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Decision No. 86081

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's Own Motion into the Adequacy and Reliability of the Energy and Fuel Requirements and Supply of the Electric Public Utilities in the State of California.	Case No. 9581 (Filed July 3, 1973)
Investigation on the Commission's own motion into the natural gas supply and requirements of gas public utilities in the State of California.	Case No. 9642 (Filed December 18, 1973)
Investigation on the Commission's own motion into the establishing of priorities among the types of categories of customers of every electrical corporation and every gas corporation in the State of California and among the uses of electricity or gas by such customers.	Case No. 9884 (Filed March 11, 1975)

Additional Appearances

C. J. Blasiar, for Telephone Answering Services, Inc.; Homer C. Lamborn, for U. S. Pipe & Foundry-Concrete Pipe Corp.; Pettit, Evers & Martin, by Joseph Martin, Jr., Attorney at Law, for Owens-Corning Fiberglass Corp.; Richard D. De Luce, Attorney at Law, for Air Products and Chemicals, Inc.; Susan R. Bush, Attorney at Law, for Sunkist Growers, Inc.; and R. D. Twomey, Jr., Attorney at Law, for the Metropolitan Water District of Southern California, interested parties.

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INTERIM OPINION

In 1974 Sections 2771-2776[1/] were added to the Public Utilities Code. Those sections reflected the legislature's concern

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1/ "2771. The commission shall establish priorities among the types or categories of customers of every electrical corporation and every gas corporation, and among the uses of electricity or gas by such customers. The commission shall determine which of such customers and uses provide the most important public benefits and serve the greatest public need and shall categorize all other customers and uses in order of descending priority based upon these standards. The commission shall establish no such priority after the effective date of this chapter which would cause any reduction in the transmission of gas to California pursuant to any federal rule, order, or regulation.

"2772. In establishing the priorities pursuant to Section 2771, the commission shall include, but not be limited to, a consideration of all of the following:

"(a) A determination of the customers and uses of electricity and gas, in descending order of priority, which provide the most important public benefits and serve the greatest public need.

"(b) A determination of the customers and uses of electricity and gas which are not included under subdivision (a).

"(c) A determination of the economic, social, and other effects of a temporary discontinuance in electrical or gas service to the customers or for the uses determined in accordance with subdivision (a) or (b).

"(d) Any curtailment or allocation rules, orders, or regulations issued by any agency of the federal government.

"2773. The commission may establish as many priorities of use for a customer as that customer has uses of gas or electricity.

"2774. In the event any electrical or gas corporation experiences any shortage of capacity or capability in the generation, production, or transmission of electricity or gas and is unable to obtain electricity or gas from any other source so that the corporation is unable to meet all demands by its customers, the commission shall, to the extent practicable, order that service be temporarily reduced by an amount that reflects the priorities established pursuant to this chapter, for the duration of the shortage. The commission may, to the extent permitted by federal law or regulation, require electrical or gas corporations to mutually assist each other in dealing with shortages resulting from inadequate fuel supplies, and shall determine the terms, including compensation, under which such assistance shall be provided.

(Continued)

that in the event of a shortage of electricity or gas there be a plan for allocation. This Commission issued its Order Instituting Investigation (OII), Case No. 9884 on March 11, 1975, which, because of the interrelationship of the subject matter, was consolidated for hearing with Case No. 9581, the Commission's investigation into the adequacy and reliability of fuel requirements of California's electric utilities, and Case No. 9642, the Commission's investigation into California's natural gas supply and requirements.

The OII in Case No. 9884 contained a summary of the proceedings to date in Cases Nos. 9581 and 9642, referred to the Federal Power Commission (FPC) opinion affecting deliveries of natural gas by El Paso to California, and noted the emerging national policy requiring less dependence upon foreign oil. It sought to establish priorities for both gas and electric use which would provide the "most important public benefits" and serve the "greatest public need" and determined not to establish any priority system that would have the effect of reducing the amount of gas to be allocated to California under federal law. Further, the OII expanded Case No. 9642 to consider which gas rate structures would achieve high levels of conservation, and ordered an investigation to determine means of mutual assistance between the gas companies and between the electric companies to deal with shortages.

After 26 days of hearing the Commission issued Decision No. 85189 on December 2, 1975 establishing priorities for the allocation of natural gas.

1/ (Continued)

"2775. No electrical or gas corporation which reduces or discontinues service in accordance with any order of the commission issued pursuant to this chapter shall be liable for any damages to any person or property resulting from such reduction or discontinuance.

"2776. This chapter shall remain in effect only until July 1, 1976, and as of such date is repealed unless a later enacted statute, which is chaptered before July 1, 1976, deletes or extends such date."

Public hearings on electrical priorities commenced in Los Angeles September 29, 1975. Thereafter, 22 days of hearings were held in San Francisco, Los Angeles, San Diego, and Fresno extending from November 24, 1975 to February 27, 1976 at which time the electric priority phase was submitted subject to filing of concurrent briefs.

Participants included the Commission staff (staff), respondent utilities Pacific Gas and Electric Company (PG&E), Southern California Edison Company (Edison), San Diego Gas & Electric Company (SDG&E), California Farm Bureau Federation (Farm Bureau), California Manufacturers Association (CMA), General Motors Corporation (GM), city of Los Angeles, Department of Water and Power (LADWP), Owens-Corning Fiberglass Corp. (Owens), Semiconductor Group Member Companies of WEMA (WEMA), and California Retailers Association (CRA).

During the course of the hearing some 117 witnesses testified; there were over 60 exhibits and 1,952 pages of transcript. In addition to the participants listed above, witnesses testified on behalf of the following:

Various Medical and Hospital Groups.
Educational Representatives and School Districts.
The Aero Space Industry.
The Semiconductor Industry.
Irrigation and Water Districts.
Supermarkets and Food Distributors.
Restaurant Chains.
Dehydrated Food Industry.
California Floral Industry.
The Wine Industry.
The U.S. Department of Defense.
Television and Radio Broadcasting.
Newspaper Publishers.
Glass Manufacturers.
Computer and Business Machine Manufacturers.
Steel Industry.
Shipbuilding.
San Diego County.
Tulare County.
California Electric Sign Industry.
Electronics Industry.
Petroleum and Refinery Industry.
Pipeline Companies.
The National Park Service.

In Case No. 9884 the Commission ordered the respondent electric utilities to file recommendations to implement Sections 2771-2776. The utility responses are summarized as follows:

Pacific Gas and Electric Company

Maximum input from the public should be received before a priority system is established. This could be accomplished by statewide hearings and sampling surveys in each utility service area. Questionnaires could be mailed to electric customers requesting information concerning loads that are essential for health and safety and loads that could be curtailed or reduced in time of shortage, and a request for suggestions from the customer on how a reduction in usage might be accomplished.

A priority plan should minimize the requirements for special switching gear or separate metering devices. Any plan involving mandatory curtailment should be limited to cases of a declared emergency. Thus such limitation should be by order of a state governmental authority.

The difficulty of assigning a priority to PG&E's 2.9 million customers is that priorities established by customer class will not be applicable to all customers within the class because of differing micro- and socio-economic factors among the customers, even though on a macro-analysis the given class customers have similar socio-economic factors.

PG&E suggests that "protected loads" associated with public health and safety be considered for the highest ranking priority. Protected loads or usages should include:

1. Federal, state, county, municipal, and governmental district uses to provide fire, police, prison and custodial, and essential street and highway lighting service.

2. Refrigeration for the storage and preservation of food or medicine, when that use is substantially all the customer's load.
3. Operation, guidance control, and navigation services for public transportation, including rail, mass transit, municipal and licensed commercial air transportation, and other forms of transportation.
4. Communications services provided by the United States Postal Service, telegraph and telephone systems, television and radio stations, and traffic control and signal systems.
5. Water supply and sanitation services, including waterworks, pumping, and sewage disposal activities which cannot be reduced without seriously affecting public health.
6. Federal activities essential for the national defense.
7. Uses necessary for the manufacture, directly or as a by-product, the transmission, or the distribution of natural or mixed gas for fuel.
8. Uses necessary for the production, refining, transmission, or distribution of oil and gas for fuel.
9. Essential construction, operation, and maintenance activities for energy production and supply.

It was noted that these uses or customers are intermixed with other customers or electric circuits serving other loads and that therefore it is not possible to assure service to all such protected loads without protecting myriads of other uses and customers.

PG&E's response included certain problems of compliance and enforcement. These include:

1. Mass media communication.
2. Compliance audits.
3. Enforcement action.
4. Appeal procedures.
5. Provisions for disconnection of service for noncompliance.
6. Costs of implementation.

PG&E was of the opinion that the key to any plan is the attitude of the customer. The customer should be adequately informed and his cooperation actively solicited during an energy shortage. It was stated that this might be best accomplished through an extensive publicity campaign.

Southern California Edison Company

Edison recommended that public hearings be held in order to receive input from the utilities and their customers to suggest priorities and develop information on the costs and practical aspects of an implementation plan.

Edison suggested that the following loads be classified as critical:

1. Sewage handling facilities.
2.a. Hospitals with 100 beds or more.
b. Hospitals with no (or insufficient) generation for basic life support systems, as determined by the customer.
3. Oil and gas producing, processing, and transporting facilities.
4. Emergency broadcast system radio stations.
5. Utility (public) water pumps necessary to maintain minimum fire protection.
6. Crucial industrial or commercial--where an outage would cause abnormal danger to public safety.

7. Edison facilities critical to the continuity of operation of the electric power system.

The basic assumptions used in determining that the above loads were critical were stated to be:

1. Less than one-hour tolerance.
2. No emergency generation.

Edison suggested that priority ranking of electric customers should be established by this Commission rather than by the utilities and that implementation of a plan involving the priorities should be by order of the Commission. Edison asserts that compliance will be dependent upon voluntary action by the customers and enforcement by the utilities is not feasible. Edison mentioned the use of Standard Industrial Classification (SIC) codes for priority grouping and listed examples to demonstrate the multiplicity of categories and uses. Edison referred to its mutual-aid agreements with other electric utilities and its historical participation in these arrangements.

San Diego Gas & Electric Company

SDG&E stressed voluntary reduction during an emergency by a direct appeal to all customer classes. If voluntary methods fail SDG&E has a load reduction program by priority: (1) vital community service, (2) industrial, and (3) commercial. SDG&E states that its distribution system has a greater capability than the other utilities to isolate circuits serving low priority loads and to disconnect those circuits in blocks of a size that would be meaningful.

The SDG&E load reduction plan is the same as filed in Case No. 9581 pursuant to Decision No. 81931 dated September 25, 1973. In this plan the circuits are grouped into 15 to 20 mw load blocks. Similar customers are placed in "same" load blocks and a priority

level is assigned to the blocks. Priority 1 load blocks comprise about 40 percent of the system; Priority 2, about 15 percent; and Priority 3, 45 percent. Generally Priority 1 load block circuits also contain loads classed as Priority 2 or 3; however, Priority 2 or 3 load block circuits do not contain Priority 1 load.

The plan has a three-stage reduction. In general, the plan is one of interruption by rotation, for various lengths of time, among the various blocks within Priorities 2 and 3. Use of the plan would be dictated by fuel inventory and a CPUC order for mandatory load reduction.

SDG&E's filing discusses socio-economic problems in the arrangement of priorities and suggests that if a shortage is inevitable the same degree of discomfort and sacrifice should be experienced by all customers. The company believes that residential customers would prefer to make some sacrifices at home rather than to lose their job or have working hours reduced during an energy shortage crisis.

Discussion

The staff's proposal is attached hereto as Appendix B. CMA proposed a plan through the prepared direct testimony of its witness which is summarized in Appendix C. The consolidated record in this case consists of masses of data, all of which stress the importance electricity plays in everyday life and the severe hardship that interruption of service would cause. With respect to the establishment of electric priorities, however, the parties could agree on little except the difficulty of establishing an equitable plan and the complexity of the problems for the utilities who must implement such a plan.

It is clear that any shortage of electricity will be so disruptive to both the economy and to individuals that every possible measure should be undertaken to avoid it. We must ensure that electric utility operating margins are maintained at safe levels. The concept that it is economically more sensible to risk an occasional capacity shortage than to pay the ever-increasing cost of plant additions must be rejected. Plant additions cannot be forestalled indefinitely by increasing utility interconnection capacities.

In addition, we must consider fully the impact of natural gas customers switching to electricity and of new customers foregoing natural gas for electricity.

In addressing the contingency of future shortages of electricity, we believe there are markedly different considerations to evaluate than were used to establish natural gas priorities.

First, electricity is a replenishable energy medium, in sharp contrast to our ultimately finite and limited natural gas resources. Second, virtually all sectors of California's society and economy are substantially dependent upon a continued supply of electricity within the framework of the presently available energy resources. Third, as to a multiplicity of end-use applications, particularly in the industrial sector, there are no known or proven alternative energy sources. Finally, the energy shortage contingency addressed here by the Commission, while indisputably a matter of serious concern, does not take on the same aspect of urgency that characterized the natural gas shortages under consideration in Case No. 9642. All of the foregoing factors must be taken into account in formulating appropriate electric curtailment priorities.

Electricity is the critical energy source for everybody. For many of the existing uses of electricity, there are no viable alternate sources of energy. The prospect of electrical energy shortages, capacity-related or otherwise, presents a situation decidedly different from that which confronted us in the natural gas curtailment proceedings. In Case No. 9642, much attention was directed to the question of isolating those commercial and industrial gas applications which could be converted to alternate fuels. There was a corresponding assumption that residential gas uses, conceded by all not to be convertible in any practical sense, should receive the fullest possible protection from curtailment. In addition, in Case No. 9642 we considered the relatively limited number of natural gas end-uses in the commercial and industrial context, as that factor made more manageable the actual mechanics of curtailing convertible nonresidential uses.

In contrast, the different characteristics of electrical energy usage do not permit the Commission to make the same fundamental distinction between the residential and nonresidential sectors. Standing in the way of any such distinction is the central fact of widespread dependence upon electricity of innumerable industrial processes, in terms of existing, immediate power needs, as well as those requirements essential to society's capacity for future growth. These factors plus the evidence in the record support the concept that all sectors should bear the burden of future electrical energy shortages.

Assignment of Relative Social Values
to Particular Products and Processes

Numerous interested parties presenting testimony in this proceeding urged that favored curtailment status be granted to their particular products or services, arguing that such products and services are especially vital to society, and that their availability would be seriously jeopardized if such parties were not protected from curtailment. In fact, testimony seeking favored status for specific electricity uses was the rule rather than the exception throughout the proceedings.

The difficulties and complexity of assigning priorities can be illustrated by the testimony of Mr. Eugene H. Clark of Edison and Mr. John B. Kenney of PG&E.

Mr. Clark stated that establishing priorities among electric customers and uses requires the determination of relative social values and the understanding and quantifying of interrelationships between thousands of industries and between a staggering number of uses and could involve hundreds of thousands of investigations. Likewise, to determine the economic and social effects of temporary discontinuances literally thousands of difficult-to-define, hard-to-quantify interpersonal, social and economic relationships must be considered.

In the course of his testimony, Mr. Kenney was asked by GM's counsel:

> "Do you regard such social value considerations as a reliable basis for the formulation of curtailment priorities; that is to say, making judgments as among the various products, services and their relative values to society?
>
> "A. I can see where there may be some benefit to making some of those judgments.

"However, such judgments may or may not be correct and such judgments also open up entirely new vistas of problems that nobody has attempted to answer and we may end up with a greater problem than the one we started with.

"Q. Could you elaborate just a little bit with respect to the further difficulties or issues that that kind of determination raises?

"Examiner Banks: 'Could I? It depends on who is making the judgment.'

"Mr. Stohr: 'Okay.'

"The Witness: 'Well, you have that problem and you have the inevitable decision about the baking of bread which is essential to keeping us all alive during an energy shortage. But if you protect the use of that bakery, you may also be protecting baking cookies and you may also be protecting the slicing of the bread and the wrapping of the bread and then you get into the difficulties of how are you going to get the bread delivered, are you going to protect the transportation company that delivers it, and are you going to protect the store that sells it. It's just where do you stop.'" (Tr. 10272-73):

In a similar vein, Clyde Parkhurst, testifying on behalf of California Manufacturers Association, stated (Exh. 92, pp. 9-10):

"The use of SIC codes or any other index to determine priorities in relation to supposed product usefulness cannot possibly afford equity to all customers, many of whom would have activities at the same plant coming within several different SIC codes. Also, it presupposes the omniscience of the agency making the determinations. There is a tremendous interdependence between products in our economy. We doubt that any one person or group of persons can possibly succeed in an

> effort to plan for and to assure the availability of all the products and services necessary to meet whatever goals may be selected as the basis for development of product priorities."

Allied to formulating priorities based on social values is avoidance of administrative complexities in implementing the priorities. Particularly vexing is the attempt to sort out those products and processes deemed to have a greater social value where electricity serves in a single location as the source of power for production of "nonessential" as well as "essential" products. Thus, while the electricity supplied to a producer of electronic components may contribute in some measure to the high-priority national defense effort, the same electricity supply may very well provide the power necessary for production of television circuitry, which would presumably receive a vastly inferior rating on any social value scale. Quite another matter, but of equal importance, is the problem of limiting the protection of the producer's electric supply to that portion used in the production of the higher priority product.

Exemption from Curtailment Provisions Must Impose Requirements that Standby Facilities be Maintained with Respect to Such Customers and Uses

All of the curtailment proposals presented included provisions designed to protect from curtailment, and, in particular, from the contingency of rolling blackouts, those electricity customers and uses deemed vital to the public health and safety. We believe society cannot afford the consequences of interruption of electrical service to certain critical customers. However, care must be exercised to prevent exemption provisions from becoming the vehicle for arbitrary and totally unjustified distinctions in the curtailment status of electricity users similarly situated.

Given the present configuration of the three major electric utilities' distribution circuits, it is clear that any exemption of "critical load" from actual physical interruption of electrical service will inevitably result in the protection of substantial nonessential loads. Thus, with respect to the SDG&E system, the record indicates that the circuits which would be assigned to the Priority 1 essential load category, under SDG&E's curtailment proposal, carry 40 percent of the total system load (Exh. 64, p. 10). Of the load carried on those priority circuits, however, the true essential load, protection of which is the sole object of that priority classification, represents only 5 percent of system load. The remaining load included in Priority 1 is nonessential in nature and, in effect, gets a totally fortuitous free ride.[2/]

The problems resulting from the intermixture of essential and nonessential loads were also brought out in the course of cross-examination of staff witness R. D. Gardner. Mr. Gardner conceded that protection of all circuits serving one or more critical customers would seriously undermine the effectiveness of a curtailment plan. He suggested consideration of a provision limiting protection of critical circuits to those situations where 50 percent or more of the customers on a given circuit had true critical uses. Mr. Gardner conceded that blanket exemptions for all circuits serving essential loads could very well have the effect of imposing the burden of rolling blackouts, if and when necessary, upon a relatively small percentage of the customers in a given system. He also acknowledged that effort should be made to require the "free riders" to contribute their fair share to the curtailment effort.

2/ The SDG&E situation is not atypical. See the comments of PG&E witness William Flowers in his Response to Questions asked by the Commission staff at the January 8, 1976 Hearing, pp. 3-6. See also the testimony of Edison's witness, Eugene H. Clark, Tr. 10586-89.

Provisions exempting specified critical customers from sequential interruptions of electrical service should, in any event, include a requirement that these customers make reasonable efforts to provide for standby equipment. We do not believe that a standby requirement is inconsistent with the exemption status afforded such customers, as standby equipment to the extent it is installed and available, can significantly ameliorate the impact of a given electricity shortage, particularly a capacity-related shortage. Moreover, it is apparent from the testimony in this proceeding that considerable standby capacity already exists, and at least one curtailment proposal under consideration herein takes that existing capacity into account.

The standby generating equipment requirement should also be incorporated into any hardship appeal procedure. Such a procedure was advocated by staff witness Gardner and is probably necessary, given the numerous contingencies which cannot be anticipated or dealt with in the formulation of a general priority plan. Any ad hoc appeal procedure, however, has the potential for becoming unmanageable and a requirement that those parties seeking a higher priority status make all reasonable efforts to arrange for standby generating facilities would be one means of keeping that problem under control.[3/]

Short-Term Capacity and Fuel Shortages

The foreseeability, nature, and projected duration of a given electricity shortage will all have an impact upon the electric utilities' ability to plan for and respond to that shortage. These

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3/ It is also important that the Commission place the burden of proving hardship squarely on the customer seeking special relief, consistent with the Commission's comments concerning special relief petitions in the natural gas curtailment proceeding (Decision No. 85189, mimeo. p. 11).

same factors will also determine in large measure the degree to which various customers will be affected by a shortage and to what extent they will be able to adjust their electricity usage and to contribute to the general curtailment effort. The interplay of these variables in the context of the numerous and diverse electricity uses suggests that distinctions be made in any curtailment plan between the various types of emergencies that may be presented.

Distinctions between capacity and fuel shortages were advocated by various parties in this proceeding. CMA witness Parkhurst emphasized the need for such distinctions stating: "Whatever rules for priority or curtailment are devised, it is important that they distinguish between an energy shortage and a capacity shortage."

The CMA testimony also cites examples in the case of each of its recommended priorities illustrating the distinctions to be drawn for each type of electricity shortage. Thus, CMA's Priority 3, Mr. Parkhurst noted, is intended to deal generally with capacity shortages rather than energy shortages, as it is in the former case where curtailment threatens in some instances "not merely a corresponding reduction in production or employment but a significant loss of productive capacity". Mr. Parkhurst went on to comment, however, that those customers subject to such devastating consequences in the case of a sudden capacity shortage should not necessarily receive the same high priority against fuel shortage curtailment where the total energy consumption could be reduced over a period of time without such consequences.

It is not necessary to give a detailed analysis of the many specific situations encompassed within the testimony presented. We believe that the evidence demonstrates that those electricity users whose operations are extremely vulnerable to sudden shortages can nonetheless make their own substantial contributions to the required

energy savings in the case of foreseeable capacity or fuel-related shortage by providing their own standby facilities. Accordingly, in the curtailment priority plan adopted we have made no provisions to distinguish between capacity or fuel related shortages.

Varying Degrees of Energy Use Reduction Already Achieved by Different Classes and the Corresponding Impact of Further Curtailment Upon Classes Should be Recognized

Any curtailment goals projected under a plan of curtailment must take into account the varying degrees of energy reduction already achieved by various customer classes. That principle was incorporated into Decision No. 82881 (Case No. 9581) as the percentage goals therein for voluntary load reduction were set at varying levels for different classes of service. Those goals, in turn, were fixed in relation to the energy savings deemed reasonably achievable within each class, and the corresponding impact, economic and otherwise, of the projected reductions.

With respect to voluntary use reduction, in Case No. 9581 we issued a series of orders calling for voluntary percentage reductions in usage by customers of the electric utilities. Decision No. 82881 issued May 15, 1974 is still in effect and calls for the following percentage reductions by customer class:

	Percentage of Voluntary Reduction From Normal Use
Residential	
Less than 400 Kwhr/month	5%
Next 600 Kwhr/month	5-10
All over 1,000 Kwhr/month	10-15
Commercial, Public Authority and Industrial, Nondemand	10
Commercial and Public Authority, Large	15-20
Industrial, Large	5
Agricultural	5
Street Lighting and Other	5-10
Resale	10

The staff has recommended in this proceeding that these distinctions be carried over into the priority plan to be adopted. During cross-examination staff witness Gardner offered the following comments on recognition of prior energy reductions.

> "Q. If you determined that certain classes of customers were not experiencing growth in average use [per] customer, would that change your determination as to what kind of a priority system to set up?
>
> "A. I wouldn't change my opinion on the priority, but it might very well influence the implementation of an emergency procedure; particularly in the mandatory step in which reduction goals are established.
>
> "In other words, if a particular industry or class of customer is already exhibiting effective efforts at conservation, then they might not be assigned to very large goals for reduction during a mandatory curtailment implementation phase."

The evidence in this record documents the varying degrees of conservation achieved to date. Exhibit 87 (Attachment I, Tables 1 and 3 of Exh. 6-2) introduced by Edison demonstrates that the commercial and residential classes, in particular, have fallen far short of the energy reduction goals projected for them in Decision No. 82881.

Several parties emphasized industrial users must be assured a high priority under any curtailment plan and that the inconveniences associated with further energy reductions in the residential sector would in the long run be far less detrimental to society. In explaining the rationale for its assignment of a high-curtailment priority to the industrial class, SDG&E stated:

> "Circuits serving primarily residential and commercial loads were given the lowest priority because it appears to us that the effect of shedding those loads, although serious, would have less drastic consequences for the public. If we should ever have to implement such a plan, some degree of discomfort and sacrifice is going to be experienced by our customers. In the case of residential load, we believe that the public would rather make the sacrifice at home rather than experience economic disruptions that would put many people out of jobs. Commercial loads are placed in this same category because we would not be able to shed sufficient load in the lowest priority if it included only residential customers. We realize that disconnecting commercial loads will also have economic consequences, but those consequences would appear to be less serious than if industrial loads were shed first."

This principle is also reflected in CMA's proposed Priorities 5 and 6 (Exh. 92, pp. 19-20). As defined by CMA, these priorities include all usage related to aesthetic satisfaction and decorative purposes, as well as those of a personal comfort or convenience.

Electric Curtailment Priorities Should Reflect the Nature of the Use of Electricity Rather than the Nature of the User

Each customer of an electric utility will normally have a variety of uses for the electricity he receives. He may use electricity for a decorative fountain, for office lighting, for air conditioning, and to power machinery. It is not enough to determine which customers should be protected from curtailment; we must also determine which customer uses should be protected. Should it be concluded that electrical air conditioning is a nonessential use and may be curtailed before other uses, then air conditioning should be given the same priority whether it occurs in a home, an office, or a fire station.

Certain Uses of Electricity Should be Protected Against Curtailment

Certain customers have uses of electricity which are so essential to the general public welfare that they require an exemption from the operation of any curtailment plan. A sample listing of activities which should appropriately be included in an exempt category was set forth in both the staff's proposal and CMA's proposal. It was conceded by the parties that these types of activity are essential to the maintenance of health and safety and should be exempt.

The staff's priority recommendation included in the protected category customers engaged in the production, refining, and transportation of fossil fuels, to the extent that those activities are related to electric generation. Some would place such activities in a lower classification because of the fact that fuel supplies might not be the cause of the shortage of electricity in which event fossil fuel production and refining could be curtailed along with other activities. We do not believe that all of a producer's or refiner's output is directed to fuel for electric generation. To the extent that gasoline and motor oil production can be isolated, it should be subjected to curtailment along with industrial production generally.

Originally, the staff placed commercial and industrial customers which operate refrigeration equipment for the preservation of medicine and food in Priority 1. Most of the parties would place such customers in Priority 4 along with other commercial, industrial, and agricultural customers and would expect them to achieve the same percentage reductions in usage required of other customers. It is argued that in a fuel-related shortage which requires some loss of

production, food processors should be expected to reduce their operations along with the rest of industry and agriculture. In a capacity shortage requiring rolling blackouts such customers would be subjected to service interruptions unless they could demonstrate that their product would be ruined thereby.

The parties are in agreement with the staff on the necessity for a protected usage category. We believe that the number of kilowatt-hours involved for this purpose is not very large and that an effective plan of reduction can be implemented which would exempt these protected uses. We appreciate that the random location of such uses on virtually all of a utility's distribution circuits will make attempts to combat shortages more difficult. If sequential service interruptions are used in capacity shortage situations we anticipate that a great deal of separate wiring will be required to protect Priority 1 uses.

Those Uses of Electricity Which
Are Not Directly Related to
Economic Production and Jobs
Should be the First Curtailed

Just as some uses of electricity clearly need to be protected from curtailment, others can be curtailed with minimal adverse effects on the user or the economy. CMA witness Parkhurst stated:

> "Uses which provide only aesthetic enjoyment and can be discontinued without a material effect on the economy or employment would probably be conceded by all to deserve the lowest priority."

The Commission recognized this fact when in its decisions in Case No. 9581 during the 1973-74 fuel shortage it ordered that certain advertising and decorative lighting uses be eliminated. (See Decision No. 82305 issued January 3, 1974, and Decision No. 82881 issued May 15, 1974.) Most parties support the view that uses such as ornamental lighting should be first curtailed. Because of the visual nature of this use, the general public is made aware of the need to conserve.

Most parties agreed that residential electric customers would rather be inconvenienced at home than be without jobs and deprived of their income. Little can be achieved by protecting convenience and comfort uses of electricity while curtailing those uses upon which the economy and employment are dependent.

We believe that comfort and convenience uses are found in all customer classes and that they should be curtailed in the same manner and to the same extent regardless of where they occur. It appears to us that a larger percentage of residential than industrial usage would fall in these categories and that, accordingly, greater reductions in use are required from residential customers.

Sequential Interruptions of Service

Also referred to as rolling blackouts, the staff recommended that as a last resort sequential interruptions of service be used on all but protected circuits to combat capacity shortages and to enforce mandatory percentage reductions in the use of energy. Most parties, particularly industrial customers, reject sequential interruptions as a solution to energy conservation arguing that the results are far too devastating.

Numerous witnesses testified to the effect of an unanticipated loss of electricity on their business. For example, the witness appearing for the San Diego County Rock Producers Association testified that in the event of an unexpected power outage the rock crushing machines would become plugged and would have to be dug out manually; Mr. Robert B. Moore, a dairy operator, testifying for the Farm Bureau stated that an unexpected electric outage while milking operations were in progress would result in inability to milk the cows and to cool the milk, with possible drying up of the cows; and Kenneth B. Cooper, an egg rancher, appearing on behalf of the Farm Bureau, testified that a sudden loss of electricity for more than about 60 minutes can result in the birds going out of production or even dying.

Contrasted with the substantial adverse impact on certain users are those users who can prepare for, and accommodate their needs to, a rolling blackout. While a temporary blackout would be inconvenient to a residential customer, in the staff's view, he "could probably stand a one-hour interruption better than an industrial plant."

We must also consider the effectiveness of the plan adopted. If blackouts would ultimately cause greater consumption of electricity by certain users, such a method of curtailment would be counter-productive. The record herein establishes that for certain industrial processes, greater electric energy would indeed be consumed than would be saved as a result of temporary outages, because of the enormous start-up energy needed.

It would appear that the only justification for sequential or rolling blackouts during a shortage is administrative ease of enforcement. It also appears to be the most inequitable and arbitrary method of curtailment since it fails to take into account the tolerance of various classes of customers and their uses and the resultant impact of such total outages on the state's welfare and economy.

Because of the questionable effectiveness of rolling blackouts as a conservation measure and the severe disruption that would result to the state's productive sector, the measure must be used only as a last resort. We believe, however, the utilities should consider the implementation of sequential interruptions as a method to control peak demand.

Mutual Assistance

Mutual assistance agreements among the electric utilities, generally, are designed to provide assistance from one utility to another in the event of a capacity shortage. They are of limited help in combating a fossil fuel shortage. Mutual assistance may be

obtained by increasing capacity to receive all available excess power from fossil fuel generation, and also by joint dispatching in order to achieve maximum benefits of inter-system load diversity. The respondent utilities indicate they are investigating the possibility of increasing transmission capacity, including the possibility of enlarging the Pacific Northwest Intertie. Because the possibility of both a capacity and a fuel shortage exists, we will request the respondent utilities to file updated information on the status of their investigations on expanding mutual assistance including the feasibility of more extensive joint dispatching.

Environmental Impact

The establishment of a priority list will have no effect on the environment. Nor do we believe there will be any substantial effect on the environment with the implementation of any electricity priority plan. However, we do believe the environmental question should receive further consideration. Therefore, we will request the utilities to address the question on possible environmental changes likely to occur if it becomes necessary to implement the priority plan.

Voltage Reductions

Voltage reductions are sometimes mentioned as a possible means of combating an energy or capacity shortage. A voltage reduction, or "brown out", may ruin a motor or other induction effect device, trip overload switches, etc. In addition, with many types of equipment, for example, a resistive-type heater, if the heater is run at lower voltage, the equipment merely runs for a longer period of time, saving no energy whatsoever. Therefore we do not believe that voltage reductions should be instituted.

In the priority plan we adopt herein, we have tried to balance the equities and the possible inconvenience to be experienced by all segments of society. In doing so we recognize the probability that certain customers of varying classes will be injured more than others similarly situated.

Findings

1. Shortages in the supply of electric energy pose a serious threat to the economic and social well-being of the state and appropriate curtailment procedures must be devised to deal with such shortages should they materialize.

2. The nature and duration of electric energy shortages may differ as a result of the variable factors causing the shortage.

3. A capacity-related shortage may be caused by one or more of the following factors:

a. Unavailability of power from interconnected electric networks;

b. Short-term shortages of generating capacity caused by temporary equipment failure, unanticipated excessive peak day demands, or weather occurrences;

c. Long-term outages or reductions in actual operating levels of generating capacity caused by equipment failure; or

d. Long-term excessive peak demand caused by extended weather excesses.

4. Fuel-related shortages are caused by a shortage or interruption of the supply of fuels for electric generation.

5. To the extent feasible, customers providing services critical to public health and safety should be exempt from the curtailment procedures adopted herein. Essential health and safety customers include the following types of customers and such other customers or types of customers the Commission may subsequently identify:

a. Governmental agencies to provide essential service to fire, police, and prison facilities and to provide essential lighting for streets, highways, and other public areas.

b. Governmental agencies in their activities essentially and directly related to national defense. (Federal, National Guard, and Civil Defense.)

c. Hospitals and convalescent homes for their critical facilities such as operating rooms, emergency room, life support machines, diagnostic machines, refrigeration for medicines, communications, and minimal lighting.

d. Private and public utilities' system use in providing electric, gas, water, communication, and sewage disposal services affecting public health and safety.

e. Public transportation and associated customers (rail, air, bus, and trucking) in their use in operation of the conveyances; in providing guidance control, communication, and navigation services; and in maintaining essential lighting at passenger or freight gathering and dispersing areas.

f. Customers directly engaged in the production, refining, and transmission of fossil fuel, nuclear fuel, or steam to the extent that those activities contribute primarily to the generation of electricity for general use.

g. Radio and television broadcasting stations to the extent that their services are utilized for the transmittal of emergency messages and public information broadcasts related to these procedures.

h. Residential customers for the use of a life-support equipment, such as an iron lung or kidney machine.

6. Customers exempted from curtailment should nevertheless contribute to the reduction of energy consumption consistent with the maintenance of the essential services provided.

7. Essential health and safety customers should make all reasonable efforts by way of standby generating equipment to secure their electrical energy requirements to ameliorate the consequences of interruption of electric service.

8. Curtailment priorities should be set to reflect the impact on customer classes while distributing the burden of curtailment on an equitable basis.

9. Conservation goals established in Decision No. 82881 have been partially successful.

10. Further energy reduction should be achieved by all classes of customers so long as such reduction does not cause a serious impact on the state's overall economic picture.

11. Curtailment procedures among those customers not deemed critical to the public health and safety should in general be formulated along customer class lines by way of percentage goals for the energy reductions to be achieved within each class during periods of electric energy shortage, subject to such individual exceptions and variations as may be deemed appropriate under special relief procedures.

12. Priorities based on relative social values of particular products or services other than public health, safety, and security are too subjective and unreliable for curtailment purposes.

13. Priorities formulated on relative social values pose administrative problems on the utilities and the Commission.

14. Appeal procedures to be incorporated into the curtailment plan adopted herein should be determined through further hearing.

15. Further hearings are necessary to form specific mechanics for implementation of the curtailment plan adopted herein.

16. The priority plan adopted herein should only be implemented as an emergency measure should voluntary conservation not achieve the necessary savings of energy.

17. The expansion of mutual assistance agreements to provide reliable service for either a capacity or fuel related shortage should be further explored and reported to the staff.

18. Adoption of an electrical priority list will have no significant effect on the environment.

19. Voltage reductions are not the answer in combating an electric energy or capacity shortage.

Conclusions

1. The Commission was required to establish priorities for customers and uses of electricity based upon those which will provide the most important public benefit and serve the greatest public need in order of descending priority.

2. The full economic, social, and physical effects of a reduction of service in accordance with this priority plan cannot be established definitely.

3. Further energy reduction should be achieved by all classes of customers.

4. Curtailment of electric service should be implemented only if voluntary load reductions prove inadequate.

5. Sequential or rolling blackouts would not be a useful energy saving device in that most usage would simply be deferred until after the curtailment period.

6. Sequential or rolling blackouts should be implemented only after all other efforts to achieve load reduction have failed.

7. Extension of the mutual assistance program between the electric utility respondents should be explored.

8. Establishment of a priority list will have no significant effect on the environment.

INTERIM ORDER

IT IS ORDERED that:

1. A system of priorities for statewide curtailment of electric service based on criteria set forth in Appendix A is hereby adopted. Tariff schedules reflecting the priorities established herein shall be filed in accordance with General Order No. 96-A by the respondent utilities to become effective within one hundred eighty days from the effective date of this order.

2. Southern California Edison Company (Edison), San Diego Gas & Electric Company (SDG&E), and Pacific Gas and Electric Company (PG&E) shall maintain data and continue to report to the Commission quarterly rather than monthly on the effectiveness of the individual utility voluntary conservation programs.

3. Edison, SDG&E, and PG&E shall report to the Commission within one hundred eighty days from the effective date of this order estimates of increases of electric demand caused by existing and future customers switching from natural gas to electricity.

4. Updated emergency plans for implementing sequential interruptions of service shall be filed within one hundred eighty days from the effective date of this order.

5. Further hearing should be held to implement the curtailment plan adopted herein.

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

Dated at San Francisco, California, this 7th day of JULY, 1976.

President

Commissioners

APPENDIX A

End-Use Curtailment

1. The following shall constitute the Commission's electric priority list of customers and uses in descending order of priority.

2. The criteria for categorizing the uses of electricity of the customers of record as of the effective date of this decision are as follows:

Priority 1 - Essential or protected customers or uses

a. Governmental agencies to provide essential service to fire, police, prison facilities and to provide essential lighting for streets, highways, and other public areas.

b. Governmental agencies in their activities essentially and directly related to national defense (Federal, National Guard, and Civil Defense).

c. Hospitals and convalescent homes for their critical facilities such as operating room, emergency room, life support machines, diagnostic machines, refrigeration for medicines, communications, and minimal lighting.

d. Private and public utilities' system use in providing electric, gas, water, communication, and sewage disposal services to the extent that those services could not be reduced without seriously affecting public health and safety.

e. Public transportation and associated customers (rail, air, bus, and trucking) in their use in operation of the conveyances; in providing guidance control, communication, and navigation services; and maintaining essential lighting at passenger or freight gathering and dispersing areas.

f. Customers directly engaged in the production, refining, and transmission of fossil fuel, nuclear fuel, or steam to the extent that those activities contribute primarily to the generation of electricity for general use.

g. Radio and television broadcasting stations to the extent that their services are utilized for the transmittal of emergency messages and public information broadcasts related to these procedures.

h. Residential customers for the use of life-support equipment such as an iron lung or kidney machine.

Priority 2 - Customers and their usage other than in Priority 1, susceptible to exceptional or irreparable loss in the event of curtailment or interruption of electric supply

a. Customers listed under Priority 1 from a through g to the extent that their usages conform to those described for the customers listed below in Priority 2.

b. Agricultural customers to the extent that their efficient usage of electricity is directly necessary for the production, storage, or processing of food products, or that a substantial reduction of usage would result in crop failure.

c. Commercial/industrial customers for those uses other than in Priority 1 to the extent that their efficient usage of electricity is essential in the production or marketing of items of widespread use and that a substantial reduction in electrical usage would cause an unemployment crisis in the locality in which the electrical service is rendered; or that a prolonged shutdown of their equipment using electricity would cause major irreparable damage to that equipment or its product.

Priority 3 - Residential customers

Residential customers to the extent that their usage is confined to minimal essential lighting and heating in occupied portions of the residence; to minimal water heating at thermostat settings no greater than to provide hot water at the minimum needed temperature; to provident use of electric appliances such as to exclude partial use of washing machines, dryers, etc.; and to provident use of cooking facilities.

Priority 4 - Customers and their usage of a customary nature not qualifying under Priority 1, 2, or 3 and not excluded under Priority 5, and all customers at their general level of usage in the year preceding the subject energy crisis.

Priority 5 - Customers and usage to be curtailed first in the event of a generating capacity or fuel shortage crisis

a. Residential customers in any luxurious or wasteful usage. This would include heating or circulating water in a swimming pool unless prescribed by a physician for therapy. It would also include heating or cooling of unused space, the use of grossly inefficient appliances, or the space conditioning of poorly insulated rooms.

b. Any customer in its use for ornamental lighting or display when such use does not contribute to otherwise essential use.

Electric Priorities

The following is the staff's recommended priority list:

Priority 1 - Essential or protected customers and uses.

a. Governmental agencies to provide essential service to fire, police, and prison facilities and to provide essential lighting for streets, highways, and other public areas, as determined by the appropriate governmental authority.

b. Governmental agencies in their activities essentially and directly related to national defense. (Federal, National Guard, and Civil Defense.)

c. Hospitals and convalescent homes for their critical facilities such as operating room, emergency room, life support machines, diagnostic machines, refrigeration for medicines, communications, and minimal lighting.

d. Private and public utilities' systems in their provision of electric, gas, water, communication, and sewage disposal services to the extent that those services could not be reduced without seriously affecting public health and safety.

e. Public transportation and associated customers (rail, air, bus, and trucking) in their use in operation of the conveyances; in providing guidance control, communication, and navigation services; and in maintaining essential lighting at passenger or freight gathering and dispersing areas.

f. Customers directly engaged in the production, refining, and transmission of fossil fuel, nuclear fuel, or steam to the extent that those activities contribute primarily to the generation of electricity for general use.

g. Radio and television broadcasting stations to the extent that their services are needed to keep the public informed regarding a fuel crisis or any other emergency.

h. Residential customers for the use of a life-support device such as an iron lung.

Priority 2 - Customers and their usage other than in Priority 1, susceptible to exceptional or irreparable loss in the event of curtailment or interruption of electrical supply.

a. Customers listed under Priority 1 from a through g to the extent that their usages conform to those described for the customers listed below in Priority 2.

b. Residential customers to the extent that their usage is confined to minimal essential lighting and heating in occupied portions of the home; to minimal water heating at thermostat settings no greater than to provide hot water at the maximum needed temperature; to provident use of electrical appliances such as to exclude partial use of washing machines, dryers, etc.; to provident use of cooking facilities by using covered cooking vessels, by using pressure type cookers, and by multiple use of ovens.

c. Agricultural customers to the extent that their efficient usage of electricity is directly necessary for the production, storage, or processing of food products, or that a substantial reduction of usage would result in crop failure.

d. Commercial/industrial customers for those uses other than in Priority 1 to the extent that their efficient usage of electricity is essential in the production or marketing of items of widespread usage and that a substantial reduction in electrical usage would cause an unemployment crisis in the locality in which the electrical service is rendered; or that a prolonged shutdown of their equipment using electricity would cause major irreparable damage to that equipment or its product.

Priority 3 - Customers and their usage of a customary nature not qualifying under Priority 1 or 2 and not excluded under Priority 4.

All customers at their general level of usage in the year prior to the oil shortage of 1973 but excluding usages described under Priority 1, Priority 2, and Priority 4 herein.

Priority 4 - Customers and usage to be curtailed first in the event of a generating capacity or fuel shortage crisis.

a. Residential customers in any luxurious or wasteful usage of electricity. This usage would include heating or circulating water in a swimming pool unless the pool is prescribed by a physician for therapy. It would also include heating or cooling of unused space, the use of grossly inefficient appliances, or the space conditioning of poorly insulated rooms.

b. Any customer in its use for ornamental lighting or display when such use does not contribute to otherwise essential use.

APPENDIX C

Summary of CMA Electric Priority
By Category in Descending Order
Of Priority

1. Uses necessary to the public health and safety.
2. Uses necessary to avoid further increase in curtailment or to make it possible to reduce curtailment.
3. Uses necessary to avoid major capital losses or destruction of property.
4. Uses contributing to maintaining employment and the economy.
5. Uses providing personal comfort or convenience beyond that required for health, safety, and employment.
6. Uses for aesthetic satisfaction or decorative purposes.

The nature of use should govern the priority rather than the identity of the user, some electric utility customers will have uses that fit in more than one category. In devising a priority system, it is relatively easy to decide on the highest and lowest priorities. Uses which are essential to health or safety are clearly entitled to the highest priority. Uses which provide only aesthetic enjoyment and can be discontinued without a material effect on the economy or employment would probably be conceded by all to deserve the lowest priority. It is the determination of priorities for uses in between that has the greatest potential for controversy. The hard question is what to do when curtailment begins to hurt.

Any mandatory curtailment plan will have some effect on the physical and economic well-being of all Californians. Depending upon the manner of its implementation and its duration, a mandatory curtailment plan could create wholesale disruption in the state's economy. CMA stressed its concern that such disruption be kept to the absolute minimum, that after protection of essential health and safety services the primary criteria for determination of priorities should be the minimization of disruption of the economy and protection of employment and its Priorities 2, 3, and 4 all relate to that objective. Uses which are only for personal comfort or convenience are relegated to the priority just above aesthetic or decorative uses.

Within each of the categories where curtailment will have an impact on production of goods or services or on maintenance of employment levels, CMA recommends that all users should be curtailed on an equal basis.