

Decision No. 92653 January 28, 1981

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of PACIFIC GAS AND ELECTRIC COMPANY for authority, among other things, to implement a Conservation Financing Program and include a procedure for a Conservation Financing Adjustment of PGandE's electric and gas rates in its electric and gas tariffs to provide funds for Commission approved conservation financing programs.

Application No. 59537  
(Filed March 25, 1980)

(Electric and Gas)

(Appearances are listed in Appendix A.)

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INTERIM OPINION

I. Introduction and Summary of Decision

California and the nation are experiencing a fundamental transformation of our energy supply system. The cost of our primary fuels is skyrocketing in the world market. We increasingly depend on foreign suppliers who dictate prices at will. International political instability has disrupted and continues to threaten the reliability of our supplies. American military power is being rapidly expanded in the Persian Gulf region to protect vital supply lines. The case for energy self-sufficiency has never been stronger.

The transformation is equally visible at home. Addition of major new conventional supply facilities is stalled by long construction lead times, astronomical cost of capital, and leveling demand. Promising new energy technologies are reaching the market. There is increasing interest in more dispersed production and greater diversity of resources to bolster the reliability of supplies. New industries employing tens of thousands of people are poised to flourish as billions of energy dollars are recycled into the domestic economy rather than being sent overseas.

Amidst such dramatic change, one resource has consistently risen to the fore as the most readily available, least costly, and most reliable source of energy supplies: conservation resulting from increased energy efficiency. There is a virtual consensus among experts and among the parties to this proceeding that conservation is truly the preferred resource in the short term. Disagreements arise only as to how best to achieve conservation and as to how vigorously it should be encouraged.

Many incentives today encourage ratepayers to conserve energy, including escalating rates, inverted rate schedules, tax credits and tax rebates. While the pace of conservation activities has accelerated, there is still a vast market to be tapped.

There are a variety of reasons for the slow pace of conservation activities. The initial investment required for conservation measures is beyond the means of many ratepayers, particularly at prevailing high interest rates. Many consumers do not have adequate information about the potential for conservation. Finally, there is no effort required of a consumer to continue to use energy on a "business as usual" basis, while a decision to install conservation measures requires compiling information, seeking bids, evaluating contractors, making an investment, and taking a risk that the job will be done properly. We have concluded that additional incentives are necessary to overcome these distortions in the conservation market. The risk of disruption of our energy supplies and the heavy burden of rapidly increasing rates compel a sense of urgency in the promotion of the conservation resource.

In response to these needs, we today authorize Pacific Gas and Electric Company (PG&E) to establish a zero-interest financing program (ZIP) to encourage the installation of up to 12 energy conservation measures by owners and occupants of residential properties. Participants will have 50 or 100 months to pay off the loan, depending on their use of available tax credits or rebates. No payments will be due for up to a year and a half after the installation. To assure cost-effectiveness and to assure eligibility for state tax credits, prior energy audit will be required to obtain financing for some of the measures.

PG&E is authorized to provide ZIP financing to owners or occupants of residences, either with or without an energy audit, for the following measures or combinations of measures:

1. Ceiling insulation.
2. When performed as a package job including all of the following measures unless either already installed or unnecessary in the residence:
  - a. Weatherstripping.
  - b. Water heater blankets.
  - c. Low-flow shower heads.
  - d. Caulking.
  - e. Duct wrap.
3. Ceiling insulation together with one or more of the measures listed under Item 2.

PG&E also is authorized to provide ZIP financing for the following measures if in the course of an energy audit these are found to be cost-effective:

1. Wall insulation.
2. Floor insulation.
3. Clock thermostats.
4. Lighting conversion.
5. Storm or thermal windows or doors.
6. Intermittent ignition devices.
7. Any of the measures listed above as financeable without an audit.

Upon request PG&E will furnish each participant in the ZIP program with a list of eligible contractors and average price information for the local area within which the residential property is located. PG&E is authorized to provide ZIP financing up to a ceiling which is the lowest of the following:

1. PG&E's marginal cost for the energy estimated to be saved as the result of installation of the ZIP program measures, or
2. The lower of two bids or either of the two lower of three bids obtained by the participant for installation of the measures, or
3. \$3,500 per residence.

The Commission has given particular attention to means of assuring participation by renters, the elderly, and low-income or non-English speaking persons. Specialized outreach efforts will be undertaken for each of these groups and special incentives will be available for rental housing and for low-income homeowners.

The Phase I program we are authorizing today will be available only in the San Joaquin District of PG&E. We shall commence hearings in two months to consider systemwide availability of the ZIP Program. Pending systemwide availability, ratepayers in the remainder of PG&E's service territory are strongly urged to use the existing eight percent loan program for ceiling insulation. These loans will be converted to zero percent as soon as ZIP becomes available in their service district.

With respect to any particular residential building each participant will be entitled to receive one ZIP loan without an audit and one subsequent ZIP loan pursuant to an audit, in addition to the conversion of prior eight percent loans. No ZIP loans for the weatherization measures included in the proposed program are to be made after December 31, 1986.

The balance due on any ZIP loan will be repayable in full upon a transfer (other than certain exempt transfers to close relatives) of the property on which the ZIP loan improvements have been made or, at PG&E's discretion, in the event that a participant falls and remains three months or more delinquent in meeting repayment obligations.

In the case of an exempt transfer or if the property has not been transferred, repayment of the ZIP loan will commence on June 30 of the year following installation of the weatherization measures financed by the ZIP loan.

Participants other than certain owners or occupants of rental property and low-income homeowners referred to below will have the option of:

1. Repaying the full principal of the ZIP loan in equal monthly installments over a period of 50 months beginning on June 30 of the year following installation of the conservation measures, or
2. Repaying 40 percent of the principal of the ZIP loan on June 30 of the year following installation of the conservation measures and repaying the remaining balance in equal monthly installments over a period of 100 months.

In order to provide a further incentive for installing conservation measures to low-income homeowners and to owners of rental residential property where the utility service for space heating is individually metered and the utility bills are paid by the tenant or tenants, participants in these cases will be given 100 months to repay the principal loan without having to make the initial 40 percent lump sum payment.

All work financed under the ZIP program, with minor exceptions, will be covered by a three-year manufacturer's repair or replacement warranty and a one-year contractor's labor warranty.

PG&E is authorized to use project financing to finance the ZIP program and to use a balancing account and offset rate procedure for the recovery of ZIP program costs.

The sum of \$10,000,000 is found to be a reasonable level of PG&E's expenditures for Phase I of the ZIP program.

It is clear at this late date, seven years after the initial OPEC oil embargo, that there is great value to utilities and their ratepayers in providing these additional incentives for cost-effective energy conservation. Absent greatly expanded conservation efforts, utilities must plan to meet increased energy demand by building enormously expensive new plants and acquiring rights to costly new energy supplies. The cost of that strategy would be prohibitive and would be borne by all the ratepayers. On the other hand, utility investment in conservation incentives to stimulate the residential conservation efforts can reduce the total revenue requirement of the utility. Rates can thereby be kept at a lower level than they would otherwise be.

Not all ratepayers will benefit equally from this reduced revenue requirement. Those who take advantage of the incentives will receive a greater benefit. This has caused debate over the equity of utility incentives. While this is a fundamental concern, it is not the only important consideration. Moreover, we are making every reasonable effort to create an opportunity for and to encourage every residential ratepayer to participate in the ZIP program. In addition, we estimate that even residential customers who do not participate will save over \$20 per year on their utility bills over the next 30 years once the ZIP program is in effect system-wide.

For those who participate, the benefits will be even greater. Utility bills will be significantly reduced. Participants will have an actual "in the pocket" savings from the day of the installation. Not incidentally, the residence will be made more comfortable.



Evidence of record indicates that the ZIP program, if authorized systemwide, will save an estimated 4.9 billion therms of gas and 4.3 billion kilowatt-hours (kWh) of electricity over the next 30 years, enough to provide all PG&E's residential customers with their entire gas needs for 25.4 months and their entire electric needs for 2.6 months, respectively. Assuming for illustrative purposes that these savings would accrue at an equal rate each year, they represent the energy equivalent of 2.9 million barrels of oil which we would not need to import in each year from now until the year 2010. These savings would be sufficient to operate at least 300,000 of California's motor vehicles under average conditions for each of the next 30 years or, similarly calculated, to provide for the electric lighting needs of 1.9 million PG&E customers each year at lifeline usage levels, or to provide the lifeline allowance for space heating of 280,000 gas heating and 25,000 electric heating customers each year.

II. Summary of PG&E's Proposal

On March 25, 1980, PG&E filed its application requesting authorization (1) to implement an expanded program of conservation financing, including a weatherization zero-interest plan (ZIP), designed to increase the adoption of cost-effective conservation measures by customers, particularly low-income customers, (2) to include in its electric and gas service tariffs a procedure for a conservation financing adjustment and balancing account, and (3) to increase rates to provide funds for Commission-approved conservation financing programs beginning in the year 1980 and for periodic adjustment thereafter to implement potential conservation financing programs approved by this Commission.

PG&E already has a substantial energy conservation program as approved in Decision No. 91107, dated December 19, 1979, including 8 percent ceiling insulation financing pursuant to Decision No. 88272, dated December 20, 1977. PG&E alleges that the accelerated implementation of conservation measures will benefit both customers and shareholders by reducing the demand for new energy resources in an era of long supply project lead times, high capital costs, and escalating fuel prices. PG&E states that the approval and implementation of weatherization ZIP is timely because of PG&E's concurrent offering of computerized home energy audits to customers, which will determine the cost-effectiveness of installing additional insulation and weatherization measures.

After public notice, 27 days of public hearings were held before Administrative Law Judge (ALJ) Cline in San Francisco during the period from May 7 through July 25, 1980. The matter was taken under submission upon the filing of concurrent briefs on or before September 8, 1980 and oral argument before the Commission en banc and ALJ Cline on September 15, 1980.

A. Weatherization Zero Interest Program

PG&E proposes to implement its weatherization ZIP in two phases which it calls Phase I and Phase II.

During Phase I PG&E proposes that its personnel, upon the request of a residential customer residing in the San Joaquin Division service area (which includes Merced, Mariposa, Madera, Fresno, Kings, Tulare, Kern, and parts of San Luis Obispo, Santa Barbara, and San Bernardino counties), conduct an energy audit to determine the cost-effectiveness of various conservation measures in gas and/or electrically served dwellings. This program would be available to owners or renters (with the owner's consent) of single- or multi-family dwellings.

PG&E would examine the appropriateness of a number of conservation measures during the audit and would offer ZIP financing for those measures found to be cost-effective. The measures include:

1. Attic insulation.
2. Wall insulation.
3. Floor insulation.
4. Storm windows or doors.
5. Weatherstripping.
6. Caulking.
7. Water heater insulation wrap.
8. Automatic thermostats.
9. Insulation of ducts.
10. Lighting conversion.
11. Intermittent ignition device furnace efficiency modifications.

PG&E envisions that all of these measures can be implemented for most customers at a total cost of \$4,000 or less per dwelling unit.

During Phase I PG&E would also investigate other conservation measures to determine the feasibility of including them in the ZIP audit and financing program. Those measures basically can be grouped into two categories: (1) other building envelope applications, and (2) appliance and device modifications or replacements as follows:

1. Other building envelope applications.
  - a. Heat reflective or heat absorbing window or door material.
  - b. Other furnace efficiency modifications.
  - c. Pipe insulation.
2. Appliance and device modifications or replacements.
  - a. Ranges.
  - b. Refrigerator/freezers.
  - c. Air-conditioners.
  - d. Water heaters.
  - e. Space heaters.
  - f. Swimming pool covers.
  - g. Whole house fans.
  - h. Heat pump water heaters.
  - i. Evaporative coolers.

PG&E proposes to fund Phase I of ZIP at \$10 million and to recover the resources necessary to support Phase I through the Conservation Financing Adjustment (CFA), which will be more fully described later. Carrying costs for the amounts financed would continue to accrue until all amounts financed have been repaid. PG&E proposes that these costs also be recovered through CFA.

If the dwelling owner consents, PG&E would arrange and establish financing for all or part of the labor and materials associated with installing the cost-effective conservation measures

in the dwelling. The dwelling owner's only financial obligation would be to repay the full amount financed, without interest, to PG&E, generally prior to or at such time as ownership of the dwelling is transferred. The dwelling owner would be required to sign a contract setting forth the respective obligations of PG&E and the dwelling owner. In addition to the agreement to repay PG&E, the dwelling owner would be required to notify PG&E in advance of any sale or transfer of the dwelling. The agreement would be recorded in the real property records of the county in which the dwelling is located, and a lien would attach in favor of PG&E prior to any transfer of the property. A customer who did not wish to have a lien attached to his property could choose to make monthly principal only (no interest) payments on the amount financed.

The rental market constitutes a major market for ZIP. The proposal would offer landlords an incentive to take cost-effective measures for weatherizing rental homes and apartments by deferring any out-of-pocket expenses until the dwelling is sold. Another target market for ZIP is PG&E's low-income customers. As PG&E has done in the past with several community outreach projects, it would work closely with community action agencies throughout its service territory to help low-income customers take advantage of ZIP.

The conservation measures would be installed by independent contractors. The customer would select a contractor for each job based on such arranging and competitive bidding system as will comply with the state Residential Conservation Service (RCS) plan as adopted by the California Energy Commission (CEC) and approved by the U.S. Department of Energy (DOE) under the RCS program pursuant to the National Energy Conservation Policy Act (NECPA). The

selected contractor would be required to warrant both materials and workmanship to PG&E and the dwelling owner as required by the final state RCS plan. PG&E would selectively inspect installations to ensure that the conservation measure has been installed in a workmanlike manner. The inspection services and requirements would also be consistent with the inspection section of the approved state RCS plan. If the dwelling owner or renter chooses to install the conservation measure himself, this work would be subject to identical inspection services and requirements.

PG&E selected its San Joaquin Division as the Phase I market on the basis of a survey of PG&E Division service areas by income distribution, saturation of insulation, and heating fuel source. The San Joaquin Division offered the best spectrum of income distribution (biased toward the lower end) of customers with a low saturation of insulation. Heating fuel source was also considered to enable PG&E to obtain data on program penetration for gas and electrically heated homes.

The program would be offered during Phase I to all San Joaquin residential customers to obtain data for application to a systemwide program. Specific promotional efforts would be aimed at low income groups.

PG&E estimates that a reasonable time within which to complete Phase I of the program is six months to one year, depending upon the number of qualifying customers in the San Joaquin Division service area who elect to participate and how rapidly they respond to the offer. PG&E anticipates initiating the first phase within 120 days after receiving the necessary regulatory approvals. PG&E proposes to complete residential energy audits based upon the order in which requests for such audits are received. PG&E estimates that Phase I would improve the energy efficiency of approximately 5,500 dwellings in the San Joaquin service area. Billing information would be linked with field data obtained through market research techniques to measure the energy saved by customers participating in the ZIP program and thereby evaluate the success of the program. PG&E estimates that

retrofitting approximately 5,500 qualified dwellings in its San Joaquin Division service area with cost-effective conservation measures could yield life cycle savings of approximately 56 million kilowatt-hours (kWh) of electricity and 41 million therms of gas, at average total costs for the energy saved of 2.0 cents per kWh and 15 cents per therm. These results appear attractive when compared with PG&E's estimate of its 1980 incremental costs of electricity and gas: 7.2 cents per kWh and 47 cents per therm, respectively.

Within PG&E's San Joaquin service area there are approximately 270,000 gas and 470,000 electric residential customers. Customers who qualify for the Phase I program would benefit most directly. However, PG&E contends that the program would benefit all its customers because the average costs of electrical generation and gas supply would be lower than they would be if PG&E had to build new facilities to meet projected increases in demand. Also, PG&E's ratepayers would support PG&E's investment in weatherization only until the financing is repaid, whereas if PG&E invested in a new plant the ratepayers would have to support that plant or its replacement indefinitely.

PG&E currently offers its residential customers financing up to \$500 for ceiling insulation repayable in up to 60 monthly payments at 8 percent interest. Customers who have financed insulation through PG&E's existing financing plan would be eligible to convert their financing to the ZIP plan and repay the balance upon sale of their property, or they could convert their monthly payments to principal only payments. Their audits also would be reanalyzed to determine the cost effectiveness of financing further conservation measures.

Phase II of the weatherization ZIP program would be a sequenced expansion of the conservation financing plan to the entire PG&E service territory. The program would expand as rapidly as additional PG&E auditors and supporting facilities could be brought on line, so as to avoid large order backlogs and consequent consumer dissatisfaction. Further, the pace of Phase II expansion would be directly related to PG&E's ability to develop sufficient financial resources to finance the conservation measures.

The costs associated with Phase II would depend on a number of factors including: (1) customer acceptance, (2) CPUC authorization under the rate mechanism being proposed, (3) PG&E's ability to raise the necessary funds, (4) the changing marginal cost of new supply, (5) the turnover of housing included in the program which would result in paybacks of outstanding loans, (6) PG&E's ability to perform audits, and (7) the ability of the private sector to install the conservation features.

B. Rate-making Treatment

PG&E proposes to include in its electric and gas tariffs a conservation financing adjustment (CFA) provision using advice letter filings to reflect the costs of conservation programs for electric and natural gas service. The proposed CFA provisions would provide for establishment and periodic adjustment of CFA rates designed to recover the annual costs of approved conservation programs. The initial program to be financed would be the weatherization ZIP. Entries would be made in the CFA account in amounts sufficient to equal:

- (a) Revenues received from the CFA rate, less
- (b) Amounts billed to PG&E by its conservation financing subsidiary (net of revenues received by said subsidiary) for program costs to include interest expense, administrative costs, income taxes, and return on PG&E's equity investment in the subsidiary, less



- (c) The costs incurred by PG&E in administering any conservation incentive plan authorized under the CFA provision, less
- (d) An allowance for franchise and uncollectible amounts expenses equal to 0.799 percent of the gross revenues from the CFA electric department rate and to 0.946 percent of the gross revenues from the CFA gas department rate, plus
- (e) Loans, if any, sold by PG&E to its conservation financing subsidiary, or paid in full to PG&E by PG&E's customers, plus or minus
- (f) A debit entry equal to interest on the average of the balance in the CFA account at the beginning of the month and the balance in this account after the entries (a) through (e) above, if average balance is debit (credit entry, if average balance is credit), at a rate equal to 1/12 the interest rate on commercial paper (prime, 3 months) for the previous month as reported in Federal Reserve Statistical Release, G 13, or its successor.

PG&E proposes that the Commission approve those conservation plans that it deems appropriate and authorize recovery of the costs of such conservation projects through adjustments of customers' rates. The rate adjustments are proposed to be by periodic advice letter filings designed to cover costs in the ensuing twelve months and to amortize the balance in the CFA account whether positive or negative. PG&E proposes that the advice letter filings be made so that authorized changes in the CFA rate would occur concurrently with GAC and/or ECAC rate changes.

The amount of additional gross revenue sought in this application is \$10,094,000. This revenue increase is less than one percent of total revenues and, as allocated to gas and electric rates, less than one percent of such revenues.

PG&E alleges that the procedure and rate change sought in this application would reflect and pass through to its customers only the effect of increased costs to PG&E for conservation financing programs approved by this Commission.

C. Financing Proposal

PG&E proposes to form a wholly owned nonutility subsidiary which in the application is assumed to be named Pacific Energy Services Company (PESC). Whenever PG&E locates a customer (through a home energy audit) for whom cost-effective conservation measures may be taken, PG&E would help the customer apply for zero interest financing from PESC. Upon receiving the application, PESC would:

1. Borrow from conventional lenders (banks, savings & loans) 80 percent of the requested amount at prevailing interest rates.
2. Receive 20 percent of the requested amount from PG&E as an equity investment and enter into an agreement with PG&E by which PG&E would guarantee to pay to PESC all its costs, including interest cost, return on equity in PESC, administrative and general costs, income taxes, and other costs, with PESC agreeing to pay to PG&E monthly dividends based on PG&E's equity investment and PG&E's after tax cost of capital.
3. Place a lien on the home for the full principal amount.
4. Provide the customer the amount requested.
5. Begin billing PG&E for the costs of the program (as described in 2 above).

The lender would have the debt portion of the amount financed secured by:

1. The CFA rate procedure (ensuring PG&E recovery of required payments) in conjunction with the agreement between PG&E and PESC that PG&E pay to PESC amounts equal to PESC's costs.
2. An agreement by PESC to buy from the lender any amounts outstanding after some fixed period (yet to be determined) and a further agreement by PG&E to increase its equity investment in PESC by the amount of any such buy-outs.

III. Issues

- A. Is adoption of an aggressive weatherization financing program appropriate?
  1. Introduction.
  2. Inverted rates.
  3. New tax benefits for weatherization retrofit.
  4. Department of Energy (DOE) Weatherization Assistance Program.
  5. RCS Audits.
  6. Discussion.
- B. Issues relating to cost-effectiveness.
  1. Which of the following tests of cost-effectiveness should the Commission adopt for determining the scope and scale of conservation financing incentives:
    - a. Costs to the participants,
    - b. Costs to the utility,
    - c. Costs to society,
    - d. Costs to the nonparticipant?
  2. Should RCS audit costs be excluded from ZIP costs in determining cost-effectiveness?
  3. Which estimate of housing turnover should be adopted for the purpose of determining the cost-effectiveness of the measures in ZIP?
  4. How does the cost of PG&E's proposed program compare with the cost of the adopted program?
- C. Issues relating to Phase I of ZIP.
  1. Is a phased structure of ZIP necessary to avoid problems when the program is expanded systemwide?
  2. Is PG&E's San Joaquin Division an appropriate division for Phase I?
  3. What measures should be included in Phase I of the ZIP program?
  4. Should the duration of Phase I be specified at this time?
  5. Is the \$10,094,000 proposed cost of Phase I ZIP reasonable?
  6. After Phase I is implemented, should substantial modifications of the ZIP program be handled by advice letter filings?

D. Issues relating to particular classes of participants in ZIP.

1. What measures should be adopted to foster participation in the ZIP program by low-income, elderly, and non-English-speaking customers?
2. What measures should be adopted to promote participation by owners and occupants of rental units?
3. Should special incentives be offered to do-it-yourself retrofitters?
4. Should a customer be permitted to weatherize more than one home under ZIP?
5. Should owners or occupants of new residences be eligible for ZIP loans?

E. Issues relating to the general implementation of ZIP.

1. Should PG&E offer ZIP for certain weatherization measures without the requirement of a prior audit?
2. What priorities, if any, should be adopted for making energy audits?
3. Should non-PG&E employees be permitted to conduct energy audits?
4. How should contractors be selected and amounts to be financed under ZIP be determined?
5. What repayment terms for loans should be adopted?
6. What warranties should be provided to participants?
7. What inspection should be made by PG&E?
8. Should ZIP conform to the state RCS plan as approved by the DOE?
9. Should the ZIP plan contain a sunset provision?

- F. Issues relating to competition.
  - 1. Background.
  - 2. Is ZIP anticompetitive in relation to manufacturers, sellers, or installers of energy conservation measures?
  - 3. Is ZIP anticompetitive in relation to lenders?
- G. Issues relating to financing.
  - 1. Should project financing of ZIP be approved?
  - 2. What types of financing instruments and procedures should be used to raise debt capital for ZIP?
- H. Issues relating to ratemaking.
  - 1. Should PG&E's proposed CFA mechanism and balancing account be approved, and if so, for what period?
  - 2. Should PG&E's actual income tax rate be used in computing taxes on return on its equity investment in PESC.
  - 3. How should rate changes and rate design pertaining to the ZIP program be handled by the Commission?

IV. Discussion of Issues

- A. Is adoption of an aggressive weatherization financing program appropriate?
  - 1. Introduction.

As long ago as 1975, the Commission identified conservation as "the most important task facing utilities today." We noted:

"Continued growth of energy consumption at the rates we have known in the past would mean even higher rates for customers, multi-billion dollar capital requirements for utilities, and unchecked proliferation of power plants. Energy growth of these proportions is simply not sustainable... Reducing energy growth in an orderly, intelligent manner is the only long-term solution to the energy crisis." (Decision No. 84902, dated September 16, 1975.)

At that time, the Commission directed utilities to take aggressive steps to achieve conservation goals:

"We expect utilities to explore all possible cost-effective means of conservation, including... subsidiary programs for capital intensive conservation measures. . . ." (Id., at p. 162a.)

Since 1975 the energy situation has worsened dramatically. Prices for primary fuel such as oil and natural gas have more than tripled. U.S. dependence on imported oil has increased. The need for conservation which the Commission identified five years ago, therefore, has become even more urgent.

More recently, we reaffirmed the importance of utility energy conservation programs in Decision No. 91107, dated December 19, 1979:

"We believe that it is important that we reiterate the commitment of this body to the promotion of energy conservation and the use of alternative energy resources. Where the marginal cost of conserved energy is less than the marginal cost of new supply, the former should always be the investment of choice. Supply from non-conventional and renewable sources, where it costs less at the margin than supply from conventional sources, should be the preference. We expect the energy utilities we regulate to make these principles central in their planning and investment decisions." (P. 152.)

Likewise, in our January 2, 1980, report to the California Legislature, "Financing the Solar Transition," in connection with OII No. 42, the solar water heater demonstration program, the Commission restated our policy commitment to conservation and renewable resources and our desire to accelerate conservation through public acceptance of such measures by innovative financing of cost-effective options.

For the above reasons, in Decision No. 91497, dated April 2, 1980, the Commission approved a conservation financing program presented by Pacific Power & Light Company (PP&L). In that decision, we said:

"The cost of electricity has risen dramatically. This is due to rapidly increasing oil prices and the high cost of constructing new generation facilities. Conservation provides a new source of energy in that it reduces a utility's dependence on high priced oil and reduces the need for construction of new generating capacity. An integral part of any overall conservation program is the retrofitting of insulation and weatherization in residences."  
(P. 2.)

The Commission noted, however, that in approving the PP&L program we were not prescribing a uniform approach to conservation financing. Rather, we encouraged utilities to devise programs suitable for their own particular service areas (p. 25).

2. Inverted Rates.

As an incentive to conservation the Commission has required PG&E to establish three-tier inverted rates for both electric and gas service. The current rates for residential customers are as follows:

|                                       | <u>Electric</u><br><u>(\$/kWh)</u> | <u>Gas</u><br><u>(\$/Therm)</u> |
|---------------------------------------|------------------------------------|---------------------------------|
| Lifeline                              | .03682                             | .29023                          |
| 2nd Tier                              | .05899                             | .56705                          |
| (Lifeline to twice lifeline quantity) |                                    |                                 |
| 3rd Tier                              | .08137                             | .66698                          |
| (Excess over 2nd-tier quantity)       |                                    |                                 |

The steepness of the inverted rates clearly explained on the bills which PG&E sends to its residential customers has already impressed upon PG&E's residential customers the importance of adopting conservation measures to reduce their ever-increasing electric and gas bills.

