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Decision 89 01 012 JAN 11 1989

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

ORIGINAL

Application of Pacific Gas and Electric Company for Commission order finding that gas and electric operations during the reasonableness review period from February 1, 1986 to January 13, 1987 were prudent. (U-39-M)	Application 87-04-005 (Filed April 7, 1987)
Application of Pacific Gas and Electric Company for authority to adjust its electric rates effective August 1, 1987. (U-39-M)	Application 87-04-035 (Filed April 21, 1987)

(See Decision 87-11-019 for appearances.)

FINAL OPINION

Summary

The Commission concludes that Pacific Gas and Electric Company's (PG&E) electric and gas costs under its Electric Cost Adjustment Clause (ECAC) and its Gas Adjustment Clause (GAC) for the period February 1, 1986 through January 31, 1987 are reasonable.

Also, PG&E's residential Time-of-Use (TOU) meter program was reviewed. PG&E was ordered to submit a comprehensive TOU plan in its next general rate case.

I. ECAC Issues

Proposal to Change Ratemaking Treatment of Fuel Oil Inventory Carrying Costs and Oil Sale Losses and Gains

The Division of Ratepayer Advocates (DRA) proposed: (1) to allow only a static, fixed amount of carrying costs in the annual ECAC rates, with no recognition of any difference between actual costs and the fixed amount; and (2) to exclude oil sales losses and gains totally from any rate mechanism. The DRA proposal was vigorously opposed by PG&E and Southern California Edison Company (Edison). Opening briefs on this issue were filed on September 18 and reply briefs were filed on November 6, 1987.

DRA had previously made the same proposal in the ECAC proceedings of San Diego Gas & Electric Company (SDG&E) and Edison. Shortly after briefs were filed in this proceeding, the Commission issued its decision in the SDG&E proceeding. The Commission in Decision (D.) 87-12-069 dated December 22, 1987 stated:

"3. Fuel Oil Inventory

> "DRA has proposed that the ratemaking treatment of the carrying cost of fuel oil inventory should be changed so that the company would receive a 'lump sum' for this expense which would not be adjusted to reflect actual expenses in the forecast period. Essentially, DRA is recommending that SDG&E recover its entire fuel oil inventory carrying cost through the AER.
>
> "DRA asserts that this removal of balancing account treatment for fuel oil inventory carrying cost is consistent with the Commission's recent statements that utilities should not be insulated from the results of their management decisions by balancing accounts but should experience firsthand the gains and the losses resulting from their decisions. DRA also points out that the Commission has adopted

this approach for Southern California Edison Company.

"SDG&E responds that this 'lump sum' approach will create perverse incentives for utility management. SDG&E argues that to treat one energy expense differently than other related energy expenses would create incentives for management to focus on inventory costs more than other energy costs.

"SDG&E further responds that, if adopted, the 'lump sum' proposal will not simplify the Commission's reasonableness review, as contended by DRA. SDG&E maintains that the Commission still will have to closely review the relationship between inventory levels, oil burns, and shortage costs.

"Finally, SDG&E asserts that the existing ECAC/AER procedure gives it an adequate incentive to keep all energy costs, including the carrying cost of fuel oil inventory, as low as possible consistent with the provision of reliable service.

"We decline to adopt DRA's 'lump sum' approach for fuel oil inventory. We find no explanation as to why this particular energy expense should be segregated from other expenses and given different treatment. The rationale offered by DRA could be applied to other energy expenses, not just to the carrying cost of fuel oil inventory. Yet DRA does not explain why only fuel oil inventory and not purchased power or nuclear production or gas expenses should receive 'lump sum' treatment. We agree with SDG&E that the isolated treatment of a single energy cost could create perverse incentives for utility management. This was one reason why we revised our original ECAC/AER procedure which did not result in the uniform treatment of all energy expenses. We will not retrace our steps and return to a procedure equivalent to the placement of

fuel oil inventory carrying cost in the AER.*"

"* If DRA believes that the utility should accept more of the risks and the benefits of its fuel and purchased power cost management, then a straightforward approach would be to recommend an increase of the AER percentage. This approach would treat all energy expenses in a consistent manner."

* * *

"Findings of Fact

"11. DRA has proposed that SDG&E's fuel oil inventory be given 'lump sum' ratemaking treatment equivalent to placing the carrying cost of fuel oil inventory in the AER.

