Doreen", even though we believe the responsibility for these damages does not lie with Imperial Irrigation District.

The five months in office during 1977 have been rewarding and we look forward to a successful 1978, for some of the issues which are under consideration no doubt will be resolved in favor of Imperial Irrigation District.

Community and Special Services

The District's Community and Special Services office is under the direction of the executive officer.

In addition to publishing the annual report each year, this office reports District activities to the public through news releases to local newspapers and radio and television stations and maintains information racks stocked with fact booklets and pamphlets about Imperial Valley and Valley agriculture. The office also writes and distributes power and water conservation and water safety advertising to the media.

The "Dippy Duck" Water-Safety Program, another public service offered by the District through Special Services, teaches school-age youngsters the dangers of swimming in or playing near canals. The program was begun in 1959 and in 1966 the cartoon character Dippy Duck was introduced. In 1977, 326 programs were presented to more than 20,000 young students, with children in the upper grades receiving mouth-to-mouth resuscitation instruction on the District's manikin, "Rescue Annie." This has been the fifth consecutive year in which there was not a single drowning of a local child in a canal.

Students from Valley schools as well as visitors from abroad toured Imperial Irrigation District in 1977. A guide from Special Services was furnished to accompany them to Imperial Dam and the All-American Canal headworks, to District power facilities, or to view local agricultural operations.

GENERAL MANAGER'S MESSAGE

These comments were prepared by Donald A. Twogood, who succeeded Robert F. Carter as general manager on August 1, 1977. Mr. Carter, who served nearly 18 years as general manager, was advanced to the position of executive officer to the board of directors. Mr. Twogood was employed in 1972 as chief civil engineer and has served successively as manager of the Water Department and as assistant general manager.

Operations Stay on Even Keel Despite Adversities

In the course of just one year, Imperial Irrigation District found itself faced with a number of serious problems. The second catastrophic storm in two years tore through Imperial Valley in August, causing great damage to the irrigation and power systems, and the entire Imperial Valley was alarmed by the threat of federal enforcement of archaic excess land laws. Infestation of a major portion of the irrigation system by the prolific acquatic weed hydrilla compounded problems for the Water Department, and the Power Department was confronted with continued growth in electrical demand coupled with increasing dependence upon oil for generation. All of these problems affected--but did not curtail--District operations during 1977.

Donald A. Twogood
General Manager

Power Demand Slows But Expenses Continue to Climb

Kilowatt-hour sales of electricity increased 5 per cent during 1977 but peak demand for energy increased only 3 per cent, substantially less than the 6½ per cent increase that occured during 1976. Revenue from power sales was up 21 per cent, but operating expenses advanced 25 per cent due to increased dependance on fuel oil for power generation, greater labor costs, the cost of repairing storm damage, and the general effect of inflation.

There was no basic power rate increase for the third consecutive year; however, the fuel and energy adjustment charge (Schedule FE) increased each quarter during the year as it followed the continual rise in costs of fuel and purchased power.

In spite of the increase in operating costs, District power customers continued to receive energy at rates averaging 20 per cent below those charged in surrounding areas. The average cost per kilowatt-hour to residential users increased by less than one-half cent over 1976.

New Generation Source Proposed

To keep up with short-range demand for electrical energy, a final Environmental Impact Report was certified on December 6, 1977, for two 20-megawatt combustion turbine generators. The board of directors authorized preparation of specifications and advertising for bids for the first unit, which is to be installed near the Brawley diesel plant.

Rising Costs Necessitate Water Rate Increase

The Water Department operated under a very conservative budget during 1977, deferring several major equipment purchases and postponing major construction work. Nevertheless, it still was necessary for the board of directors to increase the basic water rate at midyear by 50 cents to $4.75 per acre-foot. The primary reasons for this price increase were inflation and the depletion of operating and reserve funds for repairing damage caused by Tropical Storm Doreen which devastated Imperial Valley in 1977.

Water-Conservation Measures Proving Effective

Imperial Irrigation District began its second year under the 13-point water-conservation program adopted by the board in June, 1976. An indication of the effectiveness of this program, particularly that part designed to reduce surface runoff, was the fact that the Salton Sea rose only a quarter of a foot between December 1976 and December 1977, in spite of the half foot of water added by Doreen.

A second factor contributing to water conservation was the completion of the J. M. Sheldon Water Conservation Storage Reservoir adjacent to the Westside Main Canal. Initial operation of this reservoir was begun in March 1977 and by the end of the year more than 20,000 acre-feet of water had been stored in this facility for later use.

Geothermal and Nuclear Generation Explored for Meeting Long-Range Needs

The District became involved to varying degrees in several early-stage geothermal projects that are not expected to be proved firm sources of generation until the mid-1980's. By the end of 1977 negotiations were completed for District participation in a 45-megawatt geothermal demonstration plant near Heber. Other utilities involved in the proposed plant are San Diego Gas & Electric Company, the lead agency; Los Angeles Department of Water and Power and the Southern California Edison Company. The federal Department of Energy is expected to provide major funding, with two state agencies and several other contributors, including Electric Power Research Institute (EPRI), also providing funds.