3. New Tax Benefits for Weatherization Retrofit.

Under the recently enacted AB 2030, which is codified as Sections 17052.8, 17208.7, 23601.5, and 24349.7 of the Revenue and Taxation Code, taxpayers are entitled to a credit against their net tax for taxable years beginning on and after January 1, 1981, of 40 percent of the cost incurred by the taxpayer for any energy conservation measure on premises in California which are owned by the taxpayer at the time of installation. Such credit shall not exceed \$1,500. In any subsequent year the taxpayer may claim further tax credit for additional energy conservation measures installed in that tax year.

If an energy conservation measure serves two or more dwelling units, the owner or owners of the dwellings are entitled to receive credits up to \$1,500 for each dwelling unit served. Individual taxpayers whose adjusted gross income is less than \$15,000 and married taxpayers filing joint returns whose gross income is less than \$30,000 are allowed a credit to the extent of the taxpayer's tax liability plus a refund in excess of that amount up to the remaining amount of the credit provided in AB 2030.

There is some uncertainty in AB 2030 as enacted as to whether the \$1,500 tax credit limit applies to each taxpayer. If so, this could thwart efforts to penetrate the rental market with cost-effective weatherization measures. The \$1,500 limit is fully appropriate on a per unit basis as applied to owners of rental property, but a per taxpayer limit would serve no useful purpose. We are hopeful that remedial legislation now being drafted will cure this uncertainty.



Energy conservation measures for purposes of AB 2030 include items with a useful life of not less than three years from the following generic categories which meet the minimum standards to be established by the CEC:

- a. Ceiling insulation.
- b. Weatherstripping of all doors and windows which lead to unheated or uncooled areas so as to effectively and reliably limit air infiltration.
- c. An external water heater insulation blanket.
- d. Low flow devices on all accessible shower heads.
- e. Caulking or sealing of all major cracks and other openings in building exterior to reduce the loss of heated or cooled air or the entry of outside air, where feasible, and sealing of wall outlets.
- f. Insulation of all accessible transverse heating and cooling system ducts and plenums which enter or leave unheated or uncooled areas.
- g. Covers for swimming pools or hot tubs which transmit the sun's radiation energy into the water, reduce heat loss and water evaporation.
- h. Such other measures or devices as may be designated "residential energy conservation measures approved and adopted as part of [the final state RCS plan] and recommended as the result of an audit conducted under the auspices of such a plan". This generic category includes, but is not limited, to:
  - (1) Electrical or mechanical furnace ignition systems which replace gas pilot lights.
  - (2) Devices modifying the openings of heating and cooling systems to increase efficiency.
  - (3) Storm or thermal windows or doors for the exterior of dwellings, multiglazed windows and doors, or movable insulation such as shutters or thermal drapes, which substantially reduce the energy needed for space heating and cooling.
  - (4) Heat pumps and water heating pumps (including those which use air, water, or earth as a source or sink of heat) which replace electric resistance heaters, or are used in conjunction with a solar energy system.

- (5) Load management devices to reduce the direct or indirect use of natural gas or electricity through interruption, storage, and load limiting.
- (6) Insulation for floors and walls.

Energy conservation measures in the generic categories a through f will cease to be eligible as energy conservation measures in computing taxes for taxable years and income years which begin after December 31, 1985 if installed in multi-family dwelling units, but will be eligible for an additional year if installed in single-family homes. Energy conservation measures in the generic categories of subsections g and h will be ineligible as energy conservation measures in computing taxes for taxable years and income years which begin after December 31, 1983 unless a later enacted statute deletes or extends that date.

In lieu of claiming the tax credit, any taxpayer may elect to take a depreciation deduction over a 36-month period. Also, the taxpayer may take depreciation pursuant to that section for the cost of an energy conservation measure in excess of the amount of the tax credit claimed. The provision pertaining to the taking of the depreciation deduction will not apply for taxable years and income years which begin after December 31, 1986.

It is interesting to note that all of the eleven items which PG&E proposes to finance under ZIP except lighting conversion are specifically included as energy conservation measures in AB 2030 and qualify for the tax credits, refunds, and depreciation, although in some cases subject to an audit requirement.

4. DOE Weatherization Assistance Program.

The witnesses for the California-Nevada Community Action Agencies Association (Cal-Neva) testified regarding the DOE's Weatherization Assistance Program for Low-Income Persons and introduced Exhibit No. 37 into evidence. Under this program financial assistance may be provided from grants made to the states for the weatherization of dwelling units occupied by low-income families, particularly those where elderly or handicapped low-income persons reside. Not more than \$800 may be expended on a single unit with respect to weatherization materials, a portion of the cost of tools and equipment used to install such materials, the cost of transporting labor, tools, and materials to the unit, the cost of having onsite supervisory personnel, and the cost (not to exceed \$100) of making incidental repairs to such unit if such repairs are necessary to make the installation of weatherization materials effective.

The labor for the installation of the weatherization materials is provided by volunteers, training participants, and public service employment workers pursuant to the Comprehensive Employment Training Act (CETA) and the Older American Community Service Employment Act (OACSEA). Under the program weatherization materials include:

- a. Caulking and weatherstripping of doors and windows.
- b. Replacement burners designed to substantially increase the energy efficiency of the heating system.
- c. Devices for modifying flue openings which will increase the energy efficiency of the heating system.
- d. Electrical or mechanical furnace ignition systems which replace standing gas pilot lights.
- e. Clock thermostats.
- f. Ceiling, attic, wall, floor, and duct insulation.
- g. Water heater insulation.

- h. Storm windows and doors, multiglazed windows and doors, heat-absorbing or heat-reflective window and door materials, and
- i. Such other insulating or energy conserving devices or technology as the Administrator of DOE may determine, by rule, after consulting with the Secretary of Housing and Urban Development, the Secretary of Agriculture and the Director of the Community Services Administration.

Exhibit No. 37 shows that weatherization has been provided to the following numbers of homes in California through October 1978 under the DOE program which was authorized August 14, 1976:

|               |       |
|---------------|-------|
| DOE Round I   | 2,379 |
| DOE Round II  | 5,589 |
| DOE Round III | 3,933 |
| DOE Round IV  | 6,651 |

5. RCS Audits.

Exhibit No. 22, which was introduced by counsel for the CEC, is a copy of the California Plan for the Residential Conservation Service. Chapter V of Exhibit No. 22, attached to this decision as Appendix B, provides a description of the energy audit requirements of the proposed RCS plan which the CEC has submitted to DOE for approval. DOE has recently approved the plan, with minor modifications. Exhibit No. 22 remains the best evidence in the record regarding the nature of the RCS audits to be provided by PG&E and we will take official notice as well of the adopted state RCS plan.

6. Discussion.

Toward Utility Rate Normalization (TURN) contends that the steeply inverted rates adopted for PG&E provide customers with proper price signals as to the true cost of energy consumption. The monetary saving to PG&E as a result of customer conservation is its marginal cost of energy. If the customer who conserves has been paying at a rate equivalent to marginal cost, that customer will recover the entire resulting cost savings through a reduction in monthly bills. This means, TURN asserts, that PG&E's customers already have a very strong economic incentive to adopt conservation measures without any utility sponsored subsidy program.

TURN further contends that the tax credits, tax refunds, and depreciation allowances provided by AB 2030 make ZIP unnecessary. TURN points out that it is reasonable to expect a high demand for energy audits under the RCS program which will show that for many customers conservation investments will be highly cost-effective, and that Section 215 of NECPA provides for the utility to assist the customer in arranging for installation of conservation measures and in arranging for a lender to finance the installation if necessary.

TURN asserts that against this background the added subsidy provided by ZIP is superfluous and that the Commission should allow the three-tier rate design, the tax benefits under AB 2030, and the RCS audit plan some time to take effect before considering further conservation subsidies such as ZIP. The DOE Weatherization Assistance Program for Low-Income Persons, discussed above, provides an additional incentive for low-income persons to weatherize their homes.

TURN fails adequately to appreciate the gravity and immediacy of the energy problem facing PG&E customers and the nation as a whole. Our overdependence on insecure imported energy supplies continuously threatens the reliability and price stability of service by PG&E and other California utilities. Financing incentives for residential weatherization are a necessary and proper area for substantial investment by California utilities, providing highly cost-effective energy savings. Even with all the existing incentives for weatherization described above, many PG&E residential customers will find it difficult or impossible to save sufficient funds or to arrange their own financing for weatherization retrofit or will be reluctant to make needed weatherization improvements without additional incentives. Adoption of an aggressive weatherization financing program to accelerate residential conservation is necessary to assist in meeting urgent national and state priorities.

The problem is to determine the minimum additional incentive which will result in maximum penetration of the weatherization retrofit market to produce the additional conservation which will so benefit society at this time of energy crisis. The ZIP program to be authorized in this proceeding will be one which, after taking into consideration the tax benefits of AB 2030 and the savings

in utility rates resulting from installation of conservation measures, will represent a very low cost, if any, to the participant during the loan pay-back period and thereafter will result in a substantial net benefit to him. Additional incentives will be provided low-income homeowners and to owners and occupants of single- and multi-family residences where tenants pay their own space heating utility bills. These are necessary to penetrate these markets, which the record amply demonstrates to be among the most difficult areas to reach with weatherization retrofits.

B. Issues relating to cost-effectiveness.

1. Which of the following tests of cost-effectiveness should the Commission adopt for determining the scope and scale of conservation financing incentives:
  - a. Costs to the participant,
  - b. Costs to the utility,
  - c. Costs to society,
  - d. Costs to the nonparticipant?

Having found that provision of utility financing assistance for residential weatherization investments is necessary as an incentive for accelerated energy conservation, we must determine what incentives are appropriate and for what classes of conservation measures such incentives should be allowed. Consideration of these issues in this proceeding revolved about the issue of cost-effectiveness, a matter which we discussed at some length in our January 2, 1980 report to the California Legislature, "Financing the Solar Transition". In Decision No. 92251, establishing the Demonstration Solar Financing Program, we specifically deferred final disposition of these issues to the present decision.

Our record contains lengthy testimony and spirited debate as to the appropriate test or tests of cost-effectiveness by which to determine the scope and scale of PG&E's weatherization financing program - that is, the range of measures eligible for financing and the amount of financial incentive to be provided in a particular case. Unfortunately, this debate fails adequately to distinguish between these two very different applications of cost-effectiveness criteria.

Four tests have been proposed to determine the cost-effectiveness of a conservation measure or incentive:

Cost-effective to the customer

Under this test, a conservation measure or incentive is considered cost-effective if the savings it produces for the customer during its useful life exceed the cost of the measure to the customer (considering tax credits and other incentives).

Cost-effective to the utility

Under this test, a conservation measure or incentive is considered cost-effective if the cost to the utility of the incentive is less than the marginal cost to the utility of the energy which will be saved during the useful life of the measure.

Cost-effective to society

Under this test, a conservation measure or incentive is considered cost-effective if the total cost of the measure to the customer and the utility is less than the marginal cost of additional energy consumption to society. This marginal cost consists of the utility's cost plus the cost of impacts on the environment, the national security, the balance of payments, etc. Tax incentives are not considered in this calculation.

Cost-effective to the nonparticipating ratepayer

Under this test, a conservation measure or incentive is considered cost-effective if it ultimately produces unit rates to nonparticipating ratepayers lower than they would otherwise be. This result is achieved if the cost of the incentive to the utility is less than the difference between the utility's marginal and average cost of the amount of energy saved.

Staff witness Cavagnaro, representing the Policy and Planning Division, strongly supported the marginal cost approach of the societal test of cost-effectiveness. He testified as follows:

"The Commission's continued insistence on marginal costs in rate design and as criteria for the cost-effectiveness of conservation programs is essential to the conservation of energy, the optimization of the efficiency of use of facilities and resources by utilities and equitable rates to California utility customers." (Vol. 21, Tr. 2632.)



Cavagnaro further testified that the program is extremely cost-effective on the electric side for all measures based on a comparison of staff witness Keefe's estimate of 2.8 cents cost per kilowatt hour for the conservation measures and PG&E's estimated marginal cost of 7.22 cents per kilowatt hour. Based on Keefe's estimate of 23.6 cents per therm for the conservation measures and PG&E's estimated marginal cost of 47.2 cents per therm the program is also cost-effective on the gas side.

Staff witness Thompson, representing the Special Economic Projects Section of the Commission's Revenue Requirements Division, recommended that the Commission require conservation programs to be cost-effective from the nonparticipants' perspective. Thompson asserted that utility financed conservation programs are justified only if their costs are less than the difference between the marginal cost of supply and the average cost of supply. Thompson supported the methodology used by PG&E in calculating the cost-effectiveness to the nonparticipant in Exhibit No. 8.

Only Dr. James Weil, a witness for TURN, challenged PG&E's methodology for calculating cost-effectiveness. PG&E's methodology in fact was based upon an approach originally presented by Dr. Weil himself when appearing as a staff witness in OII 42 (solar financing). In his prepared testimony, Exhibit No. 40 in the present proceeding, Weil claimed that certain modifications to his original methodology as presented in OII 42 and used by PG&E in this proceeding were necessary because: (1) he had failed to consider effects of utility revenues deferred from one service class to another; (2) he had failed sufficiently to discuss the effects of the gas priority system which would shift the gas consumed from residential to low priority customers whose rates are determined by the cost of alternative fuel oil; and (3) he had failed to focus on the so-called "subsidy" by nonparticipants.

Both PG&E and staff witness Cavagnaro contended that the program should be required to be cost-effective only from the perspectives of the participating ratepayer, the utility, and society as a whole. The societal perspective compares the sum of the participant costs and utility costs to the costs avoided by the utility.

Cavagnaro pointed out that the societal perspective incorporates highly significant social and environmental benefits which although not readily quantifiable are factors which must not be ignored. He mentioned savings of imported fuel oil from reduced electric generation and by substitution of natural gas for oil to low priority users, as well as the avoidance of pollution which would result from pursuing other supply options. He concluded:

"These benefits, while difficult to quantify, must be included in a qualitative evaluation of conservation program benefits. This provides an additional reason for using the societal cost as the basis for determining cost-effectiveness. It is recommended that the combined costs of the utility and the program participants be compared to the marginal cost of energy to determine cost-effectiveness. If the cost to society is below the quantified marginal cost of supply, the program is clearly cost-effective." (Exhibit No. 38, answer 8.)

Even TURN witness Weil in his sworn testimony as a staff witness in OII 42 testified that the societal perspective is the appropriate one for judging a conservation program. During cross-examination in this case, he acknowledged he had testified in OII 42 that "cost-effectiveness should be considered only in terms of the customer and society at large." (Vol. 23, Tr. 2777; emphasis added. Cf. Tr. 2780.) Weil also admitted that societal benefits cited by this Commission in Decision No. 91272, the interim decision in OII 42, should be used for judging a conservation program. These benefits include reduced dependence on foreign oil, increased national security, improved national balance of payments, reduced pollution, increased jobs in the domestic energy sector, and an increased rate at which utilities can augment energy supplies in the short-term and reduce inflationary pressures (Vol. 26, Tr. 3255-3257).

PG&E points out that there are many ways of calculating the nonparticipant impact test and that various assumptions can be applied. Each such analysis depends critically upon how many nonparticipants there are, what marginal costs are, and in what rate block savings occur. PG&E admits that the impact on nonparticipants is clearly a factor that the Commission should consider, but contends that the Commission should weigh that factor in the light of its complexity and not accept, at face value, an analysis which would prevent California utility customers from achieving the economic benefits which conservation offers to society.

TURN contends that PG&E's ZIP program should be rejected because of an alleged subsidy of participants by nonparticipants. PG&E replies that this argument ignores other instances of subsidy of one group of ratepayers by another which are already incorporated into Commission-approved programs and which represent rational ratemaking policy. Examples are lifeline rates, application of standard rates to new utility customers whose service is provided at marginal cost, time-of-use rates, cogeneration pricing, and various experimental and demonstration programs.

Both PG&E and the staff contend that TURN's argument reflects erroneous assumptions on which TURN witness Weil based his calculations. Weil assumed that the lost revenue per unit of energy saved will be at what were then the tail block residential electric and gas rates, whereas PG&E assumed that the lost revenue per unit of energy saved will be at an average rate. PG&E points out that

not all participants will be consuming in the upper tiers of the rate schedule and that it is uncertain how rates will be structured in the long run. PG&E contends that an average rate, which assumes that some lost revenue will come out of lifeline usage and some out of upper tiers is the most reasonable basis on which to compute lost revenue.

PG&E used the tailblock rates for calculating participant cost-effectiveness only for illustrative purposes; since the participant's cost-effectiveness would be determined on a case-by-case basis through the home energy audit. Weil, however, applied these tailblock rates for calculating nonparticipant cost-effectiveness.

PG&E contends that the variety of conservation measures incorporated into the proposed program, the additional measures to be investigated for possible future inclusion, and the aggressive marketing strategy proposed ensure that the ultimate participant group will be quite large, and that the potential body of non-participants will be rather small. Over the life of the program a very substantial portion of the program costs will accrue to participants whose benefits due to reduced consumption will far exceed any costs due to increased rates. Weil admitted that he had no knowledge of the potential penetration levels for the current and proposed conservation measures, and had not incorporated this factor into his conclusions.

Weil revealed that it was not the magnitude of the subsidy that troubled him. He stated that:

"In my opinion, no program should be approved that has a subsidy of this sort, even of one dollar."  
(Tr. Vol. 26, p. 3259.)

When the utility's expenditures for a conservation program are less than the full marginal cost of new supplies then the total revenue requirement is reduced. Nonparticipating customers do.

not benefit to the same extent as participants whose energy use is reduced by the financed conservation measures. The conserved energy is, however, available to offset growth in energy requirements. Conserved energy is thus made available at the cost of the subsidy offered by the utility rather than the more expensive marginal cost of new supplies. Still, as emphasized by the nonparticipating customer test, conservation expenditures which exceeded the difference between marginal and average cost of energy saved would adversely affect utility rate levels.

TURN urges the Commission to extend the nonparticipating test further and to base the test on the difference between the utility's marginal cost and the customer's rate level at which the energy is saved. The record in the proceeding clearly demonstrates the impracticality of the TURN methodology. There is no showing as to how much energy will be saved at particular rate levels. Further we have no basis to assume that rates will remain in the same relationship over an extended period of time. More fundamentally, we do not accept the principle that conservation programs should be rejected simply because energy unit costs might be increased.

We conclude that a conservation measure, as distinguished from the amount of utility-provided incentive, must meet the tests of cost-effectiveness to the customer, the utility, and society to be considered cost-effective for purposes of receiving a utility incentive. It would not be proper for this Commission to encourage consumers to purchase conservation measures the cost of which exceeds the savings generated. Nor would it be a reasonable expenditure of ratepayer funds to require a utility to purchase energy from conservation measures at a higher per unit cost than its marginal cost of energy. Finally, an inefficient allocation of resources would be created if the total cost of a conservation measure, including utility incentives, exceeds the resultant total savings to the customer and the utility.

As will be discussed hereinafter, we believe that the most efficient means of implementing these cost-effectiveness standards involves some substitution of averages for item-by-item calculations of cost-effectiveness. We will therefore authorize the financing of certain weatherization measures which are highly cost-effective on average without the necessity of a site-specific energy audit.

There is the further question of what portion of the cost of financing these measures should be paid by the utility and ultimately its ratepayers. In this regard, there is a role for what has been called the nonparticipating ratepayer test for determining the cost-effectiveness of utility incentives. The comparison of utility program costs to the difference between marginal and average cost is relevant to our inquiry on this issue.

The Commission's adoption of inverted residential utility rates, with the highest tier rate set near the utility's marginal cost, together with the use of "report card billing" by the utilities to inform customers of the cost of their marginal usage, helps to give the ratepayer a realistic price signal as to the social cost of that marginal usage and as to the real value of energy conservation measures. However, because average rates are still based on average cost, significantly below the marginal cost of energy supply, the price signal as to the value of conservation measures remains an imperfect one.

To counter this imperfection there is need for a balancing incentive for conservation. Theoretically, a utility conservation incentive roughly equivalent to the difference between marginal and average unit costs will create price signals for the cost of both energy and conservation that will promote an efficient allocation of resources between conservation and supply in the pursuit of residential energy services, minimizing gas and electric rates for all ratepayers.

A utility conservation program costing the utility less than the difference between marginal and average energy costs is thus attractive theoretically and serves as a starting point for Commission policy toward conservation incentives. However, several further considerations indicate that this incentive level is too restrictive.

First, in looking at the difference between marginal and average costs, it must be noted that the marginal cost numbers used in this proceeding do not reflect the virtually unquantifiable "external" costs that energy use incurs. A true calculation of the marginal cost of energy should include allowances for increased risks to national security, balance of payments problems, environmental impacts, and many other factors. Because these additional costs defy quantification, the marginal cost minus average cost standard will understate the value of conservation and so should not be rigidly applied.

Secondly, the economic model of consumer decision-making implicit in the above incentive calculations does not closely mirror the reality of household decisions on energy use. Experience indicates that a good deal of inertia exists in the habits of residential energy consumers. Increased motivation and interest are required on the part of homeowners to take the action of installing weatherization items instead of simply following the "business as usual" practice of paying the monthly energy bill. Nor does the economic model recognize the lack of access for many ratepayers to even the modest amounts of capital needed to install weatherization measures. The result of these real world factors is less conservation than simple price-based calculations would suggest. Greater incentives may be needed to overcome customer inertia and lack of capital resources.

Thirdly, the presence of landlord-tenant relationships distorts the economic model; the tenant receives the price signal encouraging weatherization, but in most cases the landlord makes the investment decision. A greater incentive than offered to homeowner participants will be needed to induce owners of rental property to invest in cost-effective weatherization.

A final consideration is that the marginal cost minus average cost standard does not adequately take into account the timing of the response among energy consumers to prices and incentives. The economic calculations described above suggest that a particular incentive will induce customers to make appropriate investments in conservation, but they do not indicate when such investments will be made. Experience indicates that utility customers are relatively slow to make up-front investments in conservation investments even if they will prove cost-effective in the long run. This slow pace of adjustment must be considered in the context of the serious difficulties that utilities currently face in financing new supply sources, the continued overdependence on foreign sources of energy, and the resulting urgent need for conservation.



These considerations are all reasons for this Commission to sanction conservation incentives larger than those called for by the marginal cost minus average cost standard described above.

We conclude that it is desirable, though not necessary, to restrict utility conservation expenditures to the difference between marginal and average cost. This is a proper standard so long as the market penetration of conservation measures is being maximized. If market penetration is not proceeding rapidly enough because of the market imperfections noted above it is equally proper to enlarge conservation incentives beyond this level.

In determining the proper level of utility-provided incentives, it is our responsibility to assure that utilities we regulate provide adequate and reliable supplies of energy at the lowest reasonable cost. The widespread use of conservation measures increases both the adequacy and reliability of energy supplies and reduces the total revenue requirement of the utilities. Thus, a proper incentive is that which will maximize market penetration of useful conservation measures while minimizing cost to the ratepayers. This determination can only be made by the exercise of reasoned judgment based on current facts and guided by the theoretical limits just discussed.

In Case No. 10032 (Decision No. 88551), we found that market penetration of ceiling insulation was not proceeding as rapidly as its benefits to the ratepayers would dictate. The Commission ordered PG&E and other utilities to implement an eight percent loan program for ceiling insulation. At the pace at which the eight percent loan program has been proceeding, even accounting for a likely acceleration of the insulation market as rates increase and the tax credit takes effect, it would take 15 to 20 years to achieve the nearly universal penetration of this market that is justified. Further, many highly cost-effective measures cannot be financed through the eight percent program. Circumstances do not leave us the luxury of this relaxed pace.

We conclude that a more significant incentive is required to maximize the benefits of conservation to the ratepayers. If price were the sole determinant of consumer decisions to purchase conservation measures, the 3-to 5-year payback period created by an 8 percent loan might be a proper incentive. Yet, as we have noted, other factors heavily influence these decisions. To overcome these barriers, consumers should be offered a utility incentive which, in combination with other available incentives, will produce a positive cash flow for the consumer from the date of installation.

Even though this incentive will cost more than the 8 percent loan program, it will still produce savings far in excess of costs. It is still so cost-effective that the more customers take advantage of the incentives, and thus the greater the cost of the program, the greater the savings will be to all ratepayers.

The program which we will approve will result in less cost per unit of conserved energy than the difference between PG&E's marginal and average energy costs, even without allowance for external costs such as environmental and national security impacts of increasing energy demand. Thus, all ratepayers will benefit from this program through future rates lower than would otherwise be necessary. In the future, the Commission will continue to monitor the relationship between conservation financing program costs and the difference between marginal and average costs.

The conservation financing program which we will adopt will provide financing for conservation items which are cost-effective from the perspective of society. The total cost of each unit of energy savings from these measures will be less than the marginal cost of energy supply.

The tests of cost-effectiveness to the participant and to the utility also will be satisfied. Utility financing will be available only for conservation measures which either are specifically found cost-effective for the participant in the course of an energy audit or are taken from a category of measures which are extremely cost-effective on average. In fact, participants can be assured that in virtually every case their repayment obligation will never exceed the value of energy savings already achieved. As for the utility, since its costs are one factor in the calculation of societal cost-effectiveness, our adoption of that test for the adopted program implies a fortiori that the program will be cost-effective for the utility.

In short, the program adopted today will provide benefits to participants, nonparticipants, the utility, and society as a whole.

2. Should RCS audit costs be excluded from ZIP costs in determining cost-effectiveness?

Because of intertwining of the RCS program and ZIP and the need to avoid wasteful duplication of effort, PG&E proposes to recover the costs of carrying out the related RCS program through the conservation financing program presented here. We believe such a procedure is appropriate during the initial implementation of both the state RCS plan and ZIP, because of administrative efficiencies and in order to assure that PG&E can recover its costs associated with getting RCS underway.

However, the costs of the RCS program should be separately stated. Once the state RCS plan has been put into operation, it should be feasible to project its costs and to provide for such expense like other utility operating expenses on a future test year basis. Costs related to RCS therefore should be included in the ZIP balancing account only until an appropriate allowance for such costs can be reflected in base rates pursuant to a general rate proceeding or such other rate proceeding as is appropriate to the purpose. PG&E may choose to file a separate offset application to provide prospectively for the recovery of RCS costs; such a request could be consolidated for hearing and decision either with Phase II of this proceeding or with PG&E's pending general rate Application No. 60153.

In determining the cost-effectiveness of ZIP those costs which result from the federally mandated RCS program should be excluded from the costs of ZIP. ZIP and RCS are entirely separate although related programs. Either could proceed without the other. ZIP builds upon RCS to maintain consistency of policy and to avoid duplication of effort. Merging of costs would blur the distinction between the programs and lessen our ability to control costs.