"12. DRA's 'lump sum' approach would single out fuel oil inventory for different ratemaking treatment.

"13. The isolated treatment of fuel oil inventory proposed by DRA could result in perverse incentives for utility management to focus on inventory costs more than other energy costs." (D.87-12-069.)

The DRA proposal was first reviewed in Edison's ECAC proceeding, it was next reviewed in SDG&E's ECAC proceeding, and it was once again reviewed in this proceeding. The proposal has now been thoroughly explored, and based on the testimony received in this proceeding, we find that there is nothing new to add; the SDG&E decision should be the final word on the subject. Accordingly, for the reasons set forth in the SDG&E decision, we conclude that the lump-sum proposal should not be adopted for any of the regulated electric utilities.

II. Reasonableness of Fuel Oil Burns

The only contested issues arising from PG&E's 1987 reasonableness application relate to the reasonableness of certain fuel oil burns in PG&E's electric power plants during the months of October 1986 and January 1987, respectively. The reasons why fuel oil was burned during these two months are different, so the two periods are addressed separately.

Briefs were filed by PG&E and DRA. Opening briefs were filed on June 7, 1988 and reply briefs were filed on June 13, 1988.

October 1986 Burns

DRA recommends a disallowance pertaining to 45,205 barrels of fuel oil burned during October 1986 in PG&E's Morro Bay power plant. DRA concludes that the fuel oil burned was not the least cost fuel source for the ratepayers. Accordingly, DRA recommends that the ECAC balancing account be reduced by $1,230,870, plus related interest, to reflect the difference between the net recorded cost of the fuel oil burned and the replacement cost of gas (Exhibit 90).

Background

On October 1, 1986 PG&E found itself in a situation where anticipated test burns of fuel oil had not fully materialized, and its November 1 inventory would exceed 6.0 million barrels unless

inventory was reduced. Typically, PG&E's maximum fuel oil inventory level is required on November 1 of each year, which is the start of the winter heating season (Exhibit 75). Therefore, PG&E burned 45,205 barrels of excess fuel oil in October 1986 at Morrow Bay power plant to reduce inventory to the 6.0 million level adopted in PG&E's 1986 ECAC/AER proceeding (D.86-08-083).

As a practical matter, because of stringent Coastal Commission permit requirements on transshipment, excess fuel oil at coastal power plants cannot be sold. PG&E has only two choices: hold the oil or burn it.

At the time of the October 1986 oil burns at Morrow Bay, gas was available. The average price of spot gas was $11.40 per barrel equivalent. The delivered cost of replacement fuel oil was $13.05 per barrel (Exhibit 70, Table 11E corrected). The embedded cost of the excess fuel oil in inventory was $38.98 per barrel.

The Issue

Given the facts set forth above, DRA contends that the $38.98 per barrel embedded cost of PG&E's fuel oil in storage should be used in the economic analysis. PG&E disagrees.

PG&E's Position

PG&E states that in making the decision to burn the fuel oil, PG&E followed its stated fuel oil management objective of providing reliable fuel supplies to the power plants at the lowest possible cost, subject to operational and environmental constraints.

PG&E chooses between fuel oil management alternatives based on the economic costs associated with each particular alternative. According to PG&E, economic costs are costs for which money has not yet been spent. PG&E contends that the sunk costs associated with each alternative, such as the cost of fuel oil already in inventory, are not economic costs. Thus, to evaluate the alternative fuel oil burn decisions on an economic basis, incremental costs, both immediate and forecasted for the future,

are analyzed. PG&E then chooses the alternative with the lowest economic cost as the preferred alternative.

PG&E points out that the Commission has continued to use the last adopted fuel oil inventory level as the basis for setting rates. Financing costs consistent with a reduced inventory requirement of 6.0 million barrels were adopted by the Commission in D.86-08-083, dated August 20, 1986.

The crux of PG&E's argument is that since this fuel oil did not have to be replaced to meet the lower authorized inventory level, there was no economic cost associated with its disposition. According to PG&E, the cost to buy the fuel oil has already been paid when it goes into inventory and that is considered a sunk cost.

PG&E submits that the question of when it will be reimbursed for the cost is one of timing and, for purposes of minimizing overall fuel costs while maintaining reliable electric generation, that should not affect the decision whether or not the fuel oil should be burned.