The District went on record as supporting the Sundesert Nuclear Plant proposed by the San Diego Gas & Electric Company to be located near Palo Verde in Riverside County. By the end of the year, however, the fate of this project was in serious question due to the negative attitude of the state administration toward nuclear power in California.

Value of Good Employee Team Recognized by District

The District's annual wage and salary survey and its meet-and-confer sessions between management and employee representatives resulted in the board's approval of a general wage increase which became effective November 1, 1977, and an additional holiday for employees. To the further benefit of its employees, the District agreed to assume responsibility for paying the increased premium cost for the employees' group insurance program.

Soon after the first of the year, the board authorized retaining a consultant to work with management and employee representatives to study the District's wage and salary structure and make recommendations for correction of possible inequities.

The safety of its employees was a major concern to Imperial Irrigation District. Employee awareness and cooperation increased greatly in regard to the importance of on-the-job safety, partly because of greater emphasis placed on accident prevention by the California Occupational Safety and Health Act (Cal-OSHA) and also because of the enforcement of more rigid safety rules by management.

This 30-ton transit crane is a new--and very important--addition to Imperial Irrigation District's heavy equipment fleet. It is pictured in the District's Operating Headquarters yard, located at Imperial, stockpiling reinforced concrete pipe.

MARVIN L. WIEBEN PHOTO

J. Robert Wilson
Water
Manager

Rufus Ogilvie
Power
Manager

Lawrence S. Eager
Personnel
Manager

MANAGEMENT AND EXECUTIVE

Richard W. Wheeler
Finance and Accounting
Manager

Robert D. Reynolds
Operations Services
Manager

L. R. McGlocklin
Assistant to
General Manager

R. L. Knox, Jr.
Chief Legal
Counsel

Larry E. Beck
Secretary to the
Board

TREASURER'S REPORT

Rosemary P. Henderson
Treasurer

The District's 1977 cash receipts totaled $51,519,728, an increase of $8,166,628 over 1976. This additional revenue, resulting from increased water rates and the fuel energy factor, was required to maintain appropriate revenues to offset expenditures for 1977 which were $50,812,334. These expenditures, which were greater than those in 1976 by $5,548,932, covered the payment of bond principal and interest, payrolls, repairs of water and power systems damaged by Tropical Storm Doreen, work performed by others, and the cost of purchased power. Nearly half of the expenditures--$23,604,191--was made locally for operating supplies, which included fuel for power generation and other services.

All funds not required for immediate cash disbursement were deposited in interest-bearing accounts in local banks. The resulting earned-interest income of $589,653.00 was accrued to the respective accounts making the same available for operating purposes.

Electric revenue bonds, issued from 1937 to 1954 to aid in financing the District's long-range power development program, including additions and improvements to its expanding power system, amounted to $37,963,000. The total remaining unpaid on December 31, 1976, was $6,258,000 as shown in the following tabulation:

ELECTRIC REVENUE BONDED INDEBTEDNESS

Year	*Indebtedness Beginning of Year*	*Bonds Retired*	*Indebtedness End of Year*
1974	**$11,635,000**	**$1,345,000**	**$10,290,000**
1975	**10,290,000**	**1,315,000**	**8,975,000**
1976	**8,975,000**	**1,464,000**	**7,511,000**
1977	**7,511,000**	**1,253,000**	**6,258,000**

CASH RECEIPTS AND EXPENDITURES

Year	*Receipts*	*Expenditures*
1974	**$31,854,429**	**$33,538,742**
1975	**38,572,402**	**35,248,576**
1976	**43,353,100**	**45,263,402**
1977	**51,519,728**	**50,812,334**

JOSEPH O. COLTON & COMPANY
CERTIFIED PUBLIC ACCOUNTANTS

EL CENTRO PROFESSIONAL BUILDING
107 SOUTH FIFTH — SUITE 240
EL CENTRO, CALIFORNIA 92243
352-3520

March 8, 1978

Board of Directors
Imperial Irrigation District
El Centro, California

We have examined the combining balance sheet of the departments of Imperial Irrigation District (a political subdivision of the State of California) as of December 31, 1977, and the related combining statements of net revenues and changes in financial position for the year then ended. Our examination was 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 financial statements referred to above present fairly (1) the financial position of Imperial Irrigation District as of December 31, 1977, the results of its operations and the changes in its financial position for the year then ended, and (2) the assets, capitalization and liabilities of the individual departments of the District as of December 31, 1977, and their net revenues and the changes in their financial position for the year then ended, all in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Joseph O Colton & Company
Certified Public Accountants