It may be that the availability of ZIP will increase the number of customer requests for RCS audits. However, many of these customers would eventually have made use of the resources of the RCS program in any event. Thus, it appears that authorization of ZIP may be expected to accelerate the RCS program but not particularly increase its total costs.

3. Which estimate of housing turnover should be adopted for the purpose of determining the cost-effectiveness of the measures in ZIP?

PG&E presented evidence showing that 90 percent of the housing in PG&E's service area can be expected to change ownership within seven years.

Keefe, the cost-effectiveness witness of the Energy Conservation Branch of the Utilities Division of the Commission staff, adopted a housing turnover estimate used by the staff in OII No. 42 which shows 34 percent of the housing remaining unsold at the end of ten years and 14 percent remaining unsold at the end of 20 years. However, he offered no evidence to show that his estimate was more reliable than that of PG&E's witness. Keefe contended that homes will be held for a longer time as a result of the Proposition 13 property tax initiative. PG&E submits that it is too early to determine the long-term impact of Proposition 13 and contends that housing turnover rates may result more from basic factors such as family and career cycles rather than tax considerations.

In this proceeding we will adopt PG&E's estimate of housing turnover, but we note that the importance of this issue is substantially diminished because of the more rapid repayment procedure which will be included in the adopted ZIP plan.

4. How does the cost of PG&E's proposed program compare with the cost of the adopted program?

PG&E presented in Exhibit No. 7 an analysis on Cost Effectiveness of Conservation Measures for the ten individual conservation measures applicable to gas and electric customers respectively. We have tested the adopted program against the results in Exhibit No. 7 by utilizing PG&E's assumptions. We have excluded the RCS audit costs which, being incurred pursuant to the federally mandated RCS program, are not properly chargeable to the cost-effectiveness of the ZIP program. For the adopted program, a 50-month payback period is assumed for single-family residences and a 100-month payback period for multi-family residences. The costs to the utility for the various measures if installed separately are estimated as follows:

COMPARATIVE COST-EFFECTIVENESS OF  
TEN MEASURES FOR GAS CONSERVATION

(Mills/Therm)

(Compare all figures to PG&E's marginal  
cost of gas of 472 mills/therm.)

|                                 | <u>Single-Family</u>                   |                            | <u>Multi-Family</u>                    |                            |
|---------------------------------|--|----------------------------|--|----------------------------|
|                                 | <u>PG&amp;E Proposal<br/>Exhibit 7</u> | <u>Adopted<br/>Program</u> | <u>PG&amp;E Proposal<br/>Exhibit 7</u> | <u>Adopted<br/>Program</u> |
| Ceiling Insulation              | 96                                     | 54                         | 132                                    | 90                         |
| Wall Insulation                 | 283                                    | 172                        | 225                                    | 155                        |
| Floor Insulation                | 481                                    | 294                        | 648                                    | 480                        |
| Weatherstripping                | 186                                    | 99                         | 201                                    | 97                         |
| Caulking                        | 98                                     | 55                         | 88                                     | 46                         |
| Storm Windows & Doors           | 647                                    | 400                        | 500                                    | 341                        |
| Water Heater Wrap               | 263                                    | 119                        | 263                                    | 133                        |
| Clock Thermostat                | 111                                    | 55                         | 214                                    | 122                        |
| Duct Insulation                 | 1145                                   | 636                        | 1509                                   | 905                        |
| Intermittent Ignition<br>Device | 315                                    | 186                        | 315                                    | 226                        |

COMPARATIVE COST-EFFECTIVENESS OF  
TEN MEASURES FOR ELECTRIC CONSERVATION

(Mills/kWh Saved)

(Compare all costs to PG&E's marginal cost of  
electricity of 72 mills/kWh.)

|                            | <u>Single-Family</u>                    |                                  | <u>Multi-Family</u>                     |                                  |
|----------------------------|---|----------------------------------|---|----------------------------------|
|                            | <u>PG&amp;E Proposal</u><br>(Exhibit 7) | <u>Adopted</u><br><u>Program</u> | <u>PG&amp;E Proposal</u><br>(Exhibit 7) | <u>Adopted</u><br><u>Program</u> |
| Ceiling Insulation         | 12                                      | 7                                | 23                                      | 16                               |
| Wall Insulation            | 38                                      | 23                               | 41                                      | 29                               |
| Floor Insulation           | 64                                      | 39                               | 120                                     | 89                               |
| Weatherstripping           | 23                                      | 12                               | 35                                      | 17                               |
| Caulking                   | 12                                      | 6                                | 14                                      | 8                                |
| Storm Windows and<br>Doors | 70                                      | 43                               | 76                                      | 51                               |
| Water Heater Wrap          | 26                                      | 11                               | 26                                      | 13                               |
| Clock Thermostat           | 58                                      | 29                               | 102                                     | 58                               |
| Duct Insulation            | 644                                     | 356                              | 692                                     | 415                              |
| Lighting Conversion        | 194                                     | 113                              | 219                                     | 148                              |

The substantially reduced costs are principally the result of the modified repayment schedules and the exclusion of RCS audit costs.

In a calculation of cost-effectiveness on a societal basis costs to both the utility and the participant are considered, so the shift of some program costs from the utility to the participant does not affect the calculation. In terms of societal cost-effectiveness, therefore, the PG&E proposed program and the adopted program yield similar results, since the only basic difference between the two is the inclusion of the RCS audit cost. Under the

test of societal cost-effectiveness, income taxes and tax credits are excluded and, for example, the societal cost of ceiling insulation as estimated by PG&E is 144.4 mills per therm as compared to 132.1 mills per therm for the adopted program. This societal cost compares to the conservatively estimated marginal cost of gas energy for PG&E of 472 mills per therm. When federal and state tax credits are considered from the participant's viewpoint the programs are all the more cost-effective. Federal and California taxpayers will pay for a substantial part of the program through tax credits and deductions.

In Exhibit No. 8, Attachment C-2, PG&E presented a summary of total costs and savings which would result from system-wide implementation of those seven gas measures of the weatherization ZIP program which are most clearly cost-effective on an average basis. We have tested the adopted program against the results in Exhibit No. 8 utilizing PG&E's assumptions except for exclusion of RCS audit costs. Those assumptions include current marginal costs of gas and electricity of 47.2 cents per therm and 7.2 cents per kWh, escalating at rates of 10.5 and 8.8 percent per year, respectively. Assumptions as to ZIP's penetration of the residential weatherization market are fairly modest, ranging from 130,000 wall insulation jobs to 1,000,000 weatherstripping jobs over a ten-year program life. An assumed annual discount rate of 12.0 percent is used to determine the present value of the overall societal benefit and the utility cost. The following tables do not show the costs incurred by participants in the program. Based on those assumptions the relative utility costs of systemwide implementation of the PG&E proposal and the adopted program are estimated as follows, for comparative purposes:



COST COMPARISON OF PROPOSED AND ADOPTED PROGRAMS  
-7 GAS MEASURES-

| Year          | PG&E Proposal<br>(Exhibit 8) | Adopted Incentives<br>(For Comparative Purposes Only) |                                  |                                |
|---------------|------------------------------|---|----------------------------------|--------------------------------|
|               | Utility Cost<br>(\$000's)    | Utility Cost<br>(\$000's)                             | Energy Saved<br>(Million Therms) | Societal Benefit*<br>(\$000's) |
| 1980          | \$ 28,700                    |   |                                  |                                |
| 1981          | 46,300                       | \$ 20,300   | 24.8                             | \$ 12,900                      |
| 1982          | 62,500                       | 36,200  | 71.4                             | 41,100                         |
| 1983          | 75,800                       | 47,300  | 112.5                            | 71,700                         |
| 1984          | 87,200                       | 51,800  | 146.4                            | 103,100                        |
| 1985          | 97,500                       | 53,000  | 175.7                            | 136,700                        |
| 1986          | 105,700                      | 53,900  | 205.0                            | 176,100                        |
| 1987          | 109,500                      | 55,400  | 234.2                            | 222,300                        |
| 1988          | 114,700                      | 58,100  | 260.9                            | 273,700                        |
| 1989          | 121,100                      | 61,700  | 285.0                            | 330,300                        |
| 1990          | 73,900                       | 65,900  | 309.1                            | 396,000                        |
| 1991          | 61,400                       | 39,400  | 314.2                            | 444,900                        |
| 1992          | 48,500                       | 25,100  | 300.4                            | 469,800                        |
| 1993          | 35,500                       | 13,700  | 286.6                            | 495,200                        |
| 1994          | 23,400                       | 6,300   | 272.7                            | 520,900                        |
| 1995          | 12,900                       | 2,300   | 258.9                            | 546,300                        |
| 1996          | 5,300                        | 800   | 242.2                            | 564,800                        |
| 1997          | 4,000                        | 600   | 222.7                            | 573,900                        |
| 1998          | 3,000                        | 400   | 205.6                            | 585,300                        |
| 1999          | 2,600                        | 200   | 190.9                            | 600,600                        |
| 2000          | 1,400                        | 100   | 176.2                            | 612,600                        |
| 2001          | 1,100                        | 0   | 151.0                            | 580,100                        |
| 2002          | 700                          | 0   | 118.2                            | 501,800                        |
| 2003          | 700                          | 0   | 91.0                             | 426,900                        |
| 2004          | 400                          | 0   | 70.9                             | 367,500                        |
| 2005          | 300                          | 0   | 55.5                             | 317,900                        |
| 2006          | 0                            | 0   | 42.9                             | 271,500                        |
| 2007          | -200                         | 0   | 33.2                             | 232,200                        |
| 2008          | -400                         | 0   | 23.6                             | 182,400                        |
| 2009          | -600                         | 0   | 14.1                             | 120,400                        |
| 2010          |                              | 0   | 4.7                              | 44,300                         |
| Nominal       | <u>\$1,122,700</u>           | <u>\$592,500</u>                                      | <u>4,900.4</u>                   | <u>\$10,223,200</u>            |
| Present Value | \$ 549,300                   | \$285,900   |                                  | 1,948,800                      |

\*Societal benefit is derived from energy saved multiplied by the current marginal cost of energy.

Note: These estimates are based on assumptions described at page 30c, supra.

COST COMPARISON OF PROPOSED AND ADOPTED PROGRAMS  
-6 ELECTRIC MEASURES-

| Year          | PG&E Proposal<br>(Exhibit 8) | Adopted Incentives<br>(For Comparative Purposes Only) |                               |                                |
|---------------|------------------------------|---|-------------------------------|--------------------------------|
|               | Utility Cost<br>(\$000's)    | Utility Cost<br>(\$000's)                             | Energy Saved<br>(Million kWh) | Societal Benefit*<br>(\$000's) |
| 1980          | \$ 3,320                     |   |                               |                                |
| 1981          | 5,130                        | \$ 2,230  | 21.5                          | \$ 1,690                       |
| 1982          | 6,730                        | 3,870   | 61.6                          | 5,270                          |
| 1983          | 7,970                        | 4,950   | 96.3                          | 8,960                          |
| 1984          | 9,020                        | 5,310   | 123.9                         | 12,540                         |
| 1985          | 9,940                        | 5,340   | 146.9                         | 16,170                         |
| 1986          | 10,630                       | 5,350   | 169.9                         | 20,350                         |
| 1987          | 11,000                       | 5,420   | 192.8                         | 25,120                         |
| 1988          | 11,360                       | 5,610   | 215.5                         | 30,560                         |
| 1989          | 11,920                       | 5,890   | 238.1                         | 36,720                         |
| 1990          | 6,580                        | 6,250   | 260.6                         | 43,730                         |
| 1991          | 5,490                        | 3,450   | 266.6                         | 48,680                         |
| 1992          | 4,380                        | 2,200   | 256.0                         | 50,840                         |
| 1993          | 3,260                        | 1,200   | 245.4                         | 53,030                         |
| 1994          | 2,230                        | 560   | 234.7                         | 55,180                         |
| 1995          | 1,340                        | 210   | 224.1                         | 57,320                         |
| 1996          | 600                          | 80  | 212.8                         | 59,240                         |
| 1997          | 460                          | 50  | 200.7                         | 60,790                         |
| 1998          | 340                          | 40  | 188.7                         | 62,180                         |
| 1999          | 290                          | 20  | 176.6                         | 63,310                         |
| 2000          | 150                          | 10  | 164.6                         | 64,190                         |
| 2001          | 110                          | 0   | 142.4                         | 60,430                         |
| 2002          | 80                           | 0   | 112.8                         | 52,080                         |
| 2003          | 80                           | 0   | 88.8                          | 44,600                         |
| 2004          | 40                           | 0   | 71.9                          | 39,300                         |
| 2005          | 30                           | 0   | 59.7                          | 35,500                         |
| 2006          | 0                            | 0   | 48.0                          | 31,060                         |
| 2007          | -20                          | 0   | 37.1                          | 26,110                         |
| 2008          | -40                          | 0   | 26.4                          | 20,220                         |
| 2009          | -70                          | 0   | 15.8                          | 13,160                         |
| 2010          |                              | 0   | 5.3                           | 4,800                          |
| Nominal       | \$12,450                     | \$58,040  | -4,305.7                      | \$1,103,130                    |
| Present Value | \$ 56,130                    | 28,580  |                               | 214,130                        |

\*Societal benefit is derived from energy saved multiplied by the current marginal cost of energy.

Note: These estimates are based on assumptions described at page 30c, supra.

PG&E's assumptions have been utilized only for comparative purposes since the program for the initially adopted measures will extend over only six years. The utility costs are significantly affected by the adopted incentive levels, which are considerably less costly to the utility than the incentives originally proposed by PG&E, by the tables on comparative cost-effectiveness, supra. The estimated utility cost of the adopted incentives is \$592 million as compared to \$1,123 million under PG&E's proposal for the seven gas measures. The estimated savings are 4,900 million therms at a societal cost of about 160 mills per therm, which includes a utility cost of 78 mills per therm, as compared to a marginal cost of gas estimated at 472 mills per therm.

For the seven measures on the electric side, the utility cost of the adopted incentives is estimated at \$58 million as compared to \$112 million for the PG&E proposed incentives. Here the estimated savings are 4,306 million kWh, at a societal cost of about 21.4 mills/kWh, including cost to the utility of about 10.8 mills/kWh, as compared to an estimated marginal cost of electricity of 72.2 mills/kWh.

Every ratepayer will benefit from this conservation program, since the cost for new supplies of energy which would otherwise be required more than offsets this program's cost. The costs to the utility as previously developed are more than offset by the reduction in costs due to energy savings, as shown by the following comparison of the adopted incentives and the PG&E proposed program. These reductions in total cost were computed utilizing the difference between the marginal cost of new energy supply and the average cost of energy. In addition, participating customers will realize substantial dollar savings resulting from their conservation of energy. Assumptions are the same as those on which the prior tables were based.

## GAS PROGRAM

## Net Changes in Cost to All Ratepayers

| <u>Year</u>   | <u>Adopted Incentives</u><br><u>(For Comparative Purposes)</u><br>(In Thousands of Dollars) | <u>PG&amp;E Proposal</u><br><u>(Exhibit 8)</u><br>(In Thousands of Dollars) |
|---------------|---|---|
| 1980          |   | \$ 28,742   |
| 1981          | \$ 14,134   | 36,445  |
| 1982          | 16,774  | 42,221  |
| 1983          | 13,612  | 44,232  |
| 1984          | 3,524   | 44,944  |
| 1985          | -10,631   | 42,593  |
| 1986          | -27,703   | 36,252  |
| 1987          | -47,043   | 23,097  |
| 1988          | -67,378   | 10,573  |
| 1989          | -88,927   | -3,233  |
| 1990          | -113,671  | -73,603   |
| 1991          | -161,241  | -93,469   |
| 1992          | -185,706  | -113,804  |
| 1993          | -207,242  | -134,179  |
| 1994          | -224,720  | -153,579  |
| 1995          | -238,677  | -171,101  |
| 1996          | -246,872  | -180,957  |
| 1997          | -249,656  | -183,071  |
| 1998          | -253,377  | -188,018  |
| 1999          | -258,564  | -191,375  |
| 2000          | -262,262  | -194,172  |
| 2001          | -246,877  | -168,005  |
| 2002          | -212,346  | -143,212  |
| 2003          | -179,404  | -119,177  |
| 2004          | -153,483  | -105,351  |
| 2005          | -131,963  | -87,408   |
| 2006          | -112,080  | -76,452   |
| 2007          | -95,154   | -62,603   |
| 2008          | -74,218   | -45,834   |
| 2009          | -48,781   | -25,521   |
| 2010          | -17,848   |   |
| Nominal       | \$ -3,867,782   | \$ -2,205,025   |
| Present Value | \$ -584,585   | -143,207  |

Note: Negative numbers indicate reductions in cost. Estimates are based on assumptions described at page 30c, supra.

## ELECTRIC PROGRAM

## Net Changes in Cost to All Ratepayers

| <u>Year</u>   | <u>Adopted Incentives</u><br><u>(For Comparative Purposes)</u><br>(In Thousands of Dollars) | <u>PG&amp;E Proposal</u><br><u>(Exhibit 8)</u><br>(In Thousands of Dollars) |
|---------------|---|---|
| 1980          |   | \$ 3,319  |
| 1981          | \$ 1,388  | 3,720   |
| 1982          | 1,256   | 3,887   |
| 1983          | 541   | 3,668   |
| 1984          | -817  | 3,432   |
| 1985          | -2,507  | 2,887   |
| 1986          | -4,457  | 1,907   |
| 1987          | -6,617  | 402   |
| 1988          | -8,930  | -1,337  |
| 1989          | -11,456   | -3,136  |
| 1990          | -14,257   | -11,122   |
| 1991          | -19,206   | -12,857   |
| 1992          | -21,299   | -14,606   |
| 1993          | -23,116   | -16,337   |
| 1994          | -24,561   | -17,964   |
| 1995          | -25,686   | -19,417   |
| 1996          | -26,464   | -20,438   |
| 1997          | -26,975   | -20,992   |
| 1998          | -27,384   | -21,335   |
| 1999          | -27,678   | -21,518   |
| 2000          | -27,840   | -21,670   |
| 2001          | -25,988   | -18,593   |
| 2002          | -22,220   | -15,799   |
| 2003          | -18,859   | -13,331   |
| 2004          | -16,478   | -12,122   |
| 2005          | -14,733   | -10,614   |
| 2006          | -12,791   | -9,107  |
| 2007          | -10,661   | -7,319  |
| 2008          | -8,167  | -5,261  |
| 2009          | -5,271  | -2,874  |
| 2010          | -1,893  |   |
| Nominal       | \$-433,126  | \$-274,527  |
| Present Value | \$ -70,165  | \$ -26,840  |

Note: Negative numbers indicate reductions in cost. Estimates are based on assumptions described at page 30c, supra.

These figures indicate that even a residential ratepayer who does not take advantage of the program will save over \$20 per year in household gas and electric bills during the next 30 years. In the process, the energy equivalent of 2.9 million barrels of oil per year will be saved, enough to fuel at least 300,000 of California's motor vehicles for each of the next 30 years.

C. Issues relating to Phase I of ZIP.

1. Is a phased structure of ZIP necessary to avoid problems when the program is expanded systemwide?

PG&E proposes that ZIP be implemented in phases instead of systemwide to permit an orderly gearing-up process to assure that top-quality, well-trained personnel will be available to carry out the program, and to allow for necessary refinement and testing.

Specific areas in which PG&E considers testing and refinement useful include repayment terms for conservation financing (i.e., testing the amount of incentive); methods for promoting and advertising the program; techniques for penetrating the rental, low income, and minority market segments; procedures for audits, contractor referral, financing, and post-installation inspection; use of contract auditors; setting of audit priorities; and procedures for monitoring and evaluation of results.

PG&E witness Callaway testified that Phase I will provide experience in: (1) doing a larger and more complex audit than is presently performed; (2) inspecting a wider variety of measures; (3) dealing with a larger number of contractors in a wider number of businesses; (4) managing, at the division and the general office levels, a bigger program; (5) managing the financial subsidiary; and (6) handling a larger volume of customer inquiries. (Tr. Vol. 10, p. 1250.)

PG&E's policy witness Mertz testified:

"...[I]t is our belief that...this program must be thoroughly tested and debugged before it is applied systemwide, and the shortcomings that might result from not implementing it systemwide in terms of any conceivable delay on the part of the market segment which is not yet active...we believe are overwhelmed by the need to have a system that will work effectively when it does go systemwide." (Tr. Vol. 8, p. 805.)

We agree that by this decision only Phase I of ZIP should be implemented. We do not, however, view Phase I as merely a test of the program; we intend it to be simply the first phase of implementation of a systemwide program. A number of characteristics of the systemwide ZIP will be determined in the course of this decision; further elements of the full-scale program will be determined after further hearings. We intend that implementation of ZIP systemwide should not be delayed to await evaluation of the experience of Phase I. Rather, a full-scale program should be implemented promptly, but PG&E and all other parties are invited to propose any modifications in the approved program which experience demonstrates to be warranted.

2. Is PG&E's San Joaquin Division an appropriate division for Phase I?

In his prepared testimony, PG&E's witness Mertz stated that PG&E's San Joaquin Division, which includes all or portions of ten counties along the San Joaquin Valley, was selected as the location for Phase I based upon a survey of PG&E divisions by income distribution, saturation of insulation, and heating fuel source. The San Joaquin Division offered the best range of income distribution, particularly biased toward lower-income, of customers which PG&E's marketing surveys demonstrated had a low saturation of insulation. Additional arguments in favor of the San Joaquin Division include the existence of an aggressive insulation industry in that area; the excellent working relationship PG&E already enjoys with local community action agencies; the wide variety of climatological zones in that area; the simplification of public information and communication efforts afforded by utilizing Fresno's media outlets which, due to that city's central location, reach most of the potential Phase I market; and the fact that ZIP can be marketed in the San Joaquin Division during Phase I without undesirable overlap of media exposure into divisions where it would not yet be available.

For the foregoing reasons we agree that the San Joaquin Division is the appropriate division in which to authorize PG&E to proceed with phase I of ZIP.

3. What measures should be included in Phase I of the ZIP program?

All residential conservation measures which PG&E proposed to finance through its ZIP program will be authorized for inclusion in Phase I. Evidence of record indicates that most of these measures are highly cost-effective on average based upon the test of societal cost-effectiveness adopted previously as the basis for deciding what measures should be eligible for ZIP financing. More importantly, part of PG&E's proposal is to require that the cost-effectiveness of each proposed installation of each measure be demonstrated in the course of a site-specific energy audit prior to installation and financing.

As will be discussed later, the lower cost to the utility and its ratepayers of the financing arrangements we will approve and the extremely high cost-effectiveness, on average, of certain of the measures proposed to be financed justify financing installation of those measures under certain conditions without the requirement of an energy audit. A demonstration of site-specific cost-effectiveness through an energy audit will be required for ZIP financing of the other measures.

In addition to the conservation measures proposed by PG&E for financing under the ZIP program, we will also authorize provision of such financing for the installation of low-flow showerheads. We have concluded in prior decisions that these devices are highly cost-effective and we have previously authorized their inclusion in PG&E's eight percent ceiling insulation loan program and in similar programs of other utilities. Their inclusion here represents a continuation of well-established policy.



4. Should the duration of Phase I be specified at this time?

PG&E witness Mertz estimates that six months to one year will be required for Phase I of ZIP. In light of concern that insulation contracting businesses could suffer during the interval between authorization of Phase I of ZIP and its full implementation throughout PG&E's service area, PG&E intends to minimize delay in implementing Phase II. Nevertheless, PG&E urges that an adequate amount of time be allocated to carry out Phase I and achieve its goals, particularly the evaluation, testing, and refinement of the program.

The insulation contractors contend that the ZIP program will create a major disincentive to immediate installation of weatherization retrofit measures because consumers will wait to obtain the benefits of the ZIP program, and that such delay would have an immediate impact upon the insulation market.

The Commission shares PG&E's interest in carefully evaluating and refining the characteristics and effectiveness of ZIP, but we do not believe it necessary to delay implementation of a systemwide program pending such studies. The Commission is aware of the adverse effects delay in implementing Phase II likely would have on insulation contracting businesses and of the necessity to install weatherization measures throughout PG&E's service area. Accordingly, the Commission will set hearings to receive evidence required to implement the systemwide extension of the ZIP program.

authorized in this decision, including the financing of certain clearly cost-effective improvements without the need of an audit.

Since the Commission anticipates extension of the ZIP program throughout PG&E's service area shortly after the hearings which will be held soon after issuance of this decision, Phase I will not act as a substantial disincentive to weatherization retrofit outside the San Joaquin Division. Furthermore, the January 1, 1981 effectiveness of the AB 2030 tax benefits should provide a substantial stimulus to weatherization efforts, and thus help counteract any tendency to delay initiating weatherization work pending Phase II of ZIP.

5. Is the \$10,094,000 proposed cost of Phase I ZIP reasonable?

PG&E is applying for authority to implement Phase I of the proposed conservation financing program and to adjust rates to recover the cost of the initial phase. No party objected specifically to the proposed rate recovery of the estimated \$10,094,000 cost of Phase I of ZIP. Even TURN's witness Weil expressly testified that his cost-effectiveness conclusions should not be used to invalidate a demonstration program. As has been made clear above, Phase I of ZIP is not intended to be a demonstration program but to be simply the first step in implementing a systemwide program. Nevertheless, because of the need for further hearings, the Commission will approve funding only for Phase I at this time.

We have reviewed the testimony of PG&E's witnesses Mertz, Callaway, and Heim regarding the cost estimates for Phase I of ZIP and find that such estimates are reasonable and that rate increases of \$8,800,000 for the gas department and \$1,200,000 for the electric department should be authorized as a reasonable level of PG&E's expenditures for ZIP at this time.

6. After Phase I of ZIP is implemented, should substantial modifications of the ZIP program be handled by advice letter filings?

Upon the conclusion of Phase I, PG&E proposes to use the advice letter filing procedure to implement Phase II. PG&E witness Mertz pointed out that PG&E would be making reports to the Commission and urged that the advice letter procedure be used to avoid the substantial delays which might occur if an application and further hearings are required to implement Phase II.

In view of Section 1708 of the Public Utilities Code, however, an advice letter procedure would be an inadequate means of making substantial subsequent modifications in the ZIP program authorized by this and subsequent decisions.

- D. Issues relating to particular classes of participants in ZIP.

1. What measures should be adopted to foster participation in the ZIP program by low-income, elderly, and non-English-speaking customers?

An important issue in this proceeding has been whether different levels of incentive should be made available to different social groups. In particular proposals have been made for more generous incentives for persons of low income and conversely that owners of single-family residences who can arrange for weatherization retrofit financing on their own should be denied access to the program. Such distinctions would require establishing an income test for eligibility.