PG&E points out that burning the excess fuel oil eliminates future carrying costs of holding it in inventory. It should be a goal of the utility to carry no more fuel oil inventory than the adopted level since ratepayers are generally better off if the utility carries no more inventory than is necessary to assure reliable electric generation.

PG&E argues that once the minimum requirement level was reduced and the fuel oil at issue became surplus, the question became one of when and how it should be used. The options normally available are to sell it, burn it, or hold it in inventory until it is more advantageous to burn or sell it. But in this case, because of Coastal Commission permit requirements, selling the fuel oil was not a viable alternative.

Next, PG&E argues that there is no basis to conclude that the fuel oil should have been held in inventory until there was a

more advantageous time to burn it. In October 1986, PG&E was forecasting that the price of available spot gas was not expected to rise significantly (Exhibit 89). Hence, holding the fuel oil would not have saved the ratepayers any money since the carrying costs would have continued to accrue.

DRA recommends that PG&E recover no more than the equivalent cost of spot gas at that time. PG&E contends that adoption of the proposed disallowance would put it in an impossible situation: PG&E would not be able to burn excess fuel oil from inventory without incurring a disallowance unless the historical cost of the fuel oil in inventory is less than the marginal cost of gas; and, if PG&E elected to hold the excess oil in inventory, it would pay a penalty for holding excess inventory, even if the excess was reasonably acquired at the time of purchase. Since gas costs were forecasted to not increase significantly, PG&E contends that under DRA's theory it would have been virtually impossible to burn the fuel oil without incurring a substantial disallowance.

DRA Position

DRA believes that PG&E is wrong in assigning a zero replacement cost to the fuel oil it did not expect to replace.

DRA argues that having assigned a zero value to the fuel oil burned, it is not surprising that PG&E determined that the burn was "economic." According to DRA, PG&E essentially is suggesting that it received the oil free of cost notwithstanding that the ratepayers pay full price for the fuel oil when it is burned. DRA argues that the fuel oil burn did not save PG&E's customers $600,000 as contended by PG&E, but cost the customers $1,775,000.

DRA argues that if PG&E's intent was to benefit ratepayers and if its objective was to provide reliable fuel supplies to the power plants at the lowest possible cost, then PG&E should have prepared a realistic economic analysis. According to DRA, if the embedded cost of fuel oil in inventory is $39.26 per barrel, then that price must be considered in an economic analysis.

DRA contends that the proper economic analysis is to look at the actual recorded cost of the fuel oil burned, deduct the carrying cost savings from the cost ($1,775.005 less $28,798 = $1,746,207), and compare it with the spot market replacement cost of gas at the time of the fuel oil burn ($515,337). DRA considers PG&E's actions unreasonable and recommends that the ECAC balancing account be reduced by $1,230,870 ($1,746,207 - $515,337), plus related interest, to reflect the difference between the net recorded cost of the fuel oil burned and the replacement cost of gas (Exhibit 90).

Lastly, DRA argues that PG&E's inventory target level is only a target level. DRA contends that Commission ratemaking allows a utility to carry fuel oil in excess of its target, for a reasonable period, without penalty.

Discussion

The evidence shows that in October 1986, with spot gas priced at $10.13 per barrel equivalent, PG&E was forecasting that there was no foreseeable likelihood of gas becoming more expensive than the $39.26 per barrel excess fuel oil that it was holding. Since sale of this fuel oil was ruled out, PG&E had only two options: (1) hold it and accrue carrying costs, or (2) burn it and cease accruing carrying costs. The avoided carrying cost for eight months, as estimated by PG&E, was $4.19 per barrel (Exhibit 83); eight months is the length of time that would have elapsed if the fuel oil was to be replaced. Gas costs were forecasted to not increase in the foreseeable future. Therefore, if PG&E held the excess fuel oil, unnecessary carrying costs would have accrued for an indefinite period. The DRA position does not recognize that under option (2), PG&E did cut its losses by terminating the accrual of unnecessary carrying costs.

Lastly, with regard to DRA's argument that the Commission allows a reasonable period for a utility to reduce inventory without penalty, we conclude that given the embedded cost of the

excess fuel oil and PG&E's forecasts of future spot gas prices, PG&E acted reasonably by burning the fuel oil at the earliest opportunity after it was declared excess. With carrying costs accruing at the rate of about 50 cents per barrel per month, it would have been imprudent for PG&E to have held the excess fuel oil for any length of time hoping that spot gas prices would increase by at least four times. Accordingly, the DRA adjustment is not adopted.

