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Decision No. 87744 AUG 23 1977

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of SOUTHERN CALIFORNIA EDISON COMPANY for review and consideration of Time-of-Day Pricing Tariffs pursuant to order in Decision No. 85559 in Case No. 9804.	Application No. 56408 (Filed April 13, 1976)

Rollin E. Woodbury, Robert J. Cahall, William E. Marx, H. Robert Barnes, and Ms. Carol B. Hennigson, Attorneys at Law, and John L. Dee, for applicant. Richard D. DeLuce, Attorney at Law, and Edward V. Sherry, for Air Products & Chemicals, Inc.; Brobeck, Phleger & Harrison, by Gordon E. Davis and William H. Booth, Attorneys at Law, for California Manufacturers Association; John Lowry Frogge, Jr., Attorney at Law, for California Portland Cement Company; Frank J. Dorsey, Attorney at Law, Office of the Staff Judge Advocate, for The Consumer Interests of All Executive Agencies of the United States; Bruce C. Driver, Attorney at Law, Office of the General Counsel, Federal Energy Administration, for Federal Energy Administration; S. N. Choudhuri, for Firestone Tire & Rubber Company; Lawrence C. Tistaert, Attorney at Law, for Gray Iron Institute of Southern California; Kenneth M. Robinson, Attorney at Law, for Kaiser Steel Corporation and Kaiser Cement and Gypsum Corporation; George B. Scheer, for Kaiser Steel Corporation; McNers, Wallace & Nurick, by Henry R. MacNicholas, Attorney at Law, for Airco, Inc. and Monsanto Company; S. P. Reynolds, for Pacific Gas and Electric Company; Jack D. Rouse, for San Bernardino County Real Property Division of Public Works Agency; Raymond E. Heytens, for San Gabriel Valley Water Company; Bruce E. Robertson, for Mobil Oil Corporation, Torrance Refinery; James A. Grant and Leroy Wilson, for Vetco Offshore, Inc.; James E. Fischer, for A & E Plastic Pak Co., Inc.; Mike G. Michel, for Byron Jackson Pump

Division, Borg-Warner Corp.; Robert P. Will, Carl Boronkay, and R. D. Twomey, Jr., Attorneys at Law, for Metropolitan Water District of Southern California; W. C. Brooke, for County Sanitation Districts of Orange County; J. C. Marchiando, for National Supply Company, Armco Steel Corporation; Thomas S. Knox, for California Retailers Association; Joseph Rose, for Luria Bros. & Co., Inc., Division of Ogden Corp.; Nathan Benson, Attorney at Law, for The Purdy Company; Brobeck, Phleger & Harrison, by Gordon E. Davis, Attorney at Law, and W. L. Hanson, for Bethlehem Steel Corporation; R. E. Ford, for Griffin Wheel Company; Daniel J. Reed, Public Service Consultants, for Department of Defense; David Zinn, for Pacific Tube Company; Stanley E. Soule, Jr. and Lawrence Curtis, for Soule Steel Co.; Downey, Brand, Seymour & Rohwer, and Fraser F. Hilder, General Counsel, and Julius J. Hollis, by Philip A. Stohr, Attorney at Law, for General Motors Corporation; Graham & James, by Boris H. Lakusta, David L. Marchant, and M. Jan Akre, Attorneys at Law, for California Hotel & Motel Association; and Vincent V. MacKenzie and Mark J. Urban, Attorneys at Law, and John Wiley, for Energy Resources Conservation and Development Commission; interested parties.

Peter Arth, Jr., Attorney at Law, Donald L. Houck, and Page E. Golsan, Jr., for the Commission staff.

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O P I N I O N

A. Introduction

By Ordering Paragraph 1 of Decision No. 85559 issued March 16, 1976, in Case No. 9804 this Commission ordered Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), and Southern California Edison Company (Edison), the three major respondent electric utilities, to file time-of-day pricing tariffs, covering large usage customers for whom substantially all the necessary metering equipment has already been installed, by applications or advice letters for review by the staff and interested parties prior to implementation.

Pursuant to such order on April 13, 1976 Edison filed this application for review and consideration of its time-of-day pricing tariff TOD-8 for customers with on-peak demands in excess of 5,000 kw/month. Such customers are presently served under Schedule No. A-8.

The matter was assigned to Commissioner Ross and referred to Examiner Cline for hearing.

Hearings in Los Angeles commenced on June 29 and continued for 15 days, concluding on November 15, 1976. Concurrent opening briefs were filed on December 20, 1976 and the matter was submitted for decision on the filing of concurrent reply briefs on January 10, 1977.

Testimony and exhibits were presented by Edison, the Commission staff, Byron Jackson Pump Division of Borg Warner Corporation, Mobil Oil Corporation, Griffin Wheel Company, Bethlehem Steel Corporation, the Secretary of Defense on behalf of the consumer interests of the executive agencies of the United States (Department of Defense), the California Hotel and Motel Association, California Portland Cement Company, the Federal Energy Administration, Assemblyman Joseph Montoya, National Supply Co., Airco, Inc. and Monsanto Company, Ameron, Firestone Tire & Rubber Co., AiResearch Co. of California, Loma Linda University, Southern California Restaurant Association, Pacific Tube Co., The Purdy Co. of California, Soule Steel Co., Las Virgenes Municipal Water District, Kaiser Steel Corp., Luria Bros. & Co., Inc., County Sanitation Districts of Orange County, Newport-Mesa Unified School District, and the Steel Workers of America AFL-CIO.

Briefs were filed by Edison, the Federal Energy Administration (FEA), Department of Defense (DOD), Metropolitan Water District of Southern California (MWD), Airco, Inc. and Monsanto Company (A-M), Bethlehem Steel Corporation in which California Manufacturers Association concurred (Steel-CMA), General Motors Corporation (GM), and the Commission staff (Staff).

B. Findings in Decision No. 85559 pertaining to Time-of-Day Pricing

The following findings in Decision No. 85559 issued March 16, 1976 in Case No. 9804, pertain to time-of-day pricing for large customers:

"1. The term 'conservation of electricity' encompasses any one or any combination of the following elements:

(a) The reduction in wasteful kilowatt-hour usage of electricity.

(b) The overall reduction of kilowatt-hour usage of electricity.

(c) The reduction of peak demands upon electric utility systems."

* * *

"20. By pricing electricity higher during daily periods of greatest demand, smaller demands will be placed on the system at such peak periods as a result of price and load elasticity, thereby delaying the need to install additional generating capacity.

"21. During periods of inflation when the cost per kw of new capacity is greater than the last kw added, delay in adding new generating plant will result in lower rates to the customers than would be the case if new generating capacity were added.

"22. Selective rate offering by load size of customer will reduce the investment impact of time-of-day pricing."

* * *

"24. The spread of incremental production costs between on- and off-peak hours is smaller because of the extent to which stored water is utilized in hydro generation to minimize fuel costs.

"25. Time-of-day pricing would likely produce rates that more closely follow costs and it could result in conservation of energy. The energy conservation would be a function of the relative efficiency of the generating equipment dispatched to cover peak loads as compared to that of equipment in use off peak.

"26. There is also a potential for peak shaving through demand control rates.

"27. Time-of-day pricing may lead to increased consumption of fuel if off-peak use increases at a greater rate than on-peak use [decreases].

"28. The three major electric utilities have high daily load factors.

"29. Time-of-day pricing should be applied carefully and only where its objectives can be achieved without undue metering costs.

"30. Time-of-day pricing which reflects the cost of producing electricity at daily demand peaks should be required on rate schedules covering large usage customers where substantially all the necessary metering equipment already exists. In furtherance of this finding the respondent electric utilities should be ordered to file specific time-of-day pricing tariffs by applications or advice letters for review by the staff and interested parties prior to implementation."

* * *

"64. The three major respondent electric utilities will be required to submit experimental tariffs applying peak load pricing to domestic users of very large quantities of electricity or tariffs offering reductions for users where automatic load shedding devices are installed to disconnect appliances using large quantities of electricity during peak use periods."

* * *

"68. Whereas peak load pricing will remove load from the line according to price elasticity, interruptible service will remove the load with the throw of a switch.

"69. There is a significant potential for reducing peak capacity requirements of utilities through a demand control rate keyed to demands imposed at time of system peaks rather than the user's peak. Such a rate would impose a demand charge on the customer for the billing month based upon the highest level of demand imposed upon the utility system by that customer at the time of any system peak load situation occurring during that month, or at the level of demand imposed at the time of the last system peak load situation if none occurred during the billing month.

"70. The respondent utilities should be directed to continue their experimentation with, development of, and expansion of the use of demand control rate schedules and automatic or semi-automatic load curtailment and interruptible load schedules, looking toward adequate off-peak rate incentives."

* * *

"78. Pricing electricity above the value of service may cause an uneconomic switch to self-generation by industry or a switch to other fuels.

"79. If this Commission establishes electric rates for California industries which are considerably higher than electric rates which are charged competitive industries elsewhere, it may result in a loss of the competitive position of the California industries in the national and international markets and may give the California industries an incentive to move to more favorable geographic locations with a consequent loss of jobs and reduction of the economic base in California."

* * *

"81. The era of abundant and low-cost energy has passed and we are now faced with energy shortages and soaring energy costs. Average costs alone are no longer controlling when conservation is a principal consideration in establishing the electric rate structures for California utilities. Both average and incremental costs should be considered in establishing electric rates.

"82. The Commission should continue carefully to consider the economic consequences of its ratemaking policies in future proceedings."

C. Various Proposals

The Secretary of Defense (DOD) in its brief has summarized the time-of-day tariffs submitted by Edison, the Staff, Mr. Maurice Brubaker on behalf of Airco, Inc. and Monsanto (A-M), Mr. Daniel J. Reed on behalf of DOD, and Dr. Richard A. Bower on behalf of the Federal Energy Administration (FEA).

All parties agree as to seasons:

Winter Season - November through April.

Summer Season - May through October.

TABLE 1

Time Periods

SUMMER

	Edison	Staff	DOD	FEA	A-M
Peak	8:00 a.m. to 10:00 p.m. (weekdays)	12:01 p.m. to 6:00 p.m. (weekdays, excluding 7 holidays)	Identical to Staff	12:00 noon to 10:00 p.m. (weekdays)	10:00 a.m. to 10:00 p.m. (weekdays, excluding holidays)
Mid-Peak	None	8:01 a.m. to 12:00 m. 6:01 p.m. to 10:00 p.m. (weekdays, excluding 7 holidays)	Identical to Staff	None	None
Off-Peak	10:00 p.m. to 8:00 a.m. (weekdays) and all day Sat. & Sun.	10:01 p.m. to 8:00 a.m. (weekdays) and all day Sat., Sun., & 7 holidays	Identical to Staff	All other hours	All other hours

(Continued)

TABLE 1

Time Periods

WINTER

	Edison	Staff	DOD	FEA	A-M
Peak	4:00 p.m. to 10:00 p.m. (weekdays)	5:01 p.m. to 10:00 p.m. (weekdays, excluding 7 holidays)	Identical to Staff	5:00 p.m. to 10:00 p.m. (weekdays)	5:00 p.m. to 10:00 p.m. (weekdays, excluding holidays)
Mid-Peak	8:00 a.m. to 4:00 p.m. (weekdays)	8:01 a.m. to 5:00 p.m. (weekdays, excluding 7 holidays)	Identical to Staff	None	8:00 a.m. to 5:00 p.m. (weekdays, excluding holidays)
Off-Peak	10:00 p.m. to 8:00 a.m. (weekdays) and all day Sat. & Sun.	10:01 p.m. to 8:00 a.m. (weekdays) and all day Sat., Sun., & 7 holidays	Identical to Staff	All other hours	All other hours

The following are specified by the Staff as the seven holidays: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. In its brief the Staff suggested that to be consistent with Decision No. 86632, an eighth holiday, Veterans Day, should be added to the list.

TABLE 2

Tariff Design

Charges	Edison	Staff	DOD	FEA	A-M
Customer	$1,850[1/]	$800	$1,900	$2,000	$1,775
Demand/Kw					
Billing Demand					
On-Peak	$2.30	$2.033	$2.582[3/]	$2.10	$2.28
Mid-Peak	2.30[2/]	.25	.60	none	none
Off-Peak	none	none	none	none	none
Energy/Kwhr					
On-Peak	$.011419[4/]	$.01316	$.0095	$.021[5/]	$.0207[5/]
Mid-Peak	.011419	.01166	.0095	.021	.0207
Off-Peak	.011419	.01016	.0095	.021	.0207

1/ From Exhibit 37 (a revised proposal different from that in the application).

2/ This rate is applied to the on-peak demand plus one-half of the amount by which the mid-peak demand exceeds the on-peak demand.

3/ Assuming the Edison power factor adjustment is rejected; if not then the kw charge is $2.413.

4/ 2.1¢/kwhr -.9581¢/kwhr = 1.1419¢/kwhr.
Fuel clause adjustment of .949¢/kwhr adjusted for voltage discount of .95% = .9581¢/kwhr.

5/ Includes fuel clause adjustment of .949 mills.

Edison's power factor adjustment clause has been changed to correspond to the power factor provision in Resale Schedule No. R-2 on which Edison's large resale accounts subject to FPC jurisdiction are billed. The Staff's power factor adjustment clause is the same as Edison's.

Edison has added a load factor discount to provide lowered charges to those customers who have practiced conservation through load leveling and more efficient use of presently available capacities. It also provides an additional incentive, especially to low load customers to shift load to off-peak periods, due to the definition of billing demand.

Edison also proposes to change the interval for measuring metered maximum demands from the 30-minute interval in Schedule No. A-8 to a 15-minute interval in Schedule No. TOD-8.

D. Issues

1. Should time-of-day rates be cost related?
2. Are demand control rates preferable to time-of-day rates?
3. What time periods should be adopted for TOD-8 customers?
4. Which customer charge should be adopted?
5. Should the change in the power factor adjustment clause proposed by Edison and the Staff be adopted?
6. Should the time interval for measuring maximum demand be reduced from 30 minutes to 15 minutes?
7. What demand charge should be adopted?
8. Should the energy charge be uniform or time-varying?
9. Should Edison's load factor discount be adopted?
10. What percent reduction in maximum on-peak demand should be adopted for setting appropriate rate levels in Schedule No. TOD-8?
11. What are the consequences in this proceeding of the Commission's Decision No. 86794, issued December 21, 1976 in Application No. 54946 and Decision No. 86760, also issued December 21, 1976 in Application No. 56822?

12. What effect will the adoption of Schedule No. TOD-8 have on the special off-peak contract between Edison and MWD.

E. Discussion

1. Should time-of-day rates be cost related?

Both Airco, Inc., and Monsanto (A-M) are power-intensive industries, and for some of their processes, the cost of electricity is as high as 50 percent of the product cost. The rate design philosophy of A-M is that each customer class and each customer within a customer class should pay rates which reflect, as nearly as possible, the costs which that customer imposes on a utility. To the extent that time-varying rates can be developed which track time-varying costs associated with serving different customers A-M would endorse time-varying rates. However, A-M believes that it is premature to implement TOD rates because little is known or can be predicted as to their consequential impact on Edison, the consumer and, ultimately on the economy of the service area in which Edison serves.

A-M's witness Cleary testified that TOD pricing embraces the concept that idle manufacturing capacity should be substituted for idle electric generating capacity. He believes that when business is good, industry will run flat out, all the time, because even during peak pricing hours, incremental revenue will exceed incremental cost. During recessions industry will cut, not shift, peak hour consumption. Thus with TOD rates some revenue instability may occur.

Cass D. Alvin, Director of Public Information for the United Steelworkers of America, testified in part as follows:

> "The present agenda of the Commission concerns itself with a time-of-day pricing arrangement aimed, we assume, at a possible redistribution of power demand to ease the peak loads." (Tr. 803.)

* * *

"Requiring an employer to shift his power load to a time period inconsistent with production and scheduling requirements will in many cases impose substantial increases in costs for labor and reduce efficiency to a point where more power is actually used and production made more cumbersome and therefore more costly.

"In order to meet such unrealistic standards, most employers will be forced to raise prices.

"Others, faced with a problem of scheduling that cannot be resolved, may curtail, if not discontinue, production altogether.

"In nearly every facility where continuous production depends on such elements as time, temperatures, chemical reaction, et cetera, the time-of-day tariff approach is unreasonable, unfair and again will result in loss of jobs either totally or in the reduction of income to the workers who should not be made victims of an arrangement that is ill-considered.

"What we have is a very complex, interrelated system of production, with manpower utilization, schedules, product distribution and timing, and market requirements that differ from power availability, to name but a few of the multifactors in our system.

"Conservation of energy and flattening of peaks and valleys of usage are highly desirable but cannot and should not be achieved at the expense of burdening our economy with further job losses and higher prices - the twin demons of our time.

"We respectfully urge that this Commission avoid any action that would prove to be detrimental to the worthy goals of full employment and stable prices." (Tr. 804-5.)

Assemblyman Montoya also testified at the hearing. In response to the following statement by the Presiding Examiner:

"You are fully aware that this proceeding arose out of a former direction from the Legislature to give careful consideration to time-of-day rates?" (Tr. 859.)

Assemblyman Montoya gave testimony as follows:

> "I am fully aware of that. I guess I must apologize for some of the kinds of things we do.
>
> "We probably will not know the full impact of what we have done in this legislative session until later in the interim.
>
> "It seems that again I am aware of having asked you as a legislator for consideration of, you know, of how we might reach a better conservation level, but now I am sure that two years hence that everyone is a little bit more aware of how you have to trade off and consider the, you know, the question of employment and jobs.
>
> "It doesn't do a heck of a lot of good to be totally concerned about energy conservation if the guy out there doesn't have a job to pay that minimal life-line cost." (Tr. 859-860.)

Exhibit No. 24 is a copy of House Resolution No. 123 relative to Public Utilities which was passed by the Assembly on August 31, 1976. Senate Concurrent Resolution No. 113, substantially the same as House Resolution No. 123, was passed by the Senate on August 31, 1976, but due to time restrictions was not passed by the House. The resolved clauses of House Resolution No. 123 reads as follows:

> "Resolved by the Assembly of the State of California, That it is the desire of the members that the Public Utilities Commission of the State of California fully consider, when setting rates for the sale of electricity by its regulated utilities, the effect of those rates on the ability of the steel industry in this state to continue to operate in a competitive manner, and the effect of those rates on employment levels within that industry, and generally throughout the state; and be it further
>
> "Resolved, That it is the desire of the members that the Public Utilities Commission of the State of California give equal consideration,

> when setting rates for the sale of electricity by the regulated public utilities, to the need for the conservation of energy resources and the effect of those rates on the economic health of the state and on levels of unemployment; and be it further
>
> "Resolved, That the Chief Clerk of the Assembly transmit copies of this resolution to the Public Utilities Commission of the State of California and to each of its member commissioners."

In their brief Bethlehem Steel and California Manufacturers Association (Steel-CMA) assert that the Staff's departure from cost in its rate proposal is in part recognition of the futility of attempting to create reduced on-peak system demand through the application of time-of-day rates to large, high load factor, industrial customers. They contend that even with arbitrarily high rates during on-peak periods, significant load shift by the large industrial customers is very unlikely and that such arbitrary rates create tremendous additional burdens on those customers who cannot shift.