In the past we have been most reluctant to rely on an income test to determine eligibility for any aspect of utility service. A conservation financing program, however, is distinguishable from such matters as eligibility for lifeline

rates. The ZIP program will not in itself set utility rates; it will be a means by which PG&E will seek to control the costs and improve the reliability of its traditional utility service. ZIP is thus a goal-oriented project, and to achieve those goals incentives must be set at levels which realistically can be expected to achieve participation.

We are persuaded that a more attractive incentive is appropriate to enable low-income homeowners to take advantage of the ZIP program. We perceive several serious barriers to their participation. A large proportion of such people are elderly, and thus are less able to manage the inconvenience associated with home improvements. The defects in their "building envelopes" may range beyond the list of items which can be remedied under the proposed ZIP program. A few further inexpensive repairs might be enormously cost-effective both to them and to the utility, but they may lack the discretionary cash or savings to devote to such purposes.

We therefore will authorize a somewhat higher level of incentives for low-income homeowners. We will define as low-income any person meeting the standards set by the U.S. Bureau of Labor Statistics for eligibility to receive payments under the Federal Energy Assistance Program. In addition to the measures included in the basic ZIP program, homeowners of low income will be entitled to ZIP financing for up to \$200 in additional improvements to the "building envelope" of their homes, so long as such improvements have been found cost-effective by our adopted societal test in the course of a prior energy audit. Low-income homeowners also will be permitted to repay the principal of their ZIP loans over a 100-month period without having to make the lump sum 40 percent repayment following receipt of their AB 2030 tax credit.

In addition, we share the concern expressed by many parties that special targeting of promotional efforts should be directed toward the elderly, the non-English-speaking, and persons of low income, in order to assure equal opportunity to participate by such persons who might otherwise be less likely to take advantage of the program. These special promotional efforts are discussed below.

PG&E points out that the incentive of a ZIP program is especially important to reach low-income persons, particularly under current tight credit conditions. The number of single-family, owner-occupied homes which fall into the low-income category is substantial. Even a larger proportion of rental properties are occupied by persons of low income.

The specific techniques by which PG&E proposes to penetrate the low-income segment of the market include assigning special priority to low-income areas in scheduling audits, and special outreach efforts including such methods as door-to-door delivery of informational leaflets, notices in local business establishments and other public places, and informational programs through schools, churches, and neighborhood organizations and groups.

In portions of its service area where the population includes a substantial non-English-speaking minority, we will expect PG&E to conduct a reasonable proportion of its promotional efforts by means of other languages, as appropriate. A useful guide for determining where such efforts are appropriate is the lists of telephone exchanges in which non-English-speaking minorities exceed five percent of the population, which are required to be furnished annually to the Commission by telephone utilities pursuant to Decision No. 88550, issued March 7, 1978 in Case No. 9976.

PG&E should continue and expand its close coordination of efforts with federally funded community action agencies to reach low-income persons, the elderly and members of minorities. Special efforts are appropriate to encourage these groups to participate in ZIP, because of the greater

difficulty which older persons may have in making home improvements, and because of the social barriers and language difficulties which sometimes impair delivery of services to these communities.

Witnesses Sloan and Williams testifying on behalf of Cal-Neva described in detail the numerous organizations which are already in existence and are providing a wide range of services to low-income persons. They supported PG&E's proposed ZIP plan as in their view it offered a fair opportunity to low-income persons to participate. PG&E and Cal-Neva have a long-standing history of cooperation in training community action agency weatherization crews at PG&E's weatherization training center in Stockton.

An appropriate number of auditors can and should be assigned and specially trained to serve particular groups of customers, such as those of low income, the elderly, and the non-English-speaking. In working as auditors, their primary responsibility should be to serve such groups and PG&E should seek to have a substantial number of them work out of the local offices of appropriate community-based organizations, so as to assure the most effective outreach to these communities.

Another measure which will be adopted to encourage participation by low-income persons is to suspend traditional credit standards in determining eligibility for ZIP loans. The evidence suggests that the administrative expense of following traditional credit verification practices would be likely to exceed the savings in uncollectible loans. This distinctive feature of ZIP financing should be broadly publicized in low-income communities to attract the interest of potential participants who might otherwise assume that any loan program is unavailable to them.

2. What measures should be adopted to promote participation by owners and occupants of rental units?

PG&E points out that the obvious impediment to renter participation in weatherization retrofit is the fact that the renter does not own the premises in which he or she resides. The owner must be willing to permit the necessary conservation measures to be installed and must in most cases be willing to incur the obligation for ultimate repayment of the conservation financing extended by PG&E.

Where rental units are master-metered and the owner is paying the utility bill the owner should have adequate incentive to participate in ZIP, particularly in light of the tax benefits of AB 2030. Any reduction in the utility bills as a result of participation in the program will benefit the owner directly.

However, more than 80 percent of PG&E's customers who live in rental housing receive individually metered service. In fact, individually metered renters constitute roughly one-third of all PG&E's residential customers - approximately 20 percent of those who live in singly-family homes and 70 percent of all occupants of multi-family housing. Where the rental units are individually metered the renters have the incentive to monitor their own consumption and conserve energy because they pay the utility bills directly. In such cases installation of conservation measures would cause a reduction in the utility bills of the renters but would provide no immediate direct benefit for the owner. In order to give such property owners greater incentive to participate in the ZIP program, a more favorable ZIP loan will be designed for owners of rental properties which are individually metered for space heating usage.

PG&E witnesses testified that through aggressive marketing and cooperation with renter groups and community agencies PG&E can reach and persuade rental property owners to take advantage of ZIP. Witness Williams of Cal-Neva testified that a demand for energy-efficient rental units can be created if public attention is focused on this area. PG&E could certificate energy-efficient units and separate columns might be set up in classified rental advertisements for such units. Even in a tight rental market, it could be to the owner's economic advantage to have energy-efficient units to offer. We will direct PG&E to provide a means for certifying energy-efficient units and to encourage newspapers throughout its service area to set up separate classified advertising columns for certified energy-efficient rentals.

Specific methods of reaching rental property owners include the use of bill inserts, announcements in specialized periodicals, and contacts with real estate agents, building management firms, and building owner associations. We expect PG&E to devote a very substantial portion of its promotional effort to the rental market.

In certain circumstances where an owner may approve of installation of conservation measures in the building but is unwilling to incur any financial obligation, the tenants may wish to obligate themselves to have the weatherization measures installed. The owner might agree that in case of termination of the tenancy he or she would require the new tenant to assume the monthly payments as a condition to rental of the property. PG&E will be directed to develop and submit to the Commission, for consideration in the course of the Phase II hearings, a form of such contract between PG&E, the tenants, and the owners to provide for



the installation of weatherization measures at the request of the tenant with the consent of the owner.

Experience may indicate that still more vigorous and imaginative efforts are required to exploit adequately the conservation potential of the rental market. The Commission will closely monitor the effectiveness of the ZIP program in this regard.

State legislation was introduced in 1980 which would have mandated that the most cost-effective weatherization measures be installed in existing residences by the mid-1980s. The Commission supported such legislation (AB 3046) and strongly recommends that such legislation be again introduced, particularly to provide a requirement applicable to owners of rental property. Such a mandatory retrofit requirement would offer tenants responsible for energy bills a prospect of relief from having to pay for wasted energy which it is not within their own power to conserve. In view of the economic incentives provided through income tax credits and the planned availability of utility financing, it is equitable that such requirements be imposed on rental property owners.

In the absence of legislation mandating that owners of rental property install weatherization measures, a major challenge for PG&E in implementing ZIP will be to penetrate the rental market, as well as to reach low-income persons, the elderly, and minorities. Failure to bring ZIP to renters, the elderly, minorities, and low-income persons would be inequitable and unacceptable. Not only would these groups have to bear a disproportionate share of the cost of achieving conservation, but also the full potential for conservation would not be realized. For these reasons, we shall order PG&E to file a specific plan for insuring that ZIP is made available to renters, the elderly, minorities, and persons with

low incomes. PG&E must specify its anticipated penetration levels for these groups of customers. In its annual reports to the Commission, PG&E must specify its achieved penetration levels, as well as future goals and obstacles to their attainment. We shall carefully review these goals and penetration levels. We will use these figures to decide whether PG&E must be ordered to redirect its efforts toward renters, the elderly, minorities, and low-income persons or whether other appropriate regulatory sanctions will be necessary.

3. Should special incentives be offered to do-it-yourself retrofitters?

MIMA points out that nearly 50 percent of the re-insulation activity in California at the present time is in the do-it-yourself market. This method of installation is more cost-effective both to the customer and to the utility because of the saving of the labor charge. MIMA urges that the Commission do everything it can to encourage this segment of the market to remain vital.

MIMA witness Zinn claimed that because the zero-interest loans are so attractive, customers who would normally do the work themselves would simply hire contractors to do all the work. MIMA is concerned that authorization of ZIP would have the effect of drying up their existing do-it-yourself market.

Because of this testimony the staff recommends that PG&E offer a special incentive to ZIP program participants who install cost-effective weatherization measures themselves. The staff suggests that this incentive could either be a 10 percent reduction in the repayment obligation or a cash payment to the customer of 10 percent (rounded up to the nearest \$10) of the material costs, after PG&E has verified the adequacy of the installation by an inspection. The principal of the loan would be unaltered by the cash payment and would be paid back in the same manner as other ZIP loans.

The Commission, however, is of the opinion that the saving of the labor charge is itself a sufficient incentive for do-it-yourselfers and that the added incentive proposed by the staff is unnecessary. Because the ZIP program we are authorizing will require earlier payback of the loan principal than in PG&E's proposal, the customer will have a personal incentive to limit the cost of improvements and thus will be more inclined to do it himself.

Still, considering the extremely cost-effective energy savings which can be achieved through do-it-yourself efforts, it is very important to assure that this market be maintained as a substantial component of the State's conservation programs. In the case of ZIP this calls for specialized outreach to this market by making program notices available in building supply and hardware stores and by placing advertisements in home improvement oriented magazines. Loan application procedures also should accommodate the do-it-yourselfer's need to accumulate a series of bills or receipts for a variety of materials purchased before determining the amount of the loan. We will direct PG&E to undertake these efforts.

4. Should a customer be permitted to weatherize more than one home under ZIP?

The purpose of the ZIP program is to achieve energy conservation. Participants who own two or more homes should not be excluded from participation for other than their primary residence where the additional homes are rental units, as that would deny the benefits of the program to the tenants.

Some of the parties have proposed that vacation homes be excluded from consideration for conservation financing. PG&E points out the problems of identifying what constitutes a vacation home, and emphasizes that the purpose of the ZIP program is to achieve cost-effective energy conservation.

From a structural point of view there may be as much or more that can be done at modest expense to increase the energy efficiency of a vacation home as compared to a principal residence.

Cost effectiveness of conservation improvements, however, may be affected by the limited use made of vacation homes. In addition, having recognized the importance of assuring equitable distribution of benefits of the ZIP program in our discussion of the rental and low-income sectors, we find it inappropriate to authorize homeowners to take advantage of ZIP for more than one personal residence.

In view of the problems which would face PG&E in seeking to identify vacation homes, we will adopt a self-certification requirement. PG&E will be required to include on its application forms for ZIP financing a question as to whether the subject residence is occupied for more than six months of the year as the principal residence, either of the owner or of a tenant. Further, we will authorize PG&E to require an energy audit to establish cost effectiveness before making a ZIP loan in those instances where PG&E has reason to believe that the residence may be a vacation home because of intermittent or low usage of utility services.

5. Should owners or occupants of new residences be eligible for ZIP loans?

The Commission takes official notice of the energy efficiency standards for new residential buildings which have been adopted by the CEC and predecessor state agencies and have been applicable to all new residential buildings beginning in 1975. These standards require that all new residences constructed in California meet a set of comparatively rigorous standards for energy efficiency, including a minimum of R-19 attic insulation, R-11 wall insulation, and inclusion of several other of the weatherization measures included in the ZIP program to be authorized by this decision.

Because of these legally mandated high standards for new residential buildings and because such buildings have not suffered the deterioration incident to many years of use, relatively few of the weatherization measures included in the ZIP program will be cost-effective to install in such residences, even from the

perspective of the resident let alone that of the utility or or society. In addition, we are concerned that some unscrupulous builders might in the future seek to evade complying with the mandatory energy efficiency standards for new residents while seeking to placate purchasers by assuring them of the availability of the ZIP program and state tax credits to finance installation of retrofit weatherization measures subsequent to construction and sale. This would not only constitute a highly inefficient method of weatherization, but would be illegal and would unfairly burden utility ratepayers with costs properly borne by the real estate developer and purchaser.

To avoid the risk of such misapplication of the ZIP program and to assure that the resources of ZIP are directed to the existing housing stock where they can do the most good, we shall at this time authorize issuance of ZIP loans only for weatherization improvements to residences constructed and occupied prior to the effective date of this decision. In the Phase II hearings we intend to consider whether this restriction on eligibility for ZIP financing should be applied to the systemwide program or whether an earlier cutoff date should be imposed.

E. Issues relating to the general implementation of ZIP.

1. Should FG&E offer ZIP for certain weatherization measures without the requirement of a prior audit?

The basic structure of the home energy audits to be conducted in conjunction with the proposed ZIP program is set out in the state RCS plan. That plan entitles all residential utility customers to one full audit to be provided within 45 days of the customer's request. During the audit the utility provides the customer with an explanation of benefits and services, names of listed suppliers, installers, and lenders, an explanation of special benefits for low-income persons, information about tax credits, suggestions on selecting installers and lenders, directions for do-it-yourself installation, guidance on improving energy efficiency of existing appliances and selecting new energy-efficient ones, information on practices to conserve energy, information on grievance procedures, and an individualized assessment of potential energy savings in the customer's home.

PG&E's ZIP program can be readily integrated with the RCS audits. PG&E will inform the customer of the availability of ZIP financing and will estimate the cost effectiveness of specific measures for each customer using a computer-aided analysis.

The staff recommends that the RCS audit not be required as a prerequisite for ZIP financing. The staff agrees that an audit ideally would be a good feature of the program. However, if the program is as well received as PG&E anticipates, there could be a considerable delay between the customer's request and the time when the audit is performed. As both the insulation contractors and manufacturers testified in this proceeding, delay in making ZIP broadly available may severely affect their business and interfere with the existing market for insulation. The staff avers that removing the audit requirement should eliminate one of the important concerns of the insulation industry.

The staff suggests an alternative approach by which PG&E, as part of its post-installation inspection program, would conduct a cost-effectiveness audit of the measures the customer installs and should reimburse the customer only for those measures found to be cost-effective. This approach would place a risk on the customer inconsistent with the intentions of ZIP and will not be adopted.

Our conclusions as to the proper role for energy audits in the implementation of ZIP both in Phase I and thereafter derive from the evidence in our record as to the cost-effectiveness of the various conservation measures and the substantial administrative cost and delay associated with a universal audit requirement as a precondition for ZIP financing.

Modifications which we will make in PG&E's proposed program to accelerate the payback of ZIP loans will substantially lessen the cost of the authorized program to the utility and to all ratepayers. In view of these changes and in view of the extremely high cost-effectiveness, in most cases, of certain of the measures proposed for inclusion in ZIP, as indicated by the tables on comparative cost-effectiveness, supra, to require an on-site energy audit as a precondition of financing these measures would simply result in unnecessary administrative expense and harmful delay.

The weatherization measures shown on our record to be the most highly cost-effective are also among those for which the tax benefits of AB 2030 are available without need of an audit. We conclude that for the following carefully selected measures or combinations of measures, ZIP financing also should be available without the necessity of an audit:

- a. Ceiling insulation;
- b. When performed as a package job including all of the following measures except to the extent already installed or unnecessary in the residence:

1. Weatherstripping of all doors and windows which lead to unheated or uncooled areas (weatherstripping);
2. External water heater insulation blankets (water heater blankets);
3. Low-flow devices on all accessible showerheads (low-flow showerheads);
4. Caulking or sealing of major cracks and other openings in building exterior and sealing of wall outlets (caulking); and
5. Insulation of accessible heating and cooling system ducts which enter or leave unheated or uncooled areas (duct wrap).

- c. Ceiling insulation together with one or more of the measures included under item b.

PG&E will be authorized to provide ZIP financing for the above measures either with or without a prior audit.

The remaining measures proposed by PG&E will be financeable under ZIP only if previously found cost-effective by an energy audit. These measures are:

- a. Wall insulation;
- b. Floor insulation;
- c. Clock thermostats;
- d. Lighting conversion;
- e. Storm or thermal windows or doors for the exterior of dwellings; and
- f. Electrical or mechanical furnace ignition systems which replace gas pilot lights (intermittent ignition devices)

The measures listed above as financeable without need of an audit if installed as part of a package job will also be financeable on a stand-alone basis if found cost-effective after an audit.



In all cases an RCS audit will be required under ZIP prior to installation of those measures for which an audit is required to qualify for the tax benefits of AB 2030. In fact, the audit requirements adopted are somewhat broader than but consistent with those in AB 2030. The primary difference is the package job requirement, which assures that the contractor's travel and overhead costs, as well as PG&E's administrative expense of processing a ZIP loan, will be allocable to a substantial quantity of energy savings. In the case of duct wrap this requirement transforms a measure which is often not cost-effective if installed separately (see tables on comparative cost-effectiveness supra) into one which is highly efficient as part of a package job with ceiling insulation or other approved measures. The other measures financeable without an audit are highly cost-effective on a stand-alone basis, but several of them are of such modest cost that requiring either a package job or a prior audit is justified to protect the utility (and ratepayers) from having to incur the administrative costs of financing a multitude of incomplete weatherization jobs.

2. What priorities, if any, should be adopted for making energy audits?

Staff witness Amaroli identified seven different categories of customers who he believed should be assigned priority in receiving audits:

- a. Customers with higher than normal heating bills.
- b. Customers indicating a problem in paying their winter heating bills.
- c. Landlords owning rental properties with more than four units, who indicate an interest in weatherizing their rental properties.
- d. Customers who reside in single, duplex, triplex or fourplex rental dwelling units and who indicate that the landlord has agreed to proceed with cost-effective weatherization plans to be financed through ZIP.

- e. Customers who are about to sell their dwellings and are required by local ordinance to retrofit their residences to meet local codes prior to close of escrow.
- f. Customers who would normally be assisted by a Community Action Agency which cannot schedule a prompt audit itself.
- g. Electric heating customers, due to the greater potential for energy saving through weatherization of electrically heated versus gas heated homes.

On cross-examination witness Amaroli stated that he envisioned that the above priorities would only be assigned on a daily basis as audit requests were received. A customer qualifying for priority would not take precedence over another customer whose audit request was already pending.

The state RCS plan itself provides as follows:

"A utility may not discriminate among eligible customers in providing the program audit except that the utility may sequence audit appointments based on customer usage, geographic location, to take advantage of plans for rehabilitation of housing or redevelopment, or any other reasonable and nondiscriminatory condition subject to approval by the CEC."

In its brief, PG&E states that it does not oppose the establishment of reasonable categories of customers to receive priority in the scheduling of audits. However, it urges that any system of priorities should not be unduly cumbersome to administer especially during Phase I. PG&E asks to be permitted to experiment with means of assigning priorities among audit requests during Phase I and to report its results to the Commission staff and to the CEC for certification of compliance with the state plan.

The Commission will permit PG&E to experiment in assigning energy audit priorities. The Commission requires that in the course of such experimentation PG&E assign a substantial number of auditors to special categories of customers such as those of low-income, the elderly, and minorities, as well as to rental property. We emphasize the importance of achieving substantial penetration of the low-income weatherization market as among the primary goals of the ZIP program. PG&E should be prepared to train or hire audit personnel with the social skills needed to achieve this goal. Such specially assigned auditors should not be assigned to general category audits so long as there is an active list of special category audits awaiting completion. PG&E will be required to report to the Commission and the CEC the results of this experimentation and to obtain the necessary approval for any permanent audit program priorities.

3. Should non-PG&E employees be permitted to conduct energy audits?

PG&E witness Callaway testified that in addition to using PG&E employees to conduct audits, PG&E contemplates contracting with outside organizations to handle peak loads and making use of auditors of agencies and organizations which already have conservation programs, thereby reducing the number of employees PG&E will have to hire. Additionally, PG&E plans to use personnel from community action agencies on a contract basis to promote participation in the conservation financing program within certain low-income areas. PG&E requests that it be authorized to utilize contract auditors whenever it is reasonable and prudent to do so, and to recover the costs associated with such contract audits. However, the customer would have the right to select a PG&E auditor if the customer prefers to do so.

The staff also recommended that PG&E be permitted to hire outside agencies and contractors to assist in reducing any backlog of audit requests which might develop. Staff witness Amaroli recommended that the following procedures be adopted to minimize the cost of contract audits:

- a. PG&E should reimburse the actual costs of established community action agency personnel for auditing customers who do not qualify under poverty guidelines for weatherization assistance, provided that the community action agency certifies that the audit meets the state RCS plan requirements.
- b. PG&E should be allowed to contract with any contractor who by competitive bid provides certified contract auditors to reduce its audit backlog to less than a 45 day waiting period and who certifies that all audits performed meet the state plan requirements.
- c. When audits are performed by others, PG&E should reimburse the actual audit costs consisting of labor including fringe benefits, transportation or vehicle expense, data processing time and overtime expenses computed on a per audit basis. When outside contractors are used, their bids should be solicited on a per audit basis with a guarantee of a minimum number of audits to be performed.
- d. Prior to payment for any audit work performed, PG&E should require that it be provided with a legible copy of each completed audit form. PG&E should require the agency or contractor to certify that each audited customer received a similar copy of the audit form. PG&E should reserve the right to make spot inspections of audits performed to ensure that work is being accomplished in accordance with the state plan.

We shall authorize PG&E to use contract auditors pursuant to the above procedures.

4. How should contractors be selected and amounts to be financed under ZIP be determined?

Exhibit 16 shows that PG&E proposes to finance up to the lower of its avoided marginal cost or the estimated installed cost (EIC) for putting a specific measure into the customer's home. If the bid to perform the job by the contractor the customer selects is less than the EIC as well as the marginal costs, then PG&E proposes to finance only the bid cost.

When the bid cost is higher than the EIC but both are below avoided marginal cost, ordinarily PG&E proposes to finance only at the EIC level. However, to insure that neither the customer nor the contractors are placed at a disadvantage where the EIC, developed from average pricing information collected by the CEC, may not reflect peculiarities of a certain job (for example, a remote location or unusual architecture of a house which would make installation of conservation measures more costly), PG&E proposes to establish a local review and appeal procedure so that financing up to actual bid cost may be approved if the circumstances so warrant. In no event, however, would financing ever be offered above PG&E's estimated avoided marginal cost.

PG&E points out that if the utility merely were to offer financing up to its avoided marginal cost without any other criteria, contractors would be tempted to adjust their pricing upwards, seeking the limit. This would impair free market forces and impose a cost penalty on both the individual participant and on other ratepayers.

PG&E's experience with extreme price escalation in connection with its 8 percent ceiling insulation finance program led it to propose a requirement that participating contractors provide pricing information. PG&E contends that some checks and balances must accompany the massive infusion of capital into the insulation retrofit market which this financing program will

induce. PG&E proposes to avoid adverse impacts on contractors and suppliers by giving the participant freedom to select the contractor and materials of his or her choice and by not insisting that the utility finance only low bids.

The witnesses on behalf of Mineral Insulation Manufacturers Association (MIMA) voiced opposition to PG&E's proposal based on experience with PP&L's zero interest program in Oregon. They testified that under the Oregon plan the utility rather than the customer selected the contractors and only the low bid could be financed. The witnesses asserted that this has led to domination of the market by one type of insulation product at the expense of another (i.e., cellulose rather than mineral wool or fiberglass) and has resulted in customer dissatisfaction due to less qualified contractors being selected to perform the work. They claimed that many contractors refused to participate in the utility's program because of these features.

PG&E contends that its proposed financing program will not encounter the problems raised by MIMA. Under PG&E's proposal the customer is free to choose whichever installation product he or she prefers and to install the product on a do-it-yourself basis or select any listed contractor to do the work. Should the customer prefer a more expensive insulation product or select a more expensive contractor, the customer may stick to his or her choice even if to do so would result in a total cost exceeding the amount the utility would finance. In that case, the customer merely would pay from his or her own funds the difference between the amount PG&E would finance and the total cost of the job.

PG&E submits that its methodology will strike a fair balance between protecting its customers as potential recipients of conservation measures and its other ratepayers, while at the same time offering a fair opportunity for contractors and suppliers to compete in the market place and enjoy the benefit of increased business induced by PG&E financing. PG&E urges the Commission to reject the staff recommendation that PG&E should finance only up to a limit of ten percent above the low bid because this proposal would be difficult to implement and does not avoid the problems encountered in Oregon.

PG&E does not propose to limit the amount to be financed on any one residence. PG&E witness Callaway testified that the average amount expected to be financed per residence under ZIP is approximately \$1,500 and that if all available measures were found to be cost-effective the total amount to be financed would be between \$3,000 and \$4,000.

Staff witness Cavagnaro recommended that a financing limit of \$3,000 for single-family homes and \$2,000 per unit for multi-family dwellings be imposed. PG&E opposes such limits as they could operate to the disadvantage of poorer customers whose homes may require the largest number of conservation measures because of the quality of their construction. PG&E also points out that a customer ultimately imposes his own financial limit as he must repay the principal.

Staff witness Amaroli recommends that until the master list of contractors under the state RCS plan is available, PG&E continue to use its present method of listing and delisting contractors and maintain a list of contractors/installers who meet PG&E's materials and workmanship standards. He recommends that when the master list under the state RCS plan is issued, PG&E use that list which it may subdivide in accordance with the provisions of the state plan.

For the protection of both PG&E and its customers, witness Amaroli recommends that PG&E undertake the following actions to ensure that only quality materials and workmanship are used and that the measures are installed at a fair price:

- a. Provide its customers, during the audit, with the names of three contractors selected in random or sequential uniform rotation for each measure found to be cost-effective during the audit.
- b. Allow its customers the choice of the following insulation materials:
  - (1) Rockwool.
  - (2) Cellulose.
  - (3) Fiberglass.
- c. Allow its customers, in the case of double glazing, the choice of windows up to the medium grade, without being directed or restricted to the most inexpensive track grade sash.
- d. Having been given this information the customer should be advised to seek three bids for installation of the desired measures. All bids should be broken down for each measure to be no higher than 10 percent above the low bid. The customer might accept any bid but must directly assume any costs more than 10 percent over the lowest bid.
- e. Until the "Master List" is issued, PG&E should finance up to the average price determined for each county area.
- f. PG&E should adhere to the State Plan for providing input comments on the listing or delisting of contractors/installers.