January 1987 Fuel Oil Burns.
Current vs. Forecasted Fuel Oil Cost

The dispute concerns 108,340 barrels of fuel oil burned at Morrow Bay power plant, and 6,062 barrels burned at Potrero power plant during January 1987.

In contrast to the October 1986 fuel oil burn discussed above, the fuel oil burned in January 1987 had to be replaced. The disagreement between PG&E and DRA is on how the replacement cost of fuel oil should be calculated.

According to DRA, the current cost of fuel oil on the open market at the time of the fuel oil burn is the appropriate value to be used in an economic analysis. PG&E contends that the forecasted future replacement cost is more logical.

There is a separate issue with regard to the availability of additional spot gas during this period. That issue is addressed later.

PG&E's Position

According to PG&E, the situation prevailing at the time of these oil burns was characterized by colder than normal weather and:

1. Higher than anticipated power plant gas demand and system gas sendout.

2. Heavy withdrawals from underground gas storage, jeopardizing the possibility of refilling gas storage for the subsequent season.

3. Unavailability of spot gas in expected quantities, resulting in higher priced El Paso commodity gas being the incremental gas supply available. (Exhibit 87.)

In January 1987, PG&E was taking all available lower cost gas supplies. Forecasted replacement cost of fuel oil, discounted to present value and less the carrying cost of holding the fuel oil, was less than the cost of the next incremental source of gas. Based on a October 1987 replacement cost of $16.50 per barrel, PG&E's then-current forecast fuel oil price, the total economic cost (including carrying cost savings) was $13.33 per barrel. This was compared to a gas burn price of $17.64 per barrel equivalent. The forecast savings in January 1976 at Morrow Bay was $467,525, and at Potrero $26,160 (Exhibits 86 and 87). Therefore, PG&E contends it was economic to burn fuel oil in lieu of gas on the days in question.

PG&E argues that its method of forecasting a future replacement cost of fuel oil allows ratepayers and shareholders alike the opportunity to take advantage of seasonal fluctuations in supply and price rather than pay a current market-based spot price for replacement supplies. PG&E points out that when the purchase is delayed, financing charges are avoided for a period of time. Therefore, PG&E strongly believes that the forecasted future replacement cost of fuel oil is the more logical and economically efficient method to use, from both a ratepayer and shareholder perspective.

DRA's Position

According to DRA, the correct method to review the reasonableness of fuel oil burns is to ascertain the replacement cost of the fuel at the time of the burn, rather than at some projected future date. DRA believes that using the replacement cost at the time of the burn provides the big advantage of using at least two known factors, a fixed time and a specific cost of oil. Therefore, DRA argues that based on prices current at the time of

the burn, PG&E should have continued to burn gas during January 1987.

Further, DRA states that using the price current at the time of the burn in the economic analysis does not mean that PG&E must replace the fuel exactly at the time of the burn. Rather, the replacement cost at the time of the burn simply provides a standard for judging the reasonableness of fuel choices, notwithstanding that the cost of fuel oil at the actual replacement time may be different. According to DRA, this timing factor is considered in the ECAC phase.

DRA argues that in prior ECAC reasonableness reviews, the Commission has expressed concern over the need to get involved in debates on discount rates and speculation on future fuel oil prices. According to DRA, its method responds to the Commission's expressed concerns by using known prices and by not speculating on future prices, discount rates, and holding periods of oil in inventory. DRA believes that its methodology has the advantage that it can be applied fairly and consistently.

Therefore, based on its analysis of the January 1987 fuel oil burns, which reflects the actual price of fuel oil on the open market on the day of the burn, DRA recommends a disallowance of $969,480.

Discussion

The question is: in its economic analysis, should PG&E use the open market price of fuel oil current on the day of the burn? PG&E uses the forecasted price at the expected time of replacement discounted to the date of burn, and less the carrying cost for the period the fuel oil burned is not in storage.

We note for the record that PG&E met its burden of proof in providing an economic analysis to justify the fuel oil burns in dispute (Exhibits 84 and 89). DRA simply seeks to do away with any discussion of: (1) expected date of replacement, (2) future

replacement price, and (3) carrying costs saved by deferring replacement.