COMBINING BALANCE SHEET

DECEMBER 31, 1977

ASSETS

ASSETS:	*Water Department*	*Power Department*	*Combined*
UTILITY PLANT, at cost:			
Plant in service (Note 1) -			
Electric		$116,194,705	$116,194,705
Water	$ 95,786,714		95,786,714
Total plant in service	95,786,714	116,194,705	211,981,419
Less - Accumulated depreciation reserves (Note 1)	(11,360,172)	(59,034,129)	(70,394,301)
	84,426,542	57,160,576	141,587,118
Construction work in progress		17,226	17,226
Total utility plant	84,426,542	57,177,802	141,604,344
RESTRICTED FUNDS (Note 1):			
Debt service funds (Note 3)		2,362,002	2,362,002
Construction funds	2,249,784	2,932,443	5,182,227
Other restricted funds	4,094,768	1,785,747	5,880,515
Total restricted funds	6,344,552	7,080,192	13,424,744
CURRENT ASSETS:			
Operating funds borrowed from restricted funds (Note 1)	(941,893)		(941,893)
Operating funds		47,554	47,554
Accounts receivable, less reserves for doubtful accounts	1,944,699	2,809,338	4,754,037
Inventories, at cost (Note 1):			
Fuel oil		3,114,172	3,114,172
Materials and supplies	671,389	1,241,117	1,912,506
Prepaids	621,581	201,971	823,552
Total current assets	2,295,776	7,414,152	9,709,928
OTHER ASSETS	1,475,539		1,475,539
	$ 94,542,409	$ 71,672,146	$166,214,555

See notes to financial statements.

COMBINING BALANCE SHEET

DECEMBER 31, 1977

CAPITALIZATION AND LIABILITIES

CAPITALIZATION:	*Water Department*	*Power Department*	*Combined*
Accumulated net revenues - Balance at beginning of year	$ 67,290,834	$ 60,188,107	$127,478,941
Net revenues for year	3,264,319	2,720,002	5,984,321
Balance at end of year	70,555,153	62,908,109	133,463,262
Contributions received in aid of construction	7,370,834		7,370,834
Long-term debt, less current portion - Electric revenue bonds (Note 3)		4,885,000	4,885,000
All-American Canal obligation (Note 4)	11,356,789	652,811	12,009,600
	11,356,789	5,537,811	16,894,600
Total capitalization	89,282,776	68,445,920	157,728,696
CURRENT LIABILITIES:			
Current portion of long-term debt - Electric revenue bonds (Note 3)		1,373,000	1,373,000
All-American Canal obligation (Note 4)	709,799	40,801	750,600
Accrued interest on electric revenue bonds		104,604	104,604
Accounts payable	1,631,697	728,031	2,359,728
Accrued salaries, wages and payroll taxes (Note 2)	853,504		853,504
Accrued vacation and sick pay	654,827	336,034	990,861
Advances from other agencies for operation of the All-American Canal	244,620		244,620
Customers' service deposits and advances	44,029	215,029	259,058
Total current liabilities	4,138,476	2,797,499	6,935,975
DEFERRED CREDITS AND OTHER LIABILITIES:			
Deferred revenues (Note 1)	941,295		941,295
Advances for construction		428,727	428,727
Other liabilities	179,862		179,862
	1,121,157	428,727	1,549,884
	$ 94,542,409	$ 71,672,146	$166,214,555

See notes to financial statements.

COMBINING STATEMENT OF NET REVENUES

FOR THE YEAR ENDED DECEMBER 31, 1977

	Water Department	*Power Department*	*Combined*
OPERATING REVENUES (Notes 1 and 2):			
Sales of -			
Power		$ 36,750,634	$ 36,750,634
Water	$ 11,217,132		11,217,132
Water availability charge	803,191		803,191
Rentals	97,950	47,421	145,371
Interdepartmental charge for use of All-American Canal (Note 2)	334,499		334,499
Other	24,624	212,080	236,704
	12,477,396	37,010,135	49,487,531
OPERATING EXPENSES (Note 1):			
Cost of fuel		17,872,523	17,872,523
Purchased power		5,177,400	5,177,400
Other power expenses (Note 4)		5,258,010	5,258,010
Interdepartmental charge for use of All-American Canal (Note 2)		334,499	334,499
Operation and maintenance of All-American Canal	766,753		766,753
Operation and maintenance of irrigation system and dams	6,330,763		6,330,763
General and administrative expense	1,457,593	2,461,991	3,919,584
Provision for depreciation	948,727	3,237,718	4,186,445
Provision for loss on experimental farm	29,213		29,213
	9,533,049	34,342,141	43,875,190
Net operating revenues	2,944,347	2,667,994	5,612,341
OTHER REVENUES (EXPENSES):			
Interest income	272,085	343,755	615,840
Interest expense on electric revenue bonds		(212,762)	(212,762)
Other, net	47,887	(78,985)	(31,098)
	319,972	52,008	371,980
NET REVENUES RETAINED TO FINANCE OPERATIONS AND PLANT ADDITIONS	$ 3,264,319	$ 2,720,002	$ 5,984,321

See notes to financial statements.

COMBINING STATEMENT OF CHANGES IN FINANCIAL POSITION

FOR THE YEAR ENDED DECEMBER 31, 1977

	Water Department	*Power Department*	*Combined*
CASH BALANCE, beginning of year	$ 5,121,270	$ 6,703,598	$ 11,824,868
SOURCES OF CASH:			
Net revenues from operations	3,264,319	2,720,002	5,984,321
Add - non-cash item:			
Depreciation expense charged to net revenues	948,727	3,237,718	4,186,445
Provided by operations	4,213,046	5,957,720	10,170,766
Increase (decrease) in -			
Accounts payable	289,026	(702,656)	(413,630)
Customers' service deposits, advances and contributions in aid of construction	296,510	(16,613)	279,897
Deferred credits and other, net	1,794	20,704	22,498
Accrued vacation and sick pay	319,924	78,984	398,908
Advances from other agencies for operation of All-American Canal	39,620		39,620
Accrued salaries and wages	74,578		74,578
	5,234,498	5,338,139	10,572,637
USES OF CASH:			
Net plant additions	3,371,848	2,603,918	5,975,766
Increase in -			
Accounts receivable, net	129,319	551,451	680,770
Inventories	209,992	445,217	655,209
Prepaids	16,612	747	17,359
Other assets	515,539		515,539
Payments on electric revenue bonds		1,253,000	1,253,000
Payment on All-American Canal obligation	709,799	40,801	750,600
Decrease in accrued interest payable		18,857	18,857
	4,953,109	4,913,991	9,867,100
INCREASE IN CASH	281,389	424,148	705,537
CASH BALANCE, end of year	$ 5,402,659	$ 7,127,746	$ 12,530,405

See notes to financial statements.

NOTES TO FINANCIAL STATEMENT

DECEMBER 31, 1977

NOTE 1 - Summary of significant accounting policies:

Accounting records. Separate accounting records are maintained for the Water and Power Departments of the Imperial Irrigation District. The account classifications used by the District for accounting and financial reporting purposes are comparable to those used by other irrigation districts and electric utility companies. With respect to the Power Department, the account classifications used are those specified by the Uniform System of Accounts prescribed by the Federal Power Commission, which system of accounts was adopted to facilitate computations required by a provision of the All-American Canal contract discussed in Note 4. The effects of interdepartmental transactions have not been eliminated because it is the intention of the Board of Directors of the District that the operating results of such departments be segregated and because such segregation is required for compliance with covenants relating to the issuance of electric revenue bonds.

Utility plant. Utility plant is stated at cost, which includes labor, materials, purchased services and, in the case of the Water Department, general and administrative expenses. General and administrative expenses related to construction activities of the Power Department are not charged to utility plant since such allocated amounts would not be significant. Water plant retirements are removed from the accounts at cost, together with related accumulated depreciation balances, and any resultant gains or losses are recorded in miscellaneous income. Electric plant retirements are charged to the reserve for depreciation at cost, less net salvage, and no gains or losses are recognized on ordinary retirements.

Depreciation. Buildings, vehicles, equipment, drainage structures, canal linings, and canal structures owned by the Water Department are depreciated on a straight-line basis over their estimated useful lives. The provision for depreciation for 1977 was equivalent in the aggregate to an annual rate of approximately 1.0 percent of the average gross investment in all water plant in service, other than land and land rights. Electric plant is depreciated on the composite method using an overall rate of 3 percent per annum. The costs of repairs and replacements of minor items of utility plant are charged to maintenance expense.

Inventories. Inventories of fuel oil and materials and supplies are recorded at cost, on a first-in, first-out basis.

Revenues. The principal water customers of the Water Department are farmers and cities. These customers are billed at the end of each month for sales made during the month. Each landowner, including cities, pays an annual water availability fee which is based upon his acreage within the District. All customers of the Power Department are billed on a cycle basis. Water and power revenues are recorded when billed, except for the water availability fee which is billed in December but recorded as revenue when earned in the following year.

Restricted funds. Restricted funds represent allocations of cash balances pursuant to provisions of the All-American Canal contract and the covenants of the electric revenue bonds and for other purposes specified by the Board of Directors.

Operating funds - water. During 1976, the cash allocated to the operating fund was depleted. It was necessary for the operating fund to use cash allocated to funds restricted by the Board of Directors. Though the amount of the deficit has been reduced by transfers to the operating fund from the funds restricted by the Board of Directors, a deficit balance of $941,893 still exists at December 31, 1977.

NOTE 2 - Significant interdepartmental transactions:

Although the Water and Power Departments of the District maintain separate accounting records, there are significant interdepartmental transactions. The more significant of these transactions involve charges by the Water Department to the Power Department for the use of water to generate electricity on the canal system and for use of buildings, vehicles and equipment.

The interdepartmental charge for use of water in the All-American Canal to generate electricity is based upon amounts authorized by the Board of Directors in 1976. Such amounts are not supported by a formal current study.

Charges for use of buildings, vehicles and equipment are based upon pro-rata distribution of costs of related maintenance operation and depreciation. In accordance with covenants of electric revenue bonds, the Water Department is charged for electric service furnished by the Power Department.

General and administrative expenses incurred by the District are allocated between departments, with the majority of the allocations being 50 percent to the Power Department and 50 percent to the Water Department. These allocations are not supported by a formal current study.

The combined accrued salaries, wages and payroll taxes of the District are reflected as a current liability of the Water Department in the accompanying financial statements because funds had previously been transferred to the Water Department by the Power Department to provide for its portion of these payments.