The Commission has previously determined that PG&E may finance certain weatherization measures which may be installed without a prior energy audit and certain other measures which may be installed after an audit. Contractors from whom bids are solicited must be drawn from the state RCS list if one is available, but if not, they will simply have to be licensed, bonded contractors. Consistent with the state RCS plan, PG&E will be required upon request to provide any participant with a list of eligible contractors and to make average cost information for the local area available to the participant. As ZIP becomes operational, such average cost information will be obtainable from the contracts which are furnished to PG&E in connection with applications for ZIP financing.

A ceiling on ZIP financing will be the lower of two bids or one of the two lower of three bids obtained by participants for work to be financed. We believe this ceiling avoids the risk or suspicion of excessive utility domination feared by certain contractors in regard to PG&E's proposed EIC ceiling, while yet providing adequate control over escalation of contractors' bids. The participant will be free to select a higher bid, but financing will be available only up to the ceiling. A further ceiling will be created by permitting PG&E to provide ZIP financing for a particular weatherization measure only up to the utility's marginal cost, as is consistent with the adopted societal cost-effectiveness test.

A third ceiling on the amount of ZIP financing will be a limit of \$3,500 for each single-family home or multi-family unit. This is essentially an adoption of the staff recommendation, adjusted in recognition of the substantial price inflation which has occurred since our record was closed. The reason for this ceiling is not a concern over cost-effectiveness, which is assured by the other ceiling referenced to the utility's avoided marginal cost, but rather a concern that the benefits of participation in ZIP be equitably

distributed. Thus, there is no justification for a lower dollar ceiling for multi-family dwellings. PG&E will be permitted to adjust this ceiling to reflect increasing average costs for measures financeable under ZIP, and will be expected to propose such adjustments as part of its annual offset application, as discussed below. If appropriate, PG&E may propose such an adjustment in its filings for the Phase II hearings, as well.

Each participant will be entitled to receive one ZIP loan without an audit as well as a subsequent ZIP loan pursuant to an audit with respect to any particular building. Customers who have participated in PG&E's eight percent loan program for attic insulation will be entitled, in addition, to have such loans converted prospectively to ZIP financing when ZIP becomes available in their service district. Repeated participation beyond these limits will not be authorized out of concern for the high administrative cost associated with piecemeal financing. The total amount financed by PG&E for a particular dwelling unit may not exceed the \$3,500 ceiling, even if spread over more than one loan.

In accordance with the staff recommendation customers must have the choice of the following insulation materials:

- a. Rockwool.
- b. Cellulose.
- c. Fiberglass.

In the case of double glazing, PG&E shall allow participants to select better grades of windows and sash up to the utility's limit of cost-effectiveness calculated for the particular installation.

5. What repayment terms for loans should be adopted?

PG&E has proposed that the participant's only financial obligation will be to repay the ZIP loan principal upon transfer of the residence. In addition to agreeing to repay the principal

the participant will be required to notify PG&E in advance of any sale or transfer of the dwelling. PG&E can record the agreement in the county where the property is located, attaching a lien in favor of PG&E.

PG&E believes that its proposed method of repayment will provide its customers with a strong incentive to install conservation devices and will overcome the reluctance of customers to expend large amounts currently for energy saving devices which offer only deferred benefits through avoided energy costs in future years.

PG&E has proposed to offer the option of monthly repayment of the principal amount financed to any potential participants who may be reluctant to have liens attached to their properties.

The staff points out that in Decision No. 91497 issued April 2, 1980 in Application No. 59309 the Commission adopted the staff's recommendations for limiting repayment of loans offered through the Pacific Power & Light Company (PP&L) weatherization program. The staff recommends that the Commission adopt these same repayment provisions for the ZIP program. These provisions include the following:

- a. If the weatherized dwelling has not been sold within ten years after completion of the weatherization improvements, the participant shall begin repayment of the principal of the loan in fixed monthly installments which shall continue until the loan has been repaid.
- b. The monthly repayment installments are to amount to 1 percent of the principal, rounded to the nearest \$5 but not less than \$5.
- c. Transfers between close relatives will not trigger immediate repayment of the principal.

but such exempt transfers remain subject to repayment ten years after completion of the weatherization improvements as provided in a. and b. above. The term "close relatives" includes husband, wife, father, mother, grandfather, grandmother, son, daughter, brother or sister, including relationships brought on by adoption or marriage, such as daughter-in-law, mother-in-law, stepdaughter, stepmother, etc.

The staff contends that requiring repayment to begin after ten years would not materially affect the strong incentive provided by the ZIP loan. The staff points out that monthly installment payments should not deter participants because the installment payments will undoubtedly be less than the savings on the customer's utility bills which will result from the weatherization measures financed under the ZIP program. The staff also points out that the provision exempting transfers between close relatives is designed to prevent hardships when title is transferred in situations such as divorce, death of a spouse, or family gifts.

The foregoing proposals do not take into consideration the tax benefits provided by the passage in September 1980, after the closing of our hearing record, of AB 2030, discussed above. These tax benefits create an independent inducement for weatherization improvements, warranting revision of the scale of incentives to be provided through ZIP.

In view of the high level of cost-effectiveness to the participant of the conservation measures proposed for ZIP, it is important that the incentives provided by the utility and all its ratepayers not be unnecessarily generous. In the typical case of a single-family, owner-occupied home, a fully adequate incentive should be provided if the participant is substantially assured of having lower out-of-pocket costs at any point in time than would have been the case had he or she not taken advantage of the program. The zero-interest feature of PG&E's application remains essential for offering an attractive inducement for conservation improvements,

but the repayment terms can be accelerated substantially while maintaining an assurance that in the large majority of cases a participant's expenditures for the installation will virtually never exceed achieved savings on the cost of utility bills.

An earlier repayment schedule can meet the above-described criterion while yet very substantially reducing the cost of the ZIP program to PG&E and so to all its ratepayers. Repayment earlier than the time of sale offers other advantages as well. It will give the participant a more immediate incentive to control the cost and quality of weatherization improvements more carefully, whether by doing the work himself or more closely observing the work of a contractor.

Our adopted program will revise the repayment requirements for ZIP loans in the following manner. Transfers will trigger full repayment of ZIP loans, except that full repayment will not become due in the event of an exempt transfer and the assumption in writing by the transferee of all obligations of the transferor regarding the ZIP loan. An exempt transfer will be defined as recommended by the staff. In the case of such an exempt transfer or if the property has not been transferred, repayment of the ZIP loan shall commence on June 30 of the calendar year following the calendar year in which the weatherization improvements paid for by issuance of the ZIP loan were installed. As defined in AB 2030, "installed" shall mean "placed in position in a functionably operative state". Participants (other than a specific class of low-income homeowners and rental owners and occupants discussed below) who have financed through the PG&E ZIP plan shall have the option of (1) repaying 40 percent of the ZIP loan at that time and repaying the balance in equal monthly installments over a period of 100 months or (2) repaying the full principal in equal monthly installments over a period of 50 months. This level of incentives will assure that a large majority of participants will never incur expense for ZIP weatherization measures exceeding what they have already saved through tax credits and lowered heating bills.

As previously discussed, owners of rental property, whether single- or multi-family, where the utility service for space heating is individually metered and the utility bills for space heating are paid by the tenant or tenants, have little economic incentive to weatherize their property. In order to provide an additional incentive to install weatherization measures in rental units, more liberal repayment terms will be authorized. Repayment of the principal of such ZIP loans will be required in equal monthly installments over a period of 100 months to commence on June 30 of the calendar year following the calendar year in which the weatherization measures paid for by issuance of a ZIP loan were installed. The same terms will be available to low-income homeowners, as previously defined.

In all cases the monthly repayment installments shall be rounded to the nearest dollar and shall be not less than \$5.

We are concerned with the administrative burden involved in the placement and enforcement of liens to secure ZIP loans, and with the strong possibility that many potential participants will elect not to do so simply from reluctance to accept what appears to be a cloud on the title of their property. Both these problems appear to be most significant in the case of relatively small loans. Furthermore, the early initiation of repayment obviates some of our concern about difficulties in collection upon transfer of the property.

We will authorize procedures with respect to the filing of liens in accord with our decision today by which we are revising some terms of PP&L's ZIP program. PP&L's experience had led them and us to the conclusion that the recordation of a lien makes sense only in the case of relatively large loans. As in the PP&L case, we will authorize and expect PG&E to record a lien in cases of loans of \$1,500 or more for purposes of Phase I. With respect to loans of a lesser amount, PG&E should explore other, less burdensome means of protecting its interests in the event of a nonexempt transfer of ownership. One issue for the Phase II hearings will be the extent to which liens should be required as part of a system-wide program.

6. What warranties should be provided to participants?

Under the state RCS plan approved by DOE conservation measures supplied or installed under RCS must be protected by a warranty, offered by either the manufacturer or the contractor or both, which will cover defects in materials and workmanship for three years. In addition, the contractor is required to provide warranty for parts and labor covering defects in installation for one year.

The Energy Security Act of 1980 (ESA) amended the National Energy Conservation Policy Act of 1978 (NECPA) to delete the requirement of a three-year manufacturer's warranty and replace it with a one-year warranty period. There is nothing, however, to prevent the CEC or this Commission from adopting warranty standards for suppliers and contractors stricter than the minimums set forth in NECPA as amended.

Staff witness Amaroli recommended that for maximum consumer protection and some assurance that measures will prove cost-effective all work performed should include a three-year repair or replacement warranty to be implemented as follows:

- (a) Warranties for Materials and Devices - Only materials and devices possessing a manufacturer's three-year free repair or replacement warranty should be financed under PG&E's ZIP. This recommendation is consistent with the state RCS plan.
- (b) Original Contractor Warranty Responsibility - The contractor should provide one year free labor for repair or replacement of any materials or devices. This recommendation is consistent with the state plan.
- (c) PG&E Extended Labor Warranty - PG&E should provide an extended (two year) labor warranty at no cost to the customer for repair or replacement of any materials or devices by agreeing to pay the net out-of-pocket labor and transportation costs to the

original installation contractor during the second and third year of the warranty service. PG&E should contract for such warranty maintenance to be performed at lowest bid by other contractors seeking that type of work on a continuing basis in cases where the original installation contractor refuses to provide this extended warranty labor at cost to PG&E.

This warranty extension exceeds the requirements of the state plan. It is likely to impose an added cost of up to \$25 per weatherization job for PG&E. It is considered essential to assure PG&E's customers that the weatherization measures will have a long useful service life. This is especially important for equipment and measures which are only used during the winter heating or summer cooling seasons.

We are not persuaded that the staff's proposal for a utility backed extended labor warranty is advisable. A primary purpose of requiring warranties is to encourage the contractor to do the job right the first time. A utility backstop will not provide such inducement. Moreover, we believe there is much to be gained by adopting warranty requirements for ZIP which match those in the state RCS plan. We shall do so. However, we expect our staff and PG&E to continually monitor the performance of installed equipment to determine whether customers are incurring unreasonable repair costs due to the reduced labor warranty provisions. If such proves true, we will reconsider our position.

7. What inspection should be made by PG&E?

Staff witness Amaroli recommended that PG&E promptly inspect all weatherization work performed and financed under ZIP. He further recommended as to weatherization jobs financed by others than PG&E that PG&E should adhere to the state RCS plan requirements for inspection of such work and in any event upon customer request PG&E should make inspections of such work.



The staff witness testified that the additional cost for 100 percent inspection of weatherization jobs would be \$7 for each job, a small amount compared to the \$1,500 to \$3,000 amount which PG&E may be financing. It is also a small price to pay to assure high quality of materials and work which will result in reliable energy savings to the participant as well as to other PG&E ratepayers.

On the other hand, experience with the ZIP program may indicate that 100 percent inspection is not worthwhile with respect to the work of contractors working on a large scale. In that event PG&E is invited to propose a change to a sampling method of inspection of the performance of contractors responsible for large volumes of ZIP weatherization jobs.

The staff recommendations with respect to inspections will be adopted by the Commission.

8. Should ZIP conform to the state RCS plan as approved by the DOE?

PG&E's witness Mertz testified PG&E's ZIP program enhances RCS and will make the expenditures necessary to carry out the RCS program more cost-effective. PG&E intends to take full advantage of the features of the state RCS plan in accomplishing its conservation objectives in the ZIP program.

PG&E requests that this Commission note that many of the points of controversy which arose during the hearings on the ZIP program concerned RCS procedures and their legality. PG&E contends that, since the CEC has arrived at a final state RCS plan (which has now been approved by DOE), it would not be proper for this Commission to pass independent judgment on the legality of the contents of that RCS plan.

The RCS plan was developed by a state agency pursuant to federal requirements. The PG&E ZIP plan should conform to mandatory features of the state RCS plan as approved by DOE.

9. Should the ZIP plan contain a sunset provision?

The ZIP program being authorized for PG&E is closely integrated with AB 2030, the state act which provides tax benefits to taxpayers who install energy conservation measures in their homes. AB 2030 contains various sunset dates. As previously pointed out, energy conservation measures in the generic categories of subsections a through f of AB 2030 installed in multi-family dwelling units shall be ineligible as energy conservation measures in the computation of taxes for taxable years and income years which begin after December 31, 1985, and energy conservation measures in the generic categories of subsections g and h are slated to become ineligible as energy conservation measures in the computation of taxes for taxable years and income years which begin after December 31, 1983. Section 7 of AB 2030 provides a general sunset date of December 31, 1986 for other energy conservation measures.

In order to give adequate time for implementation of the ZIP program, while creating an incentive for early public participation, the Commission will set December 31, 1986 as the sunset date, so that no new ZIP financing may be entered into after that date for the weatherization measures included in the present ZIP program.

F. Issues Relating to Competition.

1. Background.

The recently enacted ESA has important implications affecting any conservation financing program to be undertaken by California utilities. The ESA removed previous prohibitions and limitations on utility financing programs which were contained in Section 216 of NECPA. States are now free to establish such programs without DOE approval. However, DOE is empowered to terminate any utility financing program upon determining that: (1) the program utilizes unreasonable rates or unreasonable terms and conditions, or (2) the program has a substantially adverse effect upon competition or

involves the use of unfair, deceptive or anticompetitive acts or practices. Such a determination must be preceded by notice and public hearings as well as consultation with the Federal Trade Commission. The limits of DOE's oversight role are in keeping with this Commission's determination to permit only programs which will preserve competition and will be founded on fair business practices.

The ESA also created a Solar Energy and Energy Conservation Bank. The Bank, which will operate until September 30, 1987, is empowered to disburse several hundred million dollars in financial incentives to purchasers of energy conservation measures in the years 1981 through 1983. Bank funds can be applied directly to utility financing programs. However, Congress has expressly limited the utilities to 10 percent of the funds to be dispersed, spread across the nation in a representative manner, a limitation which the Bank may at its discretion raise to 20 percent. Bank funds are available to encourage single-family and multi-family residential, small commercial and agricultural installations. A complex set of statutory requirements substantially limits the amount of funds which can be disseminated to benefit a given building owner or resident, based upon the cost of the improvement and the income of the recipient. The federal tax credit cannot be received by those receiving the benefits of Bank subsidies. The funds can be dispersed in two different ways:

1. Reductions of loan principal for loans to owners of existing buildings for the purchase and installation of solar energy systems, to builders of new homes for solar energy systems, and to purchasers of new homes which have solar energy systems.
2. Prepayments of interest otherwise due for the same types of loans.

There are many uncertainties as to what type of program will finally be offered by the Bank and when the benefits will begin to flow. However, the paths which are available for the Bank to follow appear consistent with the ZIP program. There

may well be ways to utilize Bank funds to increase purchase incentives and to lower program costs. When Bank funds become available, the staff should prepare a report to the Commission, advising us of potential impacts on the costs and attractiveness of the utility program resulting from the use of those funds, and suggesting any ways in which the ZIP program might be revised to eliminate unnecessary expenses and better achieve its goals.

In Northern California Power Agency v. Public Utilities Commission (1971) 5 Cal 3d 370, the California Supreme Court held that, in establishing a new program, this Commission "must place the important public policy in favor of free competition in the scale along with the other rights and interests of the general public". The Court stated that while the Commission is not necessarily bound by the limits of state and federal antitrust law, it must determine that any marketplace disturbance which might result from a new program is in the public interest.

In the leading federal case on competition issues affecting utility regulation, Cantor v. Detroit Edison Co. (1976) 428 US 579, the United States Supreme Court limited the scope of the traditional "state action" exemption from the prohibitions of the antitrust laws. In that decision the Court held that the free distribution of light bulbs by a regulated public utility was not exempt from the Sherman Act merely because it was sanctioned by a state regulatory agency. There the state action consisted of the state regulatory body simply approving a light bulb distribution program conceived, organized, and submitted by the utility without any prior regulatory involvement, without active, ongoing regulatory supervision and with no finding of an important state interest to justify the effect upon competition.

In contrast to the Detroit Edison situation, California has a clear, legislatively sanctioned, and economically justified state policy to encourage utilities to engage in conservation financing with vigor and imagination. This Commission has repeatedly declared its concern that PG&E and the state's other

energy utilities must diligently pursue cost-effective energy conservation programs, including conservation financing. The ZIP proposal in particular has been extensively examined in this proceeding and we have substantially modified the original PG&E proposal, partly to assure implementation of Commission policies relevant to energy conservation and also partly in response to concern about impacts on competition.

Section 2789 of the Public Utilities Code indicates strong legislative policy with the same direction. Federal policy, as indicated by the ESA and NECPA provisions discussed above also clearly supports and even mandates extensive promotion of energy conservation by utilities.

The United States Supreme Court also addressed the issue of state action exemption in Bates v. State Bar of Arizona (1977) 433 US 350. In that case the Court held that a rule of the Arizona Supreme Court restricting advertising by attorneys was permissible in that the anticompetitive activity: (1) was compelled by the state acting as a sovereign, (2) reflected a clear articulation of a state policy, and (3) was subject to close supervision and pointed reexamination by the state policymaker. Although the Court held the Arizona ban on attorney advertising exempt from the antitrust laws, the Arizona rule was nevertheless invalidated on First Amendment grounds.

When the California Supreme Court struck down the California fair trade retail price scheme for liquor sales in Rice v. Alcoholic Beverage Control Appeals Board (1978) 21 Cal 3d 431, the Court placed special emphasis on the fact that although the price fixing was authorized by state law, the state played no role in effectuating the statute. By contrast, the state has played a very significant role in developing the ZIP program. Pursuant to our obligation under Northern California Power, our review of PG&E's ZIP application has included thorough evaluation of the significance of possible anticompetitive effects and our adopted program will seek to minimize such impacts.

Parties to this proceeding have suggested several markets in which competition may be affected by the ZIP program. Some manufacturers have suggested that the market for certain types of insulation could be restricted by the program as proposed. Several contractors have expressed concern that the market for installation of conservation measures could be restrained by the program as proposed. TURN has suggested that the market for energy conservation loans could be disrupted by the program as proposed. In each area, we will attempt to define the relevant market, determine the effect of our action on competition, and determine the reasonableness of any restraints on competition which are discovered.

**2. Is ZIP anticompetitive in relation to manufacturers, sellers, and installers of energy conservation measures?**

In California there are many manufacturers and thousands of installers of energy conservation measures. Firms may vary as to whether they offer a single type of product such as insulation or a full-range of energy conservation services. These firms are very competitive and each year many new competing firms are introduced while many others are eliminated.

If the ZIP program succeeds in reaching the stated market penetration goals, the rate of sales and installations during the period of the program would be several times greater than the rate currently experienced by the industry. Industry representatives have expressed confidence that the industry can meet any such accelerated demand. Accelerated demand, if the program is successful, will create well over \$2 billion in new business for these manufacturers and installers, just in PG&E's service area. Any discussion of the potential anti-competitive impact of the proposed program should thus be considered against this background of a dramatically expanded market for existing and prospective manufacturers and installers of energy conservation measures.

In addition, we note that there is an overriding state and national interest in promoting energy conservation measures. Since 1975 this Commission has evaluated the performance of utilities on the basis of the vigor, imagination, and effectiveness of their conservation programs. Official statements of President Carter and Governor Brown, findings of the Congress and the California Legislature, and previous findings of this Commission have concluded that conservation of energy will reduce dependence on foreign oil, increase national security, improve the national balance of payments, reduce pollution, increase jobs in the domestic energy sector, augment energy supplies, and reduce inflationary pressures.

It is the opinion of this Commission that restriction of competition could be justified on the basis of this overriding state and national policy alone if such constraints were necessary. However, this Commission has gone to great lengths to avoid restricting competition. The record in this proceeding suggests several ways in which an improperly designed program could adversely affect competition, but the adopted ZIP program responds to these concerns and minimizes such effects. Those elements of the ZIP program which may entail some restriction of totally free competition are absolutely necessary to protect the integrity of the program and are de minimis when compared to the tremendous stimulation of the market likely to result from this order.

Arbitrary exclusion of certain contractors and installers from the program would unreasonably restrict consumer choice. It is self-evident that anyone capable of selling and competently installing eligible conservation measures should be allowed to take advantage of the incentives being offered through this program. Lists of installers and contractors are to be created and maintained for use by each utility under the direction of the Energy Commission in compliance with the state RCS plan as mandated by



federal law and approved by the federal DOE. Any installer or contractor on those lists should be eligible to participate in this program. Names will be removed from these lists only when a history of uncorrected complaints develops and in compliance with procedures established by the CEC to assure due process of law. These procedures will not unreasonably restrict the consumer's ability to choose a contractor for ZIP-financed installations, and will not unreasonably restrict the ability of contractors to compete. We incorporate such procedures in the ZIP program.

Concern was also raised that utilities might be given the authority to select the contractor on behalf of the consumer. No such authority, either expressed or implied, is granted under this decision. Nor will PG&E be permitted to influence the selection of a contractor. The program adopted herein gives the customer nearly unfettered discretion in selecting a contractor.

Of course, many sellers of energy conservation measures are not contractors. The retail market, which serves do-it-yourself installers, fills a substantial part of the supply requirements for energy conservation measures. We have already discussed the importance this Commission attaches to the do-it-yourself market. By requiring PG&E to establish special procedures to give do-it-yourself installers convenient access to ZIP financing, we are convinced that ZIP will stimulate rather than constrain the retail market for energy conservation measures.

Rules which arbitrarily limit eligible types of energy conservation measures would restrict consumer choice and serve to favor some businesses over others. It is reasonable, however, to establish rules for program eligibility which assure the use of cost-effective measures and reliable materials. Those measures which will be eligible for financing in ZIP have been shown cost-effective on our record. Other measures can be included later upon a showing of cost-effectiveness.

For several of the measures eligible for financing there are competing types of products. PG&E will not control the choice of materials. For example, in the insulation market manufacturers and sellers of rock wool, cellulose, and fiberglass compete vigorously. MIMA has expressed concern that the market for rock wool and fiberglass would be constrained either by a requirement that only a low bid could be financed or by constriction of the do-it-yourself market. This decision includes specific provisions to stimulate rather than constrict the do-it-yourself market. In addition, PG&E will be permitted to finance either of the two lowest bids when a customer obtains three bids, and the customer will expressly be permitted to choose the insulation material of his or her choice. These steps should substantially mitigate the concern of MIMA that ZIP would provide an unfair advantage to manufacturers and sellers of cellulose insulation products.

Price regulation would interfere with some elements of competition. A large-scale program with strict system price limits could have the effect of price regulation. Yet there is need to protect utility ratepayers from subsidizing unreasonably high loan amounts where direct utility loans are used. Rapid stimulation of a market through information and incentive programs can cause unjustified price escalation absent countervailing measures. The disclosure of average price information by PG&E is an important means of consumer information, and should be coordinated with information derived through the state RCS plan. The bidding procedure we will require is the bare minimum necessary to assure the cost-effectiveness of the ZIP program. By permitting financing up to the lower of two or one of the two lower of three bids, we have allowed flexibility for the customer to make a decision not unlike that which is typically made for other large purchases. These financing limits, moreover, do not prevent the customer from choosing a more expensive contractor and financing the difference without assistance from the ZIP program.

MIMA, TURN, and several contractors criticized PG&E's ZIP proposal as anticompetitive for reasons related to the issues discussed above. PG&E in its brief pointed out that many of the criticized features of the ZIP program are mandated and governed by the state RCS plan, including listing and delisting of contractors, random selection of contractor names for referral to customers, dissemination of average price information, standards for insulation materials, standards for installers, and procedures for post-installation inspection. That plan in turn carries out federal law as set forth in NECPA and the DOE rules and has been specifically approved by DOE.

Through this Commission and the CEC the State of California will provide close supervision and continuing examination of the ZIP program and specifically of its potential anticompetitive effects. This supervision will be conducted in the open light of public hearings. Actions taken pursuant to the ZIP program will not be anticompetitive. Even assuming some anticompetitive effect, the program we authorize and require will not violate the antitrust laws, based upon our continuing scrutiny of the ZIP program's effects on competition both now and in the future, in addition to the parallel scrutiny to be provided by DOE pursuant to NECPA. The antitrust laws do not prevent this Commission from authorizing PG&E to engage in a residential weatherization ZIP program to make conservation measures available to a broad spectrum of PG&E's customers in furtherance of the compelling national and state goals of achieving significant energy savings.

3. Is ZIP anticompetitive in relation to lenders?

TURN contends that ZIP will have anticompetitive impacts in the home insulation lending market. TURN argues that weatherization loans are presently available from banks, savings and loan associations, credit unions, and other financial institutions.

TURN contends that under the ZIP program PG&E will preempt the entire market for home weatherization lending by offering financing to residential owners at rates which are not merely below the prevailing market but are totally without interest.

We note evidence in OII-42 to the effect that home improvement loans for less than \$2,000 are of little interest to conventional lending institutions due to lack of profitability. Since most loans for ZIP improvements will be for less than \$2,000, we have reason to believe there may be a vacuum in the lending market for loans to finance ZIP devices. Since PG&E will raise funds for ZIP through bidding, ZIP may actually create a new market for "bulk" home improvement loans where individual loans would have been unprofitable for lending institutions.

TURN explains the lack of participation by financial institutions such as banks and savings and loan associations in these proceedings on the grounds that PG&E proposes to pursue a "California first policy" in securing capital for its financing subsidiary by borrowing from local banks and savings and loan associations before looking elsewhere for capital. TURN goes so far as to contend that PG&E may have bought off the local banks and savings and loan associations and cut them in on the deal by promising to borrow from those institutions at inflated rates.

PG&E's "California first policy" has been officially endorsed by federal law enacted subsequent to the filing of this application which reads as follows:

"... (W)henever any public utility undertakes to finance its lending program for residential energy conservation measures through financial institutions, the utility shall (to the extent such utility determines feasible, consistent with good business practice, and not disadvantageous to its customers) seek funds for such financing from financial institutions located throughout the area covered by the lending program...." (ESA, § 546(b).)