We realize that the DRA approach will eliminate most of the controversy that is a necessary part of a reasonableness review. However, we are not persuaded that in order to avoid such controversy, the simplistic approach recommended by DRA should be adopted. The reason is that the DRA proposal does not consider all the financial benefits that result when replacement of fuel oil is delayed for several months. Specifically, the DRA proposal does not reflect the time value of money, it does not account for the carrying cost savings of not holding the fuel oil burned until it is replaced, and it does not consider benefits that can be realized from future seasonally lower fuel oil prices. To ignore all these factors for the sake of eliminating controversy in a reasonableness proceeding could result in the uneconomic purchase of natural gas at a time when fuel oil was the better economic choice. Therefore, the DRA recommendation is not adopted.

January 1987 Fuel Oil Burns.

Availability of Additional Spot Gas

DRA's contention is that additional low-cost spot gas could have been obtained on the days that PG&E made economic fuel oil burns.

PG&E's Position

PG&E believes that DRA's conclusion stems from a mislabeling by PG&E of a heading over a column of figures in PG&E's reasonableness report. According to PG&E, the DRA witness' assumption was based on a table which had a column heading entitled "Incremental Spot Gas Price." (Ex. 70, p. 11-28, emphasis added.) The DRA witness used that spot price as the cost of the gas not taken. PG&E notes that its witnesses went to considerable effort to point out that the column heading was an unfortunate mislabeling. The column should have been entitled "Monthly Average Spot Gas Price."

Nevertheless, responding to DRA's contention, PG&E notes that its witnesses have unequivocally stated that no more additional inexpensive spot gas was available at the time that fuel oil was burned. According to PG&E, the actual incremental cost of gas on the days of economic fuel oil burns was the higher El Paso Natural Gas Company commodity rate. The equivalent cost of El Paso commodity gas for the January 1987 fuel oil burns at issue is found under the column headed "El Paso Cost" in Table B of Exhibit 90, p. 6.

PG&E submits that the facts are these. PG&E's Canadian line was full in December 1986 and January 1987. PG&E made some low-cost Tier III Canadian gas sales to certain on-system customers on certain days during those months, and if PG&E had curtailed Tier III gas to those customers, they would have purchased other on-system supplies, which would not have changed the total quantity of gas flowing into the PG&E system. PG&E also made best efforts off-system sales during those months, but curtailed those customers during the period fuel oil was burned, except for some small volumes of gas that did not enter and could not enter the PG&E system. PG&E made the off-system sales based on a forecast of gas supply and demand based upon normal weather. When the weather grew colder, the demand for gas grew and PG&E's customers were using all available lower cost gas supplies and available withdrawals from underground storage. Thus the remaining choice was between burning fuel oil or purchasing additional quantities of higher priced El Paso commodity gas.

PG&E agrees that if it had known that colder than normal weather would occur, it could have ceased the off-system sales earlier and lessened the extent of the fuel oil burn. However, PG&E contends that the $5 million contribution to margin of the off-system sales to Southern California Gas Company (SoCalGas) greatly exceeded the cost of the fuel oil burn. In essence, PG&E took a calculated risk that the weather would remain normal in

order to obtain a significant contribution to margin for the benefit of ratepayers, knowing that even if the weather did turn colder, the benefits accruing from the off-system sale would exceed the cost of a fuel oil burn. PG&E hopes that the Commission would encourage, rather than discourage, that kind of prudent risk-taking.

DRA's Position

According to DRA, there was a possibility that PG&E could have curtailed its Tier III sales, taken more Tier II and Tier I gas, thereby using lower priced spot gas, avoiding the need to burn fuel oil (TR. 1736). DRA does not accept PG&E's explanation that it burned fuel oil instead of gas to avoid excessive withdrawals from McDonald Island underground storage field and to avoid purchasing higher priced El Paso commodity gas (Exhibit 90, p. 5.)

Discussion

In summary, the testimony shows that in January 1987, PG&E encountered a complex fuel supply situation due to colder than normal weather. Power plant gas demand was higher. Underground gas storage had reached planning target minimums required to protect P1-2A customers, and the ability to fill the McDonald Island storage facility during the upcoming injection season was impaired. Line 400 was flowing full precluding the receipt of additional Canadian gas. Lower priced spot gas was not available. The alternatives were: (1) El Paso commodity gas at $2.67 per million Btu; or, (2) fuel oil at a replacement cost, discounted to reflect carrying cost savings and time value of money, at $2.17 per million Btu. PG&E decided to burn fuel oil (Exhibit 87).