NOTES TO FINANCIAL STATEMENT

DECEMBER 31, 1977

NOTE 3 - Electric revenue bonds:

Electric revenue bonds outstanding at December 31, 1977 and their future maturities are as follows:

	Issue		
	Tenth	Eleventh	Total
Interest Rates	2-¾% to 3%	3-½%	
Due -			
1978	$ 820,000	$ 500,000	$ 1,320,000
1979	890,000	500,000	1,390,000
1980	460,000	500,000	960,000
1981	485,000	475,000	960,000
1982		475,000	475,000
Thereafter		1,100,000	1,100,000
Matured - unpresented - current issues	50,000	3,000	53,000
Outstanding at Dec. 31, 1977	$ 2,705,000	$ 3,553,000	$ 6,258,000

The electric revenue bonds are secured by a pledge of all of the net revenues derived from the operation of the electric system of the District, after deducting reasonable costs for operations and maintenance, but excluding any allowance for depreciation or obsolescence and the cost of betterments charged against net revenues.

NOTE 4 - All-American Canal contract:

Pursuant to the terms of the Boulder Canyon Project, All-American Canal contract dated December 1, 1932 and the amendment and supplement to that contract dated March 4, 1952, the District assumed an obligation of $25,020,000 to the United States. This amount represents the District's share of the cost of construction of the All-American Canal system, which obligation has been allocated to the Water and Power Departments based on the relative cost of their plant located on the All-American Canal system.

The District receives its entire water supply for its irrigation system from the United States under this contract. The deliveries of water and use in perpetuity of the All-American Canal are guaranteed to the District as long as the provisions of the contract are met. Except for the combined annual payments of $750,600 through 1994, no other amounts are due to the United States for water supplied to the District.

Under the All-American Canal contract and certain other agreements, the District has the right to avail itself of hydroelectric generation from the water flow through the Canal, subject to the sharing with other water districts of "net power proceeds" (as defined in the contract derived from the sale of this generation). The most important sharing arrangement is with the Coachella Valley County Water District, which, under an arrangement made in 1934, leased its power rights on the Canal to the District for a period of 99 years for an amount equal to 8 percent of "net power proceeds." In the opinion of the District's management, the District has fulfilled all its obligations under this arrangement, including making all payments required to date.

NOTE 5 - Retirement plan:

The District has maintained a voluntary contributory retirement plan for its employees since 1947. Under the terms of the plan, as modified in 1969, employees are eligible to participate in the plan after completing six months of continuous service. Employee contributions to the plan and retirement benefits vary depending upon the age of the employee at the date of entry into the plan, the average basic monthly salary attained, and the employee's retirement age. Additional amounts required to fund the actuarially computed benefits ultimately payable to participating employees are paid by the District and amounted to $419,864. The present value of vested benefits of participants, as of January 1, 1977, were fully funded.

NOTE 6 - Self-insurance program for workers' compensation:

The District has a self-insurance program to satisfy the requirements of the workers' compensation law of the State of California. The District is re-insured for a claim settlement between the amounts of $250,000 and $1,000,000 which amounts, if any, would be reimbursed the District.

NOTE 7 - Contingencies:

There is the possibility that pending claims and suits against the District may result in judgements and settlements that exceed the amount of insurance coverage. Legal counsel for the District and the insurance companies are not able to determine the outcome of the various actions.

WATER DEPARTMENT REPORT

Canal System Damaged By Tropical Storm

Imperial Valley felt the devastating effects of a tropical summer storm for the second consecutive year. Imperial Irrigation District's Water Department barely had recovered from Tropical Storm Kathleen, which struck Imperial Valley on September 10, 1976, when Tropical Storm Doreen hit.

Doreen swept in from the northeast on August 15, with heavy rains moving across the Valley to the southwest. The rain gauge at the Calexico weather station recorded 2.66 inches of rain, while the Imperial gauge registered 2.20 inches and the Niland gauge showed 2.46 inches.

Heavy, damaging rains hit the Valley again on August 16, this time coming from the southwest. The rain gauge at Calexico recorded 1.12 inches for this second onslaught, while Imperial and Niland showed 1.67 and 1.19 inches, respectively. The totals for the two days of rainfall were 3.78 inches at the Calexico station, 3.87 inches at the Imperial station, and 3.65 inches at the Niland station.

The rains caused extensive flooding throughout the Valley and rivers and drains flowed over their banks in many places. The District's canal system received widespread damage, with Calipatria Division feeling the effects of the storm the most.

Seven drop structures on the Alamo River and one drop structure on the New River were washed around, requiring earth work and riprap for repairs. The Rice Drain outlet, in addition to a section of the nearby county road, was completely destroyed and had to be replaced.

Drainage from storm runoff in the Rose-Mesquite area northeast of Imperial exceeded the capacity of the Rose pumps, causing flooding in excess of 1,000 acres. Additional auxiliary pumps were required for a period of four weeks to dewater the area.

The District rented 10 bulldozers, 11 dump trucks, 5 earth-moving carryalls, and 5 pumps to assist its own crews and equipment in making the necessary repairs to the canal and drainage systems.

The State of California declared the Imperial Valley to be a disaster area and the District was granted assistance. By the end of 1977, it was estimated that 98 per cent of the repair work had been completed at a cost of almost $2 million.

Salton Sea Rises As a Result of Storm

More than one-half foot of water was added to the Salton Sea by Tropical Storm Doreen. The elevation of the sea on August 15, prior to the storm, was -228.35 feet. On August 22, following the storm the sea's elevation stood at -227.80 feet.

This large, inland body of water, located in Riverside and Imperial counties, is the repository of drainage and storm runoff water from both counties and from the Mexicali Valley, Baja California, Mexico. The present salinity of the sea is slightly greater than that of ocean water, with 52.31 tons of salt per acre-foot compared to the ocean's 47.80 tons.

The continued rise in the surface elevation of Salton Sea is causing serious drainage problems in the cultivated areas adjacent to the sea. The lowest water-surface elevation of the year was -228.60 feet and occurred January 1, 1977. The highest elevation was -227.90 feet and occurred May 2 and September 1, 1977.

Conservation Still Important Goal

Water conservation continued to play an important role in the Water Department's operations. The 13-point water conservation program approved by the board of directors in 1976 continued through 1977, with two of the most effective items being the completion of a 500-acre-foot regulating reservoir and the continued operation of the District's Nectarine Reservoir.

A total of 20,870 acre-feet of water was diverted into the newer J. M. Sheldon Water Conservation Storage Reservoir, and 19,085 acre-feet were released during 1977. The District's first reservoir, the Nectarine Reservoir, had a total of 8,186 acre-feet of water diverted into it and 8,142 acre-feet released during 1977.

The District and the U. S. Department of Agriculture, Imperial Valley Research Center, Brawley, continued their cooperative study to evaluate on-farm irrigation efficiency under conventional farming methods. Also under study was the effect and applicability of new soil and water management practices which are designed to improve irrigation efficiency.

In July, the board of directors approved the designation of Imperial Irrigation District by the California Regional Water Quality Control Board as the agency in Imperial Valley responsible for implementation of the 208 Planning Program. This program deals with the development and evaluation of alternative management practices for control of agricultural wastewater discharges.

Hydrilla Found in Canal System

The highly prolific water weed, hydrilla *(hydrilla verticillata)*, was discovered growing in the District's canal system in June. First found in a section of the All-American Canal near Calexico, by September the weed had spread in the canal and through the Westside Main Canal system. The District worked with county and state personnel to learn the extent of the infestation and to develop methods of control.

Salt Balance Favorable

For the 27th successive year, a favorable salt balance was maintained in Imperial Valley soils. In 1977, a record 37.78 per cent more salt was discharged through the District's drainage system than was brought into the Valley by importation of Colorado River water for irrigation. This has resulted from installation of 23,757 miles of underground drain tile in individual fields since 1929, 822 miles of which were installed in 1977.

System Facts and Figures

An area of 501,827 acres of irrigated farmland is served by the District's gravity-flow canal and drainage systems. The total gross area within the District's boundaries is 1,062,290 acres; this figure includes the undeveloped areas, cities, towns, airports, feedlots, the area below the -230 contour Salton Sea Reserve Boundary, and areas covered by the Salton Sea. Also included are areas in canals, drains, rivers, and railroads.

Among the many responsibilities of the Water Department are operation and maintenance of the 80-mile-long All-American Canal and the headworks and desilting basins at Imperial Dam, as well as of 49 miles of the Coachella Branch of the All-American Canal, 3 miles of the New Briar Canal, a 1,627-mile network of other main canals and laterals, 52 miles of drains in the All-American Canal Section and 1,402 miles of main and lateral drains in the Imperial Unit.

Water is diverted from the Colorado River at Imperial Dam through the All-American Canal for transporting to Imperial, Yuma, and Coachella valleys. All water passing below Drop No. 1 on the All-American Canal is for use by Imperial Irrigation District.

The total diversion through the All-American Canal headworks was 4,704,544 acre-feet in 1977 (an acre-foot equals 326,000 gallons), including 168,996 acre-feet used in desilting operations and returned to the Colorado River. Water diversions for all agencies served by the All-American Canal totaled 4,535,548 acre-feet, a decrease of 160,805 acre-feet from 1976.

Diversions to the District below Drop No. 1 totaled 2,693,030 acre-feet. Comparable figures for 1976 and 1975 were 2,783,630 and 3,001,207 acre-feet, respectively.

AGRI-BUSINESS

RECAPITULATION

	1977	1976
APIARY	$ 876,000	$ 960,000
FIELD CROPS	186,408,000	265,774,000*
FRUIT AND NUT CROPS	3,865,000	3,380,000
LIVESTOCK AND DAIRY	101,670,000	113,432,000
SEED AND NURSERY CROPS	9,040,000	15,355,000
VEGETABLE CROPS	135,301,000	121,806,000
TOTAL	$437,160,000	$520,707,000*

**Revised*

MILLION DOLLAR CROPS

	1977	1976		1977	1976
CATTLE	$ 96,354,000	$107,038,000	TOMATOES	$ 5,182,000	$ 9,836,000
LETTUCE	76,533,000	69,365,000	ONIONS	4,671,000	2,553,000
ALFALFA	63,806,000	100,327,000	SHEEP	3,681,000	4,459,000
COTTON	60,840,000	50,988,000	WATERMELONS	1,788,000	1,861,000
SUGAR BEETS	26,417,000	37,800,000	SORGHUM	1,710,000	5,214,000
WHEAT	20,196,000	50,801,000	BARLEY	1,611,000	1,094,000
CARROTS	13,725,000	5,062,000	SUDAN GRASS	1,337,000	5,169,000
CANTALOUPES	13,322,000	14,071,000	WHEAT SEED	1,306,000	382,000
PASTURE	9,113,000	10,876,000	ALFALFA SEED	1,290,000	1,606,000
ASPARAGUS	8,293,000	8,685,000			

POWER DEPARTMENT REPORT

Demand for Power Continues to Increase

The past year was one of routine maintenance work rather than expansion for Imperial Irrigation District's Power Department. No new generation was added during 1977, while the period between 1972 and 1976 witnessed the addition for four 20-megawatt combustion turbines.

Looking toward the future, however, the District plans to add two new combustion turbines to its generation. One is to be ready for operation June 1, 1979, and the other June 1, 1980.

System peak demand for 1977 was 330,500 kilowatts, while the peak in 1976 was 321,200 kilowatts, an increase of 9,300 kilowatts, or only 2.9 per cent. In contrast, the increase during 1976 was 6.5 per cent. Conservation efforts and cool summers have combined to make demand predictions difficult, as shown in the table below:

PEAK DEMAND

Year	1972	1973	1974	1975	1976	1977
% Increase Over Previous Year	5.4%	9.2%	1.6%	0.6%	6.5%	2.9%

(IID is projecting annual growth in demand at an average of 4 per cent)

Customers Urged to Conserve

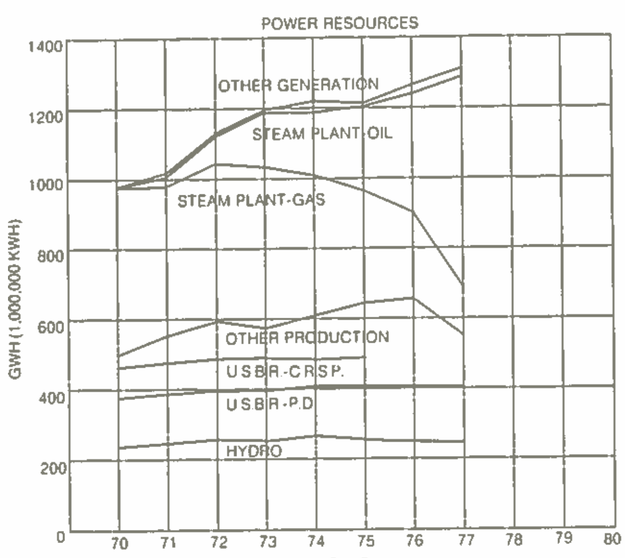
In an effort to reduce the demand for electricity, electric utilities nationwide are urging their customers to conserve. Since more than 80 per cent of the load in Imperial Irrigation District's service area is residential and commercial, the District asks its customers to conserve by (1) washing and drying only full loads of clothes or dishes, (2) setting water heater thermostats at a lower temperature, (3) in the winter, turning home heating thermostats down and wearing a sweater indoors, and (4) in the summer, turning air conditioning thermostats up until the temperature is a little uncomfortable.

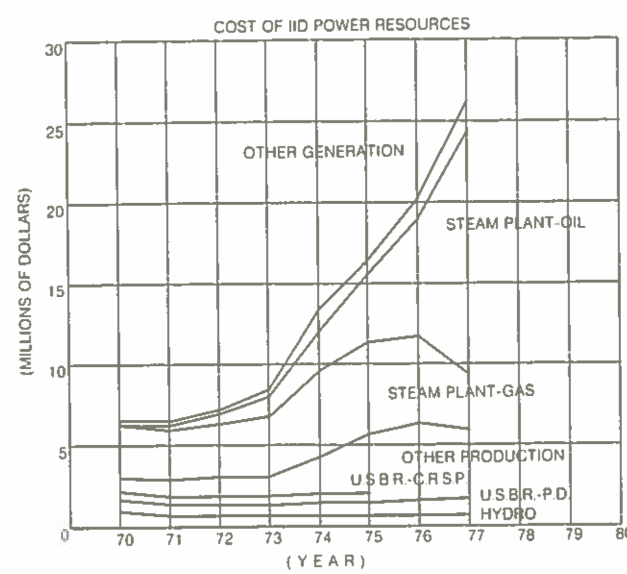
With the increase in electric energy cost, conservation is fast becoming an economic necessity. Imperial Irrigation District's electrical rates have not changed, basically, since 1974, when the last general rate increase was implemented. Yet because of the increased price of fuel, loss of availability of gas, and the reduction in hydroelectric power available from the United States government, the average cost of electric energy to residential customers has risen through the fuel and energy adjustment billing factor (Schedule FE). The table below shows the average cost of electric energy to residential customers:

Year	1974	1975	1976	1977
Average Cost per KWH	2.17¢	2.67¢	2.86¢	3.32¢

Power Sales Up Over 1976

Kilowatt-hour sales rose from 1,118,758,900 in 1976 to 1,173,004,300 in 1977, an increase of 54,245,400, or about 5 per cent. Although revenue from power sales for 1977 totaled $36,750,634, an increase of $6,421,940 over 1976, operating costs increased to an even greater degree. For that reason, only $600,000 was transferred from the Current Power Revenue Fund to the Special Electric Plant Construction Fund in 1977, while in 1976, $2,100,000 was transferred, making a reduction of $1,500,000 in revenue available for future plant expansion.





POWER

POWER SALES

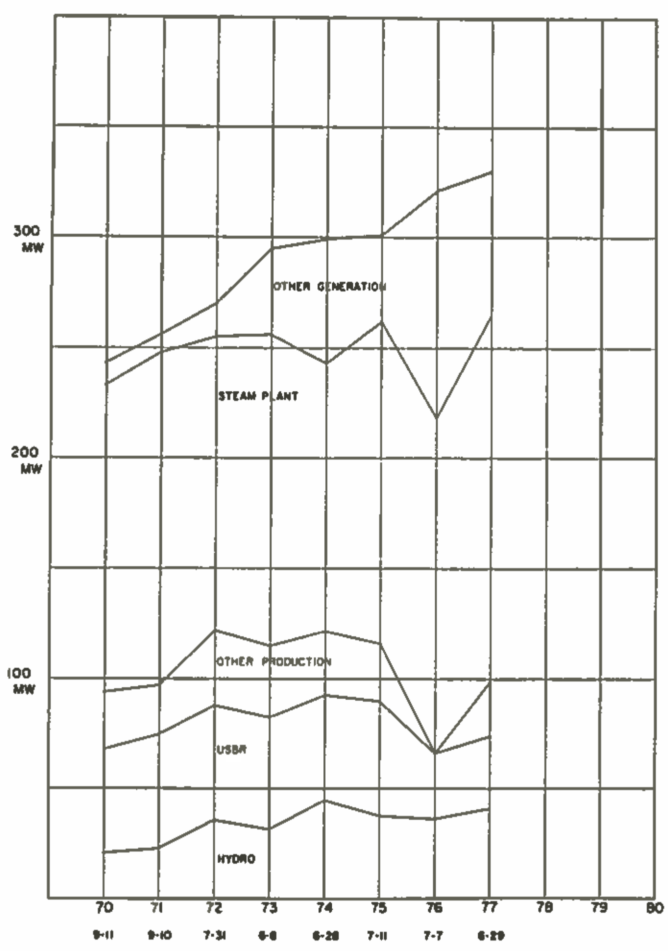
		Per Cent 1977	Per Cent 1976
Ultimate Consumers			
Domestic	$15,784,448	43.0	42.9
Commercial and Industrial	18,326,596	49.9	49.9
Agricultural Pumps	1,481,282	4.0	3.8
Street Lighting	263,878	0.7	0.9
Public Authorities	676,943	1.8	1.9
Interdepartmental	216,560	0.6	0.6
Total Ultimate Consumers	36,749,707	100.0	100.0
Other Utilities	927	0.0	0.0
Total Revenue	$36,750,634	100.0	100.0

ANNUAL RESIDENTIAL KILOWATT-HOUR USAGE

Average	12,527

A gain of 186 over 1976.

IID ANNUAL PEAK DAY



MAJOR DISTRIBUTION PLANT EXPENDITURES

Transformers	$ 580,000
Poles and Fixtures	373,033
Conductors and Devices	272,503
Meters	123,380
Services	99,435
Station Equipment	186,057
Underground	219,196
Street Lights	43,906
TOTAL	$ 1,897,510

AVERAGE NUMBER OF CUSTOMERS

Residential	37,922
Commercial and Industrial	7,281
Agricultural	774
Other	766
TOTAL	46,743

A gain of 1,189 over 1976.

POWER REVENUE

	1977	1976
Imperial Valley	$23,570,127	$19,500,233
Coachella Division	12,543,061	10,283,730
Colorado River	636,519	544,031
Total Retail Sales	36,749,707	30,327,994
Other Utilities	927	700
TOTAL	$36,750,634	$30,328,694

SOURCES OF POWER REQUIREMENTS

	1977	1976
Hydroelectric	19%	20%
Thermal	58%	48%
USBR	12%	13%
Axis	11%	7%
USBR-Excess	-	12%

CAPITAL EXPENDITURES ON CURRENT ADDITIONS AND IMPROVEMENTS

Production Plant	$ 33,551
Distribution Plant	1,914,459
Transmission Plant	338,990
Engineering and Supervision	220,722
General Plant	27,812
Gas Turbines-Preliminary	67,991
TOTAL	$ 2,603,525

Edited and Published by
Community and Special Services
Imperial Irrigation District
P. O. Box 499 • 1284 Main Street
El Centro, California 92243