We find that PG&E's "California first policy" is proper, and sanctioned by law, and that TURN's allegations of collusion are without merit. Further, neither TURN nor any other party has presented evidence of particulars in which PG&E's financing program could be construed as anticompetitive in the lending market. Nor has any party offered evidence of an active lending market for ZIP conservation measures which would be disrupted by PG&E's program.

TURN refers to the case of Cantor v. Detroit Edison Co., supra, as authority for the principle that ratepayer-financed giveaways violate the antitrust laws. As previously pointed out, however, the facts of the Cantor case are distinguishable from those of this proceeding because of the presence here of clear and compelling state and federal policies and because the ZIP program will be subject to close supervision and continuing examination by the Commission. Moreover, the ZIP program will not be a "giveaway", but rather a sharing between utility and participants of the costs of conservation improvements beneficial to both.

We conclude that the ZIP program does not violate antitrust laws by reason of being anticompetitive in the lending market. This Commission will exercise continuing jurisdiction over the ZIP program. Should financial institutions or any other party offer evidence of violation of the antitrust laws with respect to the financing aspects of ZIP during the course of further hearings in this proceeding, such evidence will receive full and careful consideration by the Commission.

F. Issues relating to financing.

1. Should project financing of ZIP be approved?

PG&E has proposed that the ZIP program be financed using the project financing concept. PG&E financial witness Doudiet defined project financing in his testimony as follows:

"Project financing is a form of financing in which lenders lend money for a specific project or program rather than for the overall operation of the corporation. Amounts lent are primarily secured by the flow of funds from the specific project rather than by the overall credit of the corporation." (Tr. Vol. 15, p. 1876.)

Doudiet testified that project financing is superior to conventional utility financing because a higher debt ratio will result in a lower overall cost of capital. In addition, since the loans for the project are to be made directly to the subsidiary, PESC, they will be off the balance sheet of PG&E and consequently will not impinge on the credit of the parent.

PG&E contends that by relying on the security of the proposed Conservation Financing Adjustment (CFA) with an associated balancing account, and by employing the leverage of lower cost debt and the tax deductibility of interest, project financing should minimize the cost of capital and income taxes.

PG&E points out that investments in the ZIP program can be project-financed because of the rate recovery mechanism provided by the CFA, and because the security provided by the liens assures repayment of principal upon the sale of residences. The stronger the Commission's decision in favor of the CFA, assuring that PG&E's full cost will be recovered, the greater will be PG&E's ability to lever and thereby lower the cost of capital.

PG&E further points out that the project financing approach will give the Commission a great deal of control over the ZIP program and other conservation programs. The Commission will have the opportunity to approve the expenditures for conservation programs on a case-by-case basis and to review the progress of the approved programs periodically.

Since the capital expenditures to be made under the ZIP program will be in the nature of home improvements, traditional suppliers of home improvement loan capital can be utilized as the source of capital for financing ZIP loans. Project financing will thus create a source of capital from local banks and savings and loan associations not ordinarily used to finance traditional utility plant. Consequently the ZIP program is not expected to impinge upon the traditional sources of PG&E's capital and PG&E's ability to finance other facilities required to supply its ratepayers' energy needs.

Poverty Rights Action Center (PRAC) opposes the use of project financing for ZIP. PRAC contends that by financing ZIP loans directly PG&E could avoid the 20 percent equity investment in PESC and assumes that PG&E could fully finance the ZIP program through the issuance of debt obligations. This argument ignores the fact that PG&E's own common stock equity ratio as set forth in its last general rate proceeding, Decision No. 91107 issued December 19, 1979 in Applications Nos. 58545 and 58546, was approximately 40 percent.

PRAC also contends that by creating a wholly owned subsidiary to administer the ZIP program, PG&E seeks to remove the operative elements of the program from Commission scrutiny and review, and that such a free-wheeling ZIP program, ultimately financed entirely by ratepayers and immune from any direct public control, would be inviting disaster for ratepayers. This argument wholly disregards the great degree of scrutiny, review, and control which this Commission can exercise in connection with the operations of any PG&E wholly owned subsidiary whose operations affect utility rates established by this Commission.

We accept PG&E's argument that financing the ZIP program through a separate subsidiary, assured of recovering prudently incurred costs through a balancing account and an offset rate procedure, will enable PG&E, through PESC, to leverage its equity investment to obtain relatively low cost financing for the program. We will therefore approve PG&E's proposal for project financing of the ZIP program, with certain caveats.

This approval should by no means be taken as an acceptance of project financing as appropriate in all circumstances where it may be proposed. In fact, there are substantial differences between the ZIP program and other large-scale utility projects, which may be critical to the choice between project financing and more traditional financing and ratemaking methods. The typical large-scale power supply project requires massive utility investment of equity capital. To the extent of the utility's financial capacity, the greater the investment the greater the rate base upon which profits may be earned. The assurance of project financing would tend to limit the Commission's ability to control increases in project costs, which may benefit the utility at its ratepayers' expense.

The ZIP program presents a different set of facts and interests. Here the scale of "project" investment will not be within the utility's power to control, but rather will be a function of the level of customer choice to participate in the program. Here the utility's role will be financing rather than construction; "cost overruns" should not be a problem if PG&E's energy auditors properly evaluate the cost-effectiveness of measures to be financed.

Most importantly, under PG&E's project financing proposal, the utility's equity investment in ZIP will be relatively slight. PG&E would provide approximately 20 percent of PESC's capital and that 20 percent would be drawn proportionately from all PG&E's current sources of capital, of which about 40 percent consists of common equity; thus, PG&E's equity interest in the ZIP program would consist of only about eight percent of ZIP's total capitalization. We are persuaded that the possibility of achieving such high leverage of PG&E's equity investment justifies the use of project financing for ZIP; we are equally persuaded that such leverage should be a mandatory condition rather than merely a goal of project financing.



We shall expect PG&E to achieve at least the 80/20 ratio of debt to equity for PESC which it has proposed. In addition, we are concerned by PG&E's proposal that PESC should agree to buy back from its lenders any loan amounts outstanding after some fixed period and that PG&E should increase its equity share in PESC to cover such buy outs. Counsel for PG&E suggested that the fixed term might be set at ten years. In view of the more rapid zero interest loan payback required under our authorized ZIP program, which will assure that a large majority of ZIP loans will be fully repaid within ten years of issuance, we doubt that such buy out agreements will be necessary. If PG&E nonetheless finds it necessary to provide such assurances to lenders, we shall expect that the fixed period after which buy out is required will be set long enough to ensure that PG&E's 20 percent equity share will never be significantly increased.

An important element in PG&E's proposal for project financing is the CFA mechanism of ZIP cost recovery through balancing account and cost offset procedures. As will be discussed below, we will approve this method of cost recovery for the ZIP program, but with the proviso that at least PG&E's administrative costs will be excluded from the balancing account by the end of 1983, when an appropriate allowance should be determinable on a prospective basis for inclusion in base rates. These administrative costs are the one aspect of ZIP expenses over which the utility should be able to exercise substantial discretion. Therefore, as soon as feasible, the utility's incentive to control these costs should be restored by providing for their recovery on a prospective test-year basis rather than through the project financing mechanism.

The element of project financing with which we are most concerned is the assumed recovery of equity investment through a balancing account procedure. We will authorize such recovery at this time, expecting PG&E to minimize its equity share in PESC and providing for PG&E to earn on that equity in PESC the overall rate of return on total rate base last authorized for PG&E. We will, however, invite PG&E, the Commission staff, and other interested parties to present their further view on these matters, in light of experience with the implementation of ZIP, in the context of the first annual ZIP cost offset proceeding.

2. What types of financing instruments and procedures should be used to raise debt capital for ZIP?

The CEC staff recommends that the PESC subsidiary be required to raise its debt capital through the sale of long-term bonds rather than through short-term bank loans.

CEC staff witness Kahn testified that the use of bond financing to raise debt capital for PESC could substantially reduce the cost of the program to ratepayers. In his opinion interest rates for long-term bonds currently are and probably will continue to be substantially lower than interest rates for short-term bank loans - PG&E's proposed source of debt capital for PESC. To the extent that financing costs of the ZIP program are lowered the conservation measures will become more cost-effective.

PG&E's witness Doudiet testified regarding the debt financing of PESC as follows:

"Q If it appears that debentures may be cheaper than bank loans will you look into that and possibly utilize debentures?

"A Yes, we would.

"Q Okay. But you haven't looked into that possibility yet?

"A No, we haven't.

"Q Do you plan to in the near future?

"A Yes."

This Commission will not direct PG&E and PESC to use short-term bank loans or long-term bonds to finance the ZIP program. We will, however, expect PG&E and PESC to finance the program at the

lowest interest cost available in the market, considering the length of time over which such funds will be used and recognizing that it may at times be necessary to sell more expensive short-term debt while awaiting favorable conditions to sell long-term securities. Sometimes long-term bonds carry a lower interest rate and at other times the interest rate on short-term bank loans is lower.

In his testimony Kahn recommended that the order in this proceeding should require PG&E to file reports providing information regarding:

- a. Data on capital and administrative costs of the ZIP program.
- b. Data on the actual frequency of the resale of residences with weatherization measures financed by PESC.
- c. Data on the actual market share of weatherization products and measures financed by PESC.

CEC points out that this type of information will allow this Commission to responsibly monitor the cost and competitive impacts of the program as well as to evaluate the vigor and imagination of PG&E's effort. We adopt CEC's recommendation regarding such reports.

FRAC urges that PG&E be required to secure debt financing for the ZIP program in small increments based on the lowest competitive bid in response to a general solicitation.

This Commission has already established certain rules respecting the sale of bonds by a utility which require competitive bidding except in extraordinary circumstances where the private placement can be justified and is authorized by the Commission. The Commission will require PG&E and PESC to comply with such rules in issuance and sale of debt obligations to finance the ZIP program. If PG&E and PESC choose to finance ZIP largely by means of bank loans without following competitive bidding procedures, we will subject their efforts to obtain favorable interest rates to particularly close scrutiny in subsequent rate proceedings.

G. Issues relating to ratemaking.

1. Should PG&E's proposed CFA mechanism and balancing account be approved and, if so, for what period?

PG&E argues that prompt and full recovery of PG&E's costs relating to the ZIP program through the CFA and balancing account will be necessary to meet the requirements of the lenders from whom it will be necessary to raise funds for the program.

PRAC contends that ZIP program costs should be recoverable only after a full evidentiary hearing and not pursuant to an automatic CFA provision and balancing account. PRAC asserts that the CFA is a wholly unnecessary and counterproductive mechanism and that it is PG&E's guarantee and not the CFA which will provide a lender the security it needs in furnishing funds to finance the ZIP program. PRAC further contends that if ZIP financing is secured by a lien against the participant's property, PG&E's conservation investments will be much less risky than investments in generating capacity. PRAC particularly objects to the use of the CFA mechanism to generate the return on equity for PG&E's investment in PESC. PRAC asserts that if the subsidiary performs inadequately in implementing ZIP, regulatory lag is the only discipline the Commission can impose, and that with an automatic CFA mechanism, there is no incentive for PG&E to manage program costs, delivery, or financing efficiently.

Staff witness Thompson, representing the Revenue Requirements Division, testified that in his opinion the CFA mechanism is not needed by PG&E to obtain financing but that the use of a balancing account is appropriate until some historical data is developed that can be used as a basis for setting rates prospectively. Thompson suggested that two years should be adequate time to develop the data base. Thompson proposed that after two years' experience, all program costs for the remaining life of the ZIP program be considered on a prospective ratemaking basis. Included in Thompson's

proposal was a provision for an AFUDC accrual on that portion of ZIP capital expenditures not covered by rates. This provision is designed to make PG&E whole on that portion of program costs associated with capital costs, but leave an element of risk attached to administrative costs as a means of controlling those costs. Thompson further testified that the CFA mechanism is superfluous and simple rate recognition of program costs by the Commission on a prospective basis is adequate.

Thompson testified that investment in the ZIP program is superior to utility investment in a plant expansion program because the ZIP program will produce a superior cash flow with less risk. Investments in conservation hardware for the residential consumer involve a series of small investments and a well-known simple technology with little or no lead time. By comparison a utility's investment in a new electric generating facility or an LNG plant could involve lead times up to ten years. No cash earnings will accrue to the utility until the plant is complete and operational. In addition to the inferior cash flow, there is the risk of cost overruns and construction delays and the possibility of failing to obtain a license to operate the facility upon completion.

Staff witness Cavagnaro also testified regarding the proposed CFA mechanism. He recommended that a balancing account be authorized for the ZIP program but that no provision should be included in the balancing account for return on PG&E's equity investment in PESC. Such equity investment should be included in PG&E's rate base on which it is provided a rate of return in its general rate proceedings. Cavagnaro did not recommend, as Thompson did, that the balancing account be terminated after two years' experience.

In its brief the staff recommends that the balancing account be utilized for only the first two years of the ZIP program and that no provision be made for inclusion in the balancing account of return on PG&E's equity investment in PESC.

Staff proposes that after the first two years the Commission should reevaluate the ZIP program to determine whether continuing the balancing account is in the public interest or whether treating all program costs on a prospective basis with an allowance for AFUDC accrual would be preferable for the remaining life of the program.

The balancing account and an offset rate procedure have the advantage of assuring financial institutions of cost recovery and encouraging their investment in the ZIP program under favorable terms, while assuring ratepayers that no more than reasonable costs will be included in the rates they have to pay for the program. This assurance to financial institutions is particularly important because we will not be requiring PG&E to secure all ZIP loans by the placement of liens against participants' properties. It is, of course, difficult to forecast precise costs of a new program such as the ZIP program because participants will determine the number and size of the loans based on their selection of conservation measures.

Although we are reluctant to authorize balancing account ratemaking, because it forces us to engage in hindsight analysis and creates concern about "cost plus" pass-through ratemaking, we will authorize a ZIP balancing account. We will reassess the need for balancing account treatment of PG&E/PESC's ZIP expenses concurrent with the general rate proceeding for PG&E using the 1984 test year. A balancing account and the full cost of service recovery mechanism we adopt are essential during the initial years of ZIP. It will permit the greatest flexibility and provide maximum incentive for PG&E/PESC to accelerate ZIP penetration. We will allow PG&E to institute a balancing account concurrently with the billing factors adopted to commence funding of Phase I. PG&E is authorized to file preliminary statements for its gas and electric tariffs establishing the ratemaking mechanism outlined below.

The PG&E/PESC cost of service recovery mechanism for ZIP will operate along lines very similar to PG&E's Gas Exploration and Development Adjustment (GEDA) full cost of service tariff mechanism. A balancing account for ZIP cost of service is established for both PG&E's gas and electric departments. Revenues from ZIP billing factors will be credited, and expenses debited. All expenses will be subject to audit and review for reasonableness in an annual ZIP offset proceeding. Debits will consist of billings between PG&E and its affiliate, PESC. Administrative and general expense billed PG&E by PESC will be debited monthly, along with carrying costs, after taxes, for the particular month. The PESC rate base will consist primarily of outstanding loan balances. PG&E seeks to use project financing for PESC with an 80 percent debt and 20 percent equity capital structure. PESC's return on the equity portion of its capital structure will be the authorized overall rate of return last adopted in a PG&E general rate proceeding. The debt portion will be the actual cost of borrowing. RCS expense will be separately stated in the balancing account. The interest rate to be applied to under- or overcollections will be that used for the ECAC balancing account.

We are, by the following order, authorizing the recovery of PG&E's expenditures for Phase I of \$8.8 million for the gas department and \$1.2 million for the electric department. These are equivalent to \$0.00105 per therm for all gas sales and \$0.00002 per kWh for all electric sales, which amounts we are authorizing as increases in base rates and for utilization in the balancing account. These increased rates are to become effective concurrently with the rate increases to be authorized in Application No. 59902. The balancing account factors will ordinarily be adjusted annually with consequent changes in rates. The balancing account factors may, however, be adjusted again in this proceeding depending on developments in the next phase of the proceeding. Whenever possible rate changes will be combined with changes authorized in other rate proceedings.

It will be appropriate to review the results of this ratemaking approach to determine if further refinements are necessary or if a change to more conventional ratemaking treatment would be advantageous. Such a review should be concluded not later than the end of 1983 when the ZIP program will complete its third year. At a minimum, administrative costs of the program should be excluded from the balancing account from that date forward, which should coincide with the effective date of PG&E's 1984 test year general rate decision.

2. Should PG&E's actual income tax rate be used in computing taxes on return on its equity investment in PESC?

We will adopt the same tax treatment for calculating PESC's before tax return that is used in GEDA cost of service recovery. The question of the tax rate to be applied between utilities and affiliates is the subject of OII No. 24, and issues raised by PRAC in this regard will be addressed in that proceeding.

3. How should rate changes and rate design pertaining to the ZIP program be handled by the Commission?

PG&E proposes to adjust rates by periodic advice letter filings which will be designed to cover costs in the ensuing twelve months and to amortize any balance in the CFA account, whether positive or negative. PG&E intends to make its advice letter filings so that the CFA rate changes will take place concurrently with GAC or ECAC rate changes. PG&E contends that imposing a requirement to file a formal application for CFA changes could



cause a detrimental delay. FG&E points out that any interested party can request a copy of the advice letter and can file comments on the advice letter with the Commission.

FRAC contends that ZIP program costs should be recovered only after a full evidentiary hearing and not pursuant to an automatic CFA provision.

The staff recommends that an offset application be filed annually and should include an analysis of the program to date, a statement of anticipated cost-effectiveness of the expanded program and requests for proposed changes in the program to improve its efficiency and cost-effectiveness.

The staff recommends that any rate change should be made simultaneously with any other rate changes being made and considered in the aggregate with ECAC, GCAC, or general rate changes. Revenue should be included in the balancing account on a uniform ¢/therm basis for each unit of gas energy used and a uniform ¢/kWh basis for each unit of electric energy used, by dividing the authorized revenue increases for the ZIP program by estimated sales.

The staff contends that FG&E's recommendation that the costs of the gas department programs be assessed against only P-1 and P-2 firm gas customers is unreasonable because under marginal cost rate design it is not appropriate to segregate the costs of conservation programs in the rate structure. The staff further contends that since interruptible customers will benefit from the availability of the gas conserved they should contribute to program costs. We agree and will apply ZIP cost recovery balancing account factors to all gas and electric sales.

FG&E shall file a separate application once annually to adjust ZIP balancing account factors. Once annually we will review balancing account entries and adjust these factors. Should we extend the ZIP program systemwide and if all procedural requirements are met, we will provide for an increase in balancing account factors to recover increased estimated expense. To the extent possible we will try to process

the annual ZIP rate adjustment application concurrently with pending gas and electric offset proceedings or a general rate proceeding. However, a separate decision will be issued, hopefully simultaneously with other rate decisions. Since a separate application will be filed, the same application can cover ZIP for the gas and electric departments.

#### V. Further Hearings

This decision is interim in nature because further hearings will be held prior to the systemwide extension of the ZIP program authorized hereby for Phase I implementation in PG&E's San Joaquin Division. As stated previously, we intend to implement the program systemwide as speedily as possible. Further hearings are warranted, however, to obtain and examine further evidence indicative of the costs and projected penetration levels associated with systemwide extension of the authorized ZIP program before revenues are authorized for a systemwide program.

We will not countenance the relitigation of issues already raised, contested, and resolved in this proceeding. Specifically, we have determined to our satisfaction the appropriate tests of cost-effectiveness for a residential conservation financing program and how they should be applied; the questions raised relating to possible anticompetitive effects of the authorized program; and the fact that a systemwide program should be implemented promptly. We also have conclusively determined many of the specific features of the program which will be authorized for systemwide operation, including a minimum list of specific measures for which financing will be possible in the initial period; the determination that some of these measures will be financeable without need of a prior audit; the provision of more attractive incentives for rental property and low-income homeowners but not for do-it-yourself installations; the character of special outreach efforts to include the elderly, the non-English-speaking, persons of low income, rental properties, and do-it-yourselfers; the requirements as to contracting, warranties, and inspections; the relationship between the ZIP program and the state RCS plan; inclusion of the general concept of project financing; and many less important issues.

As stated, however, we will seek updated and further substantiated projections of the annual and total costs and levels of penetration of a systemwide ZIP program as adopted for Phase I. We will require PG&E to provide such projections, including estimates of expected penetration levels, for each conservation measure financeable under the authorized ZIP program. Interested parties will be given full opportunity to challenge PG&E's or our staff's assumptions and conclusions. The outcome of this process will be our determination of whether the total projected cost of the systemwide program is appropriate and whether the presently authorized ZIP program offers an appropriate level of incentives for systemwide extension to conform both to our adopted standards of cost-effectiveness and to our interest in aggressive achievement of the potential energy conservation.

In addition, we will require PG&E to provide reliable evidence as to the cost-effectiveness of financing certain additional measures without need of an audit either systemwide or in certain climatic zones. We will also consider the mechanics of moving from Phase I to a systemwide program, as well as certain relatively minor issues expressly reserved for consideration in the Phase II hearings.

Because of the urgent public need for a systemwide ZIP program, these hearings will be held promptly and PG&E will be required to submit and serve on all parties its cost and penetration estimates and other required data sufficiently in advance of the hearings to permit the Commission staff and all interested parties to proceed expeditiously toward their early conclusion.

We are requiring PG&E to file a specific plan for directing the ZIP program to the elderly, minorities, persons of low income, and owners and occupants of rental housing. Rather than include comments on this plan in the further hearings, we propose to schedule informal conferences to maximize the opportunity for input from representatives of the affected groups.

VI. Findings of Fact

1. As the Commission has listed in numerous prior decisions, there is an urgent need for public utilities to take aggressive steps to promote energy conservation.

2. As an incentive to conservation the Commission has required PG&E to establish three-tier inverted rates for both electric and gas service to residential customers.

3. Substantial tax benefits for weatherization retrofit for taxable years beginning on and after January 1, 1981, are provided by AB 2030. These benefits include tax credits of 40 percent of the cost incurred by the taxpayer for specified energy conservation measures not to exceed \$1,500 in any one year and tax refunds for individual taxpayers whose adjusted gross income is less than \$15,000 and married taxpayers filing joint returns whose gross income is less than \$30,000 to the extent that the tax credits allowed exceed the tax liability of the taxpayer or taxpayers. In lieu of claiming the tax credit, the taxpayer may elect to take a depreciation deduction over a 36-month period. Also, the taxpayer may take depreciation for the cost of an energy conservation measure in excess of the amount of the credit claimed.

4. All twelve items included in the approved ZIP program except lighting conversion are specifically included as energy conservation measures in AB 2030 and qualify for the tax credits, tax refunds, and depreciation allowances, although some are subject to an audit requirement.

5. Under DOE's Weatherization Assistance Program for Low-Income Persons financial assistance is provided for weatherization of dwelling units occupied by low-income families, particularly those where elderly or handicapped, low-income persons reside.

6. Under the California Plan for RCS, which has been adopted by the CEC and approved with slight modifications by DOE, audits are required to be offered to eligible residential customers by utilities which supply such customers with space heating service.

7. There are substantial opportunities for highly cost-effective investments by public utilities in providing financial incentives for weatherization retrofit by their residential customers.

8. Many PG&E residential customers will find it difficult or impossible to arrange their own financing for weatherization retrofit without the assistance provided by the ZIP program or will be reluctant to make needed weatherization improvements without the additional incentives provided by the ZIP program.

9. The adoption of an aggressive weatherization financing program to accelerate residential conservation is necessary to help meet urgent national and state priorities including reduced dependence on foreign oil, enhanced national security, improved balance of payments, reduced pollution, continued reliability of utility service, and reduced inflationary pressures.

10. A weatherization investment is cost-effective to the installing customer if the savings it produces for the customer during its useful life exceed its cost to the customer, considering all incentives.

11. A weatherization investment is cost-effective to the utility if the cost to the utility is less than the marginal cost to the utility of the energy which will be saved over the measure's useful life.

12. A weatherization investment is cost-effective to society if the total cost of the measure is less than the marginal cost of the energy which will be saved to society including external costs, e.g., environmental impacts.

13. A weatherization investment is cost-effective to all rate-payers including nonparticipants if the cost to the utility is less than the difference between the utility's marginal and average cost of the energy saved over the measure's useful life.

14. The tests of cost-effectiveness to the installing customer, to the utility, and to society are relevant to the determination of whether utility financing should be provided for specific conservation measures.

15. The tests of cost-effectiveness to the utility and to society must not be exceeded in determining the level of incentive to be provided by a utility financing program for conservation measures.

16. The test of cost-effectiveness to nonparticipants is a useful guide for setting the level of utility-provided financing incentives so long as market penetration of conservation measures is being maximized, but if penetration is insufficient, greater incentives may be provided.

17. In order to overcome barriers to cost-effective residential energy conservation, it is appropriate to offer a utility incentive which, in combination with other available incentives, will result in little or no net cost to the participant at any time from the date of installation.

18. The ZIP program authorized herein after taking into consideration the tax benefits of AB 2030 and the savings in utility rates due to the installation of conservation measures will result in little or no net cost to the participant from the date of installation and throughout the loan pay-back period and thereafter will continue to result in a substantial net benefit to him.

19. The ZIP program authorized herein will result in less utility cost than the difference between PG&E's marginal and average energy costs for the amount of energy conserved; all ratepayers will benefit through future costs lower than would otherwise be experienced.

20. The ZIP program authorized herein will be cost-effective for participants, nonparticipants, the utility, and society.

21. The ZIP program authorized herein will be substantially less costly to PG&E and its ratepayers than the program proposed by PG&E would have been.

22. It is appropriate for PG&E to recover the costs of complying with the requirements of the federally mandated state RCS plan and providing RCS audits as a part of its conservation financing program. Such costs should be separately stated and should be included in the ZIP balancing account only until an appropriate allowance for such costs can be reflected in rates pursuant to a general rate proceeding or such other rate proceeding as is appropriate.

23. In determining the cost effectiveness of ZIP measures, the costs of providing energy audits pursuant to the federally mandated state RCS plan should be excluded from the costs of the ZIP measures.

24. PG&E's estimate of housing turnover is adopted for the purpose of determining the cost-effectiveness of the measures in ZIP.

25. It is appropriate to implement Phase I of ZIP as the first phase of implementation of a systemwide ZIP program and not merely as a test of the ZIP program. A number of the characteristics of the systemwide ZIP program are being established in this decision and further elements of the systemwide program will be determined after further hearings.

26. PG&E's San Joaquin Division is the appropriate area in which to authorize PG&E to proceed with Phase I of ZIP.

27. Subject to the condition that financing for measures not shown to be highly cost-effective in the average installation will be authorized only to the level such measures are shown cost-effective by a prior energy audit, it is appropriate to include in the approved ZIP program all residential conservation measures proposed for inclusion by PG&E.