With regard to Tier III sales to SoCalGas during January, this gas could not be moved directly onto the PG&E system. PG&E had purchased gas on the Transwestern system which was moved directly onto the SoCalGas system. This transaction had no physical effect on the PG&E system which was flowing at capacity (TR. 1745).

Regarding DRA's contention that PG&E should have curtailed its Tier III sales earlier, the contribution to margin of $5 million exceeded the cost of the fuel oil burned as a result of limiting underground storage withdrawal. PG&E made its off-system sales based on a normal weather forecast. We encourage that kind of prudent risk taking and conclude that PG&E acted reasonably by not curtailing Tier III sales earlier.

Also, the testimony is that no additional lower priced spot gas was available; the Canadian line was flowing full and curtailing certain Tier III customers on this line would not have changed the situation, because these customers would have purchased other on-system supplies. Therefore, we conclude that PG&E acted reasonably.

III. Time-Of-Use Meter Program

The issue is whether a lump-sum payment plan is needed to make PG&E's time-of-use (TOU) rate option more attractive to its residential customers. DRA and Contra Costa County (CCC) contend that more customers would sign up for TOU rates if the proposed lump-sum plan was offered as an alternative to the present meter charge.

At present, TOU residential customers pay a $4.50 monthly meter charge, of which $0.95 represents operation and maintenance (O&M) expense and $3.55 capital costs.

The proposal, using DRA's lower estimate, is that residential customers pay a lump sum of $141.80 up front and a monthly charge of $1.40. The lump sum would have to be renewed at the end of ten years.

Opening briefs were filed on June 6, 1988, and reply briefs were filed on June 13, 1988. Briefs were filed by PG&E, DRA, and CCC.

Background

In PG&E's 1987 test year general rate case decision, the Commission stated:

> "We agree with Farm Bureau and Contra Costa that TOU rate designs are meaningless without the ability to obtain TOU meters. The testimony shows that PG&E has the capability to install 20,000 meters per year without diverting resources and reducing the quality of service. Accordingly, we will reject the stipulation with regard to TOU meters and adopt PG&E's original dollar estimate for 20,000 TOU meters per year. Accordingly, the adopted test year level of expenditure for TOU meters including studies is:
>
> | | |
> |---|---|
> | Expense | $4,130,000 |
> | Capital | $8,346,000 |
>
> "We note the testimony regarding the development of new residential TOU meters that could become available in 1988 at lower cost. We note that PG&E is working with the manufacturers and testing prototypes. We expect PG&E to thoroughly test the new designs to ensure that they are accurate, reliable and safe before putting them into service. Also, we believe Contra Costa has a valid recommendation that PG&E wait till the new low-cost residential TOU meter becomes available in 1988. We expect PG&E to evaluate this recommendation carefully.
>
> "Further, we note Assembly Bill 2882, which according to PG&E, requires California utilities to provide TOU meters for all agricultural customers who request them. However, there is no firm estimate at this time as to how many TOU meters will be required for agricultural customers.
>
> "At this point in time we see no justification for expanding the program to exceed 20,000 units per year. However, we will review PG&E's progress and make appropriate adjustments as needed. . . .
>
> "Also, in its next ECAC proceeding PG&E should provide a proposal for customer-owned TOU

> meters. The need for such a program at this time is not clear and it may be found that the funding allowed for 20,000 meters per year is sufficient to meet all needs. . . .
>
> "Our intent to implement viable TOU meter programs for residential customers should be characterized in light of the Commission's policies to (1) realign rates based on full EPMC and marginal customer costs and (2) reduce expenditures for conservation and load-management programs. We strongly believe that the realignment of rates based on EPMC and marginal customer costs was appropriate to reduce cross subsidies and move closer to cost-of-service ratemaking. This is also important to allow PG&E to face competitive forces more adequately and base rates on correct price signals. The ultimate effect is to increase the revenue burden which the residential class must bear. These circumstances leave the residential class with fewer options to lower its bills because we have decreased the scope and funding of conservation and load management programs. Accordingly, the Commission desires to provide self-supporting TOU meters to as many residential customers as possible..." (D.86-12-095, at mimeo. pp. 104-105.)