With respect to the operations of Bethlehem Steel's Los Angeles plant, witness Hanson testified that:

> "The major producing units of the plant normally operate three shifts per day, 5 to 7 days per week depending on the level of business demand. Most commonly, the plant is in operation 7 days per week." (Exhibit No. 13 at p. 4.)

Witnesses for Kaiser Steel Corporation (Tr. 681), Soule Steel Company (Tr. 571), and Pacific Tube Company (Tr. 518-19) also testified regarding the continuous nature of the operations at their respective manufacturing facilities.

Where industrial customers, due to slack demand for their product or simply the nature of their operations, do not operate on a continuous basis, there still exist tremendous impediments to the shift of electricity usage away from the peak period.

Witness Zinn of Pacific Tube Company testified as follows:

"Pacific Tube Company is opposed to the proposed time-of-day rate structure because of the unfair burden it places on large manufacturing facilities that operate on a continuous basis.

"Both the Public Utilities' staff and Southern California Edison proposed rates include very high charges for demand used during peak times of day.

"The reasoning is that the user will reduce demand during these periods to avoid the cost penalties.

"If the user, like Pacific Tube, is operating a 24-hour-per-day, three-shift schedule, the demand for various times of day is essentially the same or level.

"This is due to the load distribution and use in the facility.

"As part of an ongoing energy conservation program, we have recorded the various demand levels in our plant and the time of day that they occur. We find that less than 8 percent of the load varies with the time of day. That 8 percent consists of office lighting and air-conditioning and outside night lights.

"The manufacturing load makes up 92 percent of the demand and is almost constant during the work week if full shifts are worked."

* * *

"Because of the nature of the processes in our plant, it is not possible to curtail only part of the plant for any length of time.

"The scheduling of various production processes and machinery are interrelated and cannot be adjusted for a four-to-six hour shutdown of part of the machinery. If a large part of the machinery is shut down for that long, the rest of the plant must be shut down also.

"To obtain the results hoped for in the time-of-day proposal, it would be necessary for us to close down our entire plant during peak periods. This would require eliminating one shift.

"In our situation this would be completely impractical. Our union contract is with the United Steel Workers and sets forth the working hours, shift differential, et cetera. Eliminating a day shift would increase our unit cost."

* * *

"Our continuous furnaces would have to be emptied prior to the end of the shift and the start up at the beginning of the shift would further decrease production.

"To make up this production, it would require weekend work, imposing further costs through overtime.

"The above reasons are all economic, but the hardship imposed on our labor force, their home life, et cetera, is difficult to measure.

"In deleting a day shift in the summer we would have to continue to operate the offices to deal with our customers on the one hand, but would lose communication ability with the production department on the other.

"Our metallurgists, quality assurance, and other technical people deal not only with our production department but also with customers and their technical groups.

"Shipping and receiving locally would also be a problem because the firm on the other end might not be open at night. We would probably have to increase our electrical load by 5 percent, with additional night lights to facilitate shipping and receiving operations in our outdoor material areas.

"Furnaces would have to be idled while the plant is shut down, causing a waste of gas.

"The pickle tanks would have to remain hot, causing the waste of oil and gas for the boilers.

"Although we would save electricity during a one-shift plant shutdown, we would consume fuel causing increased costs per ton and defeating current conservation measures.

"After considering the costs of all these other problems, we compared it with the saving on the power bill if we were to shut down a shift; and we find it just cannot be done. It appears it will be necessary to pay the penalty demand rate and operate continuously.

"We would like to point out that we already feel strong domestic and foreign competitive pressure in our product line.

"A large electrical rate increase will cause us to be in an untenable position. We cannot make up for a 25 percent difference in power between what we pay and what a competitor pays.

"Even local competition with smaller demand can hurt our ability to compete.

"If the demand charge were raised sufficiently, we would have to reconsider a shut down and lose that production during peak periods. There is no way to get the same production out of the reduced time periods in our facilities.

"The impact could be unemployment and less product available. This would cause us to lose a part of our market.

"Because our competition may not have to adhere to these rates, we may never be able to be competitive in the market place. This same comment applies to our suppliers, the local steel mills.

"In conclusion, we strongly recommend that the Commission reconsider the time-of-day rate structure to make allowance for the large power users with steady demands.

"Customers like Pacific Tube that have a steady predictable demand should not be penalized for power used during peak periods.

"This is particularly true for customers who are already actively conserving power and providing a level demand on the utility system."
(Tr. 512-22.)

Bethlehem Steel has experienced a rapid and substantial increase in the cost of electricity supplied to its Los Angeles plant since 1970. The cost has risen from 0.799 cents per Kwh in 1970 to 2.542 cents in 1975 and to 3.0 cents in June of 1976 (Exhibit No. 17 at p. 5). With respect to the competitive cost disadvantage witness Hanson stated that:

> "The cost disadvantage for the Los Angeles plant varies from 1-1/2 times more costly when compared to Arizona, to 7 times more costly when compared to Washington. At the present time, discounting any additional rate increases which may be allowed in Edison's pending general rate proceeding, Bethlehem Steel is in a position in which it costs roughly the same amount to make and semi-finish steel at our Seattle, Washington plant and ship it to Los Angeles for final processing as it does to make and finish the steel entirely in Los Angeles." (Exhibit No. 17 at p. 6.)

Mr. Hanson continued:

> "It is clear to me that Bethlehem's Los Angeles plant is at a great competitive disadvantage as compared to Bethlehem's Seattle plant and other steel plants in the western states, even without consideration of the added costs which either the Staff or Edison proposals would create. I fully expect that this is generally the case with all California steel plants as compared to steel plants located in other states and in foreign countries. I believe this competitive disadvantage could conceivably result in curtailment of operations and ultimately the cessation of steel plant operations. In the case of Bethlehem, this would result in a direct loss of nearly 2,000 jobs and would surely result in additional job losses for our suppliers and customers. The resulting effect on the economy of Southern California and reduction in tax revenues would be very significant. . . ." (Exhibit No. 17 at pp. 6-7.)

Steel-CMA point out that a very major problem with any time-of-day rate schedule, which is greatly compounded when the rates are not based on cost, is that any customer which is unable to respond to the schedule, will be saddled with significantly increased costs of electricity. They urge the Commission fully to consider the effect that implementation of time-of-day rate proposals will have on the competitive position of Edison's large industrial customers and on their ability to continue to employ Californians.

In its brief General Motors (GM) submits the following conclusions:

> "1. Time-of-use pricing policies are valid and useful components of the electric rate structure only if they are grounded in real, existing cost-of-service differentials.
>
> "2. A responsible approach to the implementation of time-of-use pricing requires that the effect of specific changes and the socioeconomic consequences thereof be assessed before such changes are implemented.
>
> "3. The evidence adduced herein reveals the arbitrariness of the rate differentials incorporated into the CPUC Staff proposal, which in the final analysis represents an attempt to compel changes in electricity usage patterns in the face of utility cost realities and competing policy considerations.
>
> "4. The time-of-day proposal advanced herein by the Airco-Monsanto witness, as the proposal most consistent with sound cost attribution principles and the cost and other operating characteristics of the Edison system, in particular, should be adopted by the Commission."

The Commission will reconfirm its findings 30, 79, 81, and 82 in Decision No. 85559 which in part read as follows:

> "30. Time-of-day pricing which reflects the cost of producing electricity at daily demand peaks should be required on rate schedules covering large usage customers where substantially all the necessary metering equipment already exists. . . ."

* * *

"79. If this Commission establishes electric rates for California industries which are considerably higher than electric rates which are charged competitive industries elsewhere, it may result in a loss of the competitive position of the California industries in the national and international markets and may give the California industries an incentive to move to more favorable geographic locations with a consequent loss of jobs and reduction in the economic base in California."

* * *

"81. The era of abundant and low-cost energy has passed and we are now faced with energy shortages and soaring energy costs. Average costs alone are no longer controlling when conservation is a principal consideration in establishing the electric rate structures for California utilities. Both average and incremental costs should be considered in establishing electric rates.

"82. The Commission should continue carefully to consider the economic consequences of its ratemaking policies in future proceedings."

In Conformance with House Resolution No. 123, this Commission in this proceeding will consider the effect of time-of-day rates on the ability of the steel industry in this state to continue to operate in a competitive manner, and the effect of those rates on employment levels within that industry, and generally throughout the state, and will give equal consideration in setting the time-of-day rates to the need for the conservation of energy resources and the effect of those rates on the economic health of the state and on levels of unemployment.

2. Are demand control rates preferable to time-of-day rates?

Steel-CMA have urged the Commission to consider implementation of some form of demand control rate schedule. Bethlehem's witness Hanson set forth his view that a demand control or curtailable rate schedule would provide a more effective and less disruptive method than time-of-day pricing of reducing system peak demands when the system peak approaches maximum system capacity. Under such a schedule customers would be provided with an incentive to shift demand away from the peak only on the relatively small number of occasions when the system approached its capacity rather than on a daily basis.

The Commission has found that it is not necessary to choose between time-of-day rates and demand control rates as both types of rates should be implemented because they both will encourage conservation of energy. The implementation of demand control rates is outside the scope of this proceeding, but the Commission will reaffirm its finding 70 in Decision No. 85559 which provides as follows:

> "70. The respondent utilities should be directed to continue their experimentation with, development of, and expansion of the use of demand control rate schedules and automatic or semi-automatic load curtailment and interruptible load schedules, looking toward adequate off-peak rate incentives."

3. What time periods should be adopted for TOD-8 customers?

Edison has pointed out that the primary objective of TOD pricing is to place smaller demands on the system during daily periods of greatest demand, thereby permitting a delay in construction of new high cost generating facilities. Decision No. 85559 contemplates TOD pricing not only for the larger customers but also for customers with demands below 500 kw. Edison contends it is essential that the definition of time periods be such as to be appropriate for all customer groups. To have widely differing time periods for the several customer classes or groups would be counterproductive.

Edison analyzed its typical system weekday load curves including scheduled maintenance for the years 1971-1974. Edison's witness Larsen after reviewing such data used the following tests to formulate and evaluate his definition of time periods:

> "1. All daily weekday loads should occur in the period defined as on-peak.
>
> "2. The secondary peaks should be included in the on-peak period, . . .
>
> "3. Scheduled maintenance should be added to the load so as to reflect the effect on reserve margin . . ..

"4. The deviation of typical load patterns for weekday loads should be considered by looking at the range of loads (see Ex. 6-C).

"5. Finally, the definitions for the time periods should be tested with recorded data to see if they result in a realistic load frequency curve (see Ex. 6, sheet 2)."

During the summer period Edison proposes to set the peak on weekdays from 8:00 a.m. to 10:00 p.m., A-M from 10:00 a.m. to 10:00 p.m., FEA from 12:00 m. to 10:00 p.m., and the Staff from 12:01 p.m. to 6:00 p.m. The Staff would also designate summer mid-peak periods from 8:01 a.m. to 12:00 m. and from 6:01 p.m. to 10:00 p.m.

During the winter period Edison proposes to set the peak on weekdays from 4:00 p.m. to 10:00 p.m. The other parties would set the peak from 5:00 p.m. to 10:00 p.m. The Edison mid-peak would be from 8:00 a.m. to 4:00 p.m., the A-M and Staff mid-peak would be from 8:00 a.m. to 5:00 p.m., and FEA would provide no mid-peak.

A-M witness Brubaker testified as follows:

"I concluded that the time periods proposed by SCE provide less opportunity for load shifting than do the time periods proposed by the Staff. It is also obvious that the more narrowly defined on-peak hours embodied in the Staff proposal increase the potential for creating new or secondary peaks outside, but on the periphery of, the peak periods. The choice between the two proposals basically involves a judgment as to the magnitude of probable load shifts expected to result from implementation of time-of-use rates. If only the A-8 class were to be subjected to time-of-use rates, the peak hours could be defined narrowly without creating a serious potential for secondary or shifted peaks since the load shifts by this class are not expected to be large. However, the time-of-use pricing plan for California,

as set forth by the Commission in Decision No. 85559 in Case No. 9804, comprehends the application of time-of-use rates to other customer classes who have lower load factors and less consistent load patterns - - which raises the question of how the load shifts of these other classes (if any) would interact with the load shifts (if any) of the A-8 class in terms of changing system load shapes.

"In my opinion, a more logical sequence of events would have been to conduct additional load research and testing of those customer classes whose load patterns are the most responsible for the 'peaking' characteristics of the SCE system - - before proceeding to a finely turned time-of-use rate schedule for the A-8 customers who are the least responsible for the peaking characteristic of the SCE system. This approach would have permitted a more reasoned selection of time periods."

* * *

"To minimize the problems which I have just described, I believe it is prudent to adopt a broader definition of on-peak hours than would be acceptable if we were concerned only with time-of-use rates for A-8 customers. However, these hours should, at the same time, be narrow enough to provide some flexibility for load shifting."

In its brief GM asserts that the specific time periods adopted by A-M witness Brubaker represent the optimum resolution of the competing policy considerations and offer the best framework within which time-of-day rates can be extended to other classes.

DOD contends that the hours of the time-of-day tariff should be the most liberal possible in order to provide the potential customers the greatest opportunity to shift loads. Therefore, DOD recommends that the Staff's proposed hours be adopted.

FEA contends that the choice of peak period hours is a two-step process. First it is necessary to estimate the probability that the load in particular hours will exceed the previously established system peak levels. The second step is to determine the level at which customers should share in the cost of system peak expansion.

FEA submits that the important factor is the frequency of a significant load occurring in a particular hour, as a guide to the assessment of the probability that a system peak will occur in that hour in future years, rather than the fact that such a significant load occurred once or a few times in such hour. Edison's apparent requirement that all hours in which a significant load has occurred at some time in the past should be included in the peak period is one of the reasons why Edison's number of peak period hours is greater than FEA's. To assign a demand charge to hours with almost no likelihood of exceeding system peak would price them in excess of costs and would thus act as a disincentive to shift loads to those hours.

FEA believes that it is unwise to accept Edison's 80 percent as the proper basis of a summer peak period. FEA contends that a more appropriate basis results from an analysis of the number of times that somewhat higher loads occurred during noon on the Edison system, and from an examination of the differences between maximum and minimum loads to show probability of the occurrence of maximum load in those hours.

FEA is concerned that a summer peak period as long as Edison has proposed will not allow Edison to learn as much about the response of very large power customers to varying prices than if a shorter on-peak period were chosen. Shorter on-peak periods are likely to cause more load shifting.

FEA also submits that there is no cost or other justification for the creation of mid-peak rating periods on the Edison system at this time. A more appropriate and cost based approach would be to avoid a mid-peak period, but to be ready to extend the on-peak period to some of the off-peak hours in the very unlikely event that the very large power customers react by threatening to create a new peak during the off-peak hours.

We are influenced by the testimony of the A-M witness that the time periods proposed by Edison offer less opportunity for load shifting than more narrow on-peak hour periods. A winter mid-peak period as proposed by Edison, A-M, GM, the Staff, and DOD should be established, as well as the summer mid-peak period as proposed by the Staff.

We find that the time periods proposed by the Staff represent the best resolution of the competing policy considerations and should be adopted by this Commission in this proceeding with eight of the holidays designated by the Staff in its brief being included in the off-peak period. These time periods are as follows:

	SUMMER		WINTER	
		Staff		Staff
Peak:	12:00 noon to 6:00 p.m. (weekdays, excluding 8 holidays)		Peak:	5:00 p.m. to 10:00 p.m. (weekdays, excluding 8 holidays)
Mid-peak:	8:00 a.m. to 12:00 noon 6:00 p.m. to 10:00 p.m. (weekdays, excluding 8 holidays)		Mid-peak:	8:00 a.m. to 5:00 p.m. (weekdays, excluding 8 holidays)
Off-peak:	10:00 p.m. to 8:00 a.m. (weekdays) and all day Sat., Sun., & 8 holidays		Off-peak:	10:00 p.m. to 8:00 a.m. (weekdays) and all day Sat., Sun., & 8 holidays

Off-peak holidays are New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, and Christmas.

4. Which customer charge should be adopted?

Edison has recommended a monthly customer charge of $1,850 which represents the fully allocated customer costs for the TOD-8 customers, as shown in Exhibit 6A, Sheet 4 (Revised). DOD has recommended $1,900, FEA $2,000, A-M $1,775, and the Staff $800. The Staff witness conceded that the $800 per month would cover only part of the associated costs to serve an average TOD-8 customer, but points out that the $800 charge is set to recover the cost of serving a small TOD-8 customer so that the small TOD-8 customers will not be required to subsidize the large TOD-8 customers. Under the Staff proposal the additional customer costs for the larger TOD-8 customers are recovered in the Staff's two-part demand charge.

The Commission will adopt the $800 per month customer charge proposed by the Staff witness.

5. Should the change in the power factor adjustment clause proposed by Edison and the Staff be adopted?

The Edison witness and the Staff witness both recommended a modification of the power factor adjustment clause so that Edison would measure and charge for the maximum reactive demand, rather than the average reactive demand, as is the case at present. The Edison witness stated:

> "Under my proposal, Edison would measure the customer's maximum reactive demand which would generally occur at the same time as his maximum KW demand. My proposal would more accurately reflect the costs that the customer imposes on the system and thus provide an additional incentive for the customer to control his total load." (Exhibit No. 37, pp. 5-6.)

Edison contends that the power factor adjustment clause will more accurately reflect the demands of the customer, because Edison must not only meet the customer's kilowatt requirements but also his kilovolt-ampere or kva requirements, which require additional generating capacity.

DOD contends that the proposed change in the power factor clause will not provide an incentive to shift load and its adoption would provide an additional variable which would make a before and after analysis of the effect of time-of-day rates more difficult.

The A-M witness testified as follows regarding the proposed power factor clause:

> "With respect to the power factor clause, SCE essentially proposes to change the power factor provision from one based on the average monthly power factor, to one based upon a customer's power factor at the time of his peak demand. A review of both present and proposed power factor clauses, as well as the revenues which SCE associated with the two provisions, indicates that the power factor based on peak demand was assumed to be the same as the power factor measured on an average monthly basis. To the extent that the power factor based on the peak demand is lower than the average monthly power factor, SCE has understated the revenues attributable to the proposed power factor adjustment clause. Also, a change of this type would complicate the evaluation of customer behavior in response to the pure time-of-day aspect of the proposed rate change. Accordingly, it is my recommendation that the present power factor clause be continued." (Exhibit No. 27, pp. 10-11.)

The Staff witness testified that the net effect of the present power factor clause has been a raw bill reduction of 11 cents per kw, and the net effect of the changed power factor adjustment will be an increase of five cents per kw from the raw bill to the final bill. The proposed increase in the power factor adjustment charge is compensated for by a decrease in the proposed demand charge, however, and so no incentive is provided to shift load.

In view of the fact that the recommended modification of the power factor adjustment clause will more accurately reflect costs that the customer imposes on the system, it will be adopted by the Commission, even though to compensate for the increased charges resulting therefrom, the demand charge will be less than it otherwise would be, and therefore no additional incentive will be provided to shift load.

6. Should the time interval for measuring maximum demand be reduced from 30 minutes to 15 minutes?

Edison's present Schedule No. A-8 provides for the measurement of the maximum average kilowatt on which the demand charge is based to be made on a 30-minute interval basis. Both the Edison witness and the Staff witness recommend that the 30-minute interval be reduced to a 15-minute interval. This could be effected by the use of the metering equipment already installed for the TOD-8 customers.

Edison's witness has pointed out that some of Edison's customers have installed demand control equipment which is designed to "overlap" the 30-minute intervals by permitting their respective demands to increase in the last half of one 30-minute interval and in the first half of the next 30-minute interval. Such customers are imposing higher demands on the capacity of the Edison system during a portion of the 30-minute period than they are imposing over the entire period. For example, a customer who imposes a demand of 6,000 kw for 15 minutes and then 8,000 kw for the next 15 minutes would be billed for a demand of 7,000 kw under existing Schedule No. A-8. Another customer who imposes a demand of 7,000 kw consistently for the entire 30 minutes would also have a billing demand of 7,000 kw. The demand charges for those two customers would be the same, even though the first customer has imposed a higher generation requirement and thus a higher cost on the Edison system.

Regarding the proposed reduction in the time interval A-M witness Brubaker testified as follows:

> "With respect to the metering interval, SCE proposes to reduce the measurement interval from thirty minutes to fifteen minutes - - which would increase the total number of kilowatts billed. The effect of this proposed 50 percent reduction in the interval for demand measurement was not incorporated into SCE's revenue calculations. Furthermore, the effect of this proposed change in metering interval on billing demand is not known. In addition, such a change would complicate any evaluation of customer behavior under the new time-of-use rate. Changing both the concept of the rate to a more explicit time-of-day rate, and simultaneously altering the billing demand interval would make it very difficult to assess the effects created by the time-of-use concept in and of itself. Accordingly, it is my recommendation that the thirty-minute demand metering interval be continued."
> (Exhibit No. 27, p. 10.)

Steel-CMA point out that several customers testified that they have, at considerable expense, installed demand control equipment in their facilities. At Kaiser Steel's Fontana plant the computer reads demand levels on equipment all over the plant to a dispatcher. The dispatcher is able to determine from the computer a rate of increase of demand which he uses to predict whether demand will exceed a pre-established benchmark. If he expects the benchmark to be exceeded he shuts down usage in certain sections of the plant thereby keeping the usage within the benchmark. (Tr. 680-87.)

Steel witness Hanson testified regarding the effect of the change from a 30-minute period to a 15-minute period as follows:

> "We have reviewed available data and have found that the uncontrolled portions of plant electrical power demand will average out at a higher level for a fifteen-minute period than for a thirty-minute period. This results in a decrease in power available to the steelmaking furnaces, resulting in a 2-3 percent decrease in tons per furnace hour, or about 1,000 tons/month, at a normal level of operation." (Exhibit No. 17 at p. 11.)

Steel-CMA contend that rather than being used to increase the system load as suggested by the Edison witness, the demand control equipment is used to benefit the system by reducing demand and the Commission should not do anything to discourage its continued use. The alternative would be to abandon the attempts to control load, thereby creating a higher demand on the system.

Steel-CMA also agree with A-M witness Brubaker that the reduction in time interval should be rejected because the adoption of the shortened interval will have some revenue effect which has not been reflected in Edison's rate proposal and because it will make an evaluation of customer response to time-of-day rates more difficult.

DOD also opposes the change in the metering interval for the reasons stated above. DOD points out that Edison already has a remedy for a customer which has a demand that is intermittent and/or subject to violent fluctuation in its Special Condition 3 which provides:

> "Where demand is intermittent or subject to violent fluctuations, a 5-minute interval may be used."

The Commission will authorize the reduction in the time interval for measuring maximum demand from 30 minutes to 15 minutes because this change is consistent with the Commission's objective of encouraging control by the customers of their electric energy demand needs and of recognizing customer load characteristics that impose additional cost burdens on electric utilities. In establishing the level of time-of-day rates in this proceeding the Commission will consider the fact that additional revenue will be produced for Edison by the reduction in the time interval for measuring maximum demand.

7. What demand charge should be adopted?

Edison, the Staff, and DOD all agree that the demand component of the rate in Schedule No. TOD-8 should be time-varying. DOD's proposed on-peak demand charge is the highest, it being $2.413 per kw billing demand assuming the Edison power factor adjustment clause is adopted. Edison recommends $2.30 per kw of billing demand, while the Staff recommends $2.033 per kw of on-peak billing demand. The Edison proposal defines "billing demand" as the on-peak demand plus one-half of the amount by which the mid-peak demand exceeds the on-peak demand. DOD proposes to charge $.60 per kw mid-peak billing demand, and the Staff proposes a charge of $.25 per kw mid-peak billing demand. No charge is proposed by Edison, the Staff, or DOD for off-peak demand.

A-M proposes a charge of $2.28 per kw on-peak billing demand and FEA proposes a charge of $2.10 per kw on-peak billing demand. Neither A-M nor FEA proposes any charge for mid-peak and off-peak demands.

Both the Edison witness and the Staff witness recognize that the demand rate serves a balancing function to enable Edison to recover its overall cost of service, including an adequate return. In his rate design the Edison witness assumed a 10 percent reduction in the noncoincident demands of the TOD-8 customers while the Staff witness testified that a 2-1/2 percent on-peak demand reduction would be a reasonable target for Edison's TOD-8 customers.

FEA in its brief points out that essential elements underlying the derivation of its proposed demand charge are:

> "...first, the choice of a demand cost as determined for the VLP customer on Schedule A-8 for the test year, including maintenance and capital expense associated with production, transmission and distribution functions and those administrative and general expenses which vary with levels of demand; second, comparison of this demand cost with the cost of peaking capacity, i.e., the incremental cost of demand; and third, a decision to retain the historical demand cost in light of (a) the need to design a tariff to meet the revenue requirement developed by Edison for the VLP customer group and (b) a desire to minimize the degree of unfamiliarity during the period of transformation from traditional rate structures to time-of-use structures."

The FEA demand charge is assigned to peak period hours only for the following reason:

> "Use during such off-peak hours does not add to system cost of capacity and a shift of demand from the peak hours as I have defined them into the off-peak hours as I have defined them will in fact create the opportunity to reduce system cost to the benefit of all ratepayers as well as to Edison." (Exhibit No. 23, pp. 24-25.)

FEA contends that to assign off-peak users a demand charge would provide those users with electricity prices in excess of the costs they impose on the system.

A-M witness Brubaker discusses the deficiencies of the Edison and the Staff billing demand charges as follows:

> "With respect to presently effective Rate A-8, a customer who has essentially level demands may not receive any benefit from shifting loads from on-peak to off-peak hours. For example, if a customer initially had a constant demand of 10,000 kilowatts, reducing his on-peak demand to 9,000 kilowatts and increasing his off-peak demand to 11,000 kilowatts would still result in his being assessed for a demand charge based on 10,000 kilowatts (although his energy charge would be lower). With respect to SCE's TOD-8 Rate, a similar problem exists with respect to the incentive for shifting from on-peak hours to mid-peak hours - - in that the billing demand is defined as the on-peak demand plus one-half of the amount by which the mid-peak demand exceeds the on-peak demand. Thus, shifting so that the on-peak demand decreased by 1,000 kw and the mid-peak demand increased by 1,000 kw would not cause any reduction in the billing demand of a customer with the same demands during on-peak and mid-peak periods. With respect to the CPUC Staff proposal, a customer would save the on-peak demand charge by shifting load from the on-peak to the mid-peak period, but this savings would be reduced by the extra charge assessed for all demand shifted to the mid-peak." (Exhibit No. 27, pp. 12-13.)

A-M witness Brubaker's proposal defines the billing demand as the largest of: "(a) the maximum demand established during on-peak hours, (b) 75 percent of the maximum demand established during mid-peak hours or, (c) 50 percent of the maximum demand established during off-peak hours." (Exhibit No. 27, p. 13.) Witness Brubaker explains provisions (b) and (c) as follows:

> "The 50 percent provision which applies to off-peak demands provides significant freedom to shift demands without losing the benefit of reduced demand charges, and at the same time avoids conveying the impression that off-peak demands are totally without consequence to the system. The 75 percent feature for mid-peak demands was selected to provide some cost savings for shifting demands from on-peak hours to mid-peak hours, while at the same time providing a lower incentive for shifting to mid-peak than to off-peak periods." (Exhibit No. 27, p. 13.)

DOD contends that its proposal should be adopted because it provides the greatest incentive to move completely to the off-peak period and also to moderate demand during the mid-peak period.

The demand charges proposed by the Staff will be adopted in this proceeding, as they provide an appropriate incentive to shift demand from the peak period to the off-peak period and also give recognition to moderation of the demand during the mid-peak period, and the level of the charges is based on a 5 percent reduction in on-peak demand by the TOD-8 customers. For the reasons explained hereafter in the discussion relating to issue 10 below, the 5 percent reduction in on-peak demand will be adopted.

8. Should the energy charge <u>be uniform or time-varying</u>?

All of the parties except the Staff proposed a single energy charge, based on average system costs, which does not vary with the time-of-day periods.

The Edison witness, in analyzing Edison's energy costs, reviewed data by time-of-day with respect to Edison's average fuel and purchased power costs, both on a recorded basis for the year 1974 and for the year 1976 estimated under average year conditions. The hourly data were developed from the dispatch records and monthly fuel cost reports for each of Edison's generating stations. The hourly estimates were developed by adjusting 1974 recorded data to average year conditions and then escalating them to the 1976 level of costs.

The Edison witness testified that the 1974 data showed a general level for such fuel costs (including purchased power) of about 10 mills per kwh, with very little difference in operating costs at the various hours of the day. With respect to the 1976 estimate, although the level of cost had almost doubled to just below 20 mills per kwh, the cost difference between the off-peak and on-peak periods, as defined by Edison, was projected to be less than it was for the recorded year 1974. Moreover, Edison's studies of such 1976 costs indicated that they do not vary significantly or consistently by time-of-day; in fact, the off-peak energy costs were often higher than those incurred during the on-peak period.

The Edison witness also reviewed short term incremental fuel cost data (system lambda) on an average hourly basis with respect to the several time period definitions proposed by Edison and by the Staff. Under the Staff's definition of on-peak and off-peak hours, the monthly differences between such incremental costs during those two periods result in an average annual difference of 0.62 mills per kwh. Under Edison's definition of on-peak and off-peak hours, the differential is only 0.56 mills per kwh.

On the basis of these studies the Edison witness concluded that the energy costs on the Edison system should be considered as relatively constant over the 24 hours of the day.

The Staff witness testified that he based his varying energy charges on the weighted commodity cost differential of 1.7 mills between the on-peak period (15.3 mills per kwh) and off-peak period (13.6 mills per kwh) shown on Table 1 of Exhibit No. 7. The incremental energy costs in Exhibit No. 7 are isolated by type of generation (nuclear, coal, combined cycle, and combustion turbine), and reflect Edison's future resource additions over a planning period of ten years (1976-1986). In addition, he considered the relatively expensive cost of combustion turbine generation at 45-50 mills per kwh. The Staff witness added two mills to Edison's present A-8 tail block rate of 1.116 cents per kwh to develop a rate of 1.316 cents per kwh for on-peak consumption. He then reduced the on-peak rate by 1-1/2 mills to produce a mid-peak rate of 1.166 cents per kwh and by another 1-1/2 mills to produce an off-peak rate of 1.016 cents per kwh.

System lambda is a cost figure representing, on a current basis, the fuel expense underlying the next incremental increase of generating load on the Edison system. The lambdas are based on telemetered input from Edison generating units under computer-controlled dispatch. The lambdas which approximate short run incremental costs were introduced by Edison in Exhibit No. 14. The Staff, however, points out that the lambda figures exclude costs associated with hydro generation and combustion turbine peaking units, neither of which is under computerized dispatch. Even though the next actual load increment may be low cost hydro generation at 2.0 mills per kwh, or exclusive combustion turbine generation at 45-50 mills per kwh, the lambda will not show these costs, but will substitute the fossil fuel expense of another unit.

On the other hand, Edison points out that the differential of 1.7 mills based on long run incremental costs in Table 1 of Exhibit No. 7 is dependent upon the period of time in the future to which one looks. If the ten year period (1976-1986) were reduced to a seven year period (1977-1984), almost all of the planned combustion turbine installations would be eliminated and the 1.7 mill differential would be reduced to .6 mills.

With respect to the combustion turbines, witness Kent who is the Superintendent of Edison's Power Supply Department pointed out that combustion turbine units are not necessarily operated on the Edison system to meet the daily system peaks. Exhibit No. 32 shows that the combustion turbines were in service for only 7.6 percent of the Staff's recommended on-peak hours in 1975 and only 2.2 percent of those recommended on-peak hours during the first seven months of 1976. He further stated that combustion turbines produced only 0.012 percent of the total kwh generated each day during 1975.

Witness Kent testified that there are three basic factors on the Edison system which affect the on-peak/off-peak differentials in incremental energy costs. First is the fuel cost for those units which move or swing with load changes on the system throughout the day. As the single swing fuel is oil 24 hours a day year around, there is little differential due to this factor disregarding the infrequent operation of the combustion turbines. The second factor is efficiency. About 90 percent of the gas-oil-fired generating units on the system have been built since 1952, have similar efficiency characteristics, and hence form a narrow incremental cost band. The third factor is the method of dispatch which is based upon minimum NOx emissions. This method of dispatch produces a lower cost differential than that which would result under an economy method of dispatch.

FEA witness Dr. Bower proposed a flat energy charge. He chose the historic energy charge because the incremental and historic energy costs are very close and because the revenue requirement can be more easily and simply satisfied with the use of the historic energy cost than if the incremental costs were used. Dr. Bower recognizes that electric rates should "provide prices that reflect incremental costs or that reflect certainly relative incremental cost differences". (Tr. 843.) In this proceeding, however, the flat energy charge was proposed because of the flatness of the Edison system lambda data. FEA agrees with Edison that it is not necessary to include the cost of combustion turbines in the Edison system lambda data because their dispatch appears to be partially related to the loads occurring at or approaching system peak.

FEA contends that energy charge differentials among time-of-day periods should not be adopted independently of a clear cost justification for such differentials. An energy differential should not be included in the tariff merely because another utility's tariff includes a differential or because of some preconceived notion that time-of-use tariffs must necessarily include such a differential.

DOD also urges that a time-of-day varying energy charge should not be adopted in this proceeding and points out that since a varying time-of-day charge was adopted in the PG&E time-of-day Decision No. 86632, the adoption of a uniform energy rate in this proceeding could, through analysis, provide a factual basis for a conclusion concerning the efficacy of a time-varying energy charge.

In its opening brief A-M points out that the Staff witness in support of the Staff proposal for a time-varying energy charge stated that the Staff had recommended a 2 mill per kwh differential between on- and off-peak in Pacific Gas and Electric Company's Application No. 56124 and that San Diego Gas & Electric Company had proposed a 3 mill differential between on- and off-peak in that utility's Advice Letter Filing 405-E. A-M contends that such testimony is completely irrelevant as the Commission should base its decision on the facts which have been developed on the record in this proceeding.

A-M witness Brubaker concludes in his direct testimony regarding time-varying energy rates as follows:

> "An analysis of both average costs and incremental energy costs, by time period, revealed that there is not a significant enough variation between time periods to warrant a time-varying charge." (Exhibit No. 27, p. 4.)

Witness Brubaker justifies his preference for using average energy costs in his direct testimony which follows:

> "There are several reasons for setting the energy charge equal to the average energy cost. First, and most obvious, is the fact that the average energy cost, when applied to total kilowatt-hour consumption, produces energy charge revenues equal to total energy-related costs. Second, the 'incremental' cost of energy represents only the cost of the last block of kilowatt-hours produced at a given time and, as such, is not representative of the actual total costs incurred by SCE in supplying energy. For example, if the average cost of supplying 99% of the energy during a given time period were 20 mills per kilowatt, but the last 1% had a cost of 40 mills per kilowatt-hour, it would obviously be inappropriate to charge 40 mills for each kilowatt-hour supplied during the period when this cost relates only to a thin veneer of the total supply profile.

> Use of the average cost is much more appropriate as it reflects the total energy cost actually incurred, and not a fictitious imputed cost dictated by a de minimus quantity of energy. Third, it must be remembered that total revenues are defined by total embedded costs, so that one rate element can only be increased if another is commensurately decreased. Therefore, if energy rates were set above average costs, other rate elements (demand and customer) would necessarily have to be set arbitrarily low. Setting demand charges arbitrarily low is neither consistent with cost recovery, nor appropriate in light of time-of-use pricing -- which has as one of its purposes the creation of a cost-based rate structure which will convey to the customer an incentive to shift demand from one time period to another. The only way to avoid these problems is to use actual average costs for all major rate components." (Exhibit No. 27, pp. 5-6.)

Steel-CMA submit that accurate cost reflection in rates is the "essence" of peak load pricing. If utility costs do not vary significantly and consistently by time-of-day, rates should not vary either.

G-M supports the time-of-day energy charge proposed by A-M witness Brubaker.

In this proceeding the Commission will adopt a varying energy charge of 1.408 cents per kwhr on-peak; 1.258 cents per kwhr mid-peak; 1.108 cents per kwhr off-peak, based on clear cost justifications for the differentials.[1/]

It should be noted that the Commission will more fully develop information on marginal cost as a basis for rates and rate differentials in future rate proceedings.

1/ The Staff's proposed varying energy charges have been increased by .092 cents by reason of Decision No. 86794 issued December 21, 1976 in Application No. 54946. However, Edison's energy cost adjustment billing factor was reduced by .092 cents by Decision No. 86760 issued December 21, 1976 in Application No. 56822.

9. Should Edison's load factor discount be adopted?

Edison has proposed to reduce a customer's demand charge for each month by 1.25 percent for each percentage point that the customer's load factor exceeds 75 percent. Edison contends that such load factor discount would give appropriate recognition to the fact that a number of TOD-8 customers have a relatively limited ability to shift load. On the other hand, some of the customers have offered evidence to show that they have the ability to control their maximum demand without adversely affecting their operations. Since the load factor is calculated on the billing demand, not the maximum demand, a customer who shifts load out of the on-peak period will always improve his calculated load factor, even though he may not change his real load factor. Edison asserts that such load factor discount provision will encourage load management by the customers themselves.

The Staff contends that the most striking fault of the load factor discount proposal is that the discount may induce a customer to improve its own load factor to the detriment of the system load factor. Edison's witness agreed that a 65 percent load factor customer who is not contributing to the peak is probably a greater benefit to the system than a 90 percent load factor customer who is contributing to the peak. The Edison witness also agreed that Edison's load factor discount does not discourage a customer from adding energy usage during the on-peak period up to the point of the customer's maximum demand.

FEA contends that in the short run, the load factor discount is likely to result in a non-cost-based transfer of revenue among the customers in the very large power class, and since such a transfer is not cost based, it would be unfair. FEA requests that the load factor discount not be approved.

DOD contends that the adoption of a mid-peak period with a separate, cumulative demand charge makes the load factor discount unnecessary. DOD also opposes the adoption of the load factor discount.

Steel-CMA point out that there is no cost justification for the load factor discount proposal, and they contend that such proposal would simply shift the burden of producing class revenues among the members of the class in a discriminatory manner. They submit that the incentive for high load factor inherent in any demand billing rate form is sufficient to encourage customers to improve their load factors and urge that the Commission reject the load factor discount proposal.

The Commission will reject Edison's load factor discount proposal because it is not cost based and would shift the burden of producing class revenues among the members in an unfair manner and because it may induce some customers to improve their own load factors to the detriment of the system load factor.

10. What percent reduction in maximum on-peak demand should be adopted for setting appropriate rate levels in Schedule No. TOD-8?

The Edison witness in his rate design assumed a 10 percent reduction in the noncoincident demands of the TOD-8 customers while the Staff recommended the adoption of a 2-1/2 percent figure for reduction in on-peak demand. Edison points out that this Commission in Decision No. 86632, which established time-of-day rates for PG&E's very large power customers, recognized that there would be a 10

percent reduction in on-peak demand in order to preserve revenue stability in the early stages of time-of-day pricing and to prevent diminution in revenue. In that decision the Commission also took note of PG&E's initiative in filing the first application for time-of-day rates and commended PG&E for its assistance in developing a complete record in that proceeding. Edison submits that for the reasons enunciated by the Commission in Decision No. 86632 that Schedule No. TOD-8 should be based upon the assumption that there will be a 10 percent reduction in the noncoincident demands of the TOD-8 customers.

The Staff points out that there is no specific elasticity study or other analysis of the TOD-8 class to support an assumed reduction in on-peak demand of 10 percent and that a very recent elasticity study for Edison's industrial class does not support an assumed reduction of 10 percent. The Staff contends that its 2-1/2 percent assumed reduction in on-peak demand is more reasonable than the 10 percent assumed reduction of Edison.

DOD contends that raising prices in anticipation of a load shift which might not take place insures that the TOD customers bear a monetary burden if they do not shift, requires them to spend capital to shift, and if they do shift, passes such benefits as might result to other customer classes. DOD contends it is inappropriate to require a customer class to expend money to get back even on the rates or to provide Edison with a windfall if the customers don't do so.

In response to the question:

> "Do you think 24-hour industrial load operations will shift significant amounts of load as a result of time-of-day signals?"

Airco's witness Cleary responded:

> "No. To start with the whole concept embraces the seemingly curious economic concept that idle manufacturing capacity should be substituted for idle electric generating capacity. What I believe will happen is that industry will cut - - not shift - - peak hour consumption during recessions. Thus with time-of-day rates some revenue instability may occur. When business is good, industry will run flat out, all the time, because even during peak pricing hours, our incremental revenue will exceed our incremental cost." (Exhibit No. 26, p. 7.)

In reply to a further question regarding whether the high load factor Airco plants will shift load in response to time-of-day price signals witness Cleary stated:

> ". . . Our customers largely will determine how much energy we use and when - - not rate design. . . ." (Exhibit No. 29, p. 7.)

Steel-CMA point out that numerous industrial witnesses have testified that time-of-day pricing signals are very likely not to produce a significant load shift by very large power customers. They admit that if, upon actual experience, it is shown that demand shift is occurring, then Edison should be allowed to adjust its rates after appropriate consideration is given by the Commission to the benefit which other customer classes have received from such load shift. Steel-CMA contend that the Commission should not allow the adjustment for load shift in this proceeding but should consider the adjustment in Edison's next general rate proceeding, where all costs and revenues can be considered.

We are of the opinion that Edison's estimate of a 10 percent reduction in maximum on-peak demand as the result of the adoption of the rates in Schedule No. TOD-8 is too generous and that the Staff estimate of 2-1/2 percent reduction is lower than the rate variations indicate. We believe that a 5 percent reduction should be adopted in order to more accurately reflect the cost variations between peak and

non-peak periods, to maximize the incentive to shift from on-peak usage, and to preserve revenue stability. The 10 percent shift adopted in Decision No. 86632 was primarily based upon a greater cost variation in PG&E's time periods, along with recognition of PG&E's promptness in filing its application for time-of-day tariffs. Both of those factors differ in Edison's case.

11. What are the consequences in this proceeding of the Commission's Decision No. 86794 and Decision No. 86760?

In its closing brief the Staff pointed out that by Decision No. 86794[2/] issued December 21, 1976 in Application No. 54946 the Commission authorized for Edison an increase of $44,500,000 in jurisdictional revenues by increasing all energy rates by 0.092 cents per kwhr effective after January 12, 1977. Concurrently with the issuance of Decision No. 86794, the Commission also issued Decision No. 86760 in Application No. 56822, which authorized an equal reduction of 0.092 cents per kwhr in Edison's energy cost adjustment billing factor. Although the two decisions do not cause revenue changes for most rate schedules, the voltage discount feature of the A-8 and TOD-8 schedules results in recovery of less than the authorized revenue. TOD-8 rates will be designed to recover revenue equivalent to A-8 as authorized by Decision No. 85294 in Application No. 54946.

12. What effect will the adoption of Schedule No. TOD-8 have on the special "off-peak" contract between Edison and the Metropolitan Water District of Southern California (MWD)?

In its closing brief the Staff states:

2/ Petition to California Supreme Court for writ of review of Decision No. 86794 was filed March 14, 1977, S.F. 23605.

"The Opening Brief of MWD sets forth the provisions of its contract with Edison entitled 'District-Edison 1958 Service and Interchange Contract'. This contract provides for, among other things, MWD obtaining supplemental energy from Edison during off-peak periods for district pumping needs, and the interchange of energy between the two entities under certain conditions. The contract also allows Edison to use specified MWD facilities, and lets each entity take advantage of excess generating capacity available to the other.

"MWD's interest in this proceeding arises from the contractual provisions which set the rate for off-peak energy supplied by Edison to the District. Although MWD is not an A-8 customer, the contracted-for off-peak energy rate is derived from Edison's A-8 rate schedule. The rate levels of Schedule No. A-8 are exposed to substantial change as a result of various proposals in Edison's general rate proceeding (App. No. 54946) and the instant time-of-day application. As a result, MWD has asked the Commission to recognize the unique status of its contractual relationship with Edison when adopting a TOD-8 schedule, rather than causing a re-negotiation of the MWD-Edison contract energy rate strictly on the basis of the adopted TOD-8 rates. The Staff supports this request.

"The contract between MWD and Edison is much more than an off-peak energy sale contract. The agreement also provides for energy transfers from MWD to Edison, standby capacity interchange, and Edison's use of MWD's Hoover generators, transmission lines, and telephone system without charge. These factors evidence a cooperative relationship similar to that underlying the State Water Plan and Pacific Intertie Group. In this regard, the Commission has treated Edison's contractual relationship with the California Department of Water Resources as a separate classification apart from the various Edison customer groups. Therefore, the Staff recommends that MWD and Edison be allowed to re-negotiate their contract to eliminate or modify the restrictive provisions which tie Edison off-peak energy rates to the existing A-8 tariff or its successor TOD-8 schedule."

Pursuant to the Staff recommendation MWD and Edison should be authorized to re-negotiate their contract to eliminate or modify the restrictive provisions which tie Edison off-peak energy rates to the existing A-8 tariff or its successor TOD-8 schedule.

F. Findings

1. It is not necessary to choose between time-of-day rates and demand control rates as both types of rates should be implemented because they both will encourage conservation of energy.

2. The following time periods are the time periods which should be adopted for the time-of-day rates to be authorized in this proceeding:

SUMMER		WINTER	
	Staff		Staff
Peak:	12:00 noon to 6:00 p.m. (weekdays, excluding 8 holidays)	Peak:	5:00 p.m. to 10:00 p.m. (weekdays, excluding 8 holidays)
Mid-peak:	8:00 a.m. to 12:00 noon 6:00 p.m. to 10:00 p.m. (weekdays, excluding 8 holidays)	Mid-peak:	8:00 a.m. to 5:00 p.m. (weekdays, excluding 8 holidays)
Off-peak:	10:00 p.m. to 8:00 a.m. (weekdays) and all day Sat., Sun., & 8 holidays	Off-peak:	10:00 p.m. to 8:00 a.m. (weekdays) and all day Sat., Sun., & 8 holidays

Off-peak holidays are New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, and Christmas.

3. An $800 per month customer charge should be included in the TOD-8 rate schedule to be authorized by this Commission.

4. The power factor adjustment clause proposed by Edison and the Staff should be incorporated as a part of the TOD-8 rate schedule.

5. The Commission should authorize the reduction in the time interval for measuring maximum demand from 30 minutes to 15 minutes.

6. The demand charges proposed by the Staff but modified to accommodate Finding 10 should be included in the TOD-8 rate schedule to be authorized by this Commission.

7. Energy charge differentials should be adopted and are based upon clear cost justification for such differentials.

8. In this proceeding the Commission will adopt a varying energy charge of 1.408 cents per kwhr on-peak; 1.258 cents per kwhr mid-peak; 1.108 cents per kwhr off-peak based on the variation in short-term and long-term incremental energy costs between the on-peak, mid-peak, and off-peak periods.

9. The Commission should reject Edison's load factor discount proposal because it is not cost based and would shift the burden of producing class revenues among the members in an unfair manner and because it may induce some customers to improve their own load factors to the detriment of the system load factor.

10. An estimate of 5 percent reduction in maximum on-peak demand should be adopted for the purpose of designing the time-of-day rate levels in Schedule No. TOD-8 in order to reflect cost variations, to maximize the incentive to shift load, to preserve revenue stability in the early stages of time-of-day pricing, and to prevent diminution in Edison's revenue.

11. Because the intended offsetting effect of Decision No. 86794 issued December 21, 1976 in Application No. 54946 and Decision No. 86760 also issued December 21, 1976 in Application No. 56822 are not achieved in either the A-8 or the TOD-8 rate schedules because of the voltage discount, the rate schedule resulting from this proceeding will be designed to recover revenues authorized for the A-8 customer class by Decision No. 85294 issued December 30, 1975 in Application No. 54946.

12. The increases in rates and charges and the other tariff changes authorized herein are justified.

13. The rates, charges, and other tariff changes authorized herein are just and reasonable, and present rates and charges, insofar as they differ therefrom, are for the future unjust and unreasonable.

G. Conclusions

1. Application No. 56408 should be granted to the extent set forth in the order which follows.

2. MWD and Edison should be authorized to re-negotiate their contract to eliminate or modify the restrictive provisions which tie the contract off-peak energy rates to the existing A-8 tariff or its successor TOD-8 tariff schedules.

O R D E R

IT IS ORDERED that:

1. Southern California Edison Company is directed to file with this Commission, not later than thirty days 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 A attached to this order and, on not less than thirty days' notice to the public and to the Commission, to make the revised tariffs effective.

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A. 56408 dz

2. The Metropolitan Water District of Southern California and Southern California Edison Company are authorized to re-negotiate their contract entitled "District-Edison 1958 Service and Interchange Contract", as amended by amendments dated September 10, 1963 and January 1, 1965, to eliminate or modify the restrictive provisions which tie the contract off-peak energy rates to the existing A-8 tariff or its successor TOD-8 tariff schedules and to present such re-negotiated contract to this Commission for its approval.

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

Dated at San Francisco, California, this 23rd day of AUGUST, 1977.

I will file a dissent
William Symons, Jr.

Robert Batinovich
President

Vernon L. Sturgeon

Richard D. Gravelle

Claire T. Dedrick
Commissioners

Schedule No. TOD-8

GENERAL SERVICE - LARGE

APPLICABILITY

Applicable to three-phase general service, including lighting and power, supplied directly from lines of transmission voltage, or where for the utility's operating convenience service is supplied from lines of distribution voltage.

This schedule is applicable for all customers of record on (date) served on Schedule No. A-8 and thereafter is applicable to all customers whose monthly maximum demand exceeds 5,000 Kw for any three months during the preceding 12 months. Any customer whose monthly maximum demand has fallen below 4,500 Kw for 12 consecutive months may elect to take service on any other applicable schedule.

TERRITORY

Within the entire territory served, excluding Santa Catalina Island.

RATES

	Per Meter Per Month
Customer Charge:	$ 800.00
Demand Charge (to be added to Customer Charge):	
All Kw of on-peak billing demand, per Kw	$ 2.10
Plus all Kw of mid-peak billing demand, per Kw	0.250
Plus all Kw of off-peak billing demand, per Kw	No Charge
Energy Charge (to be added to Demand Charge):	
All on-peak Kwhr, per Kwhr	1.408¢
Plus all mid-peak Kwhr, per Kwhr	1.258¢
Plus all off-peak Kwhr, per Kwhr	1.108¢

(Continued)

RATES--Contd.

Minimum Charge:

The monthly minimum charge shall be the sum of the monthly customer and demand charges. The monthly demand charge shall not be less than the charge for 25% of the maximum on-peak demand established during the preceding 11 months.

Daily time periods are defined as follows:

On-peak: 12:00 noon to 6:00 p.m.
summer weekdays except holidays

5:00 p.m. to 10:00 p.m.
winter weekdays except holidays

Mid-peak: 8:00 a.m. to 12:00 noon and 6:00 p.m. to 10:00 p.m.
summer weekdays except holidays

8:00 a.m. to 5:00 p.m.
winter weekdays except holidays

Off-peak: All other hours.

Off-peak holidays are New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, and Christmas.

Winter shall consist of the billing periods for the six regularly scheduled monthly billings beginning with the first billing after November 14. In no event will the winter season include billing periods ending after May 31. The six remaining monthly billing periods comprise the summer season.

SPECIAL CONDITIONS

1. Voltage: Service will be supplied at one standard voltage.

2. Maximum Demand: Maximum demands shall be established for the daily on-peak, mid-peak, and off-peak periods. The maximum demand for each period shall be the measured maximum average kilowatt input indicated or recorded by instruments to be supplied by the utility, during any 15-minute metered interval, but not less than the diversified resistance welder load computed in accordance with the section designated Welder Service in Rule No. 2. Where the demand is intermittent or subject to violent fluctuations, a 5-minute interval may be used.

(Continued)

SPECIAL CONDITIONS--Contd.

3. Billing Demand: Separate billing demands for the on-peak, mid-peak, and off-peak daily time periods shall be established for each monthly billing period. The billing demand for each daily time period shall be the maximum demand for that daily time period occurring during the respective monthly billing period.

4. Voltage Discount: The charges before power factor adjustment will be reduced by 1% for service delivered and metered at a nominal voltage of 33,000 volts, and by 2% for service delivered and metered at a nominal voltage of 66,000 volts or over.

5. Power Factor Adjustment: The charges will be adjusted each month for reactive demand. The charges will be increased by 20 cents per kilovar of maximum reactive demand imposed on utility in excess of 20% of the maximum number of kilowatts.

The maximum reactive demand shall be the highest measured maximum average kilovar demand indicated or recorded by metering to be supplied by the utility during any 15-minute metered interval in the month. The kilovars shall be determined to the nearest unit. A device will be installed on each kilovar meter to prevent reverse operation of the meter.

6. Temporary Discontinuance of Service: Where the use of energy is seasonal or intermittent, no adjustments will be made for a temporary discontinuance of service. Any customer prior to resuming service within twelve months after such service was discontinued will be required to pay all charges which would have been billed if service had not been discontinued.

7. Contracts: An initial three-year facilities contract may be required where applicant requires new or added serving capacity exceeding 2,000 Kva.

8. Energy Cost Adjustment: The rates above are subject to adjustment as provided for in Part G of the Preliminary Statement. The applicable energy cost adjustment billing factors and fuel collection balance adjustment billing factor set forth therein will be applied to all Kwhr billed under this schedule. The energy cost adjustments will be applied after all other discounts or adjustments.

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A. 56598 - D.

WILLIAM SYMONS, JR., Dissenting

Today the Commission fundamentally restructures electric rates for large users in the San Diego Gas & Electric and Edison service areas. Crucial changes such as these should be the product of careful deliberation and should further the well-being of all of our state's consumers. Unfortunately, today's decision does not meet these standards.

The Commission majority leaves the following issues unresolved:

1. What effect will the new rate structure have on the state's business climate? A negative one, to be sure. To come to this conclusion one need only read the voluminous testimony presented in recent cases by various business and labor organizations.[1/] In its rush to restructure rates the Commission majority ignores this evidence.

2. What effect will the new rate structure have on consumption? No one knows for sure. We could, however, obtain an answer to this question merely by waiting a few months to obtain results from the PG&E time-of-day experiment. Unfortunately, the Commission majority lacks the patience to do this.

[1/] (See Majority Decision in Application No. 56408, pp. 10-18.)

3. What is the role of the Legislature in setting time-of-day rates? Over the last few months, the Legislature has indicated a desire for a go-slow approach to rate reform, and an end to rates which discriminate against business. Today, the Commission majority ignores these wishes.

4. Will time-of-use rates be extended to all users of electricity? We are told yes; but the deadline for such a transformation is left vague. This puts the Commission in the ironic position of metering for time of use precisely that class of customer -- large industrial -- with the best load factor, while residences, which are most responsible for the peak, go scott-free. Metering the former but not the latter is

> "somewhat akin to the fellow who having trouble with the ignition system in his car, rotates his tires because he owns a tire wrench."

I am not opposed to time-of-day rates. They are an effective way of making the price of electricity more cost-conscious than ever before. What I oppose is the Commission's lack of caution and its misapplication of the time-of-day rate concept.

Caution dictates we not adopt time-of-day pricing until the following conditions are met:

1. We make a thorough cost-benefit analysis of time-of-use metering and studies as to elasticity in the time-of-use of electricity. We should seriously consider whether the half billion dollars or more we may spend on time-of-use meters might not better be spent on new power facilities.
2. The Commission should monitor the results of the PG&E time-of-day rate experiment begun earlier this year before extending such rates to the two Southern California electric systems.

If, after the completion of these studies, the Commission decides time-of-use rates are desirable, they should be adopted only if they have the following characteristics:

1. Rather than punishing the high-load factor customer, such rates should recognize his unique value to the system. One way to do this was advanced by Edison in A. 56408: decrease his demand charge by 1½%/month for each percentage point his load factor exceeds 75%. For the "perfect" or 100% load factor customer, this would mean a one-third reduction in his demand charge -- ample recognition of his contribution to the overall health and fiscal stability of the system.
2. The PUC should also commit itself to time-of-use metering of <u>all</u> customers by a specific, early date. We should insist that the new rate structure not subsidize residential users by "socking it" to business.

Such a universal time-of-use structure would recognize the fact that the potential for deferrals as to time-of-use are greatest in the residential and commercial class.

It would also contribute to the business climate of our state, and permit the PUC to carry out its legislative mandate not to handicap, by discriminatory power charges, California's energy-intensive industries.

3. Time-of-use rates can and should be cost based. For no good reason, we have abandoned this principle. The time-of-use rates are composed of customer charges, demand charges and commodity charges. The demand charges vary with time-of-use. That is appropriate. But commodity charges may not because fuel costs are often constant over time. If this is the case, as it seems to be for Edison, it should be reflected in the rate. The time-of-use variation of the total rate design should be where it belongs: in the demand portion of the bill.

San Francisco, California
August 23, 1977

William Symons, Jr.
WILLIAM SYMONS, JR.
Commissioner