28. Well-established Commission policy recognizes low-flow showerheads to be a highly cost-effective energy conservation measure, appropriate for inclusion in the approved ZIP program.

29. Undue delay in the implementation of Phase II would have adverse effects on the insulation market and upon the pace of achieving cost-effective energy conservation.

30. Phase I should not act as a substantial disincentive to weatherization retrofit in PG&E's service areas other than the San Joaquin Division because the Commission anticipates extension of the ZIP program throughout PG&E's entire service area shortly after the hearings to be held soon after issuance of this decision, because the tax benefits provided by AB 2030 should provide a substantial stimulus to weatherization efforts, and because PG&E's 8 percent loans for ceiling insulation will be convertible to zero interest, all of which will counteract any tendency to delay pending availability of ZIP.

31. The \$10,094,000 estimated expenditures for Phase I of ZIP is a reasonable estimate of expenditures and rate increases to cover such expenses are justified.

32. In order to overcome barriers to participation in ZIP by low-income homeowners, it is necessary and appropriate to make additional incentives available to them, consisting of a longer loan pay-back period and the ability to finance up to \$200 in additional cost-effective building envelope improvements under ZIP.

33. For purposes of the ZIP program it is appropriate to define as low-income any person eligible for payments under the Federal Energy Assistance Program.

34. Special promotional outreach efforts by PG&E are necessary to assure adequate opportunity to participate in ZIP for the elderly, the non-English-speaking, and persons of low income, because of the greater difficulty they may have in making home improvements and because of social barriers which may impair delivery of services to them.



35. In areas where the population includes a substantial non-English-speaking minority it is necessary that PG&E conduct a reasonable proportion of its promotional efforts by means of other languages.

36. Specific techniques which PG&E can employ to gain the participation in ZIP of the elderly, non-English-speaking, and low-income persons include assigning special priority for audits in low-income areas and special auditors to serve the elderly, non-English-speaking, and low-income persons, door-to-door delivery of informational leaflets, notices in local business establishments and other public places, informational programs through schools, churches, and neighborhood organizations and groups, close coordination of efforts by PG&E with federally funded community action agencies to reach low-income persons, and suspension of traditional credit standards in determining eligibility for ZIP loans.

37. Community action agencies can perform an important role in implementing ZIP, including the administration of energy audits.

38. Assignment by PG&E of some energy auditors to serve particular groups of customers can enhance delivery of ZIP financing to the elderly, the non-English-speaking, and persons of low income.

39. Suspension of traditional credit standards for ZIP loans is necessary to assure adequate opportunity to participate by persons of low income.

40. Additional incentives should not be necessary to induce owners of master-metered rental residences to participate in ZIP.

41. A serious impediment to the achievement of potential energy conservation in the residential sector is that owners of individually metered rental housing have little economic interest in increasing the energy efficiency of their property.

42. In order to provide PG&E customers who live in rental property adequate access to the benefits of participation in ZIP, it is necessary and appropriate to make an additional incentive available to owners or occupants of rental property which is individually metered for space heating usage, consisting of a longer loan payback period.

43. Specific techniques which PG&E can employ to reach the rental market include the use of bill inserts, announcements in specialized periodicals, contacts with real estate agents, building management firms, building owner associations, renter groups and community outreach agencies, and certification by PG&E of energy-efficient rental units.

44. An additional means of reaching the rental market would be for PG&E to offer an agreement, to which PG&E, the tenant or tenants and the owner would be parties, under which the tenant or tenants would be required to pay for the installation of conservation measures on a monthly basis so long as the tenant or tenants occupy the rental property, and under which the owner would consent to the installation of such measures and agree to require subsequent tenants to continue payment of such monthly amounts until the cost of the measures is repaid to PG&E in full.

45. The saving of the labor charge is itself a sufficient incentive for do-it-yourself installations, making it unnecessary to offer added incentives for such participation.

46. Do-it-yourself conservation efforts can be extremely cost-effective, so PG&E should assure maintenance of this market through specialized promotional efforts and loan application procedures which will interest and accommodate the do-it-yourselfer.

47. The doubtful cost-effectiveness of weatherizing infrequently used residences and the importance of equitable distribution of program benefits make it inappropriate to authorize homeowners to participate in ZIP with respect to more than one personal residence, but the difficulty of making such determinations warrants use of a self-certification procedure.

48. To permit ZIP financing without an audit of conservation measures which are highly cost-effective in a large majority of installations will avoid incurring substantial administrative costs and possible delay.

49. The following measures or combinations of measures are highly cost-effective in a large majority of installations:

- a. Ceiling insulation;
- b. When performed as a package job including all of the following measures unless already installed or unnecessary in the residence:
  1. Weatherstripping;
  2. Water heater blankets;
  3. Low-flow showerheads;
  4. Caulking; and
  5. Duct wrap.
- c. Ceiling insulation together with one or more of the measures under item b.

50. In order to reduce backlogs and/or to reach low-income communities, it is appropriate that PG&E be authorized to hire outside agencies and contractors to perform audits in accordance with the procedures proposed by the Commission staff.

51. The state RCS list of contractors for residential conservation work will provide the appropriate source for information about and selection of contractors for the ZIP program, but if such a list is unavailable it will be sufficient that contractors be licensed and bonded.

52. Provision of average cost information by PG&E consistent with federal and state mandates will assist participants in obtaining conservation installations at reasonable cost.

53. A requirement that the participant obtain at least two bids for installation of any conservation measure and that ZIP financing be available only up to the lower of two bids or one of the two lower of three bids will provide adequate control over escalation of contractors' bids while avoiding excessive utility domination over the selection of contractors, especially if the participant is free to select a different contractor and pay the difference between the lower bid and the bid selected.

54. A ceiling on ZIP financing set at the utility's marginal cost of energy saved by installation of the particular conservation measure is consistent with the adopted societal cost-effectiveness test.

55. A ceiling of \$3,500 for ZIP financing for each residence is necessary to assure equitable distribution of the benefits of participation in the ZIP program.

56. It is equitable, as well as necessary to maintain the pace of weatherization installations throughout PG&E's service area, to permit customers who have participated in PG&E's eight percent loan program to have such loans converted to ZIP financing prospectively when ZIP becomes available in their service district, but the outstanding loan balance at the time of such conversion will be included within the \$3,500 ceiling on ZIP financing for the residence concerned.

57. Staff recommendations that PG&E be required to allow participants a degree of choice of materials for insulation and double glazing are warranted to prevent undue interference with competition.

58. Earlier repayment of ZIP loans than was proposed by PG&E is warranted to assure that incentive levels are not overly generous but still sufficient to assure the participant net economic benefits from the date of installation.

59. The repayment schedules for ZIP loans provided in the order which follows will ensure net economic benefits from the date of installation for a large majority of participants.

60. To protect PG&E's interest in recovering the principal on ZIP loans, full repayment is necessary upon transfer of ownership of the residence concerned, except in the event of exempt transfers between close relatives where the transferee assumes the obligation to repay the ZIP loan.

61. The recordation of liens relating to relatively large ZIP loans will help to assure recovery of principal by PG&E, but to require liens for smaller loans will result in administrative costs which might exceed the value of the liens and would discourage participation in the ZIP program; therefore, it appears useful to file liens only for loans above \$1,500.

62. Administrative clarity and public understanding will be served by having identical warranty requirements for the ZIP program and the state RCS plan.

63. The cost of providing 100 percent inspections of ZIP installations is a small price to assure reliable energy savings, and it is appropriate to require such inspections by PG&E.

64. The State of California and this Commission have a clear, legislatively sanctioned, and economically justified policy to encourage public utilities to pursue energy conservation financing with vigor and imagination.

65. The adopted ZIP program is the product of extensive examination and substantial modification intended partly to assure implementation of Commission policies relevant to energy conservation and also partly to respond to concerns about impacts on competition.

66. The adopted ZIP program minimizes the possibility of anticompetitive impacts while yet responding to the urgent need to implement state and federal policies favoring energy conservation.

67. Many features of PG&E's ZIP proposal which were criticized as anticompetitive are mandated features of the state RCS plan, specifically approved by DOE pursuant to federal law.

68. Under the ZIP program PG&E will not have power to set prices or arbitrarily deny contractors an opportunity to participate.

69. Through the Commission and the CEC the State of California will provide close supervision and continuing examination of the ZIP program and specifically of its potential anticompetitive effects.

70. Conventional lending institutions have shown little interest in home improvement loans for energy conservation retrofits for residential buildings.

71. There is no evidence that PG&E's proposed means of financing ZIP will be anticompetitive in the lending market.

72. Project financing is a form of financing in which lenders lend money for a specific project or program rather than for the overall operation of the corporation, and amounts lent are primarily secured by the flow of funds from the specific project.

73. Project financing will minimize the cost of capital and income taxes which PG&E will incur in carrying out the ZIP program.

74. Project financing of ZIP loans will create a source of capital from local banks and savings and loan associations not ordinarily used for the financing of traditional utility plant.

75. Project financing will not create a serious risk of wasteful expenditures in the ZIP program because the substantial leveraging of PG&E's equity investment will provide little incentive for unnecessary investment; because investment decisions will be made by participants, rather than PG&E, based on the results of energy audits; and because PG&E's administrative expenses will be excluded from the balancing account as soon as feasible.

76. The balancing account and the offset rate procedure approved herein assure financial institutions of cost recovery and encourage their investment in the ZIP program under favorable terms and assure ratepayers that not more than reasonable costs will be included in the rates which they will pay to support this novel program.

77. It is feasible and beneficial to its ratepayers for PG&E to achieve at least an 80/20 ratio of debt to its investment in the equity of its project financing subsidiary, with that equity investment being drawn proportionately from all PG&E's current sources of capital.

78. It is appropriate at this time that with respect to its investment in the equity of PESC, PG&E earn its last authorized overall rate of return on total rate base, but a change in this rate of return may be justified based upon further hearings.

79. It is unlikely to be cost-effective from any relevant perspective to provide ZIP financing for installing weatherization measures constructed subsequent to the effective date of this decision, and availability of such financing might encourage some builders to evade complying with the mandatory energy efficiency standards for new residential buildings which have been promulgated by the CEC.

80. The precise pace and scale of expenditures during initial stages of ZIP will be examined through further hearings, but initial balancing account factors of \$0.00105 per therm on all gas sales and \$0.00002 per kWh on all electric sales will generate revenues calculated to provide the \$10,000,000 authorized for Phase I, subject to adjustment after PG&E's March filing for systemwide implementation.

81. The ZIP program authorized by this decision is in the public interest.

VII. Conclusions of Law

1. Financing incentives for cost-effective residential weatherization are a necessary and proper area for substantial investment by California energy utilities.

2. Public utilities should be authorized to provide financing incentives only for energy conservation measures which are very likely to be cost-effective to the installing customer, to the utility, and to society.

3. Public utilities should be authorized to provide financing incentives at levels which will maximize market penetration of useful conservation measures while minimizing cost to the ratepayers.

4. PG&E should be authorized to implement Phase I of the ZIP program as described in this decision and under the terms and conditions provided herein.

5. Systemwide implementation of the ZIP program should not be delayed to await evaluation of the experience of PG&E during Phase I, but further hearings should be set to consider systemwide implementation.

6-7. \$10,000,000 should be authorized as a reasonable level of PG&E's expenditures for Phase I of ZIP and increases in gas rates of \$8,800,000 and in electric rates of \$1,200,000 are justified.



8. Higher levels of incentives should be authorized for certain classifications of potential participants where necessary to assure adequate opportunity to participate in the ZIP program.

9. Promotional efforts should be specially directed toward certain classifications of potential participants in order to assure that they will have adequate opportunity to participate in the ZIP program and that the program will be effective.

10. The approved ZIP program should conform to mandatory features of the state RCS plan as approved by the DOE.

11. The approved ZIP program is consistent with the purposes and requirements of the National Energy Conservation Policy Act of 1978 and the Energy Security Act of 1980.

12. PG&E's "California first policy" for financing ZIP is fully consistent with the mandate of the Energy Security Act of 1980.

13. PG&E's service to be performed under the ZIP program will not constitute undue or unreasonable discrimination in violation of California law including Section 453 of the Public Utilities Code.

14. The ZIP program authorized by this decision will not be anticompetitive in the insulation or lending markets or in any other relevant market, and will not violate federal or state antitrust laws.

15. In the issuance and sale of debt obligations to finance the ZIP program PG&E and PESC are required to comply with the rules which have been established by the Commission respecting the issuance and sale of debt obligation which require competitive bidding except in extraordinary circumstances.

16. A balancing account and offset rate procedure for the recovery of ZIP program costs by PG&E should be authorized.

17. Revenue should be included in the balancing account on a uniform c/therm basis for each unit of gas energy used and on a uniform c/kWh basis for each unit of electric energy.

18. It is not appropriate to segregate costs of conservation programs in the rate structure, inasmuch as no such segregation is made with respect to other energy supply costs.

19. Since interruptible customers will benefit from the availability of gas conserved, they should contribute to the ZIP program costs.

20. Because of the urgent public need to put the ZIP program into effect as soon as possible, the effective date of this order should be the date of issuance.

21. An advice letter procedure would be an inadequate means of making substantial subsequent modifications in the ZIP program authorized by this decision.

22. Initial balancing account factors for all classes of gas and electric services of \$0.00105 per therm and \$0.00002 per kWh, respectively, are just and reasonable.

23. Further hearings should be held to obtain further evidence of the costs and projected penetration levels associated with systemwide extension of the authorized ZIP program before revenues are authorized for that purpose, but matters already resolved need not be relitigated.

INTERIM ORDER

IT IS ORDERED that:

1. Pacific Gas and Electric Company (PG&E) shall implement Phase I of a zero-interest residential conservation assistance and financing program (ZIP) in its San Joaquin Division subject to the following requirements:

- a. PG&E shall provide ZIP financing, either with or without a prior energy audit, for the following residential energy conservation measures (measures) or combinations of measures:
  - (1) Ceiling insulation.
  - (2) When performed as a package job including all of the following measures except to the extent already installed or unnecessary in the residence:
    - (a) Weatherstripping of all doors and windows which lead to unheated or uncooled areas (weatherstripping);
    - (b) External water heater insulation blankets (water heater blankets);
    - (c) Low-flow devices on all accessible showerheads (low-flow showerheads);
    - (d) Caulking or sealing of major cracks and other openings in building exterior and sealing of wall outlets (caulking); and
    - (e) Insulation of accessible heating and cooling system ducts which enter or leave unheated or uncooled areas (duct wrap).
  - (3) Ceiling insulation together with one or more of the measures included in Paragraph 1.a.(2).

- b. To the level found to be cost-effective in the course of a prior energy audit, PG&E shall provide ZIP financing for the following measures:
- (1) Wall insulation;
  - (2) Floor insulation;
  - (3) Clock thermostats;
  - (4) Lighting conversion;
  - (5) Storm or thermal windows or doors for the exterior of dwellings;
  - (6) Electrical or mechanical furnace ignition systems which replace gas pilot lights (intermittent ignition devices); and
  - (7) On a stand-alone basis, any measure listed under Ordering Paragraph 1.a.(2) as financeable without audit if part of a package job.
- c. PG&E is authorized to provide ZIP financing up to a ceiling which is the lowest of the following:
- (1) PG&E's marginal cost for the energy estimated to be saved as a result of installation of the ZIP program measures, or
  - (2) The lower of two bids or one of the two lower of three bids obtained by the participant for installation of the measures, or
  - (3) \$3,500 per residence.
- d. With respect to any residential building constructed and occupied prior to the effective date of this decision, each participant shall be entitled to have one prior eight percent loan for ceiling insulation converted prospectively to ZIP financing, one additional ZIP loan without an audit, and one subsequent ZIP loan pursuant to an audit. PG&E shall not finance ZIP loans beyond the limits specified in this Ordering Paragraph.

- e. PG&E shall not extend ZIP financing for residences known to it to be occupied for less than six months of the year, and shall include on ZIP financing application forms a question as to this fact.
- f. PG&E may require an energy audit to establish the cost-effectiveness of weatherization measures for which ZIP financing is sought before making a ZIP loan in those instances where PG&E has reason to believe that the residence may be a vacation home because of the intermittent or low usage of utility services.
- g. Every ZIP loan agreement shall provide that the balance due on any ZIP loan shall be repayable in full upon transfer (other than an exempt transfer as defined in Ordering Paragraph 1.h. below) of the property on which the ZIP loan improvements have been made.
- h. Transfers to close relatives, as hereinafter defined, of residences which have been weatherized under the ZIP program shall be exempt transfers not requiring repayment of the balance of the ZIP loan at the time of such transfer if the transferee assumes in writing all obligations of the transferor regarding the ZIP loan. Such exempt transfers shall nevertheless be subject to repayment pursuant to the provisions of Ordering Paragraphs 1.i., j., and k. below. An exempt transfer is defined as a transfer to a husband, wife, father, mother, grandfather, grandmother, son, daughter, brother, or sister, including such relationships brought on by adoption or marriage, without limitation, such as stepmother, stepdaughter, daughter-in-law, or mother-in-law.
- i. In the case of an exempt transfer or if the property has not been transferred repayment of the ZIP loan shall commence on June 30 of the calendar year following the calendar year of completion of the installation of the weatherization improvements paid for by issuance of a ZIP loan.
- j. Participants (other than low-income homeowners and owners or occupants of rental property referred to in Ordering Paragraph 1.k. below) who have financed weatherization measures through the ZIP program shall have the option of:

- (1) Repaying the full principal of the ZIP loan in equal monthly installments over a period of 50 months, or
  - (2) Repaying forty percent of the principal of the ZIP loan on June 30 of the year following completion of the installation of the weatherization improvements paid for by issuance of a ZIP loan and repaying the remaining balance of the ZIP loan in equal monthly installments over a period of 100 months.
- k. PG&E shall record a lien upon title to any residence with respect to which it has granted a ZIP loan or loans totaling \$1,500 or more in outstanding principal value.
- l. In the case of a ZIP loan to a low-income homeowner as defined in this decision or to the owner or occupants of rental residences where the utility service for space heating is individually metered and the utility bills are paid by the tenant or tenants, repayment of the principal of such a loan shall be due in equal monthly installments over a period of 100 months to commence on June 30 of the calendar year following the calendar year of the installation of the weatherization measures paid for by issuance of a ZIP loan.
- m. If found to be cost-effective in the course of a prior energy audit of the residence of a low-income homeowner (as defined in this decision), PG&E shall provide ZIP financing for up to \$200 in additional improvements beyond those included in Ordering Paragraphs 1.a. and b.
- n. The PG&E ZIP loan agreements shall provide in all cases that the monthly repayment installments shall be rounded to the nearest dollar and shall be not less than \$5.
- o. PG&E shall experiment in assigning energy audit priorities to special categories of customers and shall assign a substantial number of auditors to specialize in working with low-income persons, the elderly, and the non-English-speaking, as well as owners and occupants of rental property.

p. PG&E is authorized to engage outside agencies and contractors to furnish energy auditors to assist in reducing any backlog of audit requests that may develop or to facilitate participation in low-income communities. The following procedures shall be adopted by PG&E to minimize the cost of such contract audits:

- (1) PG&E shall reimburse established community action agencies for the reasonably incurred actual costs of energy audits performed by them for participants in the ZIP program who do not qualify under poverty guidelines for weatherization assistance provided the community action agency certifies the audit meets the state RCS plan requirements.
- (2) After competitive bids on a per audit basis with a guarantee of a minimum number of audits to be performed, PG&E is authorized to contract with the contractor submitting the lowest acceptable bid to furnish certified auditors to reduce PG&E's audit backlog to less than a forty-five-day waiting period, provided such contractor agrees to certify that the audits performed have met the state RCS plan audit requirements.
- (3) When audits are performed by parties other than contractors PG&E shall reimburse such parties for their actual audit costs including reasonably incurred labor costs including fringe benefits, transportation or vehicle expense, data processing time and overtime computed on a per-audit basis..
- (4) When contractors are engaged to perform energy audits, such contractors shall be paid their contract bid prices for such audits.
- (5) PG&E shall require that prior to any payment for audit work performed, it be provided a legible copy of each completed audit form and a certification by the agency or contractor that each audited customer has been furnished a duplicate copy of the completed audit form.

- (6) PG&E shall reserve the right to make the audit when required by the customer and to make spot inspections of audits performed by agencies and contractors to ensure that the audits are being made in accordance with the state RCS plan.
- q. PG&E shall pursue special promotional efforts to assure adequate opportunity to participate in the ZIP program for low-income persons, the elderly, and the non-English-speaking; such efforts shall include continued coordination with local community action agencies as well as the conduct of a reasonable proportion of such efforts in languages other than English in appropriate portions of its service area.
- r. PG&E shall not apply traditional credit standards as conditions of eligibility for ZIP loans and shall broadly publicize this feature of ZIP financing in low-income communities.
- s. PG&E shall pursue special promotional efforts to assure adequate opportunity to apply the ZIP program to rental property, including efforts to develop a rental market for energy-efficient residences.
- t. PG&E shall pursue special promotional efforts and loan procedures to assure that do-it-yourself installations comprise a substantial portion of the installations financed by ZIP loans.
- u. The contractors from whom bids are solicited for weatherization work to be financed under PG&E's ZIP program shall be drawn from the state RCS list if one is available, but if an RCS list is not available, they shall be licensed and bonded contractors.
- v. Upon request PG&E shall furnish each participant in the ZIP program with a list of eligible contractors and, pursuant to the state RCS plan, average price information for the local area within which the participant's residence or property is located.



- w. PG&E shall permit participants in the ZIP program to have the choice of the following insulation materials:
  - (1) Rockwool.
  - (2) Cellulose.
  - (3) Fiberglass.
- x. In the case of double glazing, PG&E shall allow participants in the ZIP program to select better grades of windows and sash up to the cost-effectiveness limit.
- y. Water heater blankets shall equal or exceed R-6 thermal resistance as installed. Low-flow showerheads shall limit maximum water flow to no more than 3.0 gallons per minute.
- z. All work financed under the ZIP program shall be covered by repair or replacement warranties equalling or exceeding those required by the state RCS plan, including a three-year manufacturer's warranty for free repair or replacement of materials and devices financed under the ZIP program, but including labor costs only for the first year as provided in the state RCS plan.
- aa. PG&E shall promptly inspect all weatherization work performed and financed under the ZIP plan.
- bb. The PG&E ZIP program shall conform to the mandatory feature of the state RCS plan as approved by the Department of Energy.
- cc. No ZIP loans shall be made by PG&E for weatherization measures included in the present ZIP program if installed after December 31, 1986.

2. PG&E is authorized to use project financing to finance the ZIP program.

3. PG&E shall seek the greatest possible financial leverage of its capital contributions to its project financing subsidiary and shall be expected to achieve at least an 80/20 ratio of debt to equity for that subsidiary; PG&E's capital contributions to the subsidiary shall be presumed to include the same percentage of equity capital of PG&E as is included in PG&E's capital structure as adopted in its most recent general rate decision.

4. PG&E is authorized to use a balancing account and offset rate procedure for the recovery of ZIP program costs.

5. Revenue shall be included in the balancing account on a uniform cents per therm basis for each unit of gas energy used and on a uniform cents per kWh basis for each unit of electric energy used, by dividing the authorized revenue increases for the ZIP program by estimated sales.

6. PG&E is authorized to file annually an offset application for rate adjustments necessitated by the ZIP program. Any rate change authorized as the result of the filing of such offset application shall be made simultaneously and in the aggregate with any other rate changes being made as a result of ECAC, GCAC, or general rate change filings. ZIP costs will be assigned to all ratepayers on an equal cents per therm or kWh basis, with overall rate design to be established in the associated ECAC, GCAC, or general rate proceedings. The costs of the ZIP program shall not be separately stated in the rate structure.

7. The annual applications for rate adjustments made necessary by the ZIP program shall include:

- a. An analysis of the ZIP program from the date of the start of the program or from the date of the last filing, as the case may be, to the date of the current filing which shows:

- (1) The number of households audited.
  - (2) The number and type of conservation measures financed.
  - (3) The costs of the audits.
  - (4) The costs of the conservation financing program, including administrative costs, ZIP loan costs, and the costs of the conservation measures.
  - (5) The energy savings experienced, based on recorded data, of the measures installed.
  - (6) The overall costs of the energy conserved.
  - (7) The specific techniques and efforts which PG&E has employed to reach the low-income market, the elderly, and minorities, with its ZIP program together with a summary of the results of its efforts to penetrate such market.
  - (8) The specific techniques and efforts which PG&E has employed to reach the rental market with its ZIP program together with a summary of the results of its efforts to penetrate such market.
  - (9) Data on the actual frequency of the nonexempt transfers of residences with weatherization measures financed under the ZIP program.
  - (10) Data on the actual market share of weatherization products and measures financed under the ZIP program.
  - (11) Data on the hiring of auditors and inspectors relating to the utility's affirmative action responsibilities.
- b. A statement of the anticipated cost-effectiveness of any proposed expanded ZIP program.
- c. Any requests for proposed changes in the ZIP program to improve its efficiency and cost-effectiveness, including possible changes in the current \$3,500 per residence ceiling on ZIP loans.

d. In the first such annual application, based upon experience with the implementation of ZIP: a justification for continued recovery through the CFA mechanism of return on PG&E's investment in the equity of PESC; an estimate of the maximum feasible leveraging of debt to equity in the capital structure of PESC; and a proposal as to the appropriate basis upon which to determine the future rate of return on PG&E's investment in the equity of PESC.

8. The sum of \$10,000,000 is a reasonable level of PG&E's expenditures for Phase I of the ZIP program and increases in gas rates of \$8,800,000 and in electric rates of \$1,200,000 are justified.

9. PG&E is authorized to file revised tariffs increasing its base rates by \$0.00105 per therm for all gas sales and by \$0.00002 per kWh for all electric sales. These increased rates are to become effective concurrently with rate changes authorized in Application No. 59902.

10. Within forty-five days after the effective date of this order PG&E shall file a specific plan for insuring adequate participation in the ZIP program by the elderly, minorities, persons of low income, and owners and occupants of rental housing in each of PG&E's divisions. Specific statistical and demographic data on these categories of customers should be included together with specific goals for penetration of the program.

11. After substantial experience has been gained as to the actual functioning of the project financing and ratemaking aspects of ZIP, the Commission staff shall conduct a review to determine whether more conventional ratemaking treatment can be adopted, such review to be completed by the end of 1983, so that changes can be made to coincide with the decision in PG&E's 1984 test year general rate proceeding.

12. Notice is hereby given that the Public Utilities Commission of the State of California has set further hearings in this matter before Administrative Law Judge J. D. Squeri, on Monday, April 6, 1981, at 10:00 a.m., in the Commission Courtroom, State Building, 350 McAllister Street, San Francisco, California, at which time and place applicant and all other parties may appear and be heard regarding the systemwide extension of the ZIP program authorized herein as Phase I for implementation in PG&E's San Joaquin Division. At least twenty days before such hearing PG&E is directed to submit and serve on all parties to this proceeding:

- a. Estimates of the annual and total cost to PG&E of a systemwide program based upon the same parameters as Phase I of the ZIP program.
- b. Estimates of annual and total penetration levels in the context of a systemwide program for each conservation measure included in Phase I of the ZIP program.
- c. Estimates of the cost-effectiveness systemwide of financing each conservation measure listed in Ordering Paragraph 1.a. above without an audit and of the cost-effectiveness of financing pipe wrap when performed without an audit in conjunction with other weatherization measures.
- d. Estimates of the cost-effectiveness of financing the weatherization measures listed in Ordering Paragraph 1.b. above in certain specified climatic zones of PG&E's system without an audit requirement.
- e. A proposed form of agreement for approval by the Commission to which PG&E, the tenant or tenants and the owner are parties and under which the tenant or tenants will be required to pay for the installation of weatherization measures on a monthly basis so long as the tenant or tenants occupy the rental property and under which the owner will give his consent to the installation of such measures and agree to require subsequent tenants to continue the payment

of such monthly amounts until the cost of the weatherization measures is repaid to PG&E in full.

- f. A specific schedule for systemwide implementation of the program together with the plan called for in Ordering Paragraph 10 and such other information requests, and recommended Commission actions necessary for expeditious expansion of the program.
- g. A proposal clearly defining PG&E's position as to the extent to which the placement of liens should be used and/or required as part of the systemwide ZIP program.
- h. A proposal clearly defining PG&E's position as to the appropriate cutoff date for eligibility of new or recently constructed residences for ZIP financing under the systemwide ZIP program.

These further hearings shall consider no issues other than those directly relevant to the above-listed subjects.

13. Within sixty days after the date of this order PG&E shall furnish notice of the further hearing set in this proceeding to all its customers by including such notice with the regular bill for charges transmitted to such customers. Such notice of hearing shall summarize the Phase I ZIP program authorized herein and shall notify PG&E customers of the proposal to extend the Phase I ZIP program systemwide.

14. PG&E is authorized to file an offset application to provide prospectively for the recovery of its expenses of providing residential energy audits pursuant to the state RCS plan. If timing is convenient such an application would be consolidated for hearing and decision either with Phase II of this proceeding or with PG&E's pending Application No. 60153 for a general rate increase. As of the effective date of such decision, no further RCS program costs would be recorded in PG&E's ZIP balancing account.

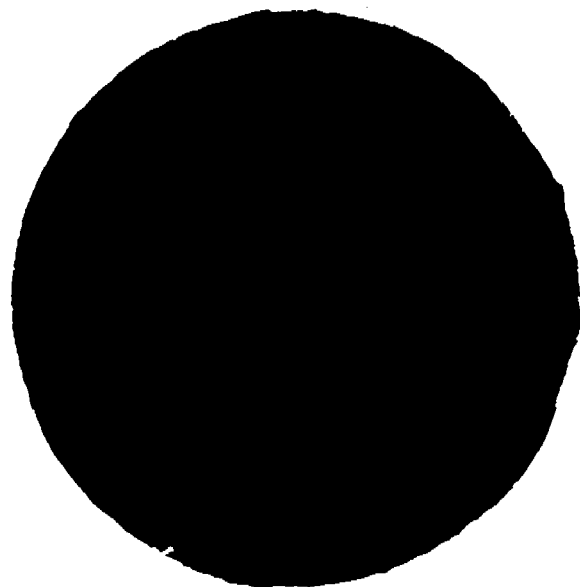
15. Except to the extent herein granted PG&E's application   
is denied.

The effective date of this order is the date hereof.

Dated JAN 28 1981, at San Francisco, California.

*I concur:*  
*see attached*  
*Richard D. Givelle*

*John S. Bryson*  
\_\_\_\_\_  
President  
*Richard D. Givelle*  
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*Richard D. Givelle*  
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Commissioners





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LIST OF APPEARANCES

Applicant: Robert Ohlbach, Daniel E. Gibson, Kermit R. Kubitz, and Merek E. Lipson, Attorneys at Law, for Pacific Gas and Electric Company.

Protestants: Michael Peter Florio, John W. Blethen, and Linda J. Sloven, Attorneys at Law, and Sylvia Siegel, for Toward Utility Rate Normalization; Robert Gnaizda, Attorney at Law, for American G. I. Forum, Chinese for Affirmative Action, Glide Memorial Methodist Church, League of United Latin American Citizens, Mexican American Political Association, and Oakland Citizens Committee for Urban Renewal, and Paul Cobb for Oakland Citizens Committee for Urban Renewal; William B. Hancock, for himself and Cut Utility Rates Today.

Interested Parties: William M. Chamberlain, Dick Ratliff, Gregory Wheatland, and Rosemary H. Morgan, Attorneys at Law, for California Energy Resources Conservation and Development Commission; George Agnost and Leonard Snaider, Attorneys at Law, and Robert Laughead, P.E., for City and County of San Francisco; W. Randy Baldschun, for City of Palo Alto; Joseph Martin, Jr., Edward R. Lozowicki, Jack T. Holland, and Pettit & Martin, Attorneys at Law, for The Mineral Insulation Manufacturers Association and Owens-Corning Fiberglas Corp.; Thom Miller for Central Valley Retrofit Insulation Contractors Association; Joseph J. Honick, for Insulation Contractors Association; Michael F. Manning, insulation contractor, for himself; Philip A. Stohr, Richard R. Gray, and Downey, Brandt, Seymour & Rohwer, Attorneys at Law, for General Motors Corporation; Antone S. Bulich, Jr., Attorney at Law, for California Farm Bureau Federation; John Madariaga, Boris H. Lakusta, David J. Marchant, Thomas J. MacBride, and Graham and James, Attorneys at Law, for themselves; Gregory A. Thomas, Laura B. King, and Rex William Potter, Attorneys at Law, and Dr. Terry R. Losh, for Natural Resources Defense Council; Tom Graff and David Roe, Attorneys at Law, for Environmental Defense Fund; Harvey Mark Eder, for Public Solar Power Coalition; Steven Ferrey and Richard Alpert, Attorneys at Law, of National Consumer Law Center, for Poverty Rights Action Center; Sue Reynoldson, Affirmative Action Officer, for Community Action Board of Santa Cruz County, Inc.; Joe Williams, for California-Nevada Community Action Agencies Association; Douglas Kent Porter and

Michael Gayda, Attorneys at Law, for Southern California Gas Company; Gordon Pearce and Leslie R. Kalin, for San Diego Gas & Electric Company.

Commission Staff: Richard D. Rosenberg, Attorney at Law, Walter Cavagnaro, and George Amaroli.

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Chapter V. Energy Audits.  
California Plan for Residential Conservation Service

A. In General

- "1. Each participating utility shall offer each eligible customer two types of audits: a Class A (or Program) audit, consisting of one or more site visits by a qualified auditor, and a Class B (or do-it-yourself) audit. The Class B audit shall be offered no later than one year after implementation of the Program Audit.

No utility shall require an eligible customer to have a Class B audit or any other audit as a precondition of receiving the Class A program audit.

2. During any Program Audit, and as part of the information supplied with a Class B audit, the utility will provide the customer with the following:
  - a. An explanation of the benefits and services listed in the preceding section and a brief description of how the customer can qualify for these benefits and services.
  - b. Lists of suppliers, installers and lenders as specified in the State Plan, which are available in that portion of the service area and a utility phone number for registering complaints against suppliers, lenders, and installers.

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- c. An explanation of the benefits of the Weatherization Assistance Program for Low-Income Persons (10 CFR Part 440), including eligibility requirements and the name and phone number of the local operating program.
- d. A summary provided by the State of federal and California tax credits available for measures included in this plan, determined to be applicable by the auditor.
- e. Instructions on selecting installers and lenders as part of or separate from the arranging process.
- f. Directions for do-it-yourself installation of program measures, except for furnace efficiency modifications, replacement central air conditioners, whole house fans and wall insulation which require professional assistance, upon request by the customer.
- g. An explanation on how to select the most energy efficient appliances including information on appliance labeling and lists of most efficient appliances if available from the CEC.
- h. An explanation of how to improve the efficiency of existing appliances in the household.
- i. Information on practices to conserve energy.
- j. An explanation of procedures for seeking help with grievances against suppliers, installers and lenders, including how to file a complaint against a licensed contractor.

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- k. Information supplied in d. through j. may be provided in a written brochure.
3. Participating utilities must provide the CEC with copies of the consumer information which they will be using in Program audits or Class B audits. This information must be submitted for review and determination of compliance with the State Plan before it is used in the audits.
4. If in a utility service area more than 10 percent of the population speak a language other than English, the utility must have auditors who are fluent in that language and audit materials that are available in translation. Utilities should consult with their advisory groups regarding the need for service delivery mechanisms tailored to these groups including contracting with community action groups.
5. Participating utilities desiring to provide either joint program audits or the coordination of audit services described above shall submit a description of such procedure to the CEC in order for the state to assure DOE that these audits are being offered in a nondiscriminatory manner.
6. The following provisions will apply to the energy savings calculations in either the Class A or Class B audits:
  - a. The participating utility shall provide the CEC with a complete description of the measurement and inspection procedures used by the auditor to collect data on the building shell; space heating, space cooling, and water heating equipment; and calculation methodology for the energy cost savings estimates. This information

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shall be submitted to the CEC for review and validation at least 60 days prior to implementation of the program.

Estimates of energy savings for conservation and solar measures shall be derived in accordance with procedures set forth in Section III.B.3. supra.

- b. Each estimate of energy savings, materials, installation and maintenance costs and pay-back periods shall be based on the most recently issued CEC projection of fuel prices and escalation rates, range of typical recent local prices for materials and installation of program and State measures and local climate data from the information in Attachment 2 for the eligible customer's location. Local prices for materials and installation, R-values where applicable and maintenance costs shall be determined by a quarterly submittal to the listing agency.
- c. Any cost and savings estimate for any applicable furnace efficiency modification to a gas or oil furnace or boiler must be based on an evaluation of the seasonal efficiency of such furnace or boiler; that is, the estimated peak (tuned up) steady state efficiency corrected for cycling losses. Steady state efficiency shall be derived from manufacturer's design data and observation of the furnace components, or alternatively, by a flue gas analysis of measured flue gas temperature and carbon dioxide content.

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B. Class A Program Audits

1. Procedures

- a. Each eligible customer is entitled to one free program audit. Such audit shall be provided by the utility that supplies the customer's space heating service, upon adoption of a satisfactory arrangement among utilities with overlapping service territories. Such agreement shall ensure that no utility is unduly burdened by a disproportionate share of audits.
- b. An offer of a program audit shall be made to each eligible customer every two years until January 1, 1985.
- c. Each participating utility shall provide a program audit to an eligible customer upon a request for such an audit. The utility shall provide the audit within 45 days of the customer's request.
- d. After a customer's request for a program audit is received, the utility shall contact the customer to schedule the audit.
- e. A utility may not discriminate among eligible customers in providing the program audit except that the utility may sequence audit appointments based on customer usage, geographic location, to take advantage of plans for rehabilitation of housing or redevelopment, or any other reasonable and nondiscriminatory condition subject to approval by the CEC.
- f. A utility may not limit its program audit services to weekdays. If the customer can only be available during evenings or weekends, the utility must provide audits during those times.
- g. The utility will have the option of making more than one site visit to each eligible customer and using more than one auditor, provided that each customer receives a complete program audit in which all appropriate program and state measures and practices are addressed and that the potential for solar applications is identified in the first audit. Measures (by climate zone and building category) and practices are listed in Section V, Attachment 1. Additional measures may be considered, upon approval of the CEC.

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h. The auditor must take measurements when appropriate and make inspections of the building shell, space heating, space cooling, and water heating equipment in order to gather data to compute the cost savings estimates and to make recommendations to the customer. The auditor should emphasize that cost-effective conservation measure(s) should be pursued prior to or in conjunction with the installation of renewable resource measure(s).

i. Energy cost savings estimates.

(1) Using information collected during the audit, the auditor will calculate estimates of total energy cost savings for the first five years, and payback periods for program and state measures which are determined applicable for the residence. If the payback periods for recommended insulation levels exceed twenty years, the auditor shall calculate the insulation levels which provide a twenty year payback.

(2) Audits of Furnaces.

In order for an auditor of a utility to provide cost and savings estimates for furnace efficiency modifications for a furnace which uses as its primary source of energy any fuel or source of energy other than the fuel or source of energy sold by the utility, the eligible customer must request such audit by signing a form which includes the following statement:

"If your home is heated by a source of fuel other than (state the type of fuel supplied by the covered utility), only the supplier of the other fuel may audit your furnace unless you specifically request us to audit your furnace. Federal law requires that such a request be in writing. If you want us to audit your furnace, although we do not supply the fuel for it, please sign below." [Reference: 10 CFR 456.307(f)]

(3) The auditor will also show sample calculations showing the economic benefit of state and federal tax credits for installing applicable program and state measures, which will be based on criteria provided to the utilities by the CEC.



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- j. Using the energy cost savings estimates, the auditor will discuss with the customer which practices to adopt and which applicable measures to install. This will include:
  - (1) Any applicable measure which will pay for itself over its useful life should be recommended. These measures should be ranked in the order of most cost-effective to least cost-effective.
  - (2) The auditor shall discuss benefits of installing the measure in addition to cost effectiveness, such as overall energy savings, comfort, aesthetics, and noise reduction.
- k. The auditor shall determine whether the customer is interested in the do-it-yourself information provided and be prepared to discuss that information as part of the recommendations. No do-it-yourself information should be provided for furnace efficiency modifications, wall insulation, load management devices, replacement air conditioners, or whole house fans. The auditor should be prepared to provide information on the safety hazards associated with do-it-yourself installation of any measure.
- l. The auditor shall show the customer samples or pictures of measures with which the customer may be unfamiliar.
- m. Audit results.
  - (1) Written results of the audit must be presented to the customer in person and on site. If a separate visit is needed to present the written results, the utility must schedule the visit unless the customer declines or cannot reasonably be reached to schedule an appointment, in which case the results may be sent by mail if followed by telephone confirmation and an offer to answer questions.
  - (2) Written results must include:
    - (a) An estimate of the total installed cost (materials and labor), expressed in a range of dollars and determinants thereof, of installation by a contractor

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- of each applicable program or State measure addressed in the program audit.
- (b) An estimate of the total cost, expressed in a range of dollars and determinants thereof, of installation by the customer of each applicable program or State measure except replacement central air conditioners, wall insulation, and furnace efficiency modifications.
  - (c) An estimate of the savings in energy costs, expressed in a range of dollars and determinants thereof, which would occur during the first five years, and estimates of payback periods from installation of each applicable program or State measure addressed by the program audit.
  - (d) A disclosure stating that the total energy cost savings from the installation of more than one program measure may be less than the sum of energy cost savings of each measure installed individually.
  - (e) The following disclosure or its equivalent,  
"the procedures used to make these estimates are consistent with CEC criteria for residential energy audits. However, the actual installation costs you incur and energy savings you realize from installing these measures may be different from the estimates in the audit report. Although these estimates are based on measurements of your house, they are also based on assumptions which may not be totally correct for your household." [Reference: 10 CFR 456.307 (c) (5)]
  - (f) An estimate of the annual normal maintenance costs, if any, of each applicable program or State measure.
  - (g) The economic benefit of federal or State tax incentives with sample calculations provided by the State of the effect of the tax benefits on the cost to the customer of installing applicable program and state measures.

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(h) With respect to a program audit addressing an applicable solar domestic hot water system or active solar space heating system, or combination thereof, a description of the solar system assumed by the auditor in preparing energy savings estimates which shall include the following information:

- i. Square feet of collector.
- ii. Collector characteristics, including glazing materials and other collector materials.
- iii. Any storage system needed, including the capacity of storage.
- iv. Any freeze protection needed.
- v. The estimated percent of the space and/or water heating load to be met by solar energy.
- vi. Any physical connections needed with existing heating systems.
- vii. Any site preparation needed.
- viii. If the results are based on a simulation, the following disclosure or its equivalent:

"The energy cost savings estimates you receive are based on systems which may be different from the ones you purchase. Also, these estimates were not determined using actual conditions but using simulated measurements. Therefore, the cost savings we have estimated may be different from the savings which actually occur." [Reference: 10 CFR 456.307(c)(8)] (viii).

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- (i) With respect to a program audit addressing an applicable passive solar space heating and cooling system:
  - i. The generic designation and a pictorial description of the particular system considered by the auditor.
  - ii. The estimated percent of the heating load to be met by such system.
  - iii. The approximate dimensions of such system.
  - iv. Collection storage characteristics, including the recommended heat capacity of storage.
  - v. The disclosure in Section viii, above.
- (j) The utility should offer to contact the local Weatherization Assistance Program for low-income persons, (10 CFR Part 440) on the customer's behalf. If the customer agrees, the utility should give his name, address, and phone number to the local operator of the weatherization program.
- (k) The utility must make every effort to answer any questions which a customer may have regarding the audit. Information must be given on who to contact if the customer has a question after the audit.
- (l) Prohibitions and disclosures required for program audits:
  - i. The auditor may not make cost and savings estimates for installing any product which is not an energy conserving practice or a program or state measure.
  - ii. The auditor may not recommend any single supplier, contractor, or lender who supplies, installs, or finances the sale or installation of any program or state measure.

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If the utility which arranged the audit supplies, installs, or finances the sale or installation of program or State measures, the auditor may state this.

- iii. No unfair discrimination may be made among program or State measures.
- iv. Each auditor will provide the eligible customer with a written statement of any substantial interest which the person or the person's employer has, directly or indirectly, in the sale or installation of any program or State measure.

2. Contents

- a. The auditor must consider those measures (by climate zone and building category) and practices which are listed in Section V, Attachment 1. No additional measures other than those approved by the CEC may be considered. Additional practices may be discussed at the discretion of the utility.
  - (1) For each program or State practice, the auditor must determine which are applicable for each residence, explain them to the customer, emphasize their importance and recommend they be performed before any measures are done. With the customer's permission, the auditor will adjust timers and thermostats.
  - (2) For each program or State measure, the auditor must determine the applicability of each measure in the residence. A measure is applicable if:
    - (a) The measure is not already in the residence.
    - (b) Installation of the measure is not a violation of applicable federal, State or local law or regulation.
    - (c) With respect to evaporative coolers, a residence building has an air conditioner.

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- (d) With respect to flue opening modifications, the furnace combustion air is taken from a conditioned area.
- (e) With respect to replacement furnaces or boilers, the existing furnace is approximately 10 years old or older.
- (f) With respect to replacement central air conditioners, the residential building has a central air conditioner that is approximately five years old or older.
- (g) With respect to water heater insulation, space is available around the water heater to install insulation.
- (h) With respect to clock thermostats, either the residence currently has a thermostat or the existing furnace or central air conditioner is compatible with a clock thermostat.
- (i) With respect to wall insulation, there is no insulation in a substantial portion of the exterior walls and the building is not a mobile home.
- (j) With respect to heat absorbing or heat reflective window and door material, the residence has an existing central or room air conditioner.
- (k) With respect to electrical or mechanical furnace ignition, that the eligible customer is not turning the pilot light off during the summer and that the furnace is not over seven years old.
- (l) With respect to whole house fans, the average summer temperature difference between day and night is greater than 20 degrees.
- (m) With respect to floor insulation, no floor insulation is present. With respect to slab floors only, the residence is above 3,850 heating degree days and is heated by gas or is above 1,400 heating degree days and is heated by electricity and the floor is not covered with linoleum, wall-to-wall carpeting or tile.

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- (n) With respect to active solar heating systems or combined active solar systems, a site exists on or near the residence which is free of major obstruction to solar radiation and the residence has a space heating system other than a steam heating, electric resistant radiant heating or electric resistance baseboard heating system.
  - (o) With respect to active solar domestic hot water systems, a site exists on or near the residence which is free of major obstruction to solar radiation.
  - (p) With respect to replacement solar swimming pool heaters, there is an existing heated swimming pool and a site exists near the pool which is free of major obstruction to solar radiation.
  - (q) With respect to direct gain glazing systems and indirect gain systems, the living space of the residence has either a south-facing wall (+ or - 45° of true south) or an integral south-facing wall (+ or - 45° of true south) or an integral south-facing roof (+ or - 45° of true south), which is free of major obstruction to solar radiation.
  - (r) With respect to solarium/sunspace systems, the living space of the residence has a south-facing ground level wall, which is free of major obstruction to solar radiation.
  - (s) With respect to window heat gain retardants, the living space of the residence has windows that are not shaded from summer sunshine.
- b. If an auditor recognizes a safety hazard in a residence which would prevent installation of a measure, the auditor should recommend correction prior to installation of that measure, provided that the auditor has no responsibility or duty to recognize safety hazards.

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C. Class B. Audits

1. Definition

The term 'Class B Energy Audit' means an energy audit in which the estimates of costs and savings associated with the installation of program or State measures are based on information collected by an eligible customer about his or her residential building and sent to a participating utility for analysis.

2. Offer of Audit

- a. Each participating utility will offer a free Class 'B' Audit at the same time as the Program Audit is offered. The Class B audit shall be available no later than one year after the initial Program Audit is offered. Customers shall be notified when the Class B audit is available. Unless otherwise indicated, the same criteria described in Section B regarding Program Audits is applicable to Class B Audits.
- b. Based on the information supplied by the customer, the utility will calculate the cost savings associated with the installation of various measures and report their findings to the customer.

3. Follow-up

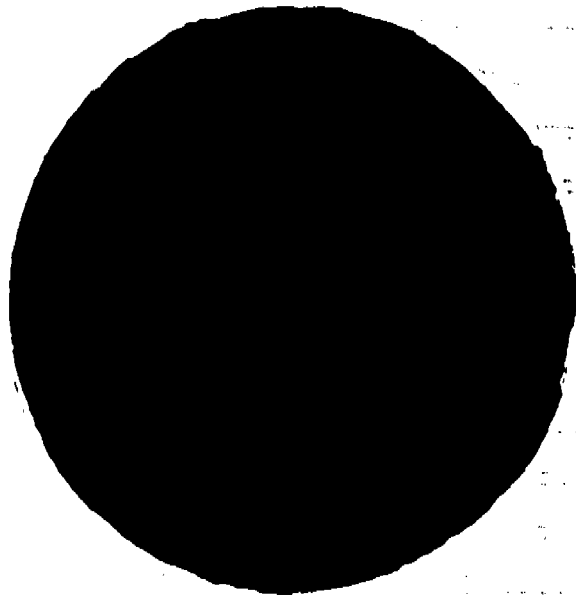
- a. Each participating utility will attempt to contact each eligible customer by telephone (or if unsuccessful, by other means) if the information is incomplete or internally inconsistent, in order to correct or make complete the information.
- b. Each participating utility will provide a local or toll-free telephone number in the audit form so that the eligible customer may reach the utility to ask any questions about the audit.



APPENDIX C

Repeated Abbreviations

|       |   |
|-------|---|
| AFUDC | Allowance for Funds Used During Construction    |
| CEC   | California Energy Commission                    |
| CFA   | Conservation Financing Adjustment               |
| CPUC  | California Public Utilities Commission          |
| DOE   | U. S. Department of Energy                      |
| ECAC  | Energy Cost Adjustment Clause                   |
| ESA   | Energy Security Act of 1980                     |
| GAC   | Gas Adjustment Clause                           |
| GEDA  | Gas Exploitation and Development Account        |
| kWh   | Kilowatt-hour                                   |
| MIMA  | Mineral Insulation Manufacturers Association    |
| NECPA | National Energy Conservation Policy Act of 1978 |
| NRDC  | Natural Resources Defense Council               |
| PESC  | Pacific Energy Services Company                 |
| PG&E  | Pacific Gas and Electric Company                |
| PRAC  | Poverty Rights Action Center                    |
| RCS   | Residential Conservation Service                |
| TURN  | Toward Utility Rate Normalization               |
| ZIP   | Zero-Interest Program                           |



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D. 92653

RICHARD D. GRAVELLE, Commissioner, Concurring:

I concur. This decision may well be the most significant action this Commission has taken in at least the last ten years. It is well-reasoned and supported by ample evidence. It opens the path to a course of utility energy supply that has the potential of reshaping the utility industry in California and providing enormous benefits to all the ratepayers we and the utilities we regulate serve.

However, the path we have opened today is not without its hazards and they too have the potential of being significant. Reality compels that all who are concerned with today's decision realize that it hangs upon some thin strings. Those strings, while thin, are strong today; future external factors may cause them to weaken. Should that occur, this Commission must be in a position to reexamine the entire concept of Zero Interest Financing and widely dispersed conservation activity financed by utility ratepayers.

The first concern we must have is with the participation of all segments of society, particularly the renter and lower income homeowner. We have provided safeguards to assure that the benefits of this program do not become a form of welfare for the wealthy. Those safeguards must remain and they must be effective.

The second concern is that the costs of this program do not escalate out of proportion to the rest of the economy, thereby affecting the current cost-effective status which is the cornerstone of our action. Audit costs and costs of weatherization installation must be kept reasonable to continue the validity of this program. Demand for services provided by ZIP is bound to increase. Insulation manufacturers, auditors, and installers can respond reasonably to this increased demand and reap the economic benefits of greater production and productivity or they can attempt to take undue advantage of the market by escalating prices. Should this occur, the Golden Goose may well be killed.

A. 59537  
D. 92653

Our third concern must also focus upon the continued cost-effectiveness of this program as it relates to the difference between average and marginal costs of utility energy supply. We recognize that average costs will continue to increase and will shrink the difference that now exists with respect to the margin. As this occurs, we must be vigilant to assure that whatever cost-effectiveness test we employ is fully supported and widely accepted by the ratepayers who benefit from this program at the same time they provide its necessary financing.

Our fourth major concern is with the reaction of the consuming public to the benefits of this program. Energy conservation must result; if it does not, if the participant ratepayer merely alters his lifestyle to enjoy a higher level of comfort, there will be no energy saving and no benefit to society. We fully expect major energy savings to flow from this program but recognize that the ultimate control of the magnitude of such savings lies in the hand that controls the thermostat. Consumer cooperation is a key element to success of ZIP.

Nothing in our regulatory world is static. We must have vision and imagination as regulators, and we must couple that with the intestinal fortitude to take bold steps forward even if we recognize there is risk attached to our action. The Commission has done this today. We must continue to have the vision in the future to modify, expand, or terminate this program should conditions then exist that compel such action. Furthermore, we must carefully monitor the result of our decision so that our ratepayers realize the full protection to which they are entitled and the utilities we regulate remain strong and attractive business entities.

  
RICHARD D. GRAVELLE, Commissioner

San Francisco, California

January 28, 1981