Similarly, in PG&E's 1986 ECAC proceeding, the Commission found:

> ". . . A meter purchase option would allow customers to choose TOU rates; a choice they otherwise might not have. We see this as a step in the right direction, but we agree with PG&E that further study is warranted before implementation.
>
> "Therefore, we direct PG&E and PSD to develop a workable meter purchase option for classes without mandatory TOU rates..." (D.86-12-091, at mimeo. pp. 83-84.)

Since the issuance of these decisions, it is now clear that availability of a new low-cost residential TOU meter is no longer an obstacle. PG&E confirmed that testing was completed on a low-cost meter manufactured by the Domestic Automation Company (DAC), the meter is ready for revenue service, and 10,000 DAC meters are

on order. The DAC meter is an add-on device to the standard electric meter.

The Lump-Sum Plan

The proposal discussed in this proceeding is the result of extensive negotiations over the last one and one-half years between PG&E and DRA. Unfortunately, the policy issues and ratemaking intricacies that emerged as a result have made the TOU meter payment option more controversial than the proposal implies. The treatment of lump-sum payments to the utility as contributions-in-aid-of-construction as consistent with our decision in the Tax Reform Act OII, D.87-09-026 is only one example of the complexity and scope of the items that had to be considered. We need not set forth these complexities here and will limit our discussion to the proposal as it finally evolved.

In summary, the issues to be considered in this proceeding are whether the lump-sum meter charge option for residential customers will:

- Make additional TOU meters available to residential customers.
- Offer opportunities to decrease customer bills and increase the cost-effectiveness of TOU rates.

The main areas of disagreement between PG&E and DRA are:

- The actual incremental cost of the TOU meter.
- Conclusions regarding an acceptable payback period.

PG&E's Position

PG&E disagrees with the need for a lump-sum plan; however, should the Commission decide to implement such a plan, PG&E and DRA reached agreement on the following aspects:

- The lump-sum payment should be based on (a) the incremental cost of providing and installing a TOU meter compared to a

standard meter, and (b) the least expensive TOU meter anticipated to be available when the lump-sum option is offered.

- The capital component of the existing monthly meter charge (referred to as "Option M" by PG&E) must be based on a weighted average cost of all new and old TOU meters in service for each rate schedule, in order for the program to be self-supporting.
- The lump sum and monthly charges may be calculated as proposed by PG&E, except for the incremental capital cost of the DAC meter.
- Residential customers who move may continue TOU service at their new residence by continuing to pay the monthly warranty charge and other applicable monthly charges or may receive the appropriate refund.
- Ownership of meters may be retained by the utility; thus, this is a payment option, not a true purchase option.

PG&E states that it has worked closely with DRA and CCC in trying to develop an acceptable TOU meter payment plan in compliance with the Commission's order. However, PG&E believes it apparent from the efforts of DRA and PG&E that it simply is not possible to structure a lump-sum payment that will be a truly economical alternative to the standard monthly TOU meter charge. According to PG&E, the large risk and uncertainty surrounding the future savings in monthly fixed charges and the appropriate consumer discount rate generally point to downside risks that increase the already unacceptably long payback period.

Turning to specific areas of disagreement, PG&E contends that DRA and CCC continue to misinterpret the proper basis for the lump-sum payment by advocating the exclusion of the base meter cost. According to PG&E, the cost of the fully functional TOU meter must be the starting point for such a calculation. PG&E

points out that the DAC register and base meter are not functional as a TOU meter until retrofitted together. PG&E has the base meter specially produced with the standard five dials removed. According to PG&E, after the ten-year service life, it would cost more to reuse the base meter as a standard meter or another retrofit base than to purchase a new base meter. Hence, PG&E submits that the cost of the base meter should generally be included in the calculation of the lump-sum payment for PG&E ratepayers and shareholders to remain whole.

Addressing DRA's assertion that the base meter should be excluded on the assumption that the base meter has a salvage value after its life as the retrofit base, PG&E argues that even if this were the case, the proper methodology for reflecting this salvage value in the lump-sum calculation would be to include the entire base meter cost in the lump sum, but then decrease the lump sum by the discounted net present value of the base meter's net salvage value after ten years. Again, PG&E maintains that the base meter has no positive net salvage value, but even if it did it would have minimal impact on the lump sum after ten years of present value discounting.

