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Decision No. 88551 MAR 7 1978

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's own motion into the establishing by regulation or order necessary or desirable requirements to implement the HOME INSULATION ASSISTANCE & FINANCING PROVISIONS of newly enacted Public Utilities Code Sections 2781 through 2788, inclusive, as they apply to electrical corporations and gas corporations under the jurisdiction of the Commission.	Case No. 10032 (Filed January 13, 1976; amended February 15, 1977)

(For appearances see Decision No. 87242.)

Additional Appearances

Carol B. Henningson, Attorney at Law, for Southern California Edison Company, respondent.

Glen J. Sullivan and Allen R. Crown, Attorneys at Law, for the California Farm Bureau Federation; Henry F. Lippitt, 2nd, Attorney at Law, for California Gas Producers Association; K. D. Walpert, for R. W. Russell, Department of Public Utilities and Transportation, for the City of Los Angeles; Ed Perez, Attorney at Law, for the City Attorney's Office, for the City of Los Angeles; Herman Mulman, for Coalition for Economic Survival and CAUSE; John W. Witt, City Attorney, by William S. Shaffran, Deputy City Attorney, for the City of San Diego; Miller, Perrin, Domino, Giacalone and Ackerman, by Anthony T. Giacalone, Attorney at Law, for Golden West Insulation, Inc. and Golden-Therm, Inc.; Fred Wilken, for Consumers Protection Services; Joseph Garcia, Attorney at Law, for Richard B. Spohn, Director of Department of Consumer Affairs; Barry Epstein, for Citizen Action Group; Dr. Willie S. Ellison, for the California Department of Veterans Affairs; Dugald Gillies, for the California Association of Realtors; and Pettit, Evers & Martin, by John L. Boos, Attorney at Law, for Owens-Corning Fiberglas; interested parties.

OPINION

BACKGROUND OF THE PROCEEDING

Original Order of Investigation

The Commission instituted this investigation for the purpose of implementing the provisions of Public Utilities Code Chapter 5, Home Insulation Assistance and Financing, Sections 2781 through 2788, which was enacted by the 1975 Legislature. The chapter provides that the Commission shall permit any electric or gas utility to institute a home insulation assistance and financing program. It directs the Commission to develop and adopt, by regulation or order, the requirements it finds necessary or desirable in implementing the chapter.

It is the intent of Chapter 5 that any residential electric or gas customer may apply to the serving utility for home insulation assistance and financing. Upon approval of an application, the utility is to arrange for a licensed contractor to perform the necessary work and is to inspect a representative portion of the jobs so performed. The utility is to carry the financing and may require an initial payment of not more than 20 percent, with the balance payable in equal installments over 36 months or less. Finance charges are not to exceed the maximum allowed for retail installment contracts. As an alternative, the utility may conclude arrangements with lending institutions to provide the necessary loans to customers. In either case, payment of the loan balance is to be provided for through the utility's regular bill for gas or electric service. The chapter provides that the Commission shall allow for rate fixing the reasonable costs of the program, including advertising.

Order Amending Investigation

On February 15, 1977, the Commission issued Decision No. 86983, Order Amending Investigation in this case. That order noted the Commission's intent to establish an aggressive home insulation program and referred to the Commission's desire to expand present utility insulation programs. It amended the order of investigation "so that respondents and interested parties will address insulation program alternatives which are more comprehensive and are probably more effective than the Home Insulation Assistance and Financing provisions of Public Utilities Code Sections 2781-2788." The amending order confined the investigation to the insulation retrofit of residential ceiling areas and called for "program alternatives which could achieve the level of energy conservation stated in the Federal Energy Administration's (FEA) proposed natural gas utility program entitled 'Conservation Investments by Gas Utilities Be Considered a Gas Supply Option'."

The amending order required the four major respondents, Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCal Gas), San Diego Gas & Electric Company (SDG&E), and Southern California Edison Company (Edison), to file responses consisting of comprehensive proposals and supporting exhibits for the following financing alternatives:

"(1) The utility absorbing all costs associated with the program.

"(2) The utility absorbing a significant portion and the customer paying the balance as a surcharge for service."

Public Hearings

Twenty days of hearing were conducted between March 30, 1977 and August 4, 1977, for the purpose of considering the alternatives referred to in the Order Amending Investigation. To encourage public participation, afternoon and evening hearings were held in San Diego, Los Angeles, Fresno, and San Francisco. There was broad participation throughout the hearings on the part of insulation manufacturers and installers, public interest groups, trade organizations, state agencies, and municipalities. The matter was submitted subject to the filing of concurrent briefs on September 12, 1977.

Interim Order

On March 7, 1977 the Commission staff filed a motion requesting an immediate interim order providing that any payments or benefits which may be authorized at the conclusion of this investigation be provided to all who undertake R-19[1] level or greater ceiling installation on or after the effective date of the interim order. The Commission issued its Decision No. 87242 on April 26, 1977 granting the staff motion.

The Federal Energy Administration Proposal

The FEA proposal alluded to in the Order Amending Investigation was generally referred to during the proceeding as the Rosenberg Plan, after its author, Mr. William Rosenberg, who was Assistant Administrator of the Energy Resource Development Section of the FEA at the time his paper was published on December 17, 1976. That document was received into evidence in this proceeding as Exhibit 1. In the preface of his paper, Mr. Rosenberg states that:

> "...even after major price increases and in the face of significantly higher future rates and declining supplies, only a minority of the Nation's homes are properly insulated. The percentage of households meeting Federal insulation standards in three systems analyzed for this study range from 22% in Detroit, 36% in Los Angeles, and 44% in Newark..."

Under the Rosenberg (cost sharing) Plan gas utilities would, through subsidiaries established specifically for the purpose, undertake an accelerated program of energy conservation measures to make all existing gas-heated single-family residences more efficient users of gas without direct cost to the homeowners. The subsidiaries would act as both

1/ "R" is a unit of measurement representing the resistance of insulation to heat transfer; the higher the "R" number, the greater is the insulating value.

contractors and financing agencies for the retrofit installations. Mr. Rosenberg estimated the nationwide cost of the plan to be $400 per home, or $8 billion over the course of a 7-year program involving the retrofit of some 34 million uninsulated or underinsulated gas-heated homes across the United States.

As proposed by the FEA, the gas utilities would recover their full costs, including a 17 percent after-tax return on equity, over a 15-year period. The cost of the program would be passed from the subsidiary through the parent utility as a rate increase to consumers. According to the proposal, the cost of the program would be offset by a large reduction in consumption, with the conserved gas constituting a supply for sale to other users. Benefits listed in the proposal are: conservation of 1.2 trillion cubic feet of gas per year, permitting up to 6 million new residential connections, or the equivalent avoidance of industrial curtailment; annual savings of one to three billion dollars through a one-third reduction in home-heating gas consumption; creation of 487,000 man-years of employment; reduction of our nation's dependence on imported oil by 550,000 barrels per day, thus cutting down the balance-of-payment debit by $2.8 billion per year; and enhancement of the environment.

The FEA was invited by the Commission to participate in this investigation by letter dated March 22, 1977. No appearance was made by any federal agency, and none of the parties to the proceeding advocated adoption of a Rosenberg-type plan.

RESPONSES OF THE FOUR MAJOR UTILITIES

Response of PG&E

In its response to the requirements of the order amending the investigation PG&E offered four financing alternatives:

1. PG&E providing 100 percent of the funds required to pay for the insulation with the costs being expensed each year;

2. PG&E providing 100 percent of the funds required to pay for the insulation with all of the costs being placed in rate base and amortized over 20 years;

3. PG&E providing 50 percent of the funds required to pay for the insulation with the costs being expensed each year;

4. PG&E providing 50 percent of the funds required to pay for the insulation with all of the costs being placed in rate base and amortized over 20 years.

The following are the amounts which PG&E estimates would have to be recovered through rates for each of the four options: Alternative No. 1, $500,000,000; Alternative No. 2, $891,000,000; Alternative No. 3, $250,000,000; and Alternative No. 4, $445,000,000. The estimates are based upon a program which would insulate over a 5-year period the 1,250,000 insulatable but uninsulated or underinsulated residences in PG&E's service area. The large dollar differences result because of the cash portion being paid under the 50 percent participation alternatives and the carrying cost of capital for the 20-year programs. PG&E brought out that, if its present program were allowed to run its limits and 600,000 more dwellings were voluntarily insulated, then the total cost could be cut in half on any or all of the four alternatives. Changing to a subsidized program before allowing the voluntary program to run its course would thus effectively double the cost of insulation. On this basis, according to PG&E, the unit cost would range from $800 to $1,500 for the mandatory program as compared to $350 for the voluntary program.

PG&E contends that its current efforts are succeeding in keeping insulation retrofit installations at as high a level as the insulation manufacturing industry can now handle. The major goal of PG&E's voluntary insulation program is to achieve within a 5-year time frame the insulation to R-19 level of 90 percent of all existing owner-occupied single-family dwelling units in its service area which are structurally suitable for cost-effective retrofit. PG&E expects to achieve its goal through the execution of its base insulation program plus the implementation of such supplemental programs as are necessary to accomplish the task. PG&E would finance the supplemental program through further applications for offset relief similar to its Application No. 56845, as amended.[2/]

PG&E brought out that if all the dwelling units in its service area were insulated, it could not postpone or discontinue any of its new gas supply projects, either under way or planned. PG&E states that, although gas not used through insulation programs is an important source of new supply it is not sufficient, with the dwindling reserves of current supplies, to alter the need for new sources. PG&E does not foresee a time when it will be able to supply the gas requirements of all of its customers, even if it were to obtain all of its planned new supplies and realize the full effects of its conservation programs.

PG&E estimates that, if all the existing dwellings in the PG&E service area were insulated to R-19 standards, the savings in energy could be in the range of 128 million kwh and 182 million therms

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2/ The Proposed Report of the Administrative Law Judge issued September 29, 1977, in Application No. 56845, contains a detailed description of PG&E's base insulation and supplemental energy conservation programs. PG&E's ceiling insulation retrofit program is outlined in that application, as amended. PG&E's program includes, but is not limited to, the following undertakings: advertising designed to promote insulation incentives for sales personnel; random inspection of contractor-installed insulation jobs to ensure satisfactory performance; 36-month customer financing at one percent per month for up to $800 per insulation job; direct customer contact by utility field representatives who will inspect residences, discuss insulation potential with the customer, and, upon request, make arrangements for installation either by a private contractor directly or by PG&E operating as prime contractor; customer incentives of conservation devices worth $40 to $50 wholesale upon presenting PG&E proof of insulation; and special assistance to agencies targeting low-income homes for retrofit insulation.

of gas annually. According to PG&E, if this level of conservation were actually achieved, it would equal only about 10 percent of the gas PG&E plans to receive from its two LNG projects. With this extreme difference in supply, PG&E takes the position that any postponement or cancellation of the LNG projects would be unwarranted.

In its response, PG&E emphasizes that a mandatory insulation program might presume to take credit for saving all the above energy; however, a voluntary program could save the major portion of that amount of energy. The actual savings, then, for the mandatory program is thus not the total savings, but rather the total savings less those savings from the voluntary program.

From PG&E's viewpoint, the benefit of any gas conserved through an insulation program is enjoyed by all of its gas customers. The changing governmental policy toward energy supplies, the technological developments in utilization of energy, and the rapid inflation in costs of obtaining energy are creating a very uncertain outlook from which special groups of individuals might benefit from natural gas conservation bought with insulation. PG&E emphasizes, however, that the entire nation benefits from natural gas conservation and to a greater extent all of PG&E's customers could be expected to benefit. PG&E states that it would prefer, therefore, to see all costs associated with a mandatory program recovered through a uniform charge per unit of gas sold to each customer. According to PG&E this rate structure would provide the lowest administration cost.

PG&E does not regard it as desirable to require electric customers to bear some of the costs of the insulation program in a manner disproportionate to the benefits they might receive. PG&E concedes that a limited number of individual customers could reduce their usage of electricity through insulation improvement; however, the benefits are not comparable to those achievable with natural gas. In the case of natural gas, the finite and rapidly diminishing supplies show a net economic gain from investment in insulation. With electricity an individual net gain might be realized, for example, by lowering air-conditioning costs; however, this would not obtain for the group of all electric customers for all types of use of electricity. Virtually all of PG&E's residential gas customers are heating customers, and prolonging gas supplies through more efficient utilization will enhance the value of the premises of that customer. In view of this program being primarily focused on providing additional gas supply, PG&E does not favor allocating a significant portion of the program costs to electric customers.

In its response to the requirements of the amended order, PG&E recommends that:

1. Programs based on the voluntary insulation of dwellings continue at as rapid a pace as possible considering all segments of the free market's ability to accomplish the task in the most cost-effective manner. Incentives of various types to be encouraged, but only to the extent necessary to maintain a high level of sales at the lowest cost.
2. Program costs and therefore customers' rates be kept to the lowest amount necessary to accomplish the task.
3. The utilities continue to conduct timely market studies to track insulation sales to be sure the market is being effectively reached.
4. The utilities and others involved continue to implement and develop further cost-effective programs to continue the highest level of insulation sales possible in free market conditions based upon the market studies of insulation sales.
5. The utilities and others involved be allowed flexibility in adjusting programs to maintain the highest levels of insulation sales reasonable.
6. Program design not duplicate the efforts of others such as the FEA sponsored weatherization program for low-income families.
7. Mandatory programs for utilities not be instituted unless or until it can be shown that voluntary programs will not complete the task in a relatively timely manner.

8. The State adopt legislation requiring the insulation of accessible attics upon resale of a dwelling unit.

9. Appropriate legislation be adopted to ensure that gas saved through conservation programs be retained by the utility.

Response of SoCal Gas

In response to the amended order of investigation, SoCal Gas evaluated the requirements and impact on rates of the following financing alternatives plus an additional alternative reflecting an accelerated version of SoCal Gas's current programs:

1. Rosenberg Plan Expensed - Insulation is installed with the utility paying the reasonable costs of material and labor and charges all costs to operating expense as incurred. All insulatable dwellings to be completed in seven years with all costs recovered over the seven years.
2. Rosenberg Plan Rate Base - Insulation is installed with the utility paying the reasonable costs of material and labor and charging cost of installation to rate base. Utility administrative cost items charged in year incurred. Costs in rate base are "project" financed with provisions as indicated in the Rosenberg Proposal. Net investment is depreciated on a straight-line basis over 15 years. All insulatable dwellings to be completed in seven years with costs recovered over 21 years.
3. Surcharge Plan - Insulation is installed with the utility paying the reasonable costs of material and labor charging owner 50 percent installation costs upon completion. Utility administrative cost and 50 percent "downpayment" charged in rates as incurred. The 50 percent unpaid balance is taken into rate base and amortized over a seven-year period. All insulatable dwellings to be completed in seven years with all costs recovered in 13 years.

4. Accelerated SoCal Gas Plan - Owner pays cost of insulation material and labor direct to installer. SoCal Gas reimburses customer approximately 20 percent of the reasonable costs of those expenses. Other operating expenses are charged to all customers as incurred. All insulatable dwellings to be completed in ten years with all costs recovered over the ten years.

The following are the amounts which SoCal Gas estimates would need to be recovered through rates for each of the options: Alternative No. 1, $876,000,000; Alternative No. 2, $1,724,000,000; Alternative No. 3, $1,036,000,000; and Alternative No. 4, $179,000,000.

In developing its evaluation of the alternatives, SoCal Gas used 1,292,000 residential units as a saturated market. The cost figures used by SoCal Gas are considerably higher than those of PG&E for a similar number of homes because SoCal Gas used annual inflation rates of from 10 to 15 percent in the development of its figures.

According to SoCal Gas, achievement of the installation of 1,292,000 units over a seven-year period in a manner consistent with the Rosenberg Proposal (Alternatives Nos. 1, 2, and 3) would require:

1. Greatly accelerated production of insulation material;
2. Availability of additional installation equipment;
3. Substantial additional utility capital;
4. A growth rate that could unduly extend or strain the capacities of the insulation material producing and installing industries;
5. A complete restructuring of the insulation industry; and
6. The addition of substantial cost to the consumer due to administrative requirements and cost of money.

SoCal Gas believes that its Accelerated Program proposal (Alternative No. 4) will meet the Commission's objective of achieving adequate insulation of residential structures in a reasonable time frame without the drawbacks enumerated above for the Rosenberg-type alternatives. SoCal Gas thus concludes that its accelerated program would allocate resources in a more effective manner; that its accelerated program would capitalize on the momentum existing in the market place, yet allow for a more orderly increase in manufacturing capacity and installation capability; and that it would cost the consumer less money. SoCal Gas points out that the energy savings resulting from each alternative would be the same.

SoCal Gas states that its current insulation programs are designed to increase market acceptance of retrofit attic insulation through a competitive marketing approach and that this effort has been successful by contributing to the sales experience of existing insulation contractors, by increasing the number of individuals installing insulation on their own, and by selling retrofit attic insulation directly to the public. SoCal Gas contends that, based on current indications, its approach has established a healthy and growing market with a minimal increase in costs to the ratepayer.

The utility believes that a major acceleration of this existing program could be accomplished through the inclusion of the following key elements:

1. A reduction in consumer costs in the form of incentives or subsidies estimated at approximately 20 percent of projected reasonable installed costs.
2. Innovative market approaches designed to test and measure the effectiveness of various other consumer incentives.
3. Rental property programs designed to explore and support various means by which these structures can be insulated.
4. Low-income housing programs designed to insulate residential structures occupied by families in this category.
5. Expanded do-it-yourself programs with cooperation of retailers and manufacturers.

6. Innovative design and presentation of printed materials used to generate leads from potential buyers.

7. Expanded sales force to keep pace with the increased number of sales leads.

SoCal Gas believes that neither its Accelerated Plan nor the Rosenberg Expensed Plan should cause any adverse financial effects on its operations, provided that the costs it incurs under these plans can be recovered from customers in rates in a timely manner. Either of these two plans would, however, require a significant increase in SoCal Gas's working capital, but SoCal Gas feels that this should not be a serious matter if properly supported by rate offsets. However, SoCal Gas sees problems with both the Rosenberg Rate Base Plan and the Surcharge Plan. According to SoCal Gas these plans could have serious financial implications because capital requirements of up to $850 million would be imposed on top of its normal capital requirements and the immense capital requirements for the essential new primary gas supply projects. Many of the gas supply projects have been applied for and are now in the regulatory process. The utility estimates that a full insulation program would provide energy savings equivalent to about only 40 million cubic feet per day in additional gas supplies. SoCal Gas believes that such a heavy capital requirement, in relation to the relatively minor resulting energy savings, would be an inefficient use of its limited financial resources and would seem to run counter to the Commission's admonition on cost effectiveness.

SoCal Gas concludes that:

1. An orderly marketing program over a longer period of time such as its Accelerated Plan which produces the same energy savings as the other plans would be preferable from a cost standpoint to its customers, and it would minimize the impact on the company's ability to meet its financial requirements for critically needed new primary gas supply projects;

2. In every case, there is less out-of-pocket expense to the utility's customers if costs of such insulation programs are paid on a current basis rather than accumulated in rate base and paid over a period of time.

Response of SDG&E

In response to the Order Amending Investigation, SDG&E submitted a report evaluating the potential retrofit market in San Diego County and the costs associated with penetrating that market. The report develops a number of aspects relating to the issues, including the following: a description of SDG&E's present marketing plan called Operation Insulation; an evaluation of the uninsulated and underinsulated market potential in San Diego County and the resources available to retrofit that market; the impact of conservation on SDG&E's gas supply and gas revenues; the means and methods of financing; a mandatory retrofit program; and SDG&E's preferred method of recovery of the costs of such a program.

SDG&E takes the position that its present marketing program, Operation Insulation, would be an appropriate vehicle for accomplishing the Commission's goals with respect to ceiling insulation. San Diego emphasizes that it has now had over two and one-half years experience in the direct sales market and that it has developed refinements in its program which have resulted in a great increase in retrofit of residential insulation installations in its service area.

Through Operation Insulation, SDG&E: (1) sells insulation directly to customers at competitive prices with financing options; and (2) provides conservation-through-insulation information and advertising to the community. The long-term goal of Operation Insulation is to insulate, through direct and indirect insulation sales, 50 percent of the insulatable attic space in its service territory by 1981. Operation Insulation was implemented in 1974 and expanded rapidly. SDG&E reports that it installed 2.3 million square feet of blown-in R-19 fiberglass, rock wool, and cellulose in 2,000 San Diego County attics during 1976 and that orders placed during the first quarter of

1977 exceeded total 1976 sales. SDG&E states that the growth in sales can be attributed to two refinements in the Operation Insulation action plan: (1) its "positive action" advertising envelope, which has dramatically increased the number of leads generated; and (2) a more highly trained and professional sales force which is improving the ratio of sales to leads.

Operation Insulation's 1977 direct sales goal is the insulation of more than 8 million square feet. With other insulation contractors' sales and the do-it-yourself market expanding at the same pace, SDG&E estimates that 20 million square feet of R-19 insulation could be installed in San Diego County this year. If adequate supplies of insulating material are available, SDG&E believes that Operation Insulation will reach its 1977 goal. However, SDG&E indicates that at the time its report was being written there was no fiberglass available in San Diego County, that half of SDG&E's insulation blowing trucks were idle, and that the other half were installing cellulose or rock wool.

SDG&E has not as yet instituted any incentives in Operation Insulation. It gives two reasons for this: (1) constraints imposed by California Business & Professions Code Section 7157; and (2) in informal customer market studies, SDG&E has found a very low customer awareness of prices for insulation. Therefore, SDG&E does not believe that any incentive, short of one covering a substantial portion of the cost of insulation, would be an effective tool in increasing sales. SDG&E is reviewing the results of a SoCal Gas test program to determine whether or not the type of incentives utilized by SoCal Gas could be effective in significantly increasing sales. If so, SDG&E states that it may institute incentives. SDG&E favors incentives in the form of conservation devices which would complement the insulation program, rather than cash.

SDG&E's report shows that the gross area of underinsulated and uninsulated residential attic space in its service area is

342,800,000 square feet. Assuming an average attic to be 1,200 square feet, this would equate to about 286,000 homes. SDG&E estimates that at the prevailing price of 27 cents per square foot it would cost $92,600,000 to retrofit this attic space.

SDG&E has adopted as a goal for Operation Insulation the insulation of 75 percent to 90 percent of all insulatable dwelling units in its service territory within the next seven- to ten-year time period. The utility believes that a seven- to ten-year time period is realistic given the availability of adequate labor and materials. With respect to the financing of insulation, SDG&E prefers a proposal where the customer picks up all or the major portion of the front-end costs.

San Diego's report included the following points regarding the Rosenberg Proposal in relation to SDG&E in particular:

> "First, both the equity investment and the regular contract payment would require cash to flow from SDG&E to the subsidiary. To the extent that there is a lag in SDG&E receipts through increases in rates, the Company's cash flow would be aggravated as discussed previously.
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> "Second, Mr. Rosenberg's assumption that the assured regular payments would allow the subsidiary to issue debt financing and avoid provisions of the parents' bond indenture may not be the case. As he states briefly later in his discussion: 'There is some question, however, whether securities issued by the subsidiary would be treated as securities of the parent for purposes of the interest coverage calculation. In that event, interest coverage requirements of the indenture may limit the ability of the utility and the subsidiary to issue debt securities.' This may indeed be the case with SDG&E's Debenture Indenture where either direct or indirect debt, which is in effect guaranteed by the parent, must be included in the interest coverage calculation. In the event the debt interest was includable, no such debt could be issued after April, 1977. More importantly, if the interest is includable in the parents' coverage, the primary advantage of using a wholly-owned subsidiary is lost.

"Third, there is no assurance that the subsidiary could obtain debt financing totally independent of the parent. Assured monthly payments may not be sufficient collateral for lending institutions in light of SDG&E's financial condition. Any form of guarantee by the Company is certain to include the interest in coverage calculations, while the lack of a guarantee may preclude independent subsidiary financing.

"A final item mentioned by Rosenberg involves the issuance of mortgage bonds. He states that these bonds may not be issuable for insulation because mortgage bond indentures typically require use of bond proceeds to acquire only bondable property subject to the utilities mortgage. If the conservation devices are treated as fixtures that attach to real property, the utility may not have a mortgagable interest. This would not prevent the utility from issuing other forms of debt such as subordinated debentures. However, with the Company's current low first mortgage bond rating, subordinated debentures could only be issued at prohibitively high interest rates."

The financial witness of SDG&E testified that implementation of a mandatory accelerated retrofit program in any form which requires it to obtain money from the capital markets in one year and to recover the money expended in subsequent years would place an unacceptable additional burden on the utility's already heavy financing program. He stated, that, even when assuming a relatively short five-year recovery period through inclusion in rate base, there would be a peak amount to be financed by the utility of $56.9 million excluding the cost of money. He gave the following reasons why SDG&E should be allowed to recover accelerated program expenditures immediately rather than including them in rate base:

"First, the Company continues to experience low internal generation of cash during an unprecedented large construction period. This results in the need to go to the capital markets with greater frequency to obtain larger amounts of funds than at any similar period in the history of the Company. Low internal generation of cash adversely affects the Company's bond and preferred stock ratings. The low ratings in turn cause SDG&E to experience higher capital costs when compared to higher rated companies.

"Second, inclusion of insulation costs in rate base affects interest coverage. The Company must raise the money to finance insulation costs immediately and must begin including interest on the portion borrowed in its interest calculations. Conversely, using rate base over an extended period to recover the costs does not increase earnings enough to adequately cover the increase in interest. With coverage levels already below the required two times, the Company is presently precluded from borrowing more long-term (over one year maturity) money. Implementation of this Program would merely aggravate our current situation.

"Finally, rate base treatment of costs could have an adverse impact on the common stock market value. With earnings lowered by increasing interest costs, investors see SDG&E as being less attractive. Lower earnings continue to result in a lower market to book ratio and in the Company's inability to raise dividends. Lower market price in turn results in greater dilution of common equity when more common shares are required to be sold in order to obtain the same aggregate dollars."

San Diego concludes that a mandatory retrofit program would have a detrimental impact on its cash flow and on earnings unless procedures are established for concurrent recovery of costs. The utility takes the position that, considering its present critical cash flow and interest coverage problems, it cannot reasonably expect to finance such a program in addition to its heavy capital expenditures program unless and until it is granted rate increases sufficient to provide the higher interest coverage and dividend increases necessary to attract the required capital. SDG&E indicates that it would much prefer to see regular lending sources provide the funds to customers and limit its role to being the administrator of the program and possibly the collector through billing procedures.

SDG&E does not favor the institution of mandatory programs at this time. It is SDG&E's position that only if the voluntary plans of the respondent utilities do not achieve their goals should a mandatory program be considered. SDG&E emphasizes that it is important that utilities be allowed maximum flexibility in structuring programs to assure that the most cost-effective conservation programs will be carried out and that a conservation program is discontinued when it becomes less productive. SDG&E points out that, in time as more and more dwellings are insulated, the cost to insulate the remaining dwellings may increase to a price at which it is no longer cost-effective to the utility or its ratepayers to insulate the dwelling if such costs are included in rates.

Response of Edison

Edison's response to the Order Amending Investigation is prefaced by the statement that it is willing to participate in a program to retrofit electrically-heated residential units to the extent that it is cost-effective, taking into consideration cost benefits to the insulation customer and to Edison's other ratepayers.

It is Edison's position that its customers will not directly benefit through electrical service received from Edison by the insulation of gas-heated residences. However, Edison makes the offer, in that part of its territory served by a municipal gas utility (Long Beach), to participate in a retrofit program for the benefit of the municipal's gas customers, subject to the following:

1. All costs incurred by Edison be recovered from the municipal.
2. Appropriate arrangements for recovery of such costs be approved by the Commission and the municipal prior to Edison incurring any such costs.
3. The municipal be invited by the Commission to actively participate in this proceeding if Edison will be asked by the Commission to participate in retro-insulating the gas-heated homes of customers of such municipal.

4. The municipal and/or the Commission propose the insulation program to be implemented by Edison in the municipal's service territory and give Edison an opportunity to comment on the proposed programs. Edison reserves the right to propose changes in any such programs prior to its agreeing to the implementation thereof.

5. The municipal approve in advance the insulation program to be implemented, including any associated economic incentives. Edison would offer such economic incentives to the municipal's gas customers even though Edison opposes use of economic incentives for its electric customers.

Edison estimates there are 271,800 electrically heated residential units in its service area. Of these 109,000 are insulated to the R-19 level, 154,000 are insulated to the R-13 level, and 8,800 are insulated to less than R-13 level.

Of the dwellings insulated to the R-13 level, 50,000 are not physically susceptible to reinsulation. The other 104,000 units cannot, according to Edison, be cost-effectively reinsulated to the R-19 level. Of the dwellings insulated to less than R-13, 3,400 are not susceptible to reinsulation. Edison considers only the other 5,400 of these units to be insulatable on a cost-effective basis.

Edison supported its position that it would not be cost-effective to reinsulate the 104,000 insulatable dwellings from R-13 to R-19 in the following manner. A unit price of 14.0 cents per square foot for installation of the insulation was used in the cost-benefit calculation on the assumption that the installing contractors would provide and install the insulation at a quantity discount price. Edison did not include any of the estimated costs which it would incur directly by participating in a program to reinsulate these units. Edison assumed that each unit contains 1,200 square feet and could be reinsulated at a cost of 14.0 cents per square foot, or $168.00 per unit. Edison used computer modeling to determine that the savings in energy per year from reinsulating a unit from R-13 to R-19 would be

135 kilowatt-hours. At the current residential energy cost of 3.2 cents per kwh, the savings would be $4.32 per year. Thus, on a present worth basis, with a 7 percent discount factor and 25-year life, it would not be cost-effective to reinsulate these units. If electric rates increase at 5 percent per year and the costs of insulating materials and installation increase at 8 percent per year, it would never, according to these figures, be cost-effective to reinsulate these units from R-13 to R-19.

In its response to the requirements of the Order Amending Investigation, Edison offers three financing alternatives:

1. Customers voluntarily participating with no incentive costs to be absorbed by Edison or spread to its ratepayers.
2. Edison providing 50 percent of the funds required to insulate the 5,400 units, with the costs of the incentive program being absorbed by all of Edison's rate-payers.
3. Edison providing 100 percent of the funds required to insulate the 5,400 units, with the costs of the incentive program being absorbed by all of Edison's ratepayers.

Alternative No. 1 would have no rate impact or effect on Edison's results of operations. For the other two plans, Edison would incur costs of $736,000 for the 50 percent incentive, and $1,473,000 for the 100 percent incentive.

Edison recommends that the 5,400 units be insulated through voluntary customer participation per Alternative No. 1, with no incentive costs to be absorbed by Edison or spread to its ratepayers. Edison argues that, if the philosophy is followed of insulating only dwellings where cost-effectiveness is indicated, then the payments required of each customer will be generated through his reduced energy bills. For customers unable to pay the installation cost in one payment, Edison proposes that financing be made available at prevailing interest rates over a time period consistent with the amount financed and the customer's energy cost savings.

Edison makes the point that to provide an economic incentive to motivate a customer to insulate where it is not cost-effective to do so, cannot be justified. Edison asserts that it would be an obvious inequity to require all or a portion of its ratepayers to bear the burden of such an incentive.

OTHER PROPOSALS

Proposal of California Retailers Association

In addition to the responses of the four major utilities and the uniform mandatory plan recommended by the Energy Conservation Team of the Commission staff, a proposal was submitted by the California Retailers Association (CRA). CRA proposes that the Commission direct utilities to adopt insulation programs under which they would be limited to the following activities:

1. Conduct of advertising campaigns designed to promote insulation.
2. Dispatch of advisory teams, at the request of and at the expense of customers, to examine homes and businesses for the purpose of estimating the approximate cost of installing insulation and instituting other advisory measures.
3. Furnishing, at the request of customers, a list of all licensed insulation contractors, the list to indicate which contractors make long-term financing available.

Under the CRA proposal:

1. The utility would not itself sell or install insulation or contract for sale or installation by others; nor would it offer incentives to customers to install insulation.
2. To the maximum extent legally feasible, the Commission would raise lifeline rates to reflect costs of service, thereby providing a true price signal and stronger incentive to residential customers to insulate.

3. Private contractors and sellers of insulation would be left to engage in normal price and service competition, and to pursue the orderly development of the insulation market.

Proposal of the Commission Staff

The Energy Conservation Team of the Commission staff proposes the following uniform mandatory plan:

1. Utilities to provide a cash incentive, or an equivalent wholesale value of other conservation hardware (at the customer's option) to any customer who installs retrofit attic insulation according to these provisions:
   a. Customer to provide proof of purchase of sufficient approved material.
   b. Incentive to be provided for do-it-yourself installations as well as contractor installed insulation.
   c. Gas utilities to provide the incentives to customers who use gas heating.
   d. Electric utilities to provide incentives to those customers who have electrically heated homes.
   e. The incentives to apply to owner-occupied homes as well as renter-occupied homes.
   f. Incentive to be $50 for installation of retrofit attic insulation of uninsulated homes.
   g. Incentive to be $25 for upgrading underinsulated homes to R-19 level.
   h. Incentive to be $50 for adding an additional R-19 level of insulation to electrically-heated homes which now have only R-11 or R-13 level insulation.

2. Financing to be provided by the utilities in accordance with these conditions:

   a. Interest at 7/12 percent per month (seven percent annual rate) on the outstanding loan balance.

   b. Loan payable in up to 60 equal monthly installments, or in a lesser term if requested by the customer.

   c. Amount of loan not to exceed $400 for retrofit of the attic of a single-family dwelling, and in no event to be greater than the actual cost of insulation less $50.

   d. For rental housing, utilities to make loans available to property owners under the above conditions. Tenant and owner "share the payments of principal and interest ... on a 50-50 basis". Tenant's payments to be collected through the utility bills.

3. Interim standards of insulation material to be established by the Commission and to be utilized by the utilities in administering their incentive programs.

   a. Each utility to maintain a list of insulation materials which meet the standards and are commercially available in its service area.

   b. Utilities to inspect on a "spot basis" not less than ten percent of retrofit insulation jobs installed in their service areas. Installations not meeting the interim standards to be excluded from incentive payments and financing benefits.

4. Utilities to recover cost of the program according to this staff recommendation: "all reasonable costs associated with this program (incentives, financing, administrative) should be expensed by utilities and recovered in a manner similar to that adopted by the Commission in Decisions Nos. 86940 and 87010 related to PG&E's Application No. 56845".

5. Each utility to file annual reports with the Commission on the progress of the retrofit insulation program, together with suggested changes in the program. The Commission to review the reports and, from time to time, order such changes as may be indicated.

6. Insulation to be a condition of service. The Commission recommends that "after October 1, 1980 utilities shall require documentation of R-19 ceiling insulation from all owners of single and multiple family homes at the time of establishment or reestablishment of service."

DISCUSSION OF THE ISSUES

Should the Commission Adopt A Rosenberg-Type Cost Sharing Plan?

It is evident that the cost sharing plan has major disadvantages. The record demonstrates that over a 7-year period the cost sharing plan would disrupt the insulation industry and severely compromise the ability of manufacturers to supply balanced quantities of quality materials. Also, according to Owens-Corning Fiberglas Corporation (Owens-Corning) a 7-year retorfit program would require the doubling of its 1977 production. In addition, SoCal Gas estimates that three times its present insulation material consumption (blowing material) would be required to implement the cost sharing plan in its own service area. While the availability of certain types of insulation material may appear to be a problem, it should not be the fundamental reason for rejection of the cost sharing plan, because ample supplies of insulation material can readily be manufactured particularly of the cellulose base type.

The utilities indicate that more than half of all insulation retrofit is accomplished by homeowners on a do-it-yourself basis at a savings of up to 33 percent. Moreover, the record shows that two-thirds of those planning to retrofit intend to install the insulation themselves. The cost sharing plan, by offering retrofit installations at no direct cost to the customer, would certainly eliminate any incentive for do-it-yourselfers. The employment of contractors to perform jobs which might have been more inexpensively accomplished by willing homeowners would entail an unjustifiable increase in the overall cost of the retrofit program.

In his paper, Mr. Rosenberg acknowledges that conservation energy (existing energy supplies conserved through insulation efforts) will not be sufficient to fill our energy needs for even the foreseeable future. The Energy Conservation Team witness recognizes this reality as well. The utilities introduced impressive statistics demonstrating the adverse impact of a cost sharing plan on their ability to develop new energy sources. For example, the SDG&E's Encina project alone is expected to cost $120 million. The utility's overall construction budget rose from $190 million in 1976 to $217 million for 1977. As previously mentioned, the cost sharing plan would cost the utility some $56.9 million, excluding the cost of money and assuming an accelerated 5-year payback provision. By mandating payback over 15 years, the cost sharing plan would increase that cost substantially and would in turn jeopardize SDG&E's on going capital projects. As SoCal Gas pointed out, the cost sharing plan would require it to earmark and expend $850 million, a sum which equals over 90 percent of the utility's rate base as of December 31, 1976. That capital would be unavailable for development of new energy sources except in dribbles over a 15-year period.

After studying the financial implications of the plan for the utilities, the staff witness for the Finance Division, concluded that a Rosenberg-type plan "would most likely create financing problems." He stated that the Finance Division did not support the Rosenberg Plan because it called on the utilities to subsidize the complete cost of installed insulation. He testified further that such subsidy and financing, as opposed to modest cash incentives, would impose excessive costs on the utilities.

Technical Analysis and Communications, Inc., a market research firm, conducted a survey of California, Michigan, and New York in March 1977 under the sponsorship of Owens-Corning, to determine public sentiment toward a Rosenberg-type plan. A summary of the survey was introduced as Exhibit 34 herein. Homeowners were asked about the plan itself and about the plan in relation to other alternatives. In California, 64 percent rejected a Rosenberg-type Plan, 33 percent endorsed it, and 3 percent had no opinion. Conversely, 75 percent preferred some form of tax rebate to be given to homeowners who undertake their own insulating. No other insulation plan received majority support; moreover, the Rosenberg model was least favored by the respondents. Results in Michigan and New York were substantially the same. Given the validity of the sample, it would appear that the results did not merely separate those who have retrofitted from those who have not. Three-quarters of California homeowners have something less than R-19 insulation and therefore would directly benefit from a Rosenberg-type program, yet they, too, appear to spurn that approach.

The Commission staff reported similar reaction from the public in letters and telephone calls regarding Case No. 10032. Most of the communicating public opposed a Rosenberg-type program. That view was also reflected by members of the public testifying in the proceeding.

Of the financing alternatives submitted by the utilities, only the following are responsive to the explicit requirements in the numbered paragraphs of the Order Amending Investigation: the four PG&E alternatives; the four SoCal Gas alternatives; and Alternatives 2 and 3 of Edison. SDG&E's report contains no alternatives which are responsive to the specifics of those requirements. Except for Alternative 4 of SoCal Gas, each of the "responsive" alternatives must, for purposes of this decision, be regarded as a cost sharing-type plan because the record shows that each has, to one degree or another, some or all of that plan's major disadvantages.

Should the Commission
Adopt a Uniform Mandatory
Incentive and Financing Program?

Although there was virtual unanimity among all parties as to the need for increased penetration of the retrofit ceiling insulation market, only the Energy Conservation Team of the Commission staff, among the parties who actively participated throughout the proceeding,[3/] recommends that the Commission adopt a statewide mandatory cash incentive and financing program.

The degree to which cash incentives would stimulate the rate of retrofit has not been clearly demonstrated on this record but it is anticipated they would result in increasing insulation sales. Evidence was presented with respect to the effectiveness of cash incentives through results of a test study conducted by SoCal Gas. More reliable results could be expected had the study utilized a control group which did not receive the incentives and also by analyzing the effect on sales after cash incentives were discontinued. The Energy Conservation Team in advancing its proposal, does so on the proposition that the cash incentive program is cost-effective for retrofit installations.

3/ In its brief the State Energy Resources Conservation and Development Commission (ERCDC) expressed its general support of the recommendations of the staff's Energy Conservation Team. ERCDC confined its participation to entering an appearance and filing a brief. ERCDC sponsored no direct presentation, and it conducted no cross-examination in this proceeding.

The record contains no real measure of the effectiveness of the Energy Conservation Team's proposal to offer a $50 incentive and implementation of the program at the marketplace would be the best test. The conclusions of the Energy Conservation Team were not fully supported by the witness of the Finance Division of the staff, who expressed the view that the benefits to be gained by a cash incentive program may be outweighed by the cost to ratepayers in paying for those incentives.

Some merit should be afforded this observation. It also suggests that incentives are also appropriate for those customers who have already insulated their dwelling unit(s).

The Energy Conservation Team's proposed mandatory statewide proposal for utility-sponsored insulation financing and cash incentives would require annual reviews to evaluate program effectiveness and possible changes. It also recommends that the interest rate on insulation loans be set at 7 percent. This rate of interest was selected by the staff because it is the rate which utilities pay on customer deposits held to establish credit. While it is a fact that the utilities pay 7 percent interest on such deposits, that fact in no way establishes the validity or reasonableness of using the same interest rates for home insulation financing.

For loans to insulate rental premises, the Energy Conservation Team proposal contemplates that the payments be shared by the landlord and tenant. This would involve billing five to seven tenants (based on an average annual turnover in tenancy) with a different rate structure during the repayment period. It appears to be implicit in the staff proposal that, during periods of vacancy when there would be no utility service or billing, the landlord would pay the tenant's share, despite the fact that the utility would have no relationship to the landlord as a customer. This share-the-payment proposal is manifestly unworkable and must be discarded.

The foremost drawback to any mandatory financing program is the large amount of capital which the utilities would be required to raise. The Finance Division estimates that if 40 percent of customers installing insulation were to take advantage of the 7 percent financing, the utilities would be required to raise $252 million in the fifth year of the program merely to accommodate the financing assistance. If 30 percent of customers installing insulation were to take advantage of the financing, a percentage the Energy Conservation Team witness regarded as "likely", the capital requirements in the third year would be $189 million. These costs do not include the administrative and marketing costs of any insulation program, nor do they include costs associated with the $50 cash rebate program. We agree and will therefore temper the staff's program in this order by increasing the interest rate to 8 percent and substituting less costly conservation devices in lieu of the $50 cash rebate.

Mandatory Insulation Programs

Granted, there is need for accelerating the installation of ceiling insulation; during the past 3-year period less than 300,000 owners of California single-family homes added ceiling insulation, about half of them in 1976. The voluntary programs of the four respondent utilities have been largely instrumental in this achievement. However, at this rate of installation, it would require some 15 to 20 years to insulate most of the homes in California. The severity of the present energy problem mandates a much shorter period of time to attain this goal.

The record in Case No. 10032 includes statements opposing the mandatory insulation program such as the one stated by the witness for General Motors Corporation:

> "Mandatory insulation programs have no place in a market of reasonable, well-informed buyers and sellers. If insulation is a sound investment, consumers will arrange for its installation. For those unable to fund insulation, existing federal programs providing direct grants in aid seem workable. In this way the utility and homeowners can jointly act to the mutual benefit of each of the system as a whole. The record in this proceeding clearly establishes that in California this process has worked and will provide the best level of insulation in relation to the benefits attainable."

Each utility has examined its present voluntary program looking toward its expansion and supplementation. Each has based this examination upon the particular requirements of its own service area, the success of its present programs, its own financial capabilities, and its goals. In so doing however, the programs have not generated sufficient customer response. Therefore, the order herein will adopt a uniform mandatory program for the utilities. It will establish overall insulation program guidelines and goals with respect to the time period required to achieve near saturation of the retrofit market, and it will establish the standards required to assure the installation of effective insulation. To comply with the intent of the legislature, the utilities will be authorized herein to undertake home insulation assistance and financing programs as contemplated by Public Utilities Code Sections 2781 through 2788.

How Should Insulation Program Costs be Recovered?

In the Order Amending Investigation, the Commission required the respondents to file proposals based upon two methods for recovery by utilities of costs incurred under a home insulation program -- recovery through rate base or recovery through operating expenses. There was unanimity among the participants in preferring recovery through operating expenses.

The rationale for such preference relates to the necessity for minimizing impact on utility cash flow and earnings. Furthermore, the programs would cost less in the long run if funds were recovered quickly. Rapid payback would provide funds for continuing the insulation effort, and there would be less adverse financial effects arising from increases in capital requirements.

It is obviously not practical for a utility to own insulation which is installed in a home. The utility could not inspect, maintain, insure, repair, control, or replace the insulation. Insulation has a high labor content due to costs of installation and would have a large negative salvage value, even if it could be removed. In all likelihood, it would not be bondable property. All of these arguments, as advanced by the utilities, weigh against rate base treatment and in favor of current expensing of the costs of a utility insulation program.

The specific details of the proposals for current expensing of such costs differ slightly from utility to utility. SDG&E recommends that the Commission adopt a "retrofit insulation adjustment clause", or RIA clause, as the method of recovery for utilities of any expenses for retrofit ceiling insulation programs ordered in this proceeding. The suggested RIA clause incorporates a balancing account provision and would operate similarly to a purchased gas adjustment clause. The utility would file revised RIA rates with the Commission twice a year. All or a portion of the costs to be recovered during the 6-month period following the revision of the RIA rates would be the estimated expenditures to be made by the utility during that period for retrofit insulation plus a portion of the unrecovered previous expenditures. It would be necessary to estimate expenditures and revenue requirements before the RIA could actually be implemented.

PG&E recommends immediate expensing and concurrent collection through rates of the costs of any expanded insulation program. PG&E proposes that the expenses be recovered through a uniform charge per unit of energy on all rate schedules. SoCal Gas also urges that the costs be recovered concurrently through a uniform charge per therm, applied to all rate schedules, including resale. SDG&E, while otherwise urging a uniform cents-per-therm charge, argues that it has its own insulation program and should be exempted from the costs of the SoCal Gas insulation program. SDG&E cites Decision No. 86940 which states that supply conservation programs will benefit the resale customer "in that there will be a better assurance of a continuance of a supply of energy to meet its requirements, and it too would not be subject to higher rates that would result from high cost plant construction."

The rate witness of SoCal Gas testified that resale customers will benefit from additional gas availability and from the reduction in peak requirements which might reduce the system total cost of service. SDG&E argues, however, that the residential, commercial, and industrial customers of SoCal Gas will receive the same benefit due to conservation effects resulting from the retrofit insulation program of SDG&E, the resale customer in this case. As San Diego sees it, the SoCal Gas customers will also receive the direct benefit of a significant portion of the gas conserved by SDG&E's customers. SDG&E states that its customers will probably face a significant loss of gas, and SDG&E will face a loss of revenue and operating income necessitating a further increase in rates to its customers.

SDG&E contends that, "In view of the equivalent receipt of 'better assurance of a continuance of supply' by both SDG&E and SoCal customers, and the potential disproportionate receipt of the direct benefits or detriments caused by a retrofit insulation program," it would be inappropriate to require SDG&E and its customers to pay any portion of the SoCal Gas program unless the Commission provides a mechanism for SDG&E to retain the gas conserved by its customers. SDG&E concedes, however, that, if the Commission were to provide for a mechanism whereby SDG&E would be able to obtain the full benefit of its own insulation retrofit program, either through a volume adjustment or some financial arrangement, it would then be appropriate for SDG&E to pay for a portion of SoCal Gas's expense.

Edison takes the position that retrofit program costs should be recovered on a current basis through a balancing account arrangement as part of the costs associated with its ongoing conservation programs. Edison urges that, concurrent with the issuance of any order requiring such incentives, the Commission should authorize inclusion in the balancing account of those costs and that the Commission should authorize an offset rate adjustment to cover the estimated amount of the costs. Edison recommends that such an increase be applied uniformly to all jurisdictional electric energy sales in excess of lifeline quantities.

The Energy Conservation Team recommends that the order issued herein implement its recommendations for a mandatory plan as soon as possible after issuance of the order. While the staff urged that all reasonable costs associated with insulation programs (incentives, financing, and administrative) be expensed by the utilities and recovered through the vehicle of annual offset rate applications, it did not make any estimates of the revenue requirement increase which would be entailed thereby for each utility. The Energy Conservation Team's position is that the Commission could order the utilities to estimate the cost of any program that the Commission deems necessary and have the utilities file the estimates with the Commission as part of their offset applications. Thus, under the staff procedure there would necessarily be a delay between the time the programs were ordered to be implemented and the authorization of rate relief.

Although there is much to be said for balancing accounts to offset costs including energy conservation programs, it is a poor regulatory practice to authorize such accounts for the purpose of cost recovery of ongoing and anticipated expenses largely within the control of the utility. For such expenses, it is customary to grant relief to the utility in general rate proceedings. In addition, the reduced time needed in processing general rate cases due to improved procedures, has also greatly reduced the need for offset relief. Consistent with these new procedures, the order herein will not authorize the establishment of conservation adjustment accounts for this purpose.

It is contemplated under the foregoing rate-fixing procedure that the reasonable costs associated with the insulation programs for gas-heated homes will be offset through the gas rates of the serving gas utility; likewise, such costs associated with the insulation programs for electrically heated homes will be offset through the electric rates of the serving electric utility established by decisions in general rate proceedings.

What Should be the Program Period and What Market Penetration Should be Achieved?

The 7-year goal of the Rosenberg (cost sharing) Plan was roundly criticized by many of the parties to the proceeding as unrealistic and disruptive. The Energy Conservation Team proposed a 5-year program and justified this position on the basis that the case may be reopened from time to time for reconsideration of the issues as problems develop.

PG&E recommends that its retrofit program be accelerated, as proposed in its amended Application No. 56845, to achieve a goal of 90 percent saturation within a 5-year period. That goal is limited to existing owner-occupied uninsulated homes.

The evidence is clear that a 5-year program to achieve 90 percent saturation is urgently needed and should include penetration of the combined owner-occupied and rental market. In this regard wherein the current pace of insulation activity within California is already causing insulation material shortages, it is anticipated the insulation industry will expand to meet the demand. If shortages of fiberglass or rock wool persist, cellulose material would then become available in sufficient supply.

Should Utilities Act as Insulation Contractors And Select Subcontractors?

During the course of the proceedings there were conflicting recommendations from members of the insulation industry as to whether utilities should act as insulation contractors and select subcontractors or whether they should disassociate themselves altogether from the actual insulation business. Perhaps the strongest argument in favor of allowing utility direct sales programs is the success of such programs to date. This success was acknowledged by the witness for Insulation Contractors Association (ICA), who recommended that present utility activities be continued. According to this witness, ICA is a statewide trade organization whose members perform in excess of 80 percent of the residential contracting business for both new construction and retrofit in the State.

The Commission does not take the position that utilities must become involved in the retrofit programs as contractors. There is no basis in this record to determine that having utilities act as contractors is the only way to accomplish greater penetration of the retrofit market. But it is one of the ways, a way that has been proved on this record to be effective. As long as a utility lawfully and ethically acts as a contractor in pursuit of furthering the ends of energy conservation, this Commission should not put constraints on such activities. Moreover, the Home Insulation Assistance and Financing Act in Sections 2785 and 2788 contemplates a program wherein utilities engage in direct sales activities including commercial advertising. Therefore, it seems appropriate for such utility direct sales activities to continue and the Commission to allow utilities to act as insulation contractors and, in the interest of quality control, to select those subcontractors who will actually perform the insulation installations. The Commission, of course, expects each utility to formulate and conduct its retrofit program so as to avoid violations of federal anti-monopoly statutes and the State Business and Professions Code, in particular Section 7157 thereof.[4/]

What Insulation Level Should Be the Standard For Retrofit Installations?

For use until such time as permanent standards are prescribed by ERCDC, the order herein will establish interim standards for the insulation level of utility-assisted retrofit ceiling installations.

The record supports, as an interim standard which would be cost-effective in virtually all California localities, the retrofit of uninsulated attics to the R-19 level and the reinsulation of underinsulated from less than R-13 to the R-19 level. Although higher levels are cost-effective in many California localities, this record does not contain specific support for the cost-effectiveness of any higher level than R-19 for any of the general California retrofit insulation or reinsulation situations under consideration in this proceeding. Cost-effectiveness, as we are here using it for determining "R" values, is demonstrated when the savings in cost of energy will

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4/ Business and Professions Code Section 7157 provides, in part, that:

> "A contractor or his agent or salesman may give tangible items to a prospective customer for advertising or sales promotion purposes where the gift is not conditioned upon obtaining a contract for home improvement work if such gift does not exceed a value of five dollars ($5) and only one such gift is given in connection with any one transaction."

offset the present-worth cost of installing the insulation. This approach does not consider the value of any incidental benefits because of the difficulty of defining and evaluating them. These determinations reflect current energy rates. Higher energy rates will make higher levels of insulation cost-effective and feasible to achieve. To the extent that energy costs might well rise faster than insulation costs, a statewide standard exceeding R-19 may be indicated in the future.

Should Insulation be
Required as a Condition of Service?

At the hearings, the Energy Conservation Team recommended that after October 1, 1980 no electricity or gas service be established or reestablished for private dwellings, whether owner-occupied or rented, unless the customer furnishes documentation that the ceiling has been insulated to the R-19 level. That recommendation is supported by proposed tariff sheets for both gas and electric services, submitted by representatives of the Utilities Division of the staff. Each of the proposals for amendment to the gas and electric tariffs would deny both of these services to uninsulated homes regardless of the source of space heating, be it gas, electricity, oil, coal, wood, or whatever. Thus, an uninsulated gas-heated home would be denied electric as well as gas service, and similarly an uninsulated electrically heated home would be denied both types of utility service.

The staff concurrent brief raises several questions regarding our authority to order such a tariff provision. The staff's analysis of the constitutional and statutory uncertainties of such an order urges us to proceed cautiously before taking such a step. They advise us to explore the legal ramifications of such an order before imposing a "condition of service" tariff.

We believe caution is desirable. We will not adopt the recommendation of the Energy Conservation Team at this time. Concurrently herewith we are issuing an order in the form of a proposed report which will provide an opportunity to receive comments and recommendations from the parties to this proceeding as to the advisability of adopting a "condition of service" requirement for encouraging utility customers to bring their residential premises to R-19 insulation standards. After we have received the comments of the parties regarding a "condition of service" requirement, we will seriously reconsider such a provision.

<u>Findings</u>

1. An increased level of penetration of the residential retrofit market, both owner-occupied and rental, will assist utilities in satisfying the energy requirements of their customers. The utilities should accelerate and expand their insulation programs in the furtherance of meeting this basic utility obligation.

2. All customers of each utility will receive benefits from the installation of insulation by some customers.

3. Insulation manufacturers and suppliers should be encouraged to increase their production and supply capability to avoid insulation material shortages in the California marketplace over the next 5-year period; this action will enhance fulfillment of the intent of the Legislature in enacting Sections 2781 to 2788 of the State of California Public Utilities Code.

4. Present voluntary programs can be accelerated and supplemented but to accomplish nearly complete saturation of the residential retrofit market will still require 10 years.

5. The FEA proposal and the Rosenberg-type alternative plans submitted in response to the Order Amending Investigation have merit, but would be too costly to the utilities, and their ratepayers.

6. Consumer resistance brought on by the cost of installing insulation can often be overcome by the offer of appropriate incentives and/or the availability of low-interest loan financing.

7. The uniform mandatory insulation program proposed by the staff should be ordered with certain modifications and exceptions as set forth in the opinion. The program should provide in addition to a maximum loan of $500 per single-family residence, a $2,500 maximum loan per multiple unit residential dwelling with a $400 limit per multiple-family unit. A loan interest rate of 8 percent per annum with a maximum payback period of sixty months is reasonable.

8. A $50 cash incentive is not a reasonable inducement to insulate, whereas a lesser cost hardware incentive which promotes additional conservation is reasonable.

9. The declining energy supplies, particularly natural gas, for the residential user is sufficient cause to authorize free energy conservation devices not only to homeowners who are about to insulate their attics, but also to those with homes that are already insulated.

10. Residential units with attic insulation that equals or exceeds the standards of this order qualify owners of such units to have installed by the utility, one energy conserving hot water heater thermal insulation blanket and one high quality low flow shower head per dwelling unit. Details of the program are to be worked out with the staff. Product cost to the respondent utility should approximate $25 per residential unit equipped.

11. All reasonable administrative and incentive costs incurred by the utilities with respect to their insulation programs should be recovered through rates as items of current expense.

12. The participation of gas utilities in ceiling retrofit insulation programs should be limited to their customers who heat their homes with gas, and the participation of electric utilities in such programs should be limited to their customers who heat their homes with electricity.

13. An annual report by the utilities is an appropriate procedure for consideration by the Commission of each utility's effectiveness in carrying out its ceiling retrofit insulation program.

14. Generally throughout California, it is cost-effective to insulate uninsulated homes to the R-19 level and to reinsulate homes having insulation below the R-11 level by adding insulation to bring such homes to the R-19 level for attic insulation.

15. Utilities should not be authorized to establish balancing accounts for the purpose of offsetting retrofit attic insulation program costs.

16. The recommendation of the Energy Conservation Team that R-19 ceiling insulation be a condition of new utility service after October 1, 1980 requires further study and is the subject of a proposed report issued this date.

<u>Conclusions</u>

1. It is in the public interest for the Commission to order utilities to undertake a modified staff-type plan for a uniform incentive and financing assistance program for the retrofit insulation of existing residential structures. The Commission urges each utility to expand and accelerate its ceiling insulation program to accomplish, in a cost-effective manner, a penetration of at least 90 percent of the retrofit market, both owner-occupied and rental, within a 5-year period. The Commission will monitor the results each utility achieves and utilize these results in future rate cases for determination of a fair rate of return.

2. Utilities should not be authorized to establish balancing accounts permitting the recovery of retrofit attic insulation program costs.

3. Utilities should be authorized to implement the home insulation and financing provisions of Public Utilities Code Sections 2781 through 2788.

4. Interim standards for level of retrofit ceiling insulation should be adopted for consumer protection and assurance of energy conservation effectiveness.

5. Payments or benefits, as those terms are used in Ordering Paragraph 1 of Decision No. 87242, are authorized by the order herein.

O R D E R

IT IS ORDERED that:

1. All utilities are authorized to implement the home insulation assistance and financing provisions of the Public Utilities Code Sections 2781 through 2788 consistent with this ordering paragraph. The utilities are ordered to implement the home insulation assistance loan program within sixty days from the effective date of this order. That insulation assistance program shall provide a maximum loan of $500 per single-family residence or $2,500 per multiple unit residential dwelling with a $400 limit per multiple-family unit. The loan interest rate shall be 8/12 percent interest per month (8 percent per annum) with a maximum payback period of sixty months. To implement this program, each utility is directed to inform its customers of this program by a utility bill insert similar to the one presented in Appendix A.

2. Until such time as retrofit insulation standards are adopted by the State Energy Resources Conservation and Development Commission, the following interim standards shall apply to utility-sponsored insulation installations:

   a. For dwellings having no insulation, attics are to be insulated to the R-19 level.

   b. For dwellings insulated to less than the R-11 level, insulation is to be added to bring them up to the R-19 level.

3. Upon request by the residential property owner, each utility shall inspect such residential unit(s) within its service area for the installed R-level of attic insulation. For each unit with existing or retrofit attic insulation equaling or exceeding the R-19 insulation resistance level, the utility shall offer and install one thermal insulation blanket for the hot water heater servicing the residential unit and one high quality low-flow shower head. Both items, including installation, shall be without charge to the property owner. Details of the program shall be worked out with the staff including product quality selection. The combined cost to the utility of these two items should be in the range of twenty-five dollars ($25). To implement this program, each utility is directed to inform its customers of this program by a utility bill insert similar to the one presented in Appendix B.

4. Until such time as insulation materials standards are adopted by the State Energy Resources Conservation and Development Commission, cellulosic insulation materials must meet standards that equal or exceed the interim insulation material standards set forth in Appendix C to qualify for loans or hardware incentives under this order.

5. The utilities shall file with this Commission a report within ninety days after the end of each calendar year on the progress of the retrofit insulation programs for the preceding year. This report may be incorporated as a part of each major utility's regular report on conservation for those utilities now required to file such reports by Decision No. 86501. In that report, the utilities shall include any suggested recommendations for changes in their insulation program for the ensuing year.

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

Dated at San Francisco, California, this 7th day of MARCH, 1978.

Robert Batinovich
President

William Symons Jr.

Vernon L. Sturgeon

Claire T. Dedrick

Commissioners

C.10032 km

APPENDIX A

SUGGESTED UTILITY BILL INSERT FORMAT

LET _______*_______ FINANCE ATTIC INSULATION FOR YOUR HOME

Insulating an attic up to R-19, the recommended standard, can save the average home owner approximately $50 or more each year in heating costs. AND THAT MEANS THAT ATTIC INSULATION WILL NOT ONLY PAY FOR ITSELF, BUT WILL SAVE MONEY, TOO.

_______*_______ will help you find out if you need insulation. If you qualify, _______*_______ will even finance your single family insulation costs up to $500 or up to $2,500 for your multiple unit residential building but with a limit of $400 for each multiple family unit -- at only 8 percent interest per year with up to five years to pay back as authorized by the California Public Utilities Commission, (Decision No. 88551).

_______*_______ will also help you get estimates from qualified contractors, and the cost will probably be less than you think. Or, if you want to do it yourself, _______*_______ has a finance plan for your purchase of insulation materials.

For information, call _____*_____ Energy Conservation Center, _____________#_____________ Monday through Friday, 8 a.m. to 5 p.m. Or fill out and mail the coupon or return it with your bill payment.

(Insert name and mailing address of utility)

____

☐ Send me more information on how ___*___ will finance insulation.

☐ Have two contractors call me for appointments to give estimates.

NAME _______________
(Please Print)

ADDRESS _______________

CITY _______________ STATE ___

ZIP _______________

PHONE: HOME _______________

OFFICE _______________

* Insert name of utility

\# Insert telephone number(s) to call (indicate and use toll free number(s) whenever available). (Use bold face print wherever appropriate)

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APPENDIX B

SUGGESTED UTILITY BILL INSERT FOR CUSTOMERS WHO HAVE ATTICS PROPERLY INSULATED

The ____(name of utility)____ upon request by a residential property owner will inspect such residential unit(s) within the utility's service area for the installed R-level of attic insulation. For each unit found to be insulated to the R-19 resistance level or greater and without regard to the date the attic was insulated, this utility will offer one thermal insulation blanket for the hot water heater servicing the residential unit and one high quality low-flow shower head for each residential unit with a shower. Both items will be provided free of charge including installation.

APPENDIX C

INTERIM STANDARDS FOR INSULATION MATERIALS

Fire Safety, Corrosion, and Moisture-Absorptivity

Cellulosic materials shall equal or exceed Federal Specifications HH-I-515C[1/] and in addition shall be tested by the Underwriters Laboratories (UL) under their continuous UL "Follow-Up Service" procedure. The material shall be labelled, marked, or have other identifying evidence of certification on each bundle, bag, carton, or barrel.

Thermal Resistance of Cellulosic Material

The thermal resistance (R-level) of cellulosic material shall be limited to an R-level of 3.7 per inch for determining the total R-level of attic insulation. As an example, 5-1/8 inches would be the minimum acceptable thickness for cellulosic attic insulation to qualify at the R-19 thermal resistance level.

To assure proper coverage for cellulosic material at least one forty (40) pound bag should be used for each 50 square feet of gross attic area or a minimum of twenty forty (40) pound bags should be used for an attic with a gross area of 1,000 square feet.

Partial List of Materials that Meet Interim Standards

The following is a partial list of insulation materials by brand name which meets the interim standards set forth in this Appendix B. It should be emphasized that this list does not contain the names of all insulation materials that meet the interim standards. Other names may be added upon verification by the utilities of meeting these standards.

1/ If this specification is amended (example HH-I-515D) the latest amended version of this specification will apply.

APPENDIX C

Fiberglass and Rockwool Materials

1. Certain-Teed
2. Certain-Teed Saint Gobain (CSG)
3. Johns-Manville
4. Owens-Corning Fiberglas
5. Rockwool, Premium brand

Cellulosic Materials

1. Capital Insulation - Denver
2. Diamond
3. Fibercel
4. Fibron
5. Mono-Therm
6. National Cellulose
7. Solarcell Corporation
8. Sun-Tec
9. Thermo-Coustic (TCI)
10. Western Weathercheck

Insulation material standards, upon their issuance by the California Energy Resources Conservation and Development Commission, shall supersede the above interim standards.

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

State Building
350 McAllister Street
San Francisco, CA 94102

March 7, 1978

Attached is a copy of the Proposed Report of Commissioner Vernon L. Sturgeon in Case No. 10032.

Exceptions: Any party of record in the above proceeding may file with the Commission, not later than March 27, 1978, an original and 12 copies of exceptions to the Proposed Report, sending a copy to each party and filing with the Commission a certificate of service. Exceptions shall be specific, and shall be stated and numbered separately. Exceptions to factual findings shall specify the portions of the record relied upon, and shall propose substitute findings or propose additional findings with supporting reasons. Exceptions to conclusions shall cite statutory provisions or principal authorities relied upon and shall propose substitute conclusions or additional conclusions.

Replies to Exceptions: Replies may be served and filed within 15 days after service of exceptions.

PHILLIP E. BLECHER
Executive Director
Public Utilities Commission
of the State of California

avm

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's own motion into the establishing by regulation or order necessary or desirable requirements to implement the HOME INSULATION ASSISTANCE & FINANCING PROVISIONS of newly enacted Public Utilities Code Sections 2781 through 2788, inclusive, as they apply to electrical corporations and gas corporations under the jurisdiction of the Commission.	Case No. 10032 (Filed January 13, 1976; amended February 15, 1977)

PROPOSED REPORT OF COMMISSIONER VERNON L. STURGEON

In order to implement the provisions of Sections 2781 through 2788 of the Public Utilities Code the Commission issued the order instituting this investigation. Said order was amended by Decision No. 86983, issued on February 15, 1977. After 20 days of hearing, the matter was submitted on September 12, 1977.

By Decision No. 88551, issued concurrently herewith, the Commission has resolved all of the issues raised in the proceeding except the issue of whether, in view of the immediate severity of natural gas and electric power shortages which precipitated the energy crisis, an order should be issued which would require, as a condition of providing gas or electric service to new applicants, that public utilities supplying such service ascertain that each applicant had brought his premises into compliance with R-19 insulation standards.

Because of the possible impact of such an order upon the persons affected, the Commission has concluded it is desirable that a proposed report be issued. Exceptions and replies to exceptions to the proposed report are to be filed pursuant to Rules 79, 80, and 81 of the Commission's Rules of Practice and Procedure.

The evidence introduced in these proceedings has established that the prognosis for improvement in the energy supply for the foreseeable future is most pessimistic. There is a demonstrated need for accelerating the installation of ceiling insulation. Although voluntary programs instituted in the past three years have achieved some significant improvements, it would require 15 to 20 years to insulate most of the presently existing homes in California. We are convinced that the present energy emergency requires that California homes be insulated in a much shorter period of time.

Findings

1. In order to achieve our goal of accelerating the rate of insulating existing homes in California, it is in the public interest and essential that each utility providing energy service in California require, as a condition of providing service to new applicants, that said applicants shall prove that the attic of the structure for which service is sought has been insulated to R-19 standards.

2. An increased level of insulation of the residential homes, both owner-occupied and rental, will assist utilities in satisfying the future energy requirements of their customers. The utilities should accelerate and expand their insulation programs.

3. Insulation manufacturers and suppliers should be encouraged to increase their production and supply capability to avoid insulation material shortages in the California marketplace over the next 5-year period; this action will enhance fulfillment of the intent of the Legislature in enacting Sections 2781 to 2788 of the State of California Public Utilities Code.

4. Consumer resistance brought on by the cost of installing insulation can often be overcome by the offer of appropriate incentives and/or the availability of low-interest loan financing.

5. The uniform mandatory insulation program proposed by the staff should be ordered with certain modifications and exceptions. The program should provide, in addition to a maximum loan of $500 per single family residence, a $2,500 maximum loan per multiple

unit residential dwelling with a $400 limit per multiple family unit. A loan interest rate of 8 percent per annum with a maximum payback period of 60 months is reasonable.

6. All reasonable administrative and incentive costs incurred by the utilities with respect to their insulation programs should be recovered through rates as items of current expense.

7. The participation of gas utilities in ceiling retrofit insulation programs should be limited to their customers who heat their homes with gas, and the participation of electric utilities in such programs should be limited to their customers who heat their homes with electricity.

8. The pending severity of gas and electric supply shortages strongly indicates that the time has arrived to establish an end-use standard relating to insulation as a condition of establishment or reestablishment of natural gas or electric service as recommended by the staff, but commencing on April 1, 1981 for convenience of administration. Individuals affected by this requirement should consider voluntary compliance as soon as practicable.

Conclusions

1. It is in the public interest for the Commission to order utilities to undertake a modified staff-type plan for a program for the retrofit insulation of existing residential structures.

2. The Commission urges each utility to expand and accelerate its ceiling insulation program to accomplish, in a cost-effective manner, a penetration of at least 90 percent of the retrofit market, both owner-occupied and rental within a 5-year period. The Commission will monitor the results each utility achieves and utilize these results in future rate cases for determination of a fair rate of return.

3. Utilities should be authorized to implement the home insulation and financing provisions of Public Utilities Code Sections 2781 through 2788.

4. Interim standards for level of retrofit ceiling insulation should be adopted for consumer protection and assurance of energy conservation effectiveness.

O R D E R

IT IS ORDERED that:

1. Effective on or after April 1, 1981, each utility, as a condition of establishment or reestablishment of residential electric or natural gas service, shall require each applicant for service to certify that the attic of the premises has been insulated to the minimum insulation standards set forth in Ordering Paragraph 2 below with the following exceptions:

a. Dwellings with attics insulated to R-11 standards or greater, prior to April 1, 1978.

b. Dwellings without attics, or with attics accessible by means of an entrance crawl hole or door but having a crawl space when measured vertically from the uppermost ceiling surface to the top point of the inner roof surface, offering less than 30 inches of headroom.

c. Any existing residential structure which is certain to be demolished before April 1, 1985, or which is not intended to be used for human habitation as a dwelling after April 1, 1981.

d. Residences not using either gas or electricity for space heating shall be exempt, provided no space heating appliance or fixtures are installed in the residence. In addition, should abnormally high gas or electric usage be noted, the utility shall audit the premises for unauthorized electric or gas usage for heating purposes.

To avoid delay, each utility, within one hundred and twenty days of the effective date of this order, shall file a plan to implement this ordering paragraph. The plan should give cognizance to: (1) integration with the utility's residential audit program, (2) coordination with its ongoing insulation program, (3) implementation over a period of several years to permit timely cost recovery of expenses associated with this program through basic utility rates, and (4) avoiding further reductions in a level of service while pursuing this program in an expeditious manner.

2. Within one hundred and twenty days from the effective date of this order, each utility shall revise its tariff schedules and rules concerning "Application for Service" to include the provisions set forth in Ordering Paragraph 1 above.

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Prop. Rept.

The Executive Director shall cause a copy of this order to be served upon each of the parties to this proceeding.

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

Dated at San Francisco, California, this 7th day of MARCH, 1978.

Respectfully submitted,

Vernon L. Sturgeon

Vernon L. Sturgeon
Presiding Officer