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ORIGINAL

Decision No. 81919

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY for authority to increase rates charged by it for electric service.	Application No. 53488 (Filed August 1, 1972)

(Appearances are listed in Appendix A)

OPINION ON RESULTS OF GENERAL RATE CASE

PRELIMINARY MATTERS

Nature of Proceeding

The Southern California Edison Company (Edison) filed Application No. 53488 on August 1, 1972, seeking authority to increase its rates for electric service that are subject to the jurisdiction of the California Public Utilities Commission (Commission) (excepting those for Edison's Catalina Island operation) by approximately $97,000,000 per year.

The matter was assigned to Commissioner J. P. Vukasin, Jr. and referred to Examiner Parke L. Boneysteele.

In its application Edison estimates that its proposed rates would produce about $97,000,000 based on its 1973 level of sales, and that the rates, if effective for the full year 1973, would produce an 8.5 percent rate of return on California jurisdictional operations. Edison also has requested authorization from the Federal Power Commission (FPC) to increase rates subject to FPC jurisdiction.

Edison states that it believes the proposed increase to be the minimum required to maintain its financial integrity, to preserve its credit standing, and to attract, on a reasonable basis, capital funds necessary to build the plant additions required to meet the increasing electrical requirements of its present customers and to meet the requirements of new customers.

Edison claims that the need to request substantial rate increases at this time is due to a combination of circumstances including:

1. The fact that the 1972 level of sales and revenues are less than the levels adopted by the Commission in fixing the 1972 rate levels.

2. Expenses for 1972 in categories other than fuel are higher than those adopted by the Commission because of continued substantial inflation in major expense items.

3. The increases in embedded debt costs because of high interest rates for new debt issues will increase the composite cost of capital for the year 1973 and subsequent years.

4. The effect on the composite cost of capital of a required higher return on common equity capital commensurate with returns earned by companies of comparable risk to enable Edison to compete effectively for new funds in a money market characterized by an investor attitude which, on the average, has priced common stocks of industrials at approximately twice book value while Edison's common stock has recently sold below book value.

Description of Applicant

Edison provides electric service to 15 counties of central and southern California. The northern boundary of its service area, would, if projected westward, pass through Sacramento and Santa Rosa. The southern boundary, if similarly projected westward, would pass only slightly north of the San Diego city line. The population of the service area was estimated to be 7,312,000 as of December 31, 1971.

Edison estimates that it had approximately 2,533,000 customers in 1972 of which approximately 88 percent were for domestic service.

Edison also sells electric power to the cities of Anaheim, Azusa, Banning, Colton, Riverside, and Vernon; and to Sierra Pacific Power Company, Southern California Water Company, Anza Electric Co-op, Valley Electric Association, and the United States Naval Ammunition Depot at Hawthorne, Nevada. Each of these customers owns the distribution system within its boundaries. Additionally, as of December 1971, electric power was sold to, purchased from, or interchanged with Arizona Public Service Company, Bonneville Power Administration, Department of Water and Power of the city of Los Angeles, El Paso Electric Company, Imperial Irrigation District, Metropolitan Water District, Nevada Power Company, Pacific Gas and Electric Company, Portland General Electric Company, Public Service Company of New Mexico, Sacramento Municipal Utility District, Salt River Project, San Diego Gas & Electric Company, Sierra Pacific Power Company, State of California, United States Bureau of Reclamation, and under the provisions of the Canadian Entitlement Assignment Agreement, several other Pacific Northwest and California utilities.

As of the end of 1971, the Edison system had generating capacity totaling 11,426,545 kilowatts, classified by plant type, as shown below. In addition, the utility has 737,600 kilowatts of firm capacity available under purchased power agreements.

Item	Gas & Oil	Coal	Nuclear	Hydro	Gas Turbine	Diesel
Edison Ownership	13	-	-	36	7	1
Joint Ownership	-	2	1	-	-	-
Other Ownership	-	-	-	-	-	1
Edison Operator	12	1	1	36	7	2
Other Operator	1	1	-	-	-	-

In addition, Edison has for its use, 277,000 kilowatts of operating capacity under generally prevailing conditions at Hoover Dam through contracts with the United States Government.

The one nuclear generating station is located at San Onofre in San Diego County and is owned 80 percent by Edison and 20 percent by San Diego Gas & Electric Company. Two additional units are scheduled to come on the line in 1978 and 1979.

The two coal fired plants are jointly owned with other utilities and are located at Mohave in extreme southern Nevada and at the Four Corners area of New Mexico, near Farmington.

Additional conventional generating capacity is under construction at the Long Beach oil and gas fired plant. Three combined cycle plants, totaling 2,460,000 kilowatts are planned.

Mr. Jack Horton, the Chairman of the Board of Directors and Chief Executive Officer of Edison, testified as Edison's first witness and, among other topics, described the difficulties facing Edison and the measures that Edison is taking to overcome them. He testified that his initial reaction was that Edison's difficulties were unique. After reviewing a FPC digest of the electric industry problems, in Part 1 of the 1970 National Power Survey, however, he concluded that Edison appears to be confronted with much the same array of problems as are other utilities across the country and with prospects of much the same consequences.

The FPC, in the 1970 report, forecast potential power shortages and rising electricity rates. The costs of environmental protection, including the upward pressures on fossil fuel costs, and the effects of general price inflation can only be partially offset by technological advances, in the FPC's opinion, and he concurred. The report observes that severe cost increases over the past several years have only begun to be translated into rate increases, and the full and inevitable impact is still to be felt. He felt that, in a general way, Edison's situation is similar to the FPC's description of the predicament of the electric utility industry as a whole.

The chairman described how Edison's apparent inability to get approvals to construct additional generating capacity along the

coast near its load center had forced it to resort to remote locations inland where not only costs of transmission but of oil fuel and cooling water supply are materially increased. The acquisition of low cost energy supplies in the form of coal fuel have had a significant beneficial effect in improving production costs, but these projects are limited in availability and are subject to attack by environmentalists. He explained that such environmental pressures have already resulted in substantially increased costs for environmental protection equipment and more costly operations and may result in the unavailability of such facilities for periods of time if required variances are not forthcoming to permit technology to keep pace with restrictive controls.

During cross-examination, he answered that "rolling black-outs" were a possibility in the year 1975 if demand on the system should exceed generating resources.

Regulatory Framework

Public utility rate setting in California generally follows the traditional American regulatory processes that have developed over the last one hundred years, in response to various pronouncements of the Supreme Court of the United States.

The first question to be answered in the traditional rate-making process is: What is a reasonable judgment of the utility company's results of operations? For the purpose of determining the results of operations, one or two test periods are selected. The test periods are usually calendar years. If one test period is selected it is usually a year in the immediate future. If two are selected, it is usual for one test year to be the current year and the other the following future year. Estimates for the future are thus involved.

If the rate proceeding is an application for increased rates, estimates are usually made at both the present rates and the rates requested by the utility company.

The test years do not simply reflect the actual or expected results but instead represent the operations of the utility adjusted to reflect average climatic conditions and reasonable levels of expenses and rate base.

The final outcome of the results of operation are the realized rates of return for the test periods at present and proposed rates. These realized rates of return are indicative of the amount of revenue change required to bring the rates of return to reasonable levels. The use of two test periods discloses any trend in the rate of return.

For the purpose of determining a rate of return, it is necessary to make reasonable allowances for operating expense, depreciation expense, and taxes. These are subtracted from the estimated revenues to obtain the net revenue.

The net revenue is the numerator of the fraction representing the rate of return. The denominator is the rate base, or net valuation which is the result of subtracting accrued depreciation from the gross valuation of utility property devoted to rendering public utility service.

The second question is: What is the reasonable rate of return that should be applied to rate base? Rate of return, while equally as important as rate base, depends much more heavily on judgment and is the subject of widely varying expert opinions.

The reasonable return is obtained by applying the adopted reasonable rate of return to rate base. The return is added to the reasonable allowance for operating expenses to determine the revenue requirement.

The third question to be asked is: How shall the revenue requirement be allocated to various classes of utility users? This allocation, often known as rate spread, also depends heavily on opinion and judgment and frequently involves the resolution of widely divergent expert testimony.

Commonly a utility, for geographical or jurisdictional reasons, is subject to two or more regulatory authorities. When this is the case, it is necessary to segregate and allocate expenses, revenues and rate base components into those subject to the various regulatory bodies. Since the city of Colton case (Southern California Edison Company and California Public Utilities Commission v Federal Power Commission and City of Colton (1964) 376 US 205, 11 L ed 2d, 638) the sales of electric energy to governmental agencies for resale are classified as sales of electric energy in interstate commerce subject to the jurisdiction of the FPC. Wherever such resale service is present, as it is in the present case, segregation of revenue and still another allocation of rate base components is necessary.

The guiding principle of cost allocation, for both jurisdictional and rate design purposes is that each jurisdiction or class of service should be assigned its fair share of the overall cost of service. The allocation of the overall cost of service depends on assumptions, methods, and formulas, each containing elements of arbitrariness which can produce widely varying results. There is, therefore, an element of uncertainty. As Justice Brandeis put it over a half century ago:

> "What method should be pursued in making such division is a very difficult problem to which railroad accountants, the Interstate Commerce Commission, and state railroad commissions have for years given serious attention. Despite much patient study and the exhibition of great ingenuity no wholly satisfactory method has yet been devised. The variables due to local conditions are numerous; and experience teaches us that it is much easier to reject formulas presented as being misleading than to find one apparently adequate. The science of railroad accounting is in this respect in process of development; and it may be long before a formula is devised which can be accepted as satisfactory." 1/

1/ Groesbock v Duluth, S.S. & A. Ry. Co. (1919) 250 US 607, 614, 615, 63 L ed 1167, 1172.

Twenty-five years later, Justice Douglas observed:

> "A separation of properties is merely a step in the determination of costs properly allocable to the various classes of services rendered by a utility. But where as here several classes of services have a common use of the same property difficulties of separation are obvious. Allocation of costs is not a matter for the slide-rule. It involves judgment on a myriad of facts. It has no claim to an exact science." 2/

Another quarter of a century has passed and the problem is still with us and is an issue in the rate case before us for decision.

Public Notice

The Secretary of the Commission on August 14, 1972, gave notice that a prehearing conference would be held in the Commission's Los Angeles offices on August 25, 1972. Such notice was mailed to all then known, or thought to be, interested parties. At the conference appearances were made for 20 parties. Announcement was made of the first day of hearing and dates set for filing of the showing of the staff of the Commission (staff) and for cross-examination of the staff.

On October 19, 1972, the Commission formally gave notice of hearing to over 500 known potential parties and caused publication of the notice in 15 newspapers in Edison's service area. A press release describing the hearings was prepared by the staff and was carried by many of the newspapers in Edison's service area. Thereafter, and continuing throughout the course of the public hearings, the Commission's regularly published daily calendar carried notice of the hearing dates and locations. In addition, announcements of future dates were regularly made from the bench by the presiding officer. As a result of the notice and other publicity, resolutions and letters protesting the proposed increase were received from 23 cities, counties, special districts, and mutual water companies.

2/ Colorado Interstate Gas Co. v Federal Power Commission (1945) 324 US 581, 589, 89 L ed 1206, 1216.

Public Hearing

After due notice 50 days of hearings were held in Los Angeles during the period December 5, 1972 to April 26, 1973 before Commissioner J. P. Vukasin, Jr. and Examiner Parke L. Boneysteele.

At the conclusion of the hearings, Edison introduced new evidence relating to exploration for new sources of energy. In order not to delay consideration of Edison's request for increased rates, the exploration issue was severed from the proceeding as a separate phase. The "General Rate Case" was then submitted to the Commission for decision on April 26, 1973, subject to filing of late-filed exhibits by Edison and the staff, the last of which was filed May 16, 1973.

Concurrent opening briefs were filed on May 21, 1973, and concurrent reply briefs on June 5, 1973. It is anticipated that, after the issuance of a decision in the general rate case additional hearings will be held and another decision issued dealing exclusively with exploration and proposals for the funding of the exploration program.

REVENUE REQUIREMENT

Only Edison and the staff presented witnesses covering the entire spectrum of estimates and conclusions necessary to determine revenue requirement, that is, revenue estimates, estimates of reasonable operating expenses, taxes, and rate base, and rate of return data. The Secretary of Defense, on behalf of The Executive

Agencies of the United States (Government) presented a rate of return expert. The discussion of differences to be resolved in determining revenue requirement will, therefore, be mostly a discussion of Edison and staff showings. Where appropriate, we will consider the positions of other parties where such portions affect revenue requirement.

Edison, in its Exhibit 97, estimates that its proposed rates would produce $1,017,905,000 in revenues subject to the jurisdiction of this Commission. The propcsed rates would require an increase in revenues of $97,330,000 and raise the jurisdictional rate of return from 6.89 percent to 8.34 percent.

The staff contends, in its Exhibit 34, that the proposed rates would yield $1,037,290,000 in jurisdictional revenues, an increase of $97,474,000 and would raise the jurisdictional rate of return from 7.57 percent to 9.04 percent.

The staff recommends an 8 percent rate of return, applied to its rate base, and adoption of its estimate of revenues and expenses. The staff recommendation would result in $28,237,000 increase in gross revenues.

From Exhibits 97 and 34, and the 8 percent rate of return advocated by the staff, we see that the overall differences between Edison and the staff in 1973 estimated Commission jurisdictional totals are as follows:

Comparison of Edison and Staff Jurisdictional Results of Operations
(Year 1973 Estimated)

Item	Edison	Staff	Difference	Relative Magnitude
	(Dollars in Thousands)			%
Revenues at Present Rates	$920,575	$939,816	$19,241	21.2
Expenses Excl. Taxes Based on Income	658,407	634,833	23,574	25.9
Taxes Based on Income at Present Rates	45,525	67,732	(22,207)	(24.4)
Revenue Effect of Rate Base Adjustments	-	(2,413)	2,413	2.7
Increased Taxes and Uncollectibles	51,248	14,910	36,518	40.2
Increase in Return	45,902	14,601	31,301	34.4
Total of Differences			$90,840	100.00
Total Difference in Net Revenue Requirement			$44,232	

(Negative Figure)

From the above table it can be seen that the largest difference between Edison and the staff is in the income taxes and uncollectibles associated with increased return. There was no controversy over methods of calculating income tax and little over uncollectibles. These items are almost entirely a direct function of the increase on return. The income tax difference at present rates is also practically entirely due to net revenue differences.

The three largest independent variables are thus, in order of their relative importance, increase in return (a function of allowed return), operating expense estimates, and revenues.

Although Edison originally based its rate increase request on an 8.5 percent rate of return, according to Edison's revised results reflecting information available as of April 13, 1973, as shown in Exhibit 97, the rates proposed would only yield an 8.34 percent rate of return on California jurisdictional operations.

Rather than amend its application, Edison chose to submit the case on the basis of the rates originally requested.

Although the Commission has jurisdiction over only a portion of Edison's operations, albeit a very large portion, we cannot, for the purposes of analysis, study only that portion of Edison's operations. Edison functions as an integrated system and it is that total integrated system operations that we must examine, and then allocate the results of our examination between the two jurisdictions, state and federal. Consistent with our practice in the previous Edison rate increase decision (Decision No. 78802 dated June 15, 1971 in Application No. 52336) we will discuss and resolve the differences between total system estimates, and modify them where indicated, before proceeding to allocate them.

In its Exhibit 90 Edison estimates that approximately 92 percent of its energy sales and 96 percent of its revenues at present rates, are subject to the jurisdiction of this Commission.

Overall Estimated Results

Both Edison and the staff selected the estimated year 1973 as the test year to show the effects of the proposed rates. In addition they presented estimates of the year 1972 and 1973 at the presently effective rates. Edison, at the conclusion of the hearings on the results of operations phase, updated its estimates for both years to reflect information available as of April 13, 1973. Edison's estimated 1972 results thus become "recorded and adjusted 1972."

The staff's exhibits were completed on January 23, 1973 and introduced into evidence on February 13. The staff exhibits were not updated at the conclusion of the hearings as were Edison's and therefore do not represent as recent a view as do Edison's.

The differences between the Edison and staff estimates of system operations at present rates are shown in the following tables:

SYSTEM RESULTS OF OPERATIONS AT PRESENT RATES
(Excluding Fuel Cost Adjustment)

1972

	Edison[a]	Staff[b]	Difference	Effect on Rate of Return
	(Dollars in Thousands)			
Operating Revenues	$908,748	$922,677	$(13,929)	(0.44)%
Operating Expenses	639,176	679,361	(40,185)	(1.28)
Taxes Based on Income	49,256	36,311	12,945	0.41
Net Revenues	220,316	207,005	13,311	0.42
Rate Base	3,148,000	3,140,000	8,000	(0.02)
Realized Rate of Return	7.00%	6.60%	0.40%	0.40%

1973

	Edison[a]	Staff[b]	Difference	Effect on Rate of Return
	(Dollars in Thousands)			
Operating Revenues	$960,056	$979,327	$(19,271)	(0.58)%
Operating Expenses	706,305	677,435	28,870	0.86
Taxes Based on Income	36,354	61,429	(25,075)	(0.75)
Net Revenues	217,397	240,463	(23,066)	(0.69)
Rate Base	3,310,000	3,292,000	18,000	(0.04)
Realized Rate of Return	6.57%	7.30%	(0.73)%	(0.73)%

a/ From Exhibit 97 Table 18-A.
b/ From Exhibit 37 Table 18-A.

(Negative Figure)

It can be seen from the comparing of the realized rates of return that the staff is predicting an upward trend in rate of return, from 6.60 percent to 7.30 percent, an increase of 0.70 percent between the two test years. Should the rate of return continue to increase according to the trend indicated by the staff results, the 8.5 percent rate of return requested by Edison would be achieved within two years without a rate increase. Indeed a rate reduction probably would be in order. This trend is all the more remarkable when the staff estimate of 6.60 percent for 1972 is compared to the 7.9 percent for 1972, largely based on staff estimates, that we adopted in Decision No. 52336. While we realize that the two rates of return are not strictly comparable because of the 8 percent of Edison's energy sales subject to FPC jurisdiction, it appears that if the staff's estimates are to be accepted, Edison is experiencing a "V" shaped trend in rate of return and the low rate of return realized for 1972 is a temporary aberration.

The heading of the tabulation states that the results as presented are "excluding fuel cost adjustment."

The effects of rapidly changing fuel costs on the cost of operations hopefully have been resolved for Edison by the fuel adjustment clause (Decision No. 79838 dated March 21, 1972 in Applications Nos. 52987 and 42988, effective May 1, 1972).

The fuel clause operates and rates go up when changes in the cost of fuel or the fuel mix increase the energy cost to Edison. Rates go down when changes in the cost of fuel or the fuel mix decrease the energy cost to Edison. The clause is triggered when the change varies .001¢ per kilowatt-hour, or more. Neither increases nor decreases are automatic but require Commission approval of a tariff filing. Bills rendered under the published rate schedules of the company are increased or decreased by an adjustment factor related to increases or decreases in the cost of fuel used in the utility's generating plants. Such fuel cost adjustment billing factors may not be revised more often than once every three months.

In the paragraphs that follow, we will discuss and attempt to resolve the differences between Edison's and the staff's estimates

Revenue Estimates

Both Edison and the staff determined revenues at present rates by first estimating kilowatt hour sales of electric energy and then applying presently effective tariff rates to determine revenues.

The following table, largely chosen from the staff's Exhibit 30, compares details of the staff's and Edison's estimated revenues and energy sales for 1973.

Summary of Operating Revenues and Sales
at Present Rates
(1973 Estimated)
(Excluding Fuel Clause Adjustment)

Item	Edison	Staff	Edison Exceeds Staff: Amount	Ratio	Effect on Rate of Return
	Revenue ($1,000)				
Domestic	$367,103	$375,101	$ (7,998)	(2.1)%	(0.24)
Agricultural	20,409	21,700	(1,291)	(5.9)	(0.04)
Commercial	242,346	245,234	(2,888)	(1.2)	(0.09)
Industrial	191,200	196,300	(5,100)	(2.6)	(0.15)
Public Authority					
MWD	5,362	6,129	(767)	(12.5)	(0.02)
State Water Project	3,024	3,024	-	-	
Other	84,400	85,000	(600)	(.7)	(0.02)
Interdepartmental					
SCI	19	19	-	-	-
Resale and Fringe	37,793	37,793	-	-	-
Other Electric Revenues	8,400	9,027	(627)	(6.9)	(0.02)
Total Operating Rev.	960,056	979,327	(19,271)	(2.0)	(0.58)
	Sales (1,000,000 Kwhr)				
Domestic	14,100.0	14,540.5	(440.5)	(3.0)	N/A
Agricultural	1,040.0	1,089.0	(49.0)	(4.5)	
Commercial	12,800.0	13,030.5	(230.5)	(1.8)	
Industrial	16,800.0	17,052.1	(252.1)	(1.5)	
Public Authority					
MWD	930.0	1,062.9	(132.9)	(12.5)	
State Water Project	1,008.0	1,008.0	-	-	
Other	4,725.0	4,801.3	(76.3)	(1.6)	
Interdepartmental					
SCI	.6	.6	-	-	
Resale and Fringe	4,363.0	4,363.0	-	-	
Total M^2 Kwhr	55,766.6	56,947.9	(1,181.3)	(2.1)	

(Negative Figure)

The leverage exerted by small differences in sales and revenue estimates is apparent from the above table. Although the staff's 1973 revenue estimate at present rates is only 2 percent higher than that of Edison, the dollar effect is $19,271,000, and accounts for 28 percent of the $68,993,000 difference between the $97,330,000 increase requested by Edison and $28,237,000 recommended by the staff.

The 2 percent difference in revenues is the result of an 1,181.3 million kwhr, or 2.1 percent higher, staff estimate in 1973 energy sales.

Edison's revenue estimates come about as a result of on-going forecasts made in the ordinary course of its business.

Edison's sales forecasts are routinely prepared by a committee composed of representatives from the Comptroller's Department, the System Planning Division of the System Development Department, the Customer Service Department, the Revenue Requirements Department, the Marketing Operations Department, and the System Operations Division of the Power Supply Department.

The projected energy sales were developed from historical trends, evaluation of economic activity, anticipated load requirements, and projected usage per customer. The electric revenue estimates, which are prepared by the Revenue Requirements Department, were basically derived by applying the estimated average revenue per kilowatt-hour for each customer classification to the projected energy sales for each classification.

The staff forecast was, in most instances, based on establishing a projection of numbers of customers by rate schedules, and also a projection of the usage per customer by rate schedules, and then multiplying these two projections for the estimated year to arrive at a kilowatt hour sales figure for the estimated year. With few exceptions the staff used data for the 16 months ended October 31, 1972 for estimating average customers and the 12 months ended June 30, 1972 for estimating kilowatt hours used per customer.

In estimating agricultural and pumping sales the staff used a normalized approach to compensate for fluctuations.

The results of the Edison and the staff's estimate for 1972 and 1973 are shown in the following table. In comparing the estimates for 1972, it should be remembered that Edison updated its showing to reflect information available as of March 30, 1973.

Trend of Total System Sales Forecasts
(1972 and 1973)

Item	Edison[a/] 1972 Recorded and Adj.	Edison[a/] 1973 Estimated	Edison[a/] Ratio 1973 to 1972
	(Sales 1,000,000 Kwhr)		
Domestic	12,933.8	14,100.0	109.0%
Agricultural	1,040.0	1,040.0	100.0
Commercial	12,043.9	12,800.0	106.3
Industrial	15,742.8	16,800.0	106.7
Public Authority			
MWD	966.0	930.0	96.3
State Water Project	446.9	1,008.0	225.6
Other	4,497.1	4,275.0	105.1
Interdepartmental SCI	.8	.6	75.0
Resale and Fringe	4,399.4	4,363.0	99.2
	52,070.7	55,766.6	107.1

Item	Staff[b/] 1972 Estimated	Staff[b/] 1973 Estimated	Staff[b/] Ratio 1973 to 1972
	(Sales 1,000,000 Kwhr)		
Domestic	13,356.1	14,540.5	108.9%
Agricultural	1,090.0	1,089.0	99.9
Commercial	12,140.7	13,030.5	107.3
Industrial	15,984.3	17,052.1	106.7
Public Authority			
MWD	1,004.9	1,062.9	105.7
State Water Project	525.1	1,008.0	192.0
Other	4,504.3	4,801.3	106.6
Interdepartmental SCI	.6	.6	100.0
Resale and Fringe	4,479.0	4,363.0	97.4
	53,085.0	56,947.9	107.3

a/ From Edison Exhibit 90, Table 7-A (March 30, 1973).

b/ From Staff Exhibit 30, Table 7-A (January 23, 1973).

In its brief Edison argues that the 7.3 percent increase in kwhr sales for 1973 is unreasonably high when compared with the 5.8 percent annual growth recorded in the two years ended October 1972. Yet Edison, in Exhibit 90, estimates a 7.1 percent increase, as shown in the above table.

The staff, in turn, argues that there can be a wide divergence as between the high and low estimates presented to Edison's sales and revenue forecasting committee, and that there is a tendency by the committee to select the more conservative estimate and frequently that of the revenue requirements department.

It should be noted that Edison, in its Exhibit 90, revised downward its recorded and adjusted usage for 1972 from its original estimate of 52,528.6 million kwhr as shown in Exhibit 2 to 52,070.7 kwhr. Edison did not, however, make a corresponding downward adjustment to its 1973 estimated usage forecast. Edison's 1972 recorded and adjusted usage is over a billion kwhr lower than that estimated by the staff.

Edison presented, in rebuttal to the staff, an exhibit comparing Edison's and the staff's estimates of kwhr sales with trends of recorded data.[3/] This exhibit shows 1972 sales, and the 1973 projection of the least squares trend line of the last four years, falling well below the staff's forecasts and more nearly in line with Edison's. The staff, in its brief, argues that the actual experienced year 1972 to be below normal.

The staff showing was ably presented and tenaciously defended by a registered professional engineer with many years staff experience. We are impressed, however, by the fact that Edison's experienced 1972 revenues, adjusted for normal conditions, as reported in Exhibit 90 turned out to be slightly lower than those originally forecast in Exhibit 2 and, in the face of this lower experienced level of revenues, Edison did not make

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3/ Exhibit 76.

a corresponding reduction in its 1973 estimate. As we have observed, by maintaining its original 1973 estimate, Edison assumes a 7.1 percent growth in revenues which approaches the 7.3 percent urged by the staff. Both Edison's growth rate and level of revenues appears to us to be somewhat on the liberal side, and the comparison of experienced 1972 to the staff's forecasted 1973 tends to explain in part the "V" shaped trend in rate of return forecast by the staff.

We are also aware that should Edison's conservation of energy program, which will be discussed later, prove to be successful, revenues will be decreased as energy is conserved.

In light of its reasonableness as shown by more recent figures, and overestimation of staff estimates in the past two rate cases as shown by experience, we will adopt Edison's 1973 sales estimate of 55,766,600,000 kwhr and its revenue estimate of 1973 total system revenues in the amount of $960,056,000 for our test year 1973 results of operations at present rates.

Expense Estimates

The differences between Edison and staff estimates of total operating expense are distorted by the effect of taxes based on income. A casual inspection of the total operating expense levels for the test year 1973 estimated would seem to indicate that Edison and the staff are only 0.11 percent apart. Since taxes based on income are a function of both revenue estimates and other expense estimates, it is helpful to break the income taxes out and set them aside while the other components of operating expense are examined. This treatment is facilitated in the present proceeding since there is virtually no controversy over income taxes.

Another factor needs explanation before we proceed to compare expense estimates. Edison, in its estimates, assumed a 7 percent wage increase in expense items for 1973. The staff, in its estimates of these items, also allowed for a 7 percent increase. Since no negotiated settlement of wages and benefits had been

reached at the time of preparation of the staff report, however, the staff proceeded to eliminate the effects of the wage increase by a lump sum adjustment to the subtotal of its expense adjustments before taxes and depreciation.

For the test year 1973 estimated at present rates the cumulative effect of the differences between the two sets of estimates, before allowance for taxes based on income, amounts to 0.87 percent in rate of return. Without the wage adjustment it amounts to 0.60 percent.

In its opening brief Edison reports that its offer of a 5.5 percent general wage increase has been accepted by its employees' unions retroactively to January 1, 1973, and that, along with other labor cost increases in direct wages and employee benefits permitted under Price Commission guidelines, 1973 labor costs could increase 7.8 percent.

Trends of expenses, and a comparison of Edison and staff results are shown in the following two tables. It should be noted that Edison predicts an 11.3 percent increase in expenses, before the wage adjustment, taxes and depreciation, between 1972 and 1973, and the staff a 0.3 percent decrease, again accounting in part for the "V" shaped trend in rate of return forecast by the staff.

Trend of Expense Estimates at Present Rates
(Excluding Fuel Clause Adjustment)[a]
(Years 1972 and 1973)

Item	Edison[b] 1972 Recorded and Adj.	Edison[b] 1973 Estimated	Edison[b] Ratio 1973 to 1972	Staff[c] 1972 Estimated	Staff[c] 1973 Estimated	Staff[c] Ratio 1973 to 1972
	(Dollars in Thousands)					
Operating Expenses						
Production						
Fuel - Total	$212,591	$ 334,353	157.3	$253,475	$285,526	112.6
Fuel - Adjustment	(20,003)	(127,164)	(635.7)	(22,984)	(85,653)	(372.7)
Fuel - Remainder	192,588	207,189	107.6	230,491	199,873	86.7
Purchased Power	21,932	23,673	107.9	22,347	25,194	112.7
Other	54,077	65,127	120.4	51,464	57,274	111.3
Transmission	30,355	34,650	114.1	31,852	33,829	106.2
Distribution	51,037	58,953	115.5	52,882	57,166	109.3
Customer Accounts	22,086	25,315	114.6	22,452	24,502	109.1
Sales	5,804	4,793	82.5	7,104	4,435	62.4
Administrative & General	69,470	87,258	125.6	69,982	84,700	126.4
Subtotal	447,349	506,958	113.3	488,574	486,973	99.7
Wage Adjustment	-	-	-	-	(8,655)	-
Subtotal, Adjusted	447,349	506,958	113.3	488,574	478,318	97.9
Depreciation	104,434	109,981	105.3	104,261	110.007	105.5
Taxes Other Than Income	87,393	89,366	102.3	86,526	89,110	103.3
Subtotal	639,176	706,305	110.5	679,361	677,435	99.7
Total Based on Income	49,256	36,354	73.8	36,311	61,429	169.2
Total Operating Expense	688,432	742,659	107.9	715,672	738,864	103.2

a/ To avoid distortion (see infra, pp. 30-31).

b/ From Edison Exhibit 97, Table 18-A (4/26/73).

c/ From Staff Exhibit 37, Table 18-A (2/13/73).

(Negative Figure)

Operating Expenses at Present Rates
(Excluding Fuel Clause Adjustment)
(Year 1972)

Item	Edison 1/	Staff 2/	Edison Exceeds Staff: Amount	Edison Exceeds Staff: Ratio	Effect on Rate of Return
	(Dollars in Thousands)				
Year 1972					
Operating Expenses					
Production					
Fuel - Total	$212,591	$253,475	(40,884)	(19.2)%	(1.29)%
Fuel - Adjustment	(20,003)	(22,984)	2,981	1.5	0.07
Fuel - Remainder	192,588	230,491	(37,903)	(19.7)	(1.20)
Purchased Power	21,932	22,347	(415)	(1.9)	(0.01)
Other	54,077	51,464	2,613	4.8	0.08
Transmission	30,355	31,852	(1,497)	(4.9)	(0.05)
Distribution	51,037	52,882	(1,845)	(3.6)	(0.06)
Customer Accounts	22,086	22,452	(366)	(1.7)	(0.01)
Sales	5,804	7,104	(1,300)	(22.4)	(0.04)
Administrative & General	69,470	69,982	(512)	(0.7)	(0.02)
Subtotal	447,349	488,574	(41,225)	(9.2)	(1.31)
Wage Adjustment	-	-	-	-	-
Subtotal, Adjusted	447,349	488,574	(41,225)	(9.2)	(1.31)
Depreciation	104,434	104,261	173	0.2	0.00
Taxes Other Than Income	87,393	86,526	867	1.0	0.03
Subtotal	639,176	679,361	(40,185)	(6.3)	(1.28)
Taxes Based on Income	49,256	36,311	12,945	26.3	0.41
Total Operating Expenses	688,432	715,672	(27,240)	(4.0)	(0.87)

1/ From Edison Exhibit 97, Table 18-A (4/26/73.)

2/ From Staff Exhibit 37, Table 18-A (2/13/73.)

(Negative Figure)

Operating Expenses at Present Rates
(Excluding Fuel Clause Adjustment)
(Year 1973)

Item	Edison 1/	Staff 2/	Edison Exceeds Staff: Amount	Edison Exceeds Staff: Ratio	Effect on Rate of Return
	(Dollars in Thousands)				
Year 1973					
Operating Expenses					
Production					
Fuel - Total	$ 334,353	$285,526	48,827	14.6%	1.47%
Fuel - Adjustment	(127,164)	(85,653)	(41,511)	32.6	(1.25)
Fuel - Remainder	207,189	199,873	7,316	3.5	.22
Purchased Power	23,673	25,194	(1,521)	(6.4)	(.04)
Other	65,127	57,274	7,853	12.1	0.24
Transmission	34,650	33,829	821	2.4	0.02
Distribution	58,953	57,166	1,787	3.0	0.05
Customer Accounts	25,315	24,502	813	3.2	0.02
Sales	4,793	4,435	358	7.4	0.01
Administrative & General	87,258	84,700	2,558	2.9	0.08
Subtotal	506,958	486,973	19,985	3.9	.60
Wage Adjustment	-	(8,655)	8,655	(100.0)	.26
Subtotal, Adjusted	506,958	478,318	28,640	5.6	.86
Depreciation	109,981	110,007	(26)	0.0	0.00
Taxes Other Than Income	89,366	89,110	256	0.3	0.01
Subtotal	706,305	677,435	28,870	4.1	0.87
Taxes Based on Income	36,354	61,429	(25,075)	(69.0)	(0.76)
Total Operating Expenses	742,659	738,864	3,795	0.5	0.11

1/ From Edison Exhibit 97, Table 18-A (4/26/73.)

2/ From Staff Exhibit 37, Table 18-A (2/13/73.)

(Negative Figure)

Power Production Expenses - Fuel and Purchased Power

Power production expenses are the costs associated with generation and purchase of electric energy. The estimation of a reasonable amount for these costs is the most intricate economic issue encountered in the proceeding. The following considerations, among others, are involved:

a. Estimate of energy sales.

b. Normalized amount of hydroelectric energy available from Edison's company-owned hydro plants, based on historical hydrological studies.

c. Amount of hydroelectric energy available for purchase from the Bureau of Reclamation's Hoover Dam Project, limited to amounts of power produced by water released to meet downstream water requirements.

d. Amounts of power available from the Pacific Northwest through operation of the Canadian Entitlement Exchange Agreement and an agreement with the Bonneville Power Administration.

e. Purchase of hydroelectric power, through the California Power Pool, of a portion of the power output of the State Water Project.

f. Interchanges and purchases with the other California Power pool companies, Pacific Gas and Electric Company, and San Diego Gas and Electric Company.

g. Fuel costs, including natural gas, oil, coal, and nuclear. (As modified by consideration of fuel adjustment clause.)

h. Relative amounts of power to be generated from the different type of thermal generation plants.

i. Relative efficiencies of various plants.

j. Maintenance cost of various plants.

k. Research and development program.

The cumulative effect of the differences between Edison's and staff's estimates of production expenses, after the fuel clause adjustment, amount to $13,648,000 for an effect on rate of return of 0.42 percent.

This difference would have been higher had not the staff's estimate of system energy sales exceeded that of Edison by 1,181.3 million kilowatts hours or 2.1 percent. The adopted Edison 1973 sales estimate will, to be consistent, be used in our determination of reasonable fuel costs.

Fuel Costs and Purchased Power

The difference between the fuel cost estimates, after consideration of differences in kwhr sales and operation of the fuel cost adjustment, can be attributed largely to:

(1) Use by Edison of lower production factors for coal fired generating plants for a difference of about $2,200,000.

(2) Use by Edison of higher heat rates, for a difference of about $12,200,000.

(3) Use of Edison of lower estimates of power purchased from Pacific Northwest for a net difference of $5,300,000.

During the discussion of Edison's coal plant production two concepts of measurement were used. The term "capacity factor" was defined as the actual output of a unit for a given period of time including all outages scheduled or unscheduled divided by rated or theoretical capacity.

The term "production factor" or modified capacity factor, is the ratio of actual kilowatt-hour plus output loss through scheduled major outages or overhauls, to the rated or theoretical output of the unit. Consequently, this ratio is a measure of actual output including unscheduled or short range planned outages compared to rated or theoretical output. Ideally, there would be a 100 percent production factor since scheduled outages are not considered.

The two terms are not identical and invariably the capacity factor will be lower than the production factor. Accordingly, a capacity factor tends to vary with scheduled, forced, and other types of outages while the production factor varies only as to those outages which are not scheduled.

In its original Results of Operation Report as filed with the application on August 1, 1972, and received into evidence as Exhibit 2, Edison used a production factor of 80 percent for its coal plants. On November 22, 1972, Edison revised its production factors for its Four Corners units to 75 percent for 1973 and 75.6 percent for 1974. It estimated production factors at its Mohave plant for the same periods of time to be 71 and 73.3 percent. The staff estimates that the units at Four Corners will reach 80 percent production factors during 1973 and continue at 80 percent during 1974. At Mohave, the staff estimates Units 1 and 2 will reach production factors of 77.5 percent by the beginning of 1974 and 80 percent by midyear of 1974.

Edison claims that its coal plant production factors are based on actual recent experience in the operation of these facilities. An Edison vice president testified that the 60.2 percent capacity factor experienced by Four Corners up to April 22, 1973 is well below the 70.2 percent projected for that date in the utility's budget. He also testified that the 54.7 percent capacity factor experienced at Mohave was very close to the budgeted capacity.

The Edison vice president explained that the maturing period of a power plant is the interval required to identify and rectify causes of unscheduled outages. The staff allowed four years maturing period for Four Corners Unit 4, 3-1/4 years for Four Corners 5, 3-1/4 years for Mohave 1 and 2-3/4 years for Mohave 2. The vice president testified that the Mohave units had different boilers, were supplied by an innovative coal slurry pipeline which required complex dewatering processes, and relied on cooling systems and towers using cooling water with the very high dissolved solid concentrations of from 10,000 to 15,000 milligrams per liter. He also presented a series of curves comparing capacity factors of certain large Tennessee Valley Authority coal fired plants with production factors of Edison plants. The staff argues that these curves are not directly comparable whereas Edison maintains that they

indicate that Edison's production factors are realistic and conservative and that seasoned capacity factors for Edison's units will be somewhat less than originally contemplated.

The staff maintains that the record supports the staff estimates for coal generation performance in the test year. It admits efforts by Edison to correct the lower than expected coal plant generation performance but argues that in the staff approach there is greater incentive for the company to strive to reach the original performance estimates in the fuel clause proceeding, rather than have lower performance estimates accepted and higher fuel clause adjustments granted.

Heat rate is defined as the amount of heat energy supplied to a heat engine for each unit of work output. In the United States it is usually expressed as British thermal units per kilowatt hour (Btu/kwhr). The lower the heat rate, the higher the efficiency.

According to Edison, the higher heat rates of 9857 Btu/kwhr used by the utility in its revised showing were based on experience which became known subsequent to its original estimates and preparation of the staff exhibits, both of which were based on 9464 Btu/kwhr. The reasonableness of the higher heat rate was considered by the Commission in connection with Edison's fuel clause Advice Letter No. 375-E and approved by Resolution No. E-1359 accepting the May 1, 1973 fuel adjustment filing.

The staff and Edison, in its earlier estimates, indicate the expected receipt of approximately four months of Northwest surplus power. Edison, in its revised showing (Exhibits 90 and 97) reduced this to only one and one-half months' surplus power. Edison argues that its original estimate was unduly optimistic and that its later production cost estimates were based on more recent information.

The staff counters that an estimate for any given year is difficult because of the variables involved and that averaging hydro

conditions over a number of years for rate-making purposes reduces the variability experienced in a given year. Edison, PG&E, and San Deigo Gas and Electric share in the pool of surplus Northwest power. The staff argues that the average year estimate based on the Bonneville 30-year Hydrological Study used by Edison and other California power pool members in fuel clause filings before the Commission substantiates the average 4-month receipt of energy included in the staff estimate.

The staff further argues that to be consistent, Edison should have also used recent information for its California hydro facilities, from which it appears that Edison is experiencing an exceptionally good year. The staff claims that its use of averages reduces the distortions which would occur if only current year figures were used for Northwest and California hydroelectric energy.

According to the comparison table above, the difference between Edison and the staff in 1973 purchased power amount to the staff's being higher by $1,521,000. In its opening brief Edison calculates the net cost of replacing the Northwest power as $5,300,000.

Taking all of the various considerations bearing on the subject of fuel costs and purchased power, we see no alternative but to accept Edison's lowered production factors. The record is convincing that the operation of large super-critical coal fired plants is a troublesome undertaking, even for a utility operation such as TVA which has had much more experience with such plants. The Mohave coal slurry line was selected and designed by a prestigious engineering firm as the best answer to a difficult combination of engineering and economic problems. It is unfortunate that the coal plants are not operating according to expectations but they are presently the only feasible answer to Edison's power supply problems. We are convinced that Edison will, in pursuit of its own interests, strive to reach the original performance estimates,

and do not agree with the staff that an "incentive" in the form of disallowance of expenses reasonably expected to be prudently incurred is in order.

As far as heat rate is concerned, we have already considered this issue in Resolution No. E-1359 in connection with the May 1, 1973 fuel clause adjustment. The revised higher heat rate of 9857 Btu/kwhr is reasonable and will be adopted.

In contrast to the first two items, we are not at all convinced by Edison's last estimate for Northwest power, particularly since it was not accompanied with a corresponding revision to California hydro. Edison's contention on this issue was not well supported on the record and the reasons for departing from the normalized water power concept were not adequately explained. We will adopt four months' availability of Pacific Northwest power, as recommended by the staff, with total purchased power amounting to $25,194,000 which results in a total fuel cost of $328,461,000.

The revenue effect of the fuel adjustment billing factor, with fossil fuel price and mixes as of May 1, 1973, amounts to $115,200,000. An additional $2,651,000 revenue imputed to the State Water Plan for the billing factor revenue effect has been added to total $117,851,000.

The following amounts are adopted as reasonable allowances for Fuel and Purchased Power for the year 1973 Estimated:

Fuel - Total	$328,461,000
Fuel - Adjustment (as of May 1, 1973)	(117,851,000)
Fuel - Remainder	210,610,000
Purchased Power	25,194,000
Total Fuel and Purchased Power	$235,804,000

Effect of Fuel Clause Adjustment

The California Manufacturers Association (CMA) argues in its opening brief that the treatment of the fuel adjustment revenues by Edison (and by implication also the treatment by the staff) understates its test year revenues; this is supposed to come about by proposing an increase in base rates to cover fuel costs already covered in the fuel adjustment billing factor.

Edison responded that this was not the case because fuel costs are incurred before meters are read and billed.

In our consideration of Edison's estimated results, we have excluded the fuel clause adjustment so as to avoid any distorting effects that might be introduced by the operation of the fuel clause. In the order that follows we will establish new base rates and bring the fuel clause adjustment to zero. The lag over with which CMA is concerned will not be a problem, therefore.

Power Production Expense - Other

This category of production expenses is largely comprised of operation and maintenance expenses. Edison is $7,853,000 higher than the staff in this category or 12.1 percent for an effect of 0.24 percent on the 1973 rate of return.

Edison presented three different estimates during the course of the proceeding. In Exhibit 2, proposed in July 1972, it estimated $55,651,000. In Exhibit 10, as presented December 6, 1972, it revised this to $61,927,000 and in Exhibit 97, on April 26, 1973, it raised it again to $65,127,000. Edison says that the revisions were made "in an attempt to reflect adequately the later experience of the Company."

The staff's recommended allowance of $57,274,000 was based on a review of Edison's estimate of $61,927,000 as presented in Exhibit 10. The details of the difference between the staff estimate and Edison's Exhibit 10 estimate are as follows:

Steam Power Generation	
Ac. 512 Maintenance of Boiler Plant	$2,800,000
Ac. 513 Maintenance of Electric Plant	900,000
Hydraulic Power Generation	
Ac. 535 Operation Supervision and Engineering	70,000
Ac. 542 Maintenance of Structures	130,000
Ac. 544 Maintenance of Electric Plant	135,000
Nuclear Power Generation	
Ac. 531 Maintenance of Electric Plant	618,000
Subtotal	$4,653,000

When the difference between Edison's Exhibit 10 estimate and the Exhibit 97 estimate of $65,127,000, an amount of $3,200,000 is added, the total difference of $7,853,000 is obtained.

The staff witness on this subject, a registered professional engineer, testified that he deleted $1,600,000 of contingencies from Ac. 512 and $900,000 from Ac. 513. He deleted from 1973 test year expenses $1,200,000 from Ac. 512 for work performed in 1972 and not paid until 1973 because of a dispute with a vendor. The adjustments to hydraulic power generation expenses were made because staff trends indicated lower levels of expense. For nuclear power generation the staff witness amortized a condenser retubing job of $700,000 over a period of four years and a turbine overhaul of $186,000 over a period of two years.

The staff did not contest the later higher estimate of Edison in the case proper but the staff brief recommends that the staff's methodology in arriving at reasonable test year costs should be adopted.

We agree with the staff that the $1,200,000 deferred payment should not be allowed. We do not concur with the staff's other contentions, however. Edison's original 1972 estimate for this expense category was exceeded by recorded expense by $3.4 million, without consideration of the $1,200,000 deferred payment. Also it does not seem fair to amortize certain relatively routine maintenance charges unless past periods are examined for similar occasions and the expenses connected with those amortized into the test period. We will adopt Edison's estimate, less the $1,200,000 deferred payment for an amount of $63,927,000.

Transmission Expenses

Transmission Expenses consist of the cost of operating and maintaining Edison's transmission system. They include costs of operation and maintenance of transmission substations, overhead lines, underground transmission facilities, and miscellaneous transmission plant; also supervision, load dispatching, and transmission of electricity by others in connection with contractual agreements.

Edison's 1973 estimate is $821,000 higher than that of the staff, or by 2.4 percent, for an effect on rate of return of 0.02 percent. Edison's final Exhibit 97 estimate of $34,650 is lower than its earlier Exhibit 10 estimate of $34,947.

The staff witness, who was the same witness who testified to power plant maintenance, testified that he accepted the Edison estimate for transmission operation except that a $414,000 expenditure for software for the utility's digital dispatch system was amortized over a five-year period. He adjusted transmission maintenance costs where he felt that "past experience and/or trending indicated that the utility had apparently overshot the mark."

Whereas the witness again allocated expense out of the test period, he did not analyze past years for so-called "unusual" expenses and allocates them onto the test period. When questioned about the 1971 Sylmar earthquake, the witness conceded that to be consistent, he should have amortized expenses attributable to the earthquake into the test period.

In Decision No. 67369 dated June 11, 1964 in Case No. 7409 (62 CPUC 755), the Commission's investigation of Pacific Telephone and Telegraph Company, we said, on page 790:

> "However, it is so easy to distort past test year results by adjusting on a selective basis for level or period changes and ignoring the many day-by-day changes taking place in the operations that reduce cost per unit of revenue or increase revenue per unit of cost."

and, on page 791:

> "Bearing in mind the trends and relationships in revenues, expenses and net plant before, during and since the test year, we find it reasonable to test respondent's rate of return and revenue requirements by use of the test year recorded results without incorporating either respondent's or the staff's proposed adjustments for so-called level or period changes but adjusted only to the extent and in the amount for those so-called basic policy rate-fixing adjustments which we hereinafter find to be fair, reasonable and necessary in the public interest."

We recognize that in Decision No. 67369 we were dealing with a past test period, not an estimated prospective one, and with a telephone company relatively unaffected by climatic variations, but we hold that, in general, the same principle applies. The test period is just that, the interval selected as a measure of the utility's operations. "Unusual" expenses are the rule, not the exception, and we will not amortize expenses that are reasonably representative of similar "unusual" expenses that can expect to be prudently incurred during any selected test period.

Both Edison and the staff estimates carry forward certain allocations from Edison Decisions Nos. 76106 and 78802. These represent relatively large amounts for storm damage and Pacific Intertie expense amortization. We will not disturb these allocations since they resulted in lower adopted operating expense in those decisions. It may be, however, that this departure from our policy as enunciated in Decision No. 67369 is one of the causes of the slippage in Edison's realized rate return, and contributes to the "V" shape trend in rate of return predicted by the staff.

Insofar as Edison's estimates "apparently overshot the mark" we are persuaded by Edison's explanation that increased costs of planting, landscaping, lighting, and transmission research and development are causing trends to rise. As an example of underestimating, in Application No. 52336, Edison estimated $27,317,000, Transmission Expense, the staff $26,541,000, whereas "1972 Recorded Adjusted" from Exhibit 97 amounted to $30,355,000.

We will adopt Edison's 1973 estimate of $34,650,000 as reasonably representing Transmission Expense for the test period.

Distribution Expenses

Distribution Expenses are composed of the costs of operating and maintaining Edison's distribution substations, overhead, and underground distribution lines, meters, services, and street lighting systems.

Edison's revised 1973 estimate for this category, as finally presented in Exhibit 97, is $58,953,000 compared to the staff's Exhibit 37 estimate of $57,166,000. Edison is 3.0 percent higher, for an effect on rate of return of 0.05 percent.

The apparent difference of $1,787,000 is actually only $706,000 because the staff transferred $1,081,000 to Sales Expense. Of this difference $338,000 is from differences in estimating techniques and $368,000 from Edison's Exhibit 97 revisions. It appears to us that, since $338,000 is only about 0.6 percent of Edison's original estimate, that the staff's adjustment is beyond the limits of estimating. We will accept Edison's estimate of $58,953,000, including, as we will explain under Sales Expense, the $1,081,000 transferred by the staff.

Customer Accounts Expense

Customer Accounts Expense consists of the cost of supervision of and performing meter reading, collecting, processing of contracts, processing of service orders, billing and accounting activities, and miscellaneous expenses of commercial type functions generally dealing directly with customers. The cost also includes the provisions for uncollectible accounts.

Edison's estimate of Customer Accounts Expense for 1973 of $25,315,000 exceeds the staff's $24,502,000 by $813,000, or by 3.2 percent, for an effect on rate of return of 0.02 percent. Over

half of this difference, or $415,000, is in Account 904, Uncollectible Accounts. Another $136,000 is the result of uncontested Exhibit 97 revisions.

The staff estimate of uncollectibles was based on averaging the ratio of net write-offs to revenues for the years 1967 to 1971 and applying that ratio of 0.2832 percent to estimated revenues for the test year 1973.

Edison's estimate was calculated to provide an accumulated provision for uncollectible accounts balance at year-end equivalent to the estimated net write-off of uncollectible accounts for the year. Net write-off was based on 0.30 percent of revenue estimated from ultimate consumers. The 0.30 percent factor was the recorded ratio of net write-off for 1971. Edison argues that there is a decided upward trend on uncollectibles, to which the staff countered that history shows the uncollectible ratio fluctuates with the business cycle, increasing, surprisingly, as business improves and decreasing as it falls off. The effect of the business cycle on the total level of uncollectibles is therefore exponential as they vary both with revenues and on their own.

The staff treatment is in accordance with long-standing Commission practice from which we see no reason to depart. We will apply the 0.2832 percent ratio to the portion of our adopted revenue estimate from ultimate customers for an amount of $2,910,000.

The remaining difference in this category is primarily one of judgment and we will accept Edison's estimates. Our total adopted estimate for Customer Accounts Expense is therefore $24,846,000.

Sales Expenses

Sales Expenses are the costs incurred in sales activities such as demonstrating, selling, and advertising, and also costs incurred in promotional activities dealing with service to regular and prospective customers.

Edison's final Exhibit 97 estimate of 1973 sales expense is $4,793,000 compared to the staff's $4,435,000. Edison's estimate is $358,000 or 7.4 percent higher, for an effect on rate of return of 0.01 percent.

The actual difference is greater than the apparent difference. The staff considered $1,081,000 of Edison's estimated expenditures for energy conservation oriented customer service activities under Sales Expense instead of Distribution, as did Edison, and recommended an allowance of $920,000. Although Sales Expense is the smallest expense category in terms of dollars, in controversy this category is one of the major issues of the proceeding.

Advertising and sales promotion of utilities, in view of their monopoly position and also in view of the resource crunch and of environmental concerns, has been an area of considerable interest to the public in recent years, and this interest has been reflected in recent Commission decisions. In Decision No. 78186, dated January 19, 1971, in Application No. 51552, we admonished Pacific Gas and Electric Company:

> "However, PG and E has been made well aware in this proceeding of the strong resistance of its customers to its advertising for the promotion of sales, especially in its combination areas and where environmental considerations have become of great concern to the public. PG and E is placed on notice that it should carefully reexamine its sales promotion programs and in future proceedings it should be fully prepared to justify its expenditures for sales promotion."4/

and in the last Edison Decison No. 78802, we said:

> "Also, to the extent that Edison's advertising is, in fact, effective and thereby increases peak demand, we question the wisdom of deliberately soliciting this extra business when fuel costs and wages are rising at an extraordinary rate, when generation plant sites are difficult to find, and when found, construction is often delayed by litigation, and where the problem

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4/ 72 Cal PUC 282, 302.

> of finding adequate land over which to run transmission lines without desecrating the landscape is becoming more and more difficult. Until more efficient means are found to generate and transmit electricity, the days of Edison's eagerly standing by to provide electricity for every new can opener that is invented are fast drawing to a close. In our opinion it is imprudent for Edison to expend over $3,000,000 for promotional advertising in 1972. For rate-making purposes we will reduce its promotional allowances and advertising expenses by an additional $1,200,000."5/

Edison's declining trend of sales expense appears to already be recognizing our concern. In 1970 sales expense was $9,275,556, in 1972 $5,804,000. In its original Exhibit 2 and Exhibit 10 showings, Edison estimated $6,200,000. After evaluating this estimate the staff originally recommended $4.435 million for sales expense including $920,000 for Distribution Expense Accounts 587 and 588. The staff also recommended guidelines for advertising expenditures and indicated that it would recommend a greater allowance for advertising expenditures if Edison came forward with a showing that such expenditures would produce substantial benefits for the ratepayers. The recommendation of the staff applied to both energy conservation oriented advertising programs under Sales Expenses and institutional advertising included in Administrative and General Expenses Account 930.

The staff's estimate for sales expense for 1973 differed from Edison's original estimate by exclusion from Edison's sales expenditures of $2,846,000 for 1973, after providing a "phasing out" allowance of $900,000 and an additional allowance of $500,000 for conservation of energy advertising programs.

Conservation of energy programs are intended to encourage the conservation of energy resources and to promote maximum utilization of energy by proper application of equipment and processes. The expenses connected with the programs arise primarily from various

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5/ 71 Cal PUC 724, 752.

awards by Edison, in the form of payments to developers and related labor expenses associated with the program, which encourage builders to insulate new building dwellings along guidelines suggested by Edison. Senate Bill 277[6/] signed by the Governor on November 22, 1972, provides that after January 1, 1974, all new residential construction shall be insulated to a standard that shall meet or exceed standards prescribed by the Federal Housing Administration. These standards appear to be comparable to the utility's insulation requirements for the conservation of energy awards. The staff believes that legislation will be proposed to provide for a requirement of insulation in commercial buildings during the current session of the Legislature.

The staff contends that there is no justification for continuing the conservation of energy home awards in view of the recent legislation. The staff proposed guidelines for reasonable advertising as:

a. Advertising that advocates the conservation of energy by stimulating conservation practices through dissemination of factual data and advice.

b. Advertising that is to facilitate an adequate future supply of electric energy through the factual discussion of plant siting, safety, and environmental impact.

Late in the proceeding Edison responded to the staff by presenting, in Exhibits 83, 84, 86, 87, and 88, evidence relating to new and revised programs for conservation of energy and institutional advertising designed to comply with the staff's recommended guidelines. Edison's proposed level of sales expenses, from Exhibit 88, and the comparable staff allowances, are as follows:

6/ Chapter 1136, Statutes of 1972.

COMPARISON OF SALES EXPENSES
(1973 Estimated)

Item	Estimated Year: Edison 1973	Staff 1973	Edison Exceeds Staff
	(Dollars in Thousands)		
Supervision	$ 42	$ 27	$ 15
Demonstrating and Selling Expenses	3,110	2,068	1,042
Accounts 587 and 588	992	920	72
Advertising Expenses	1,540	1,420	120
Miscellaneous Sales Expenses	101	-	101
Total Sales Expenses	$5,785*	$4,435	$1,350

*Edison actually considered Accounts 587 and 588 in Distribution Expense. Without $992,000 comparable Edison estimate is $4,793,000.

Comparison of the two estimates is made difficult by the staff's unilateral transfer of Accounts 587 and 588. When the difference of $1,350,000 is considered by itself, it has 0.04 percent effect on the rate of return. Consideration is further complicated by the staff's discussion of the advertising portion of Sales Expenses under Administrative and General Expense, where it develops a total recommended guideline allowance of $2,340,000 for all advertising.

In Exhibit 84, Edison presented a detailed proposal for "Energy Management Programs" in response to the recommended guidelines contained in staff Exhibit 30, as revised by Exhibit 40. The programs, accounting for the proposed expenditure of $5,785,000, were subdivided into three areas - conservation of resources, protection of the environment, and concern for the consumer, and include new programs and revised existing programs.

Exhibit 86 presents in detail Edison's 1973 advertising program for conservation of energy and institutional advertising for

1973, estimated to cost $2,698,000 (including $2,000,000 to be charged to A&G Account 930 Miscellaneous General Expenses).

The staff, in its opening brief, after consideration of Edison's proposals, recommends that Edison be allowed to increase its expenditure for effective conservation of energy by $688,000 and its expenditures for Sales Account 913, Advertising Expenses, of $400,000.

As we understand the final recommendations, reflecting the comments in the staff brief, the recommendations concerning sales promotion and advertising, as scattered throughout the various categories of expense and report chapters, are:

	Edison	Staff	Difference
	(Dollars in Thousands)		
Distribution Expense Ac. 587, 588	$ 992	$ 920	$ 72
Sales Expense Ac. 911, 912, 913, 916	4,793	3,515	1,278
Subtotal	$5,785	$4,435	$1,350
A&G Expense Ac. 920, 921, 930	$2,440	$ 940	$1,500
Subtotal from Exhibits	$8,225	$5,375	$2,850
Staff Brief Recommendations			
Cons. of Energy	-	668	(668)
Ac. 913	-	400	(400)
Total	$8,225	$6,443	$1,782
		(Negative Figure)	

In evaluating these recommendations, the Commission is aware of the arguments set forth by some that utility companies need not advertise. However, the Commission is also aware of the facts of life--that active and effective participation in the market place requires communication with the public. An arbitrary disallowance of

advertising expenses would not only place investor-owned utilities at a disadvantage with other industries generally, but it would be manifestly unfair in the absence of any such restrictions on municipal utilities and government owned utility operations. While it is argued that disallowing advertising expenses does not encroach on a company's right to communicate with the public on the grounds that such communication can be funded from profits allowed shareholders, it cannot be denied that any such restrictions severely impinge upon and tend to curtail a company's ability to communicate. While this discussion of general regulatory attitude toward advertising applies in usual situations, we are at the present time faced with the new and unfamiliar fact of impending energy shortages, which would justify a regulatory agency in discouraging promotional advertising but on the other hand encouraging educational and institutional advertising.

We have carefully considered the subject of sales expenses and related expenditures, including institutional advertising. The proposed staff guidelines appear to have been the impetus for a complete reevaluation by Edison of its advertising and sales programs. The original estimate of $6,200,000 for Sales Expense presented in Exhibit 2 was reduced to $4,793,000 in the final estimate, Exhibit 97, and the emphasis shifted. We are impressed with the thoroughness and detail with which Edison laid out its proposed program. We are also impressed by the effort that Edison seems to have made to reduce its marketing activities and to turn them from the objective of increased sales to conservation, protection of the environment, and concern for the consumer. The final overall differences between Edison and the staff are not large; we believe that Edison should be permitted to implement what appears to be a well thought-out program. We will adopt Edison's proposed 1973 Sales Expense of $4,793,000 and will not disturb our previous

adoption for Distribution Expense. In our consideration of Administrative and General Expense we will include the $2,440,000 of advertising proposed for Accounts 920, 921, and 930.

It is noted Edison's revised programs eliminate all promotional advertising and are consistent with Commission policy (mimeo pages 37 and 38 above) covering energy conservation and public information programs. In authorizing the level of Edison's programs we do so to further enhance conservation and public information efforts and adopt the general guidelines recommended by the staff.

Administrative and General Expenses

Administrative and General Expenses include both operating expenses and maintenance expenses. The operating expenses are those costs incurred in performing executive, accounting, treasury, law, and personnel functions, together with insurance, employees' pensions and benefits, franchise requirements, rents, and other miscellaneous general expenses. The maintenance expenses are those costs incurred in maintaining the general plant of the utility.

The major differences between the staff and the utility estimates for the test year 1973 are staff adjustments to exclude donations and contributions to hospitals and universities, certain subscriptions to associations and dues and donations to chambers of commerce. Excluded amounts are approximately $43,000 from Account No. 921, Office Supplies and Expenses, and approximately $398,000 from Account No. 930, Miscellaneous General Expense. The major staff proposed adjustments concerning Account No. 930 relate to Edison's institutional advertising program discussed in the previous section.

Edison's final Exhibit 97 estimate of A&G expenses amounts to $87,258,000 as compared to $84,700,000 proposed by the staff, a difference of $2,558,000 for an 0.08 percent effect on the rate of return.

Edison's final Exhibit 97 estimate, in addition to the revised treatment for institutional advertising, reflects increased expenses in connection with the write-off of the abandoned Huntington Beach steam plant project, in an amount of $777,023, and reduced rents in the amount of $621,000 resulting from Edison's acquisition of its Long Beach office building. Increases in franchise fees of $323,055 and increased taxes and maintenance on the Long Beach

building brought the total increases to $1,370,278. Of this amount the staff controverted only $498,000 in institutional advertising.

The staff exclusion of dues and donations in the total amount of $441,000 is generally in line with Commission policy since this Commission's decision in Pacific Telephone and Telegraph Co. D. 67369, C. 7409 (1964) 62 CPUC 775 at 851, as upheld by the California Supreme Court in Pacific Tel & Tel Co. v Public Utilities Commission (1964) 62 Cal 2d 634 at 668. There the Commission declared a future policy of excluding dues, donations, and contributions by a utility from operating expenses for rate-making purposes. Upon review, the California Supreme Court expressly held that the policy adopted by the Commission to exclude such contributions from operating expenses for rate fixing purposes is correct. (Pacific Tel. & Tel. Co. v Public Utilities Commission, supra, at 669.)

During the cross-examination on this issue, the examiner inquired of counsel for Edison whether the staff had any other alternative but to treat such dues and donations in any other way. It was suggested that if Edison intended to contest the staff treatmend of donations and contributions based on the foregoing policy, the ruling of the Supreme Court should be covered in Edison's brief.

We have reviewed Edison's treatment of this subject in its brief and we are not persuaded that we have any other choice but to follow the law as expressed by the Supreme Court. Edison's suggestion in its opening brief that if such expenditures are not to be included as operating expense for rate-making purposes, then the allowance of return on common equity should be correspondingly increased, is without merit. This would be an attempt to circumvent the Supreme Court's declaration of the law by doing by indirection something that we cannot do directly. The appeal of the Court's determination of the law should be made to the Legislature, not us.

In reviewing the staff testimony on dues and donations, we gain the impression that the staff tended to be too zealous in applying our previous guidelines. The $398,000 excluded from Account 930 is made up of $276,500 donations to colleges and scholarship grants and $121,500 dues in industrial organizations. The industrial dues are within our guidelines and will be allowed. We will adopt $86,939,000 as a reasonable allowance for Administrative and General Expenses for the 1973 test year.

Depreciation Expense and Accumulated Provision for Depreciation

Edison's use of the straight-line, remaining life method of depreciation, with its feature of annual review of depreciation rates, has resulted in the elimination of controversy over depreciation in this proceeding. Edison's 1973 estimates of $109,981,000 of depreciation expense and $889,490,000 accumulated provisions for depreciation reflect the most recent views and will be adopted.

Taxes

In "Taxes other than on Income" Edison and the staff are only $256,000 apart. The difference is due to an error by the staff of $112,000 in State Unemployment Insurance Tax, and a $147,000 difference in ad valorem tax (offset by $3,000 other differences). Edison revised its ad valorem tax in Exhibits 90 and 97 downward by $1,751,000 to reflect the downward pressure exerted by Senate Bill 90, the Governor's tax reform bill as enacted by the 1972 Legislature.7/

We will adopt Edison's more recent estimate of $89,366,000.

"Taxes Based on Income" were not an issue, the differences being caused by the differences in other estimates. Our estimate, based on our other adopted estimates, is $37,499,000.

7/ Chapter 1406 of the Statutes of 1972.

Rate Base

Edison's final Exhibit 90 1973 rate base estimate is $3,310,000,000, some $18,000,000 more than the staff's Exhibit 30 estimate of $3,292,000,000. The difference has an 0.04 percent effect on rate of return.

The $18,000,000 difference between Edison's and the staff's rate base estimates breaks down as follows:

	Edison	Staff	Edison Exceeds Staff
	(Dollars in Thousands)		
Utility Plant (Incl. Nuclear Fuel)	$4,201,457	$4,209,130	$(7,673)
Materials and Supplies	89,180	82,910	6,270
Working Cash Allowance	73,700	55,700	18,000
Contributions and Advances	(111,800)	(117,100)	5,300
Accumulated Provision for Depreciation	(889,490)	(884,880)	(4,610)
Deductions for Reserves	(53,440)	(54,130)	690
Total Rate Base	3,309,607	3,291,630	17,977
Rounded	3,310,000	3,292,000	18,000

(Negative Figure)

Edison's utility plant estimate in Exhibit 90 represents a substantial reduction from its Exhibit 2 and 10 estimates and is now smaller than the staff's. The largest single item of difference between the company's updated rate base estimate and the staff's estimate is in working cash. Edison's estimate was based on a computerized revenue lag study based upon the most recent several months of day-to-day collection data available. In contrast, the staff's estimate of revenue lag days was based on the accounts receivable method which used a full year's monthly averages of accounts receivables to determine revenue lag days, since daily figures could not be made available by Edison's computerized data system.

The staff witness contended that Edison's earlier estimate was based on an incorrect computer program, and Edison revised its estimate of revenue lag days, based on a new computer study, along with other updated revenue and expense data, which revisions resulted in a reduction in working cash requirement of about $2.6 million. Some $8 million of the difference in working cash is due to a difference in computation of lag in payment of income taxes.

The accounts receivable method has been used for many years and is prescribed by Commission staff's Standard Practice U-16, Determination of Working Cash Allowance. Edison was afforded an opportunity to demonstrate that the accounts receivable method was mathematically fallacious and was unable to do so. The staff's method of computing tax lag is well within the payment schedule required by the Internal Revenue Service and apparently follows the basis Edison is attempting to use. We will use the staff's method of determining working cash, revised to reflect the revenues and expenses that we have adopted.

The California Farm Bureau (Farm Bureau), in its opening brief, draws attention to the difficulties being experienced with the Four Corners and Mohave coal fired plants and suggests adjustments to rate base in an amount totaling $18,355,000. The Farm Bureau does not contend that the Edison's investment in these plants was imprudently incurred.[8/] We will not, with hindsight, disallow expenditures prudently made for the sole purpose of rendering a public utility function, merely because more difficulty is being experienced with these large super-critical coal fired steam plants than was originally anticipated.

8/ (Justice Brandeis concurring and dissenting in Southwestern Bell Telephone Company v Public Service Commission of Missouri 262 US 276, 289 67 L. ed 981, 985.)

In respects other than working cash we will adopt Edison's more recent estimate for a 1973 rate base determined as follows:

Utility Plant (Incl. Nuclear Fuel)	$4,201,457
Materials and Supplies	89,180
Working Cash Allowance	62,350
Contributions and Advances	(111,800)
Accumulated Provision for Depreciation	(889,490)
Deductions for Reserves	(53,440)
Total	$3,298,257

Summary of Earnings

The adopted elements of our 1973 estimated total system results of operations are summarized in the following table. Jurisdictional allocated results are also shown. Based on Edison's report on the status of wage negotiations, we conclude that a seven percent allowance for wage and fringe benefits is reasonable and we will make no wage adjustment in arriving at our adopted results.

	Total System Adopted	California Jurisdictional Adopted
	(Dollars in Thousands)	
Operating Revenues	$ 960,056	$ 920,575
Operating Expenses		
Production		
Fuel and Purchased Power	235,804	206,893
Other	63,927	59,233
Transmission	34,650	31,956
Distribution	58,953	58,885
Customer Accounts	24,846	24,835
Sales	4,793	4,793
Administrative and General	86,939	83,853
Subtotal:	$ 509,912	$ 470,449
Depreciation	109,981	105,703
Taxes Other than Income	89,366	85,598
Taxes Based on Income	34,850	43,824
Total Operating Expenses	$ 744,109	$ 705,574
Net Revenue	215,947	215,001
Rate Base	3,298,257	3,135,008
Rate of Return	6.55%	6.86%

Jurisdictional Allocations of Results of Operations

Because of the Colton decision, discussed above, the adopted system results must be separated into those over which we have jurisdiction and those which are the provence of the FPC. For this purpose we will use the "modified peak responsibility method" which we used in the last Edison Decision No. 78802. This method, which was used by both Edison and the staff, allocates demand related costs in accordance with 12-month coincident peak demand, which method recognizes the effect on the total capacity requirements for generation

equipment throughout the year, including scheduling of maintenance. The method, based on available data rather than theoretical considerations has the effect of proportioning diversity benefits in accordance with each group's respective contribution to the diversity. This method was adopted by us in Decision No. 78802.

None of the parties questioned this method and we shall apply it here, for California intrastate expenses of $705,574,000, net revenues of $215,001,000, rate base of $3,135,008,000, and rate of return at present rates of 6.86 percent.

Rate of Return

The adopted reasonable rate of return, multiplied by the rate base, determines the net revenue that the utility is to be allowed to earn. From this net revenue must be paid interest on funded debt, other interest, and preferred and common stock dividends. Net revenue, or return, also customarily is the source of the retained earnings reinvested in the business. A fair return should be sufficient to enable the utility to maintain its financial integrity, to attract capital, and to compensate investors for the risks assumed. (Federal Power Commission et al. v Hope National Gas Co. (1944) 320 US 591, 605, 88 L. ed 333, 346.)

Possibly because the rate of return applied to rate base determines the net revenue from which interest and dividends are paid, much of the testimony in this case was based on comparable earnings of other regulated utilities upon their total capitalizations. Frequent reference was made, in testimony and briefs, to the Bluefield case,[9/] where the U. S. Supreme Court said:

> "A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same

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9/ Bluefield Water Works and Improvement Company v West Virginia Public Service Commission (1923) 262 US 679, 692, 693; 67 L.ed at 1176.

> time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally."

One question was not satisfactorily answered during the hearings. That question was: How does a comparison of realized rates of return on total capital of regulated enterprises determine the rate of return that they should be allowed to earn on "value of property which it employs for the convenience of the public" as measured by rate base?

The various witnesses used returns on capital and other data as supplied by the financial services, principally Moody's Investors Service.

These returns on capital were presumably the result of processes that we are going through now. Expenses and rate bases were adjusted and reasonable rates of return adopted. The resulting reported earnings were on recorded capital, however, which in no way could reflect the adopted adjustments of the regulating body. If the resulting rates of return should be applied to an adjusted rate base by some other regulating body, a third dimension would be introduced into the necessary circular reasoning inherent in comparable earnings, and a downward spiral could result.

An element of imprecision in the comparable earnings test is the wide range of regulatory principles employed by the various

regulatory bodies controlling the operations of the "comparable" utilities. Some use original cost rate base, others "fair value" and still others reproduction cost new. Some flow through the results of accelerated depreciation, others normalize. Some allow capitalized interest during construction, others do not. In fact, some states do not regulate electric utilities at all. To all this must be added another consideration. The reported earnings of some of the utilities used in the comparison reflect profits, and losses, of operations far afield from electrical utility operations. Some of the utilities may require rate relief, or they may be earning in excess of what would be considered reasonable. The reported earnings could reflect the effects of hurricanes, major plant outages, and other disasters and events.

It is with this understanding of the limitations of the tools with which we are going to have to work that we embark on our consideration of rate of return.

Edison's Rate of Return Evidence

Both Edison's chief executive officer and its financial vice president testified as to rate of return but the basic showing was made by the financial vice president. He stated that the return on common equity should be 13 percent and that the cost of new debt and preferred stock issued in 1972 and 1973 should be estimated at 7-1/2 percent. In his opinion a rate of return of 8.5 percent overall would be reasonable.

In support of his recommendation for a 13 percent return on equity, he testified that for Edison's common equity securities to achieve adequate acceptance in the investment community, they must provide earnings performance that is comparable to the securities they are competing with for investor favor in the money market. The securities they most directly compete with are those of other large electric utilities that are engaged in the same general type of business. These large utilities still enjoy, in spite of a general

erosion of return on equity due to inflationary pressures including higher money costs, a return on common equity in the area of 13 percent. With the clear indication by the investment community that it looks with greater favor on securities of industrials, however, he said that it is apparent that Edison must significantly improve its position if it is to obtain the vast amounts of new funds required during the next few years. In view of such requirements, he deemed the 13 percent return on equity requested for Edison at this time to be entirely reasonable and, in fact, a minimum requirement.

He presented a comparison of Edison and 20 other electric utilities, (Table 8 of Exhibit 1) which comparison, modified shows:

Return and Capitalization Information
20 Electric Operating Utilities
1966-1971

20 Electric Utilities	6-Year Mid-Year Average			Mid-Year for 12-months Ended September 1972		
	Return on Total Capital	Return on Common Equity	Common Equity Ratio	Return on Total Capital	Return on Common Equity	Common Equity Ratio
Mean	8.11%	12.28%	38.28%	8.44%	12.54%	34.42%
Median	8.05	12.61	37.72	8.27	12.44	33.69
High	9.86	16.26	50.70	9.85	15.77	41.57
Low	6.85	9.69	32.10	7.52	9.37	28.77
Southern California Edison	7.04%	10.94%	36.31%	7.14%	9.61%	36.71%
10 Largest Electric Utilities						
Mean	8.33%	13.09%	39.99%	8.42%	12.71%	33.79%
Median	8.25	12.68	40.63	8.35	12.64	33.51
High	9.86	15.01	50.70	9.24	15.20	37.73
Low	7.30	10.87	32.10	7.54	10.36	30.03

He explained the significance of the comparison as follows:

"Table 8 demonstrates that the six-year average return on equity for the 10 largest utilities, which may be thought of as those with which Edison is in most direct competition for the investor's dollar, was 13.09 percent. For the 20 utilities, the six-year average was 12.88 percent. Over the same period, Edison's average return on equity was only 10.94 percent, lower than all but two of the companies listed. Of those two companies, one has experienced a derating of its debt securities, and we understand the other is a candidate for derating if its position is not significantly improved. Looking at mid-year 1971, it is interesting to observe that although the return on equity for the 20 utilities has declined some 70 basis points below the six-year average, their return on total capital has actually improved by 18 basis points. The same comparison shows Edison's return on equity declined 117 basis points from its six-year average equity return to 9.77 percent for mid-year 1971, which is more than 200 basis points below the return on equity adopted as reasonable by the Commission in its Decisions No. 76106 in 1969 and No. 78802 in 1971. It may also be observed that Edison's 1971 mid-year return on total capital also declined from its six-year average in contrast to the increase experienced, on average, by the 20 electric companies. The return on total capital for Edison in 1971 is, in fact, lower than that of any of the other 20 companies.

"It should also be noted that 1971 was a year in which the entire industry experienced an unusual price-squeeze brought on not only by inflation and regulatory lag but also by the wage-price freeze. For this reason, an analysis, based on an average which includes 1971 or on mid-year 1971 standing alone, must be used with caution. For example, over the six-year period on this table, the mean return on equity for the 20 companies has successively declined in each year from 1966 when it was 13.83 percent, to 1971, when it was 12.18 percent. The investor reaction to this earnings deterioration is amply demonstrated by the selling pressure on utility stocks, primarily on the part of institutions. The downside pressure has been reflected in the market price of utility securities, forcing utilities to go into the markets for equity funds at virtually no premium

over book value and in some instances at a price that is less than book value. It is the decline in return on equity which must be reversed if Edison, and the electric utility industry generally, are to be able to raise the funds required to be raised in the future. The equity investor must be offered something more in the way of increased earnings than he has experienced during the period covered by the table, during which the return on equity has been constantly declining.

"We believe such analysis clearly demonstrates that a 13 percent return on equity for Southern California Edison is a minimal requirement and is necessary to produce a satisfactory growth from year to year in earnings per share which is indispensable to the attraction of common stock capital."

He explained Edison's historical, and continuing, reliance upon external financing with which to meet its construction expenditures. During the last six years well over one-half of its total construction expenditures, 56 percent, has been raised in the securities markets. In the 1960's Edison went to the capital markets for approximately $1.3 billion. During the 1970's, Edison anticipates financing approximately $3.5 billion externally, an increase of nearly three times.

The financial vice president observed that Edison's common stock has been selling below its book value, and that this would cause dilution of equity if new shares of stock were to be sold.

He expressed concern over the coverage of interest on Edison's debt. He described how the interest coverage before taxes has declined from 5.05 times in 1960 to 2.98 times in 1971. During the first six years, some of the decline could be attributed to an increase in the debt ratio, but since 1967, when the debt capitalization ratio peaked at 55 percent, the decline in coverage has continued to occur in spite of the fact that the debt ratio was reduced to 52.3 percent at the end of 1971. The erosion in the coverage ratio has continued into 1972, notwithstanding the rate increase which became effective July 15, 1971, and at May 31, on a 12-month ended basis, was 2.94 times.

He expressed his concern that, at a 2.98 times interest coverage, Edison's Aa bond rating by Moody's is a matter of grave concern, and that in the past 4-1/2 years Moody's has derated 23 electric utilities and Standard and Poor's 40. Since 1968, 10 of the 20 electrics that he used for his comparisons have been derated.

He presented a chart which showed Edison's interest coverage ratios as calculated for the trustee under the formula specified by Edison's bond indenture declining from 4.5 in 1966 to less than 3.5 in 1972. The chart is both startling and disturbing because it illustrates an inexorable decline towards the minimum allowed coverage of 2.5. The witness concluded,

> "Inevitably, should the decline evident throughout the period shown, be permitted to persist, Edison's ability to issue any mortgage bonds at all (much less in the magnitude that we shall be requiring) would be impaired."

The examiner questioned the witness about what steps were being taken to mitigate the effects of this apparent impending financial disaster:

> "Q. I see.
>
> This does appear to be a problem that there doesn't appear to be any immediate solution to?
>
> "A. The only solution that I see is to issue equity and then I think, I mean, common stock, because of the thin coverage we have as noted on the following table for preferred, in greater quantities than we might otherwise.
>
> As a matter of fact we have been doing that, Mr. Commissioner."

The brief of the Secretary of Defense proposes that "normalization" of tax savings attributable to accelerated depreciation might "be an acceptable and viable alternative", to increased equity financing, but presents no quantitative demonstration

Staff's Rate of Return Evidence

The staff presented one witness, a Financial Examiner IV, to testify on the subject of fair rate of return. He recommended that a fair rate of return would be 8.0 percent, to be applied to jurisdictional rate base. An 8 percent return on total capital would yield approximately 11.75 percent on common equity. Coverages for interest and for total senior security requirements (including dividends on preferred and preference stock) would be about 2.85 times and 2.17 times, respectively, based on his projected capital structure as of December 31, 1973.

The staff financial examiner testified that he had endeavored to recommend a rate of return which would be fair from the viewpoint of consumers as well as from the viewpoint of present and prospective investors in Edison's securities. He also considered seriously the Commission's admonition in Decision No. 78802, that "we must do our best not to add to inflation and, to some extent, attempt to curb it." He said that his recommendation acknowledged the financial risks associated with issuing more senior securities in 1973 at higher costs as well as the favorable aspects of the company's fuel cost adjustment clause authorized by the Commission in Decision No. 79838 dated March 21, 1972.

He believed that the company's financial plans for 1973 should be sufficiently flexible to allow for improving its equity earnings, if so desired, by resorting to lower cost financing in the form of short-term paper, intermediate term bonds, or convertible securities. He was aware that over a period of years, holders of Edison's common stock have realized consistent growth not only in the book value of their stock but also in dividend income. Furthermore, he said, the company has been able to compete aggressively and successfully for funds in the financial markets during periods when its earnings rate on common equity was considerably less than 11.75 percent.

The staff financial expert testified that he realized that the earnings rate on common equity and the proportion of common equity in the capital structure effects the coverage for payment of interest and dividend charges for senior securities. The Commission cannot, however, ignore the impact on ratepayers of increasing the allowance for common equity in order to maintain the coverage level desired by Edison. Despite the significant erosion in interest coverage experienced by all utilities, he felt that the financial community has recognized the fact that in periods of high interest rates, coverage is generally reduced. In itself, he said, reduced coverage is not indicative of financial weakness; the trend is simply downward and the market has accepted that trend.

His exhibit shows comparative earnings and other related data for Edison, ten electric utilities, and ten combination gas and electric utilities. The comparisons were used as one guide in developing his rate of return recommendation, which, he testified, is necessarily based on judgment after considering other factors. The comparable utilities were chosen primarily on the basis of their size and status as public utilities providing essential electric services. He felt that each company experiences business and financial risks which are similar to those of Edison.

The element of circularity was eliminated, in his opinion, because the earnings comparisons were considered only as one of many factors observed in developing his recommended rate of return, which was finally determined on the basis of judgment. In reviewing the earnings data for the twenty utilities in his exhibit, he was aware that some may have experienced substandard or excessive earnings at any given time. Moreover, he recognized that differences exist among them in regard to such things as power sources, customer mix, service area, type of service provided, growth prospects, and regulatory environment and economic conditions prevailing in their territories. Earnings comparisons which also include other more

risky utility groups and cyclical industrials would, he believed, increase the degree of circularity and would probably result in requests for even higher returns by those relying solely on the comparable earnings approach.

While he was being cross-examined, the witness cited the additional factors which he considered in arriving at a judgment regarding a proper return. Among other things, he evaluated the growth in book value of Edison's common, its earnings, and dividends. He reviewed changes in its capital structure and he also compared Edison's growth trends with his 20 comparable public utilities. Returns granted to other large California utilities were also taken into consideration by the witness, who pointed out that the 8.00 percent rates of return generally allowed in 1972 provided earnings rates of approximately 11.65 percent to 11.88 percent on common equity. In his opinion the recommended 11.75 percent on equity was a good return on investment and the stockholder would fare very well with that level of return.

The staff expert's comparable earnings on equity from Table 11 of this Exhibit 32, is as follows:

SOUTHERN CALIFORNIA EDISON COMPANY

Earnings Rate on Average Common Equity
Trend and 5-year Averages
1967-1971

Year	Southern California Edison Co.	10 Electric Utilities	Pacific Gas & Electric Co.	10 Combination Gas & Electric Utilities
1967	11.82%	13.90%	12.39%	12.58%
1968	10.75	13.19	12.03	12.06
1969	10.34	13.28	11.59	11.78
1970	11.19	12.31	10.62	11.28
1971	9.74	12.25	11.40	11.87
5-Year Average	10.77	12.99	11.61	11.91

In computing his embedded cost of debt, the staff witness assumed a 7-1/4 percent cost for a $100 million bond issue in 1973 and also 7.25 percent for a new $75 million issue of cumulative preferred stock. He based these costs on recent trends of cost of senior capital as shown by tables in his rate of return exhibit.

Using the 7-1/4 percent costs for the new securities issues contemplated for 1973, he estimated the embedded cost of debt at the end of 1973 as 5.65 percent, compared to 5.31 percent on December 31, 1971 and the year end cost of cumulative preferred as 6.65 percent, as compared to 6.25 percent as of December 31, 1971. The rate for the convertible stock remained at 5.33 percent. Consistent with the treatment accorded to the original participating preferred in Decision No.78802, that issue was considered as part of common stock equity.

Upon cross-examination, the witness conceded that recent issues of utility company bonds were in the area of 7-1/2 percent as compared to the 7-1/4 percent rate which he estimated for Edison's projected 1973 senior security issues. It was his opinion, however, that the 1/4 percent difference would not have an appreciable effect upon the 5.65 percent overall cost factor for debt and the 6.65 percent cost factor he used for preferred stock.

Secretary of Defense's Rate of Return Evidence

The Secretary of Defense recommended a rate of return of 7.60 percent through its witness, the partner-in-charge of the Dallas office of Touche, Ross and Company, certified public accountants.

The government witness had a somewhat different concept of fair rate of return than that of the other two rate of return witnesses. In his direct testimony he said:

> "By 'fair rate of return' I mean that percentage figure which, when multiplied by the net original cost rate base, will result in enough current dollars to cover the fixed charges of debt and preferred stock and will provide fair and reasonable compensation to the common equity holders of the regulated enterprise."

This witness relied, in part, on the comparable earnings approach. He also used the discounted cash flow (DCF) method. He testified that the:

> "DCF is fundamentally a market value approach. The primary premise of this approach is that the market price of stock equals the cash flow of expected future incomes, both dividends and sales price, discounted to their present value. That is, when the present value of the future flow of incomesis equal to the market price, the discount rate is equal to the cost of capital. This approach is commonly represented by the formula
>
> $k = \frac{D}{P} + g$, where,
>
> k = the cost of equity capital
> D = the company's dividend
> P = the market price of the company's stock
> g = the expected future growth rate (dividends and sales price)."

He placed more reliance on the comparable earnings method. He felt that the DCF method required an estimate of growth which must be somewhat more subjective.

The government witness also presented a computer-calculated study which developed risk factors as a basis for comparing the risk of the different companies and groups used in his analysis.

For his comparable earnings and risk analysis he selected five composites:

1. Moody's 125 Industrials.
2. Standard and Poor's Gas Utilities.
3. Pacific Gas and Electric and San Diego Gas and Electric.
4. The American Telephone and Telegraph System.
5. Moody's 24 Electric Utilities.

His comparable earnings figures were shown in Table 18 of his Exhibit 49 as follows:

RETURN ON AVERAGE COMMON EQUITY

Year	Moody's 125 Industrials	Standard and Poor's Gas	Pacific G & E and San Diego G & E	American Tel. & Tel.	Moody's 24 Electrics
1962	12.10%	N/A	10.48%	9.46%	11.04%
1963	12.77	N/A	10.02	9.48	11.07
1964	13.74	N/A	10.51	9.68	11.32
1965	14.77	N/A	10.84	9.53	11.76
1966	14.13	N/A	11.06	9.85	12.22
1967	12.37	12.20%	11.68	9.62	12.25
1968	13.25	11.50	11.46	9.22	11.70
1969	12.45	11.80	11.59	9.52	11.47
1970	10.45	11.76	10.68	9.16	10.85
1971	11.52	12.22	10.71	8.88	10.77
3-year average (1969-71)	11.47	11.93	10.99	9.19	11.03
5-year average (1967-71)	12.01	11.90	11.22	9.28	11.41
10-year average (1962-71)	12.76	N/A	10.90	9.44	11.45

Under cross-examination it was determined that contributions in aid of construction had been combined with equity for the utilities represented in the table and the returns were consequently depressed by an amount that the witness could not quantify.

The Defense Department witness computed a 5.66 percent cost of debt, using 7-1/2 percent for the planned 1973 debt issue. For cumulative preferred, his embedded cost worked out to 6.72 percent. On the basis of his risk analysis, and his analysis of growth rates and other measures, he concluded that Edison is about as risky as the other California electrics and less risky than the electric composite. He said that this means that Edison's cost of

equity should be about the same as the California electrics and slightly less than the electric composite.

He said that a cost of equity of 11.00 percent appears proper for Edison, and that this return would give the common equity holder of Edison earnings commensurate with those of other companies with similar business and financial risk.

In applying the discounted cash flow method he studied compound growth rates of dividends and earnings of Edison's common stock and concluded that the expected growth rate would be between 4.00 and 4.50 percent. To this he added 0.75 percent for "market pressure" and selected for use in his formula the top range estimate of 5.25 percent. He calculated Edison's yield on common (D/P) by dividing the 1972 dividend of $1.56 by an average 1972 common price of $27.44, to get a rate of 5.69 percent. The 5.25 and 5.69 percent, added together, gave 10.94 percent. Since, however, an 11.00 percent was indicated by his comparable earnings approach, he recommended the use of 11.00 percent by the Commission.

Using his recommended capital structure and capital component costs he determined an overall cost of capital to be 7.60 percent. He testified that "In my opinion this amount is Edison's rate of return and will be fair to both the Company and the Company's rate payers."

Capital Structure and Total Returns on Capital

The three rate of return witnesses used slightly different capital structures. Their capital ratios, cost factors, and weighted costs of capital, are summarized as follows:

	Capital Ratios	Cost Factors	Weighted Cost
Edison			
Long-Term Debt	51.0%	5.66%	2.89%
Preferred Stock	10.0	6.80	.68
Convertible Preference Stock	2.0	5.33	.11
Common Equity	37.0	13.00	4.81
Total	100.0%		8.49%
Staff			
Long-Term Debt	49.75%	5.65%	2.81%
Cumulative Preferred Stock	11.43	6.65	.76
Convertible Preference Stock	2.05	5.33	.11
Common Equity	36.77	11.75	4.32
Total	100.00%		8.00%
Secretary of Defense			
Long-Term Debt	51.80%	5.66%	2.93%
Preferred Equity	14.04	6.51	.91
Common Equity	34.16	11.00	3.76
Total	100.00%		7.60%

Both the staff and Defense Department considered the original participating preferred as equity, since this issue participates fully with the common in voting rights, dividends, and claim on retained earnings. This treatment is consistent with an adopted position in Decision No. 78802.

The other differences between Edison and the staff are a result of forecasts of immediate future financing. The government witness' equity ratio was somewhat lower than the others' because it did not reflect a $90 million common stock issue planned for 1973 and $60 million in retained earnings. These considerations would have raised his common equity ratio to 38 percent.

The staff's judgment of capital structure seems to us to be, on balance, the most reasoned and will be adopted.

Other Factors

On March 31, 1973, Edison reported that the book value of its common stock was $27.42 a share. We take official notice of the closing price of Edison's common on April 26, 1973, the date of submission, was 24-1/8. (If we may be permitted to lay down the record for a moment and pick up the current issue of the Wall Street Journal, we note that those who sold at 24-1/8 were more prescient than those who bought.)

It was also brought out that Edison's common has lost a significant tax advantage. The Tax Reform Act of 1969, H.R. 13270, added Section 312(m) to the Internal Revenue Code which eliminated, for taxable years beginning after June 30, 1972, "tax free" or "return of capital" dividends resulting from the use of accelerated depreciation for tax purposes and straight-line for books. In 1972 49 percent of Edison's common stock dividends were "tax free". It follows that in 1973 the net income of Edison's stockholders will, after taxes, be reduced and the stock, as a source of spendable income, will be correspondingly less attractive.

Cost of Debt and Preferred

There is very little difference between the three showings on cost of debt and preferred. Consistent with our treatment of the original preferred stock in Decision No. 78802 we will adopt the staff's cost of debt and preferred, modified for 7.5 percent costs of new issues in 1973, for an embedded cost of debt of 5.66 percent, preferred of 6.68 percent, and convertible preferred of 5.33 percent.

Cost of Common Equity

We have presented to us a spread of recommended returns on equity ranging from 11.0 percent to 13.0 percent. It is within this relatively narrow spread that we will apply our judgment and expertise, keeping in mind the admonition of the government's witness that "any cost of capital recommendation should never be applied blindly without taking into account the rate base to which it is applied."

In determining our cost of common equity, which in this case is the only portion of the cost of capital in which a substantial element of judgment comes into play, we also recognize our somewhat awesome responsibility in light of the postulate enunciated by Averch and Johnson.

> "...if the rate of return allowed by the regulatory agency is greater than the cost of capital but is less than the rate of return that would be enjoyed by the firm were it free to maximize profit without regulatory constraint, then the firm will substitute capital for the other factor of production and operate at an output where cost is not minimized."10/

10/ Harvey Averch and Leland L. Johnson, Behavior of the Firm Under Regulatory Constraint, American Economic Review, December 1962.

The discounted cash flow method appears, at first glance, to present a rational alternative to the comparable cost of capital approach. It would eliminate the circularity which is an obvious defect of the latter method. We are troubled by the necessity of introducing an additive for market pressure. It would seem that this additive would need much more theoretical and practical exposition than it has received in this case. We can see that DCF has value in establishing the lower limit of our consideration, but the subjective elements of both the growth rate and "market pressure" are not sufficiently definitive for the DCF method to be a primary element of our determination.

Turning to comparable earnings, we have no way of determining the effect of the inclusion of contributions in aid of construction in the government's equity figures. From the staff's comparative balance sheet, Table 4-A of Exhibit 30, we note that Edison's contributions in aid of construction, as of October 31, 1972, amounted to 7.6 percent of the total common equity and contributions combined. If we apply this ratio to the government's recommended rate of 11.00 percent, it becomes 11.84 percent, somewhat higher than the staff's 11.75 percent.

The Secretary of Defense's witness' exhibit is of value in that it did give consideration to earnings on industrials. In Decision No. 78802 we said, "It is an axiom of public utility regulation that electric companies are less risky than industrial companies." The seventies, however, appear to be destined to be a decade in which familiar maxims no longer apply and non-Euclidean axioms are coming to the fore. Electric utilities are required, by the circumstances that they find themselves to be in, to raise large

amounts of capital in the face of a chronic fuel shortage, mandatory massive expenditures for new and sometimes untried equipment required to meet constantly more severe environmental requirements, difficulties and delay in siting power generation and transmission plant, and increasing demands for aesthetic considerations.

The operation of these factors can be seen in the staff's determination of results of operations for 1972. Where we adopted 7.9 percent rate of return for 1972 Decision No. 78802, the staff's determination in this case of 1972 total system rate of return was only 6.60 percent.

Capital must be raised in the face of a turbulence in the monetary and financial markets not encountered for several generations. Utilities must, by their utility obligation, expand to meet demand, and find the funds to do so. Industrial enterprises do not face this requirement. The industrial penalty for failure to expand to meet demand is loss of new markets and potential profits, not a revocation of an exclusive privilege to serve.

The information supplied by the government is helpful, particularly in light of our comments in Decision No. 78802, but will be considered in light of the above remarks.

In evaluating Edison's showing, we recognize the contention that coverage of interest according to the trust indenture should be a consideration. We reject, however, any argument that such coverage should be a sole controlling factor. To set a return on equity on that basis alone would present common stockholders with an undeserved windfall and could bring the Averch and Johnson hypothesis into play as a practical consideration.

The problem of interest coverage under the indenture appears serious, and even alarming, and should receive the attention of Edison's financial and legal staffs while there is still time to formulate "viable alternatives".

Edison's debt ratio is comparatively high, and yet the utility has been able to maintain an Aa rating from Moody's. With this rating it has a market for placing its bonds with institutional investors who, by reason of law or investment policy, are restricted to Aa ratings or better. The high debt ratio has corresponding income tax benefits as debt interest is a deduction. Edison's efforts to keep its debt ratio as high as prudently possible should be recognized in rate of return.

We take note of the comprehensiveness of the staff showing in this case, and the factors considered by the expert staff witness in his judgment recommendation. We also recognize the fact that Edison's stock, as of date of submission, was selling for 88 percent of book value. That is, the stock was selling for only 88 percent of the amount of funds invested in the stock. This might indeed be indicative of the financial integrity of the enterprise's not being maintained, and that the earnings and yield on book value are not sufficient, in the abstract and collective mind of the market, to compensate the investor for the risk being assumed.

We also note that the effective after tax return to the investor of Edison's common stock dividends has been substantially reduced by the operation of the Tax Reform Act of 1969.

Based on the foregoing considerations, we find that a minimum reasonable return on equity would be 12.25 percent. When applied to Edison's capital structure and embedded cost of debt, as found reasonable above, this results in a return on capital of 8.2 percent, determined as follows:

	Capital Ratios	Cost Factors	Weighted Cost
Long-Term Debt	49.75%	5.66%	2.82
Cumulative Preferred Stock	11.43	6.68	.76
Convertible Preference Stock	2.05	5.33	.11
Common Equity	36.77	12.25	4.50
Total	100.00		8.19

Recognizing that an equal return on total capital, because of nonjurisdictional and nonutility operations, as well as adopted adjustments and our cost method of determining working cash, may not be realized, we find that 8.2 percent is a reasonable rate of return to be applied to the California jurisdictional rate base. This return is the minimum needed to attract capital at reasonable cost and not impair the credit of the utility. An 8.2 percent rate of return on that portion of capital ascribed to the California jurisdictional rate base would provide an approximate interest coverage, before taxes on income, of 3.94 times, and 2.91 times after taxes.

Revenue Required

For Edison to achieve a rate of return of 8.2 percent in its 1973 California jurisdictional rate base, net revenues of $42,070,000 are required, calling for an increase in gross revenues of $89,138,000. As this increase in gross revenues is determined without consideration of revenues or expenses related to the fuel cost adjustment billing factor, in order to design rates to return the fuel cost adjustment billing factor to zero, rates designed to produce $89,138,000 additional gross revenue must have the latest fuel cost adjustment billing factor added. The latest factor is in the amount of 0.308¢ per kwhr made effective August 13, 1973 by Commission Resolution No. E-1366 dated July 31, 1973. Accordingly, we find that Edison is entitled to increase its rates by $89,138,000 and we will authorize rates designed to produce this amount plus 0.308¢ per kwhr to bring the existing fuel cost adjustment to zero.

RATES

Rate Spread Considerations

After the cost of service has been ascertained we must embark on the troublesome task of attempting to apportion the revenue requirement among the various classes of service and of designing rates to recover the revenue requirement so apportioned to each class.

In contrast to the cost of service, which may be determined with a reasonable degree of rationality and precision, "rate spread" depends essentially on opinion and judgment, since utility costs are an outstanding example of joint costs.

Over the years a generally accepted set of attributes of a good rate structure has evolved. These attributes are:

Production of the revenue requirement.
Simplicity and ease of understanding.
Stability of revenue.
Fair apportionment of the cost of service.
Discouragement of wasteful use.

Various factors are considered in attempting to design rates possessing these attributes. These factors, which are so often recited by rate experts that they have become, according to one of the parties, an "incantation," are:

Cost of service.
Value of service (including "what the traffic will bear").
Adequacy of service.
History.
Public benefit.

Since cost is the basis of setting the overall level of rates, it is generally accepted that cost of service is the most desirable criteria for spreading rates, even though such "cost allocation" is largely a matter of judgment. If the value of service for a class is exceeded, however, revenues will decline and a portion of the overall cost will be shifted to another class. Rate history must be considered so that abrupt changes in rates to reflect contemporary conditions or theories do not cause hardship or public resistance.

Because of the monopoly position of utilities, public interest must be considered. In this present case we must determine to what extent the public interest requires special consideration of rates for the agricultural and pumping and the street lighting schedules.

Besides the traditional body of rate lore we must keep in mind the statutory guidelines as set out in the Public Utilities Code. The rates that we fix must be just, reasonable, and sufficient.[11/]

A novel element of rate spread, the consideration of the ecological and environmental factors, was introduced by both Edison and the staff, and brought to a head by the motion of the Sierra Club for an environmental impact study of Edison's proposed rates.

Cost Allocation

As mentioned above, there was no difference between Edison and staff as to choice and application of the method used to allocate costs between jurisdictions, the modified peak responsibility method.

For the allocation of costs between classes of customers, Edison and the staff used the load factor/diversity factor method that we adopted in Decision No. 78802. This method is used because data for peak coincident demands are not available by classes of service.

The load factor/diversity factor method of cost allocation between customers was not specifically challenged on an overall basis by any of the parties, although CMA and Farm Bureau were not pleased with some of the results. Yet a comparison of load factor/diversity factor method with the modified peak responsibility method would show the load factor/diversity factor method more favorable to the high load factor industrial customers as testified to by an Edison witness "the demand allocation factor for the Very Large Power Customer Group, based on CPUC jurisdiction, is 15.12 percent on the twelve-month weighted average peak responsibility basis; 13.96 percent on the load factor/diversity factor basis." The Friant Water Users Association

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11/ Sections 451 and 728

argued that the method did not give consideration to the concept that agricultural and pumping kilowatt hour sales have increased at a much slower rate than the overall system sales and are correspondingly less responsible for the recent installation of higher cost plant.

We recognize that all allocations of joint costs rely to some degree upon opinion. In the absence of some other rational method's being presented for our consideration, the load factor/diversity method remains "the only game in town". We have used this method in the last two Edison rate cases and see no reason to abandon our reliance upon it as a reasonable indication of the cost to serve the various customer groups.

It should be noted that all of the customer groups as used by Edison and the staff are not strictly comparable to the classes of service under which Edison reports its revenues under the FPC's Uniform System of Accounts. The customer groups are directly related to the various rate schedules, whereas it is necessary to allocate revenues from some schedules in order to arrive at revenues for classes of service. Sales to public authorities are an example of this. In future rate cases it would be helpful if the presentations were consistent, and customer groups seem to us to be preferable for this purpose.

Edison and Staff Proposals

Edison's proposed rate schedules are attached to the application. The staff has prepared base rates that would yield approximately 100 percent and 50 percent of Edison's $97,330,000 requested increase in revenues. The staff's proposal is not intended to be recommendations of either of these levels but is provided to indicate a framework for the application of the staff's recommendations of blocking, rate form, and allocation of any authorized rate increase to customer groups. The staff recommends that any rate increase be apportioned linearly in accordance with its recommendations. Edison's rate spread proposal, and the staff's proposal at 100 percent and 50 percent of Edison's proposed rates, excluding consideration of the fuel adjustment factor, are as follows:

RECOMMENDED INCREASES
TO CUSTOMER GROUPS
(Not Including Fuel Adjustment Factor)

Customer Group	Edison Proposal $M	Edison Proposal % of Total	Staff @ 100% Proposed $M	Staff @ 100% Proposed % of Total	Staff @ 50% Proposed $M	Staff @ 50% Proposed % of Total
Domestic	$33,261	34.18%	$31,946	32.82%	$12,769	26.34%
Lighting & Small Power	22,084	22.69	19,083	20.35	8,125	16.76
Large Power	23,290	23.93	24,013	24.67	14,271	29.45
Very Large Power	10,213	10.49	13,066	13.45	8,524	17.59
Off Peak	801	0.82	801	0.82	499	1.03
Agricultural & Pumping	4,789	4.92	4,789	4.92	2,837	5.85
Street Lighting	2,886	2.97	2,886	2.97	1,444	2.98
Total	$97,324	100.00%	$97,324	100.00%	$48,469	100.00%

The relative impact of the proposed $97,324,000 increase, at Edison's proposed rates and the staff's 100 percent recommended level, and comparison of the proposed individual class increases to the total, are summarized in the following tabulation:

IMPACT OF EDISON'S PROPOSED
INCREASE ON CUSTOMER GROUPS
(Not Including Fuel Adjustment Factor)

Customer Group	Recommended Percent Increase Edison	Recommended Percent Increase Staff	Relative Amount Of Increase Edison	Relative Amount Of Increase Staff
Domestic	9.1%	8.7%	85.0%	81.3%
Lighting & Small Power	9.7	8.7	90.7	81.3
Large Power	14.1	14.5	131.8	135.5
Very Large Power	11.3	14.5	105.6	135.5
Off Peak	14.9	14.9	139.3	139.3
Agricultural & Pumping	15.1	15.1	141.1	141.1
Street Lighting	12.7	12.7	118.7	118.7
Total	10.7	10.7	100.0	100.0

The staff in its proposal stated that its recommended apportionment of any increase is based principally upon consideration of trends established by the last two Edison rate proceedings, namely Decision No. 76106, dated August 26, 1969 in Application No. 53063, and the recent Decision No. 78802 to which we have made frequent reference. In these decisions we adopted rates that tended to bring the rates of return of all the customer groups closer to the California jurisdictional average. The following tables for the 100 percent level, taken from the staff's Exhibit 46, illustrate this trend:

RATES OF RETURN BY CUSTOMER GROUPS

	Before D-78802	Adopted in D-78802	% Rate of Return Edison Present	Edison Proposed	Staff Recommended
D	5.77%	7.4%	6.7%	7.9%	7.9%
LSP	10.09	11.8	10.3	11.9	11.7
LP	5.46	6.6	5.7	7.3	7.4
VLP	5.44	6.6	5.7	7.3	7.8
OP	3.43	3.6	3.4	5.6	5.6
Ag	4.53	5.7	4.5	6.2	6.2
SL	5.08	6.3	5.5	7.1	7.1
T	6.47	7.9	7.0	8.5	8.5

COMPARISON OF EACH GROUP
RATE OF RETURN WITH OVERALL RATE OF RETURN

	Before D-78802	Adopted in D-78802	% Rate of Return Edison Present	Edison Proposed	Staff Recommended
D	89.2%	93.7%	95.7%	92.9%	92.9%
LSP	156.0	149.4	147.1	140.0	137.6
LP	84.4	83.5	81.4	85.9	87.1
VLP	84.1	83.5	81.4	85.9	91.8
OP	53.0	45.6	48.6	65.9	65.9
Ag	70.0	72.2	64.3	72.9	72.9
SL	73.5	79.7	78.6	83.5	83.5
T	100.0	100.0	100.0	100.0	100.0

Edison's rate expert testified that, in designing rates, the increased costs attributable to the decrease in availability of natural gas and increased dependency on high cost low sulphur fuel oil have been reflected in increases in energy charges. Edison also feels that, in addition, air pollution control regulations have a limiting effect on the ability of large industrial customers to install electrical generating facilities. Such limitations tended to reduce the consideration formerly placed by Edison on competitive factors in rate making and the result of consideration of these factors leads the utility to propose higher rates for the larger industrial customers than would have been proposed but for environmental factors. The primary differences between Edison's proposal and that of the staff is that the staff would allocate a somewhat larger share of the total increase in jurisdictional revenues to the Large and Very Large Power customer groups and a somewhat lesser share to the Domestic group and the Lighting and Small Power groups. The staff also recommends as an incentive for conservation of energy increases to the Domestic group be allocated to rate blocks in a manner that would, generally, tend to flatten the rate curve more than under Edison's proposal.

Fuel Cost Adjustment Billing Factor

Edison had no recommendation in the proceeding for updating the fuel cost adjustment billing factor but supported the concept in its brief.

The staff recommends that the fuel cost adjustment applicable to California jurisdictional customers in effect at the time a decision in this proceeding becomes effective should be included in the total revenue to be recovered by the rates adopted, and at the same time the fuel cost adjustment billing factor should be reduced to zero. The apportionment of the fuel cost adjustment so included should be spread over the energy charges within the rate schedules. Any contracts affected by the fuel adjustment clause should also be appropriately modified. Further, the staff recommends that future fuel cost adjustment billing factors should be calculated using the latest fuel costs as base zero.

Positions of Other Parties

In their briefs the CMA, Executive Agencies of the United States opposed Edison's and the staff's proposals to increase Large Power (Edison Schedule A-7) and Very Large Power (almost entirely Schedule A-8) by more than the average increase for all the California jurisdictional customers.

The arguments of CMA and the Government center upon the element of competition in rate-making considerations and challenge Edison's and staff's conclusions that the competitive threat of loss of A-7 and A-8 customers to other forms of power generation or by their moving to an area served by another utility had diminished. Their opposition also focused on a claimed inexactitude of cost allocations to the high load factor customers as the basis for apportionment of revenue increases. They also argue that a portion of the fuel cost should be assigned to the demand component since some fuel is consumed to provide spinning reserve. The CMA and Government proposed that, because of the Edison and staff treatment, an increase in base rates of the Large Power and Very Large Power groups (Schedules A-7 and A-8) of less than the system average would be justified.

A witness for CMA testified that when an industry located in Edison's service area, it was with the understanding "that there would be a balanced increase in rates to all parties and that the ratio of increased payment to the system would remain unchanged. Consideration of rate history is a matter of maintaining good faith between the utility and the customer".

The Metropolitan Water District of Southern California (MWD) supported the staff's proposal with regard to the A-8 rate schedule but does not support the quantitative amounts included in either Edison's or the staff's proposal. MWD feels that both proposals are excessive and that the staff's proposal to flatten the rate curve would provide an incentive for MWD to increase its water deliveries from the state water project and reduce its deliveries from the Colorado River, since the rate in the District's contract with Edison for off-peak pumping on the Colorado River Aqueduct is derived from Edison's A-8 schedule.

The Farm Bureau and the Friant Water Users Association (Friant) presented testimony that the proposed rates for the Agricultural and Pumping groups were too high. Several farmers also testified in their own behalf.

The agricultural interests argue that they are being asked to pay a disproportionate share of increased system costs although their loads and energy consumption have not increased as much as have those of Edison's overall system. Friant also argues that it is the increased use of air conditioning, not agricultural and pumping loads, that have caused peak demands to occur in summer months, thereby necessitating construction of additional system facilities during times of extremely high construction and financing costs.

A farmer appearing in his own behalf described how declining profitability and increased pumping costs were forcing farmers from the land. This farmer also complained that Special Condition 3 in Edison's Schedule PA-1 regarding demand charges operated as a one-way street, in that he was billed on the name plate rating or on horsepower drawn under test, whichever was the higher.

The city of Orange was the only municipality to present testimony in the proceeding. Orange's witnesses described the impact of Edison's proposals on its municipal operations, particularly pumping and street lighting costs. Orange also presented an exhibit illustrating the dilemma of a city caught between a history of a declining tax rate and the limitations of Senate Bill 90 which would make the passing on of an increased cost such as street lighting very difficult. Edison and the staff, in defense of the more than average increase in street lighting rate, testified that the increasing concern for public safety justified the increase on a value of service basis.

Adopted Rates

We have considered the testimony of the witnesses, both expert and public, and the arguments of the parties.

While recognizing that a method of cost allocation acceptable to all customer groups will probably never be developed so long as reasonable men differ, we adopt the rates of return determined by the load factor/diversity factor method as reasonably indicative of the returns from the various customer groups.

We recognize the desirability of each group's bearing its fair share of the cost of service, as such share is measured by the cost of service study. We also recognize, however, that because of historical factors, and past concepts of public benefit, it is not practical to bring all rates in line with our concepts of cost.

We recognize the importance of agriculture in our changing economy and also the difficulties Senate Bill 90 presents to local governments' raising of revenues. We realize that in the past public benefit concepts have kept rates of return from agricultural and pumping and street lighting substantially below the system average.

We have considered value of service and the potential loss of industrial load through competition with other sources of energy. When the chairman of the board of Edison testifies that he is of the opinion that the utility may face the possibility in 1975 of "rolling blackouts" because of demands exceeding generating capacity, the loss of some load does not seem to be a frightful prospect. In any event, loss of load through competition does not seem to deserve serious consideration under present conditions.

We likewise reject value of service as a consideration when it involves the present substantial concern for public safety as justification for a larger than average increase in street lighting, which increase may well be justified by other considerations.

We have considered adequacy of service, which is another form of value of service. Some public witnesses brought problems to our attention; most of the problems involved customers at the ends of long circuits and problems with local district operations. Edison seems to be making a reasonable effort to alleviate these problems. The overall level of service appears to be good and we see no reason why adequacy of service should be an influencing factor in this case.

There is very little difference between Edison's and the staff's rate designs. Their rate proposals fit remarkably well with our idea of a desirable rate spread. They coincide with our concept of a fair apportionment of the cost of service and its flatter rate design will hopefully discourage wasteful use. We recognize that these beneficial effects may be at the expense of a rate structure more dependent on Large Power and Very Large Power groups and also on relatively larger energy charges. Revenues from these sources will tend to be more sensitive to the business cycle and, as a consequence, there may be some loss in stability of revenue.

Lighting and Small Power have historically produced a relatively higher rate of return than any other customer group, and the only category with a return higher than the system average. Perhaps this results from these customers', mostly small business, not being represented as a group before the Commission in past cases, and their being assigned, according to the art of plucking the goose with the fewest squawks, a disproportionate share on a "value of service" basis. Both Edison and the staff proposals would reduce this disparity, but the staff's would do a better job.

We realize that the advent of Senate Bill 90 makes the staff's (and Edison's) proposal for a 12.7 percent increase for street lighting difficult to accept, particularly when taken together with the increased concern for public safety. The proposed increase would, at the 100 percent level increase, bring the rate of return up to only 81.2 percent of the system average. The revenues of local governments were not frozen by Senate Bill 90, only the ad valorem tax rates. As assessed value continues its historical rise, so will tax collections. Other costs to local governments will change, and it does not appear equitable to shift the costs of street lighting to some other group. We feel that in fairness we must accept the increase proposed by the staff.

We will adopt the staff's proposal in its entirety, modified on a linear basis to produce the $89,138,000 increase we are authorizing by this decision. The apportionment of the increase to customer groups, the resulting percent increases, and rates of return are shown in the following table:

Customer Group	Revenue Increase Over Present Rates	Percent Increase Over Present Rates	Rate of Return
Domestic	$28,715,000	7.8%	7.7%
Lighting & Small Power	17,878,000	7.8	11.5
Large Power	22,358,000	13.5	7.1
Very Large Power	12,329,000	13.7	7.4
Off Peak	749,000	14.0	4.9
Agricultural & Pumping	4,469,000	14.1	6.0
Street Lighting	2,640,000	11.7	6.9
Total	$89,138,000	9.8%	8.2%

The staff recommendation that the fuel cost adjustment billing factor be reduced to zero by apportioning the fuel cost adjustment factor over the energy charges in the rate schedules is a common sense proposal and will be adopted. Any contract affected by the fuel adjustment clause should be appropriately modified and future fuel cost adjustment billing factors should be calculated using fuel costs as of August 13, 1973 as base zero.

Special Condition 3 of Schedule PA-1, Power - Agricultural and Pumping, Connected Load Basis, does appear, at first glance, to us to be a "one way street". Edison argues that the purpose of the special condition is to discourage the fixing of name plate ratings on motors. A customer can overload his motor up to 115 percent of the name plate rating without the special condition applying, and loading much in excess of 115 percent of name plate rating could be expected to endanger the motor.

We note that every motor connected to the system is part of the total connected load of the system and Edison is required, on demand, to supply the energy required to meet the load. It is only fair that the customer pay the costs of this demand. The remedy for underutilized motors is to replace them with motors of smaller capacity.

Interruptible and Curtailable Service

Air Products Corporation, Union Carbide Corporation, and the CMA presented witnesses who urged the establishment of rates for interruptible or curtailable service for large industrial customers. Union Carbide's witness espoused curtailable service, where the customer would, if operations permitted, voluntarily curtail his load at the request of the utility. Air Products urged the establishment of an interruptible rate; load reductions under this proposal would be mandatory, when so directed by the utility.

Both proposals are intended to reduce energy consumption at system-peak periods, thereby postponing the time when additional capacity may be necessary or, in the absence of sufficient capacity, preventing or deferring Edison's implementation of its emergency involuntary load curtailment procedures.

Obviously, if such curtailment or interruption delays the need for additional plant, prevents rolling blackouts, and reduces fuel consumption, it would have very definite economic, social, and environmental benefits. The customers subject to interruption would naturally expect a substantial concession ratewise; Air Products suggests 2 to 3 mills per kilowatt hour.

Several Edison witnesses contended that total reductions in use of energy at any given point in time would be insignificant, but Edison's opposition, as manifested at the hearing, appears to have softened somewhat in its brief.

The staff, in its rate spread Exhibit 35, recommended that Edison be required to present alternatives for the Commission's consideration concerning interruptible service or curtailable service.

Upon completion of testimony by the Union Carbide witness the examiner stated his views. It appeared the Union Carbide, CMA, and Air Products proposals had the general support of the staff and rather than wait for Edison to be ordered to make studies which would reflect the views of Edison's management, it would seem appropriate for the staff to take the initiative in setting up an informal group, committee, or task force to meet and discuss the subject. The parties were urged to keep negotiating until an agreement or impasse was reached. At that point either agreed-upon service offerings could be filed by advice letter, or the staff could ask the Commission to issue an order of investigation, or, if the proponents could obtain the concurrence of 25 actual or prospective customers, they could file a formal complaint asking that interruptible or curtailable service be established.

Upon review of the positions of all the parties concerned with this issue, we are of the opinion that some form of interruptible service would be beneficial to Edison, large customers, and the consuming public as a whole. We do not believe that voluntary curtailment is either feasible or desirable. We agree with the examiner that resolution of this issue could be best handled by negotiations between the parties. In the order that follows we will direct Edison, and invite any prospective customers of interruptible service, to meet and confer in good faith regarding the establishment of such interruptible service, and to exchange freely information, opinions, and proposals concerning this subject. Should the parties to the negotiations wish, the Commission will supply a senior staff member to chair the negotiating committee and will provide such technical assistance as the Commission's resources and the staff's work load will permit.

BIONOMICS, ENVIRONMENT, RESEARCH, AND NATURAL RESOURCES

Environmental Concern

In keeping with the trends and concerns of the times; the relationship of Edison to the ecosystem in which it exists was a pervasive issue in the proceeding, affecting directly or indirectly every other subject of the case. We have touched upon bionomic questions where necessary for the resolution of other issues, but we have reserved discussion of the entire broad field until we reached a point where we could consider it as a whole.

We have previously mentioned the doubts of Edison's chief executive officer that, because of environmental considerations, Edison could continue to meet peak demands upon its system. The siting of new capacity is necessarily delayed by the time needed to comply with recent and still developing environmental and aesthetic rules and procedures of federal, state, regional, and local agencies.

The concern of people over the quality of the atmosphere in which they must live has, through air quality regulations, caused Edison to depend on scarce natural gas and low sulphur fuel oil at a time when the impact of worldwide increasing demand upon stable and even diminishing supplies of fossil fuels is making all such fuel costly, and at times unavailable.

Atomic energy, the most viable alternative to fossil fuels, is still opposed by some segments of the public who have displayed no reluctance to utilize delaying tactics made available to them by recently enacted legislation.

These new and unfamiliar forces, which as Edison's chief executive described, are not unique to Edison, have impelled the utility to undertake a program of exploration and resource development and to increase, substantially, its research programs.

As we review and evaluate the evidence dealing with environment, we note that hasty, ill-conceived, and poorly drafted legislation, noble though its purpose, has contributed much to the delay, confusion, and frustration experienced by utilities in their attempts to meet the service demands placed upon them by the public.

The preambles of environmental legislative acts set forth desirable and commendable goals, but the substantive portions all too frequently forget the needs of the people and disregard the necessity for expeditious and decisive action by governmental agencies if these needs are to be met.

Research and Development Projects

Edison's director of Research and Development presented an exhibit dealing with Edison's research and development programs; the exhibit and the accompanying prepared testimony were subjected to extensive cross-examination.

He explained that there are four generalized goals of Edison's R and D program; namely, siting of facilities, environmental improvements, resource utilization, and reliability and advanced technology.

Siting of facilities included efforts directed toward the development of engineering systems which hopefully will result in new and better methods of designing, constructing, and operating extra high voltage substations and transmission lines. It also includes efforts which are directed toward new concepts and approaches which Edison believes should simplify the process of siting new facilities. Examples are the undergrounding of nuclear plants and barge-mounted floating nuclear plants. Siting also refers to the aesthetic treatment and undergrounding of transmission distribution facilities.

Environmental improvement includes research into methods of reducing or removing oxides of nitrogen, sulphur dioxide, fly ash, and trace elements from fossil fuel power plant emissions. Research is also being conducted into biological effects related to cooling systems and to marine discharges.

Resource utilization includes three items: fuel conditioning, end use, and load research. The first is concerned with the advanced concepts of fuel condition, including oil desulphurization and oil and coal gasification. With the increasing shortage of natural gas and the dependence on foreign markets for expensive low-sulphur fuel oil, Edison predicts that it is highly probable that efforts in this area will increase substantially in the next few years. The second and third items refer to the utilization of electricity, both from points of view of advanced utilization systems and knowledge of customer usage patterns.

Reliability and advanced technology include items related to improvements of electic power systems and the development of advanced technologies. Three items, improvements to generating station equipment, improvements to existing transmission system equipment, and improvements to distribution system equipment include projects which, to the extent they are successful, should result in a lower cost, more reliable system. Included are such topics as insulator contamination studies, service life of insulators, seismic design of power systems, and advanced computer-oriented control systems.

The fourth and fifth items refer to advanced transmission concepts and advanced generation concepts which are being undertaken or directly supported by Edison. Studies are under way for the possible installation in the mid-70's of a compressed-gas insulated, three-phase transmission line. Advanced generation concepts such as geothermal power, solar power, fuel cells, and helium turbines for high temperature gas-cooled reactors have been investigated by Edison in 1972, and it is anticipated that investigations of this type will continue in 1973 and succeeding years.

Edison also engages in cooperative programs through regional or national agencies or associations which included contributions to the development of the breeder reactor, magneto-hydrodynamic, and fusion research.

Research and Development Costs

Edison budgeted $18.6 million for 1973 research and development programs, as contrasted to $1.9 million in 1969. Edison's research director testified that this increase was in keeping with a Commission letter directed to California electric utilities on March 30, 1971. Research for aesthetically related projects has increased from $0.3 million in 1969 to a budgeted amount of $3.1 million for 1973. Expenditures related to environmental projects increased from $0.8 million in 1969 to the budgeted amount of $5.9 million for 1973. Research related to power systems increased from $0.8 million in 1969 to $9.6 million budgeted for 1973. Edison's witness testified that research and development expenditures are expected to increase to the area of approximately $25 million annually within the next few years.

Several parties, the counsel for the Executive Agencies of the United States most particularly, questioned the procedures for determining whether to charge research and development expenditures to expense, capital, or deferred debits. In response, Edison's manager of Revenue Requirements presented an exhibit consisting of a one-page cover statement of accounting policy followed by copies of definitions from the FPC Uniform System of Accounts and Commission Decision No. 77910 adopting FPC classifications and accounting procedures regarding research and development.

Under cross-examination, the witness testified that he considered research and development expense to be an element of cost of service whether it is for environmental improvements or for other reasons. Accordingly, such expense should properly be borne entirely by the ratepayer. With respect to the search for new energy sources with which to generate electricity, he stated the ratepayer would have to contribute whether the cost is research and development or exploration development. He also stated that, although there does not appear to be a detailed set of rules for rate-making treatment of these expenditures, it appears this is because such expenditures have not reached the present magnitudes until recently.

With respect to any monetary gains derived from Edison's search for new energy sources the witness said that such gains should be passed on to Edison's customers although there has been no formalization of such method. Finally, it was testified that while today's ratepayer would bear the burden of these expenses the benefits would probably accrue to succeeding ratepayers rather than today's ratepayer.

Upon further discussion of Edison's plans for ratepayer contributions to exploration and development, the examiner ruled, and we affirm, that this phase of the case be deferred for presentation and cross-examination until after the decision in the main rate case.

Other Environmental Costs

Other costs connected with environmental considerations appear frequently in the testimony. These include the write-off of accumulated costs of $5,814,300 incurred in connection with Edison's efforts to construct conventional units 6 and 7 at the Huntington Beach Steam Station. This write-off resulted from denial by the Orange County Air Pollution Control District to construct these units, although a certificate to construct had been granted by this Commission. Additionally, there was testimony touching upon costs and delays resulting from efforts to install filters on the coal generation units at Mojave and Four Corners in response to stricter air pollution controls.

It appeared that not only were substantial equipment and labor costs incurred but when operating difficulties result from malfunction of air pollution control equipment, these plants must be operated at reduced capacity until such difficulties can be remedied.

Approaches to Conservation Measures

Much of the testimony dealing with new methods of energy generation indicates that present means of generation must be relied upon for many years to come. Fuel cells will not be available in the near future, nor will geothermal generation in the geographical areas accessible to Edison for this purpose. Accordingly, methods must be adopted to conserve available energy and discourage wasteful consumption.

Conservation questions, some of which have been discussed under the revenue requirement heading, covered a range of subjects including rate design, tariffs for interruptible and curtailable service, and legislative resolutions.

Rate design was a subject receiving extensive consideration including various approaches to discourage wasteful consumption of electric energy. A necessary assumption that such a concept would result in discouraging wasteful use of electricity, is that demand for electric energy is price elastic. However, there does not appear to be sufficient operating data available to understand adequately price elasticity characteristics that may exist among various revenue classes or rate schedules. Studies are being made by Edison concerning domestic, industrial, and commercial customers which are expected to be available sometime during 1973.

The subject of inverted rates and the French "Green Tariff"[12/] received considerable attention. Witnesses for Edison and the staff and an internationally known rate expert presented by Air Products testified on the subject. The witnesses agreed that the application of an inverted rate structure, with rates increasing with usage could adversely affect stability of revenues. Rates would be inversely proportioned to cost, as usage rose and fell the swing in net revenue would be magnified many times.

We have touched upon the relative benefits of a flatter rate structure, as opposed to an inverted one, and have discussed interruptible rates in some detail.

12/ The Green Tariff, which derives its name from the color of the cover, was introduced in 1956 by Electricite de France, the French Power Authority, for industrial and wholesale customers served at high voltage. The tariff consists of many hundreds of rate schedules differentiated by 245 rate zones. Seven voltages ranging from 5kV to 22kB, and four kinds of service conditions, namely, general, high load factor, low load factor, and stand-by service. The form of all schedules is basically that of demand-energy rates. However, both the demand and energy charges are graduated in accordance to the time of use. The time periods during which progressively lower rates apply are peak, normal, and low hours in winter, and normal and low hours in summer. In addition, the demand charge is subject to quantity discounts up to 20 percent for maximum demands over 10,000 kW. The tariff incorporates a power factor clause and is subject to adjustment by an economic index.

The staff's opening brief concludes with several broad and rather vague recommendations calling for more definitive accounting regulations, reports by Edison on effectiveness of conservation of energy sales and advertising efforts, meetings on the subject of interruptible service, and meetings among the staff and all electric utilities to develop procedures to cope with a power shortage, similar to those developed in 1947-1948. We will require Edison to meet and confer in good faith on interruptible service. We do not consider this proceeding a vehicle for interpreting or revising the Uniform System of Accounts and for setting up statewide power shortage procedure. These last two questions are of general interest and require input of all interested and affected parties; if justified, they should be the subject of Commission investigations, such as the one presently being conducted in Case No. 9581, regarding the adequacy of fuel supplies of this state's electric utilities.

Insofar as this particular case is concerned, we are not convinced that, at Edison's present and evidently on-going level of research and development expenditures, capitalizing these expenditures would result in any significant saving to the ratepayer, who must in the long run, also pay for the amortization of capitalized expenses, together with a return and income taxes on the return. We agree with the Farm Bureau that at the present level of research and development expenditures, they may be expensed where provided by the Uniform System of Accounts. We will depend on the continuing surveillance program of the staff to see that research and development expenditures do not get out of hand.

Participation of Sierra Club

The Sierra Club is a national nonprofit corporation having approximately 140,000 members, 40,000 of whom live in Southern California. The Sierra Club has, for many years, exhibited a special interest in conservation and the environment.

On August 18, 1972, a counsel for the Sierra Club addressed a letter to the Commission in which he indicated that the Sierra Club believed that it could present information germane to the application which might not be contained in the Commission staff's report. The Sierra Club expressed its intention, through expert testimony, to present to the Commission arguments supporting a change in rate structure and questioning the propriety of advertising by public utilities.

The Sierra Club formally stated this position at the pre-hearing conference on August 25 and also indicated that it would address itself to research and development in the fields of environmental control and reduction of environmental harm.

These intentions were reiterated in the Club's opening statement at the first day of hearing on December 5. Counsel for the Club concluded her remarks with the following remark:

> "We certainly don't intend to duplicate what the Commission's staff will be doing, but we hope that we may be helpful in raising these issues and presenting concrete proposals for change."

On February 13, 1973, the date set for disclosure of plans of the parties for their direct showings, a representative of the Sierra Club read the following statement:

> "Mr. Examiner, the Sierra Club wishes to alter its presentation from that previously announced. The scope and complexity of the issues involved here exceed the resources of the Sierra Club, and we are not able to make, at this time, the extensive affirmative presentation of evidence and testimony which we had previously intended.

> "We believe, however, that it is the legal duty of the staff of the Public Utilities Commission to prepare an environmental impact report concerning the proposed rate structures of the Southern California Edison Company, and to evaluate the direct and indirect impact to which this rate structure has upon the environment.
>
> "We hereby make an oral motion at this time that the staff of the Public Utilities Commission prepare an environmental impact report evaluating the direct and indirect effects which the proposed rate structures will have on the environment.
>
> "A formal written motion to this effect will be submitted to the Commission within the next week. We will restate the motion and state the motion in greater detail, and will be supported by points and authorities."

At the request of the examiner, the oral motion was withdrawn pending receipt of the written motion, which motion was filed on March 23, 1973.

The procedure for responding to the motion was set for discussion on April 9, 1973, following the scheduled release of Commission guidelines for the preparation and submission of environmental impact reports. The guidelines were issued April 3, 1973 by Commission Decision No. 81237 in Case No. 9452 pursuant to Assembly Bill 889. (Ch. 1154, Stats. 1972.) Assembly Bill 889 was an amendment to the California Environmental Quality Act of 1970 (CEQA) which became law on December 5, 1972. Decision No. 81237 put into effect Commission Rule 17.1 of the Commission's Rules of Practice and Procedure.

Upon conclusion of statements by various parties at the hearing on April 9, the examiner ordered all parties to serve and file their replies to the motion within 15 days, pursuant to paragraph E2 of Rule 17.1. The examiner concluded his remarks by requesting that all parties include a discussion of the first paragraph on page 15 of the mimeographed Decision No. 81237 as follows:

> "In the light of the foregoing analysis the Commission concludes that the policy provisions of C.E.Q.A. (Sections 21000-21001) apply to rate proceedings but the EIR provisions (Sections 21100, et seq.) do not. The Commission will consider potential environmental impact in rate matters. When such issues are brought to light by the staff or other parties, appropriate findings will be made thereon. (Pub. Util. Code Sec. 1705.)"

Replies to the motion were received from Edison, the staff, the Farm Bureau, the CMA, and the Executive Agencies of the United States. In general, the replies agreed that environmental issues were a proper subject for consideration in the proceeding but that an Environmental Impact Report was not required by CEQA. Several of the responses pointed out that the Sierra Club had had ample time to develop a record on environmental issues in the normal course of the proceeding, and had failed to carry out its expressed intent to do so. To require the staff to prepare an EIR could, at the late date of the motion, delay completion of the case for many months.

The final motion, as filed by the Sierra Club, was in two parts, requesting that the Commission:

"1. declare that the staff of the Commission must prepare or cause to be prepared by contract an environmental impact report on the effects of the newly proposed rate schedule, that the report must be subjected to cross-examination as an element of the staff's testimony in the rate proceeding, and that these procedures must be complied with before the Commission may approve a rate increase.

"2. not approve Edison's rate increase until the staff of the Commission has prepared or caused to be prepared by contract an environmental impact report on the proposed rate schedule and a public hearing has been held to consider the contents of the report."

At the last day of hearing the first part of the motion was denied without comment by the examiner, pursuant to Rule 63 of the Commission's Rules of Procedure. As to the second part of the motion, he stated that the approval of a rate increase was the prerogative of the Commission but that he intended to prepare a draft of a decision and submit it to the Commission for the Commission's consideration.

On May 9, 1973 the Sierra Club filed an appeal to the Commission to:

"1) decide this appeal together with the petition for rehearing of Decision No. 81237 filed by petitioner, the Planning and Conservation League and the High Desert Environmental Defense Fund; and

"2) overrule the examiner's decision from the bench denying petitioner's motion to compel the Commission to prepare an environmental impact report before approving any rate increase proposed by Southern California Edison Company."

We have considered the question of environmental impact reports for rate cases in connection with a reconsideration, without rehearing, of Decision No. 81237 in Case No. 9452. In Decision No. 81484 dated June 19, 1973 in Case No. 9452, we further elaborated on why we felt that Rule 17.1 should not require EIR's for rate cases. Reference is made to our reasons as set forth in the two decisions in Case No. 9452 and they will not be restated here. We hold that the examiner was correct in his ruling from bench denying the Sierra Club motion and we will deny the appeal of the Sierra Club.

In denying the appeal it might be noted that, during the progress of the proceeding, the Commission anticipated expert testimony would be forthcoming from the Sierra Club, particularly as to an inverse rate structure, and the examiner questioned various rate expert witnesses as to their views on inverse rate structure and the French "Green Tariff". Outside of the bionomic aspects, the issues of this case, while many and detailed, are not particularly complex. The decision of the Sierra Club not to follow through with its announced intention to present expert testimony in support of its views on the environmental issues was a disappointing one, inasmuch as the Commission attempts to provide an open forum for novel proposals within the area of its jurisdiction.

OTHER ISSUES

Affiliated Interests

Edison has four wholly owned subsidiaries: Associated Southern Investment Company (ASIC), engaged primarily in the acquisition, development, and disposition of real property and mineral interests; Electric Systems Company, which in the past has provided financing of new construction of buildings which utilize electric energy but which is now confining its activities to the servicing of

outstanding loans and is not accepting new applications for financing; Energy Services, Inc., which is engaged primarily in the business of furnishing heating and cooling services; and Mono Power Company, engaged primarily in the acquisition and disposal of land. Mono Power Company also serves as a purchasing and selling medium for Edison's transferred employees' home purchase plan and is involved in fuel exploration and leasing activities.

In addition to these four subsidiaries, Calabasas Park Company (CPC), a partnership, is owned 79 percent by ASIC and 21 percent by the Bechtel Corporation. Its purpose is to develop a full-scale planned community of approximately 5,000 homes and apartments with attending commercial, educational, cultural, recreational, and church facilities. The Park Company is not constructing homes or apartments but is selling parcels of land to other developers. Originally, the development was planned as an all-electric community, but this plan has been modified to include certain uses of natural gas. Calabasas Communication Company, a partnership, is also owned 79 percent by ASIC and 21 percent by Bechtel Corporation and is concerned with the development, operation, and maintenance of community antenna television systems.

The following tabulation sets forth Southern California Edison's investment in subsidiary companies from December 31, 1969 to October 31, 1972:

	Balances as of			
	12/31/69	12/31/70	12/31/71	10/31/72
Associated Southern Investment Company	$6,728,409	$17,131,735	$32,066,595	$32,285,045
Electric Systems Company	1,500,000	1,500,000	1,500,000	1,500,000
Energy Services Inc.	100,000	100,000	2,407,549	2,407,549
Mono Power Company	-	2,000,000	4,000,000	6,000,000
Total	$8,328,409	$20,731,735	$39,974,144	$42,192,594

As indicated by the preceding tabulation, Edison's total investment in associated companies increased by $33,864,185 during this period. This increase consisted of an additional investment of $25,556,636 in Associated Southern Investment Company, $2,307,549 in Energy Services, Inc., and $6,000,000 in Mono Power Company.

The increase in the investment in Associated Southern Investment Company represents primarily cash contributions to ASIC's capital for the purpose of providing funds for ASIC's share in Calabasas Park Company. Edison is not currently earning a return on its investment in the subsidiary companies.

Electric Systems Company and Energy Services, Inc. were both established in 1964 in the heyday of abundant energy and exuberant competition for load among gas and electric utilities. According to their president, who is also Edison's vice president for sales, these two affiliates are gradually winding down affairs and are slowly terminating their business.

The president of Mono Power and ASIC, who also serves as Edison's manager of Right of Way and Land, testified that he does not foresee that the operations of ASIC will be expanded. The activities of Mono Power Company in the area of exploration and development are expected to increase, however.

Edison files consolidated tax returns which include the operations of the affiliated companies. For the years 1970 and 1971 consolidated tax liability was reduced by $1,993,960 and $1,339,621 because of operating losses sustained by the affiliated companies. The amount by which the consolidated tax liability was reduced was returned in cash to each affiliate.

This practice results in utility operations being charged with income taxes somewhat higher than actually paid by the company, with a corresponding reduction in the losses sustained in the affiliated nonutility operations. The staff did not take exception to this method of tax allocation for book purposes, but believes that investment by utilities in nonutility ventures raises the following questions of general policy and rate-making concepts for the Commission to consider:

1. Utilities may be willing to engage in speculative nonutility ventures because any losses could be cut in half by shifting tax burdens. Should the Commission follow rate-making policies that encourage such investments?

2. Utilities will have to commit substantial funds in the immediate future to exploration and research and development programs in order to meet consumer energy requirements. Should the Commission follow rate-making policies which allow utilities to divert funds into nonutility ventures, resulting in the potential impairment of capital structures and borrowing capacity?

The staff did not take exception to Edison's investment in affiliated companies since the dollar effect of the losses of these affiliates on Edison's operating taxes and cost of capital at the present time is insignificant, but it did offer the foregoing comments as factors which the Commission should consider in light of the seemingly growing tendencies among utilities to diversify their operations into nonutility fields.

Upon cross-examination, the staff's accounting witness indicated that, if that portion of the utility's capital in nonutility investments reached an amount considered to be significant in the company's total capitalization, he would recommend that an adjustment be made in the rate of return. He testified that, while the company has not included any part of this investment in affiliates in the rate base and, therefore, is not seeking a return on the investment an adjustment could be made to the capital structure in deriving a reasonable rate of return upon that portion of the company's capital invested in utility operations. He referred to a recent Nevada Public Service Commission decision (re Southwest Gas Corporation (1971) 92 PUR 3d 91, 93). In that case, the Nevada Commission reduced the equity component of the company's capital structure by the amount of investment in nonutility affiliates, thereby adjusting the common equity ratio in the capital structure with a resulting reduction in necessity of funds for a return on equity. The consequence was a reduction of the overall rate of return on capital invested in utility operations.

Both the staff and Farm Bureau in their briefs urge that the Commission should establish a strong future policy of encouraging utilities to conserve their capital for use in utility operations. It appears this is especially desirable in light of declining coverage on debt obligations, climbing interest rates, and what appears to be increasing needs for capital by utility companies.

Unfortunately, the briefs do not present any statutory authority or court precedents upon which the Commission could base a strong positive policy that could be more than "jawboning". The California Supreme Court has held that we do not have the power to manage nor to substitute our judgment for that of management. (Pac. Tel. & Tel. Co. v Public Utilities Comm. (1950) 34 C 2d Sec. 22, 28.) California corporations may engage in any activity permitted by their Articles of Incorporation and not prohibited by the laws of the nation and state. Our authority appears to be limited to the control of the use of funds raised by securities issues (Sec. 823 of Public Utilities Code), to the consideration of the effect of affiliates on the overall cost of money to the corporation, and to prevent any unreasonable expenses from becoming a burden on rates.

This is not to say, however, that we are not concerned with the question of affiliates. This troublesome topic has concerned the Commission since its inception.[13/] The operations of

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13/ Southern Sierra Company Decision No. 224 dated September 16, 1912 in Application No. 220 (ICRC 556, 558).

Mono Power will be considered in the second phase of this proceeding. For the present we will make no adjustments for the operations of Edison's affiliates. Should it appear that they are hindering financing or becoming a burden on the ratepayer, however, we will not hesitate to consider such appropriate measures as can be taken within the scope of our jurisdiction and authority.

FINDINGS AND CONCLUSION

Findings of Fact

1. At current rates for the test year 1973, a reasonable estimate of Edison's total system and California jurisdictional results of operations is:

ADOPTED 1973 SUMMARY OF TOTAL SYSTEM EARNINGS AT PRESENT RATES
(Excluding Fuel Clause Adjustment)

	Total System Adopted	California Jurisdictional Adopted
	(Dollars in Thousands)	
Operating Revenues	$ 960,056	$ 920,575
Operating Expenses		
Production		
Fuel and Purchased Power	235,804	206,893
Other	63,927	59,233
Transmission	34,650	31,956
Distribution	58,953	58,885
Customer Accounts	24,846	24,835
Sales	4,793	4,793
Administrative & General	86,939	83,854
Subtotal	509,912	470,449
Depreciation	109,981	105,703
Taxes Other than Income	89,366	85,598
Taxes Based on Income	34,850	43,824
Total Operating Expenses	744,109	705,574
Net Revenue	215,947	215,001
Rate Base	3,298,257	3,135,008
Rate of Return	6.55%	6.86%

2. A reasonable rate of return to be applied to Edison's California jurisdictional rate base is 8.2 percent.

3. An 8.2 percent return on that portion of Edison's capitalization ascribed to the California jurisdictional rate base would yield approximately 12.25 percent on common equity and provide an interest coverage on Edison's debt of 3.94 times before taxes.

4. For the purpose of allocating cost and rate base between jurisdictions, the modified peak responsibility method is reasonable.

5. For the purpose of allocating cost between classes of customers within California jurisdictional operations, the load factor/diversity factor method is reasonable.

6. Edison's rates should be increased by $89,138,000, which increase should produce a rate of return of 8.2 percent on Edison's California jurisdictional rate base for the estimated year 1973.

7. The increase in rates and charges authorized by this decision are justified and are reasonable; the present rates and charges, insofar as they differ from those prescribed by the decision, are for the future unjust and unreasonable.

8. The base rates should reflect the revenues from the currently effective fuel cost adjustment billing factor made effective August 13, 1973 by Commission Resolution No. E-1369 dated July 31, 1973 in order to reduce the billing factor to zero until the next adjustment thereof.

9. The programs of Edison, for which allowance has been made in our adopted results of operations, for research and development, energy management, and conservation of energy, together with the flatter rate structure we have adopted, will tend to have a beneficial effect on the environment.

Conclusions of Law

1. The appeal of the examiner's ruling on the motion of the Sierra Club for an environmental impact study of Edison's proposed rates should be denied.

2. Edison should be directed, and any prospective customers invited, to meet and confer in good faith regarding the establishment of interruptible service and to exchange freely information, opinions, and proposals concerning this subject. Edison should file, until advised by a letter of the Secretary bearing the file number A. 53488, quarterly reports on the status of the negotiations.

3. The application of Southern California Edison Company should be granted to the extent set forth in the order following.

O R D E R

IT IS ORDERED that:

1. Southern California Edison Company is authorized to file with this Commission on or after the effective date of this order, in conformity with the provisions of General Order No. 96-A, revised tariff schedules with rates, charges, and conditions modified as set forth in Appendix B attached to this order and, on not less than five days' notice to the public and to the Commission, to make the revised tariffs effective.

2. Any and all contracts between Southern California Edison Company and its customers for public utility electric service, subject to the jurisdiction of this Commission are hereby modified so that the fuel cost adjustment billing factor is zero. Future fuel cost adjustment billing factors should be calculated using fuel costs as of August 13, 1973 as zero.

3. Edison is directed, and any prospective customers invited, to meet and confer in good faith regarding the establishment of interruptible service, and to exchange freely information, opinions, and proposals concerning this subject. Edison shall file, until advised by a letter of the Secretary bearing the file number A. 53488, quarterly reports on the status of the negotiations, commencing October 1, 1973.

The effective date of this order shall be ten days after the date hereof.

Dated at San Francisco, California, this 25th day of SEPTEMBER, 1973.

I abstain:

Commissioner

President

Commissioners

APPENDIX A

LIST OF APPEARANCES

Applicant: Rollin E. Woodbury, Robert J. Caball, William E. Marx, and H. Robert Barnes, by William E. Marx, and Philip Walsh, Attorneys at Law, for Southern California Edison Company.

Protestants: Laurence J. Thompson, for the Cities of West Covina, Inglewood, Manhattan Beach, Hermosa Beach, and Torrance; Kennard R. Smart, and Furman B. Roberts, Attorneys at Law, for the City of Orange; George Wakefield and L. J. Thompson, by John Lippitt, for the City of West Covina; Louis Possner, for the City of Long Beach; Daniel Collins, for the City of Torrance; James F. Sorensen, for Friant Water Users Association.

Intervenors: Curtis L. Wagner, Jr., and Frank J. Dorsey, Attorneys at Law, for the Executive Agencies of the United States; John R. Phillips, Attorney at Law, Larry E. Moss, Daniel L. Dawes, and Walter C. Bond, for The Sierra Club.

Interested Parties: William L. Knecht, Attorney at Law, and Ralph Hubbard, for California Farm Bureau Federation; R. C. Arnold, for Shell Oil Company; Robert F. Smith, and Walter C. Leist, for Union Carbide Corporation; Robert W. Russell, by Kenneth E. Cude, for the City of Los Angeles; Eugene R. Rhodes, and O. T. Jones, for Monolith Portland Cement Company; Kenneth M. Robinson, Attorney at Law, and George B. Scheer, for Kaiser Steel Corporation; Brobeck, Phleger & Harrison, by Robert N. Lowry, Gordon Davis, and Larry Hultquist, Attorneys at Law, for California Manufacturers Association; John H. Lauten, by H. Kenneth Hutchinson, Attorney at Law, for The Metropolitan Water District of Southern California; Carl Alan Wulfestieg, for the Los Angeles Department of Water and Power; Arthur Kugel, for the Public Utilities Department, City of Riverside; Paul Hendricks, for the City of Vernon; Lawler, Felix & Hall, by Richard D. De Luce, Attorney at Law, E. V. Sherry, and Baker, Hostetler & Patterson, by Alan G. Rorick, Attorney at Law, for Air Products and Chemicals, Inc.; and Stephens, Jones, La Fever & Smith, by Maurice Jones, Jr., Attorney at Law, for Revere Copper and Brass, Inc.

Commission Staff: Rufus G. Thayer, Attorney at Law, Norman R. Johnson, T. F. Marvin, Robert C. Moeck, and Kenneth K. Chew.

RATES - SOUTHERN CALIFORNIA EDISON COMPANY

Applicant's rates, charges and conditions are changed to the level or extent set forth in this appendix.

SCHEDULES NOS. A-1, A-2, A-3, A-4, A-5 and A-6

RATES

Rate A

		1	2	3	4	5	6
Customer Charge:	Single Phase	$1.00	$1.10	$1.20	$1.30	$1.40	$1.50
	Three-Phase	2.00	2.10	2.20	2.30	2.40	2.50
Energy Charge:							
First 100 kwhr, per kwhr		5.108¢	5.308¢	5.508¢	5.708¢	6.008¢	6.208¢
Next 400 kwhr, per kwhr		4.708	4.908	5.108	5.308	5.508	5.708
Next 1,000 kwhr, per kwhr		3.858	3.858	3.858	3.858	3.858	3.858
Next 1,500 kwhr, per kwhr		3.118	3.118	3.118	3.118	3.118	3.118
Excess kwhr, per kwhr		2.387	2.387	2.387	2.387	2.387	2.387

Minimum Charge: The Monthly Minimum Charge shall be the Monthly Customer Charge.

Rate B

Demand Charge:

First 20 kw or less billing demand	
All Excess billing demand per kw	$1.23

Customer and Energy Charge (To Be Added to Demand Charge):

First 150 kwhr per kw billing demand*	Same as Rate A
Next 150 kwhr per kw billing demand*	
First 15,000 kwhr, per kwhr	1.665¢
Excess kwhr, per kwhr	1.285¢
Over 300 kwhr per kw of billing demand*	1.040¢

Minimum Charge: The Monthly Minimum Charge shall be $1.00 per kw of Billing Demand.

* Not less than 20 kw.

RATES - SOUTHERN CALIFORNIA EDISON COMPANY

SCHEDULE NO. A-7

RATES

	Per Meter Per Month
Demand Charge:	
First 200 kw or less of billing demand	$260.00
Next 1,800 kw of billing demand, per kw	1.05
Next 8,000 kw or billing demand, per kw	0.90
All excess kw of billing demand, per kw	0.75
Energy Charge (To be added to Demand Charge):	
First 150 kwhr per kw of billing demand:	
First 30,000 kwhr, per kwhr	2.394¢
Balance of kwhr, per kwhr	1.719¢
Next 150 kwhr per kw of billing demand, per kwhr	1.362¢
All excess kwhr, per kwhr	1.024¢

Minimum Charge: The monthly minimum charge shall be the monthly Demand Charge.

SCHEDULE NO. A-8

RATES

	Per Meter Per Month
Demand Charge:	
First 5,000 kw or less of billing demand	$5115.00
Next 5,000 kw of billing demand per kw	0.916
All excess kw of billing demand per kw	0.745
Energy Charge (To be added to Demand Charge):	
First 150 kwhr per kw of billing demand	1.551¢
Next 150 kwhr per kw of billing demand	1.241¢
Excess kwhr per kwhr	0.913¢

RATES - SOUTHERN CALIFORNIA EDISON COMPANY

SCHEDULES NOS. D-1, D-2, D-3, D-4, D-5 and D-6

RATES

	Charges Per Month					
	1	2	3	4	5	6
Customer Charge:	$1.00	$1.10	$1.20	$1.30	$1.40	$1.50
Energy Charge (To be Added to the Customer Charge):						
First 60 kwhr, per kwhr	4.863¢	5.063¢	5.263¢	5.463¢	5.763¢	6.063¢
Next 90 kwhr, per kwhr	3.475	3.675	3.875	4.075	4.275	4.555
Next 150 kwhr, per kwhr	2.766	2.766	2.766	2.766	2.766	2.766
Next 600* kwhr, per kwhr	2.112	2.112	2.112	2.112	2.112	2.112
Excess kwhr, per kwhr	1.834	1.834	1.834	1.834	1.834	1.834

Minimum Charge: The monthly minimum charge shall be the monthly Customer Charge

SCHEDULE NO. DWL

RATES	Charges Per Month
LAMP CHARGE:	
75 watt mercury vapor lamp, per lamp.....	$5.40

Change Special Conditions, paragraph 1, to read as follows:

SPECIAL CONDITIONS

1. Facilities Furnished: The walkway lighting facilities to be furnished and installed by the utility include the luminaries, electroliers, and underground service connections, excluding trenching and backfilling. Trenching and backfilling for the service connections, which are to be in accordance with the specifications of the utility, shall be furnished or paid for by the customer.

RATES - SOUTHERN CALIFORNIA EDISON COMPANY

SCHEDULE NO. LS-1

RATES

Lamp Size - Lumens	Per Lamp Per Month
Incandescent Lamps	
1,000 Lumens	$3.23
2,500 Lumens	4.79
4,000 Lumens	5.82
6,000 Lumens	7.16
10,000 Lumens	9.68
Mercury Vapor Lamps	
3,500 Lumens	4.69
7,000 Lumens	5.52
11,000 Lumens	6.55
20,000 Lumens	8.14
35,000 Lumens	12.02
55,000 Lumens	15.26
High Pressure Sodium Vapor Lamps	
25,500 Lumens	9.48
47,000 Lumens	11.50

SCHEDULE NO. LS-2

RATES

	Per Month			
	All Night Service		Midnight Service	
	Multiple	Series	Multiple	Series
Rate A - Unmetered Service				
For each kw of lamp load, per kw	$9.41	$10.81	$8.05	$8.01

	Per Meter Per Month
Rate B - Metered Service	
Meter Charge:	
Multiple Service	$ 1.30
Series Service	10.40
Energy Charge (To be Added to Meter Charge):	
First 150 kwhr per kw of lamp load, per kwhr	4.578¢
All excess kwhr, per kwhr	1.252¢

RATES - SOUTHERN CALIFORNIA EDISON COMPANY

Rate C - Maintenance Service - Optional

In addition to the Rate A and Rate B charges

Lamp Rating Lumens	Lamp Type	Per Lamp Per Month
1,000	Incandescent Extended Service.....	$0.36
2,500	Incandescent Extended Service.....	0.39
4,000	Incandescent Extended Service.....	0.39
6,000	Incandescent Extended Service.....	0.41
10,000	Incandescent Extended Service.....	0.41
3,500	Mercury Vapor.....	0.42
7,000	Mercury Vapor.....	0.37
11,000	Mercury Vapor.....	0.44
20,000	Mercury Vapor.....	0.41
35,000	Mercury Vapor.....	0.62
55,000	Mercury Vapor.....	0.62
25,500	High Pressure Sodium Vapor.....	1.58
47,000	High Pressure Sodium Vapor.....	1.62

SCHEDULE NO. OL-1

RATES

Luminaire Charge:

Mercury Vapor Lamp Size	Per Lamp Per Month
7,000 Lumen	$5.47
20,000 Lumen	9.23

Pole Charge (To be added to Luminaire Charge):

	Per Pole Per Month
For each additional new wood pole installed.....	$2.40

RATES - SOUTHERN CALIFORNIA EDISON COMPANY

SCHEDULE NO. P-1

RATES

Horsepower of Connected Load	Monthly Service Charge Per Hp	Energy Charge to be Added to Service Charge Rate Per Kwhr for Monthly Consumption of: First 100 Kwhr Per Hp	Next 100 Kwhr Per Hp	All Over 200 Kwhr Per Hp
2 to 9.9	$1.25	3.878¢	2.408¢	1.878¢
10 and Over	1.20	3.558¢	2.368¢	1.878¢

Minimum Charge: The monthly minimum charge shall be the monthly Service Charge.

SCHEDULE NO. PA-1

RATES

Horsepower of Connected Load	Annual Service Charge Per Hp	Energy Charge to be Added to Service Charge Rate Per Kwhr for Annual Consumption of: First 1000 Kwhr Per Hp	Next 1000 Kwhr Per Hp	All Over 2000 Kwhr Per Hp
2 to 4.9	$10.60	2.891¢	1.499¢	1.102¢
5 to 14.9	9.60	2.691¢	1.499¢	1.102¢
15 to 49.9	9.00	2.591¢	1.499¢	1.102¢
50 to 99.9	8.40	2.491¢	1.499¢	1.102¢
100 and Over	7.80	2.391¢	1.499¢	1.102¢

Minimum Charge: The annual minimum charge shall be the Annual Service Charge.

RATES - SOUTHERN CALIFORNIA EDISON COMPANY

SCHEDULE NO. PA-2

RATES

	Per Meter Per Month
Demand Charge	
First 75 kw or less of billing demand	$109.00
All excess kw of billing demand, per kw	1.14
Energy Charge (To be added to Demand Charge)	
First 150 kwhr, per kw of billing demand	
First 15,000 kwhr, per kwhr	2.390¢
Excess kwhr, per kwhr	1.696¢
Next 150 kwhr, per kw of billing demand	1.349¢
All excess kwhr, per kwhr	1.023¢

Minimum Charge: The monthly minimum charge shall be the monthly Demand Charge.

SCHEDULE NO. TC-1

RATES

	Per Meter Per Month
Customer Charge:	$1.38
Energy Charge (To be added to Customer Charge):	
First 100 kwhr, per kwhr	5.088¢
All excess kwhr, per kwhr	2.338¢

Minimum Charge: The monthly minimum charge shall be the monthly Customer Charge.