However, PG&E recognizes that DRA has a valid point about reuse of the base meter. Therefore, in response to DRA's suggestion, PG&E states that it will attempt to use old recycled TOU standard meters as the retrofit base, to the extent that a sufficient supply of old, usable meters can be located. In this case, however, PG&E will incur a reconditioning cost. Although the cost savings are yet to be determined, PG&E believes it is sufficient to orient these cost-saving efforts toward reducing the current monthly TOU meter charge.

PG&E remains convinced that a lump-sum payment plan is not necessary. PG&E believes that the plan would be burdensome and expensive to administer. PG&E argues that program simplification, not another layer of bureaucracy and program complexity, with

difficult billing system and customer tracking requirements, would better serve customers. PG&E believes the Commission should question the prudence of requiring ratepayers to potentially subsidize the substantial implementation costs for a lump-sum payment plan.

Lastly, PG&E notes that it now has an ample meter supply to cover its program until the 1990 general rate case cycle. And with the Commission's recent May 11, 1988 decision D.88-05-029 finally lending some stability to the agricultural TOU situation, PG&E estimates that it may very well exceed the authorized 20,000 level per year in 1988 and 1989. PG&E recommends that the issue of the appropriate pace of TOU program expansion and appropriate funding levels be decided in its 1990 test year general rate case proceeding.

Position of DRA

DRA contends that the cost of modifying the base meter should not be charged as a TOU meter cost; the lump-sum payment should be based only on the cost of the DAC add-on unit and should not include the cost of the conventional "base" meter to which it is attached.

DRA states that it received information from DAC that the only modification to the base meter that is necessary to install a DAC meter is to apply an oil-based paint under the name plate of the base meter, which takes about 10 seconds. It is not necessary to remove the five dials that are standard on a meter. According to DAC, most utilities leave the dials on. Installing a DAC meter will not affect the operation of the standard meter in any way.

DAC further informed DRA that refitting a new DAC unit to a base meter, when an initial DAC unit's life is spent, only involves removing two screws, installing a new DAC meter in the old one's place, and replacing the two screws. The process takes about 30 to 40 seconds, and is no more complicated than replacing a meter's batteries. According to DAC, it is physically possible to

make this replacement in the field, and some utilities are considering doing so; the main complication in doing the replacement in the field is a legal restriction in some states that a meter must be brought into the shop if the cover is removed, but California does not have such restrictions.

DRA notes that PG&E has contracted with the Sagamo Meter Company to perform the retrofit for a cost of $7 per meter. DRA points out that PG&E is removing the standard five dials from the base meter. According to DRA, this does not need to be done for the meter to function properly.

Position of Contra Costa County (CCC)

CCC supports DRA's recommendations with regard to the lump-sum plan.

CCC takes strong exception to PG&E's performance in marketing TOU rates, contending that PG&E has made little progress on this program. According to CCC there are fewer residential customers on TOU rates today than in 1983 (due to natural attrition and lack of new recruitment). According to CCC, PG&E has delayed where possible, stymieing a program which is becoming more and more important to the residential class given the staged implementation of Equal Percentage of Marginal Cost Based Rates.

CCC notes that PG&E suspended all marketing for six months in 1987 due to concerns about "bait and switch" marketing following anticipated redesign of the rates in the 1988 ECAC. CCC contends that PG&E, with its "targeted marketing" approach, could have easily marketed to high-use customers whose savings would not have been affected by the redesign of rates. Instead, PG&E installed only 4,014 meters in 1987, 15,986 short of the 1987 goal of 20,000 meters.

CCC believes that TOU fulfills important Commission objectives by helping the residential class lower its peak demand cost, as well as by providing accurate price signals. Yet, according to CCC, unless PG&E is given clear direction to develop

TOU rates as a viable ongoing program, TOU rates will never achieve the Commission's objectives. Consequently, CCC believes it is important that the Commission continue its oversight role. To do so, however, the Commission must have benchmarks with which to judge PG&E's progress. Accordingly, CCC requests that PG&E be ordered to file such a TOU program plan, including a manpower analysis, as part of its 1990 test year general rate case filing, so that the Commission may establish goals and objectives for PG&E.

Discussion

We need not repeat the arguments for and against painting the dials and modifying the meters in the field. PG&E currently pays Sangamo Meter Company $7 per meter to perform the retrofit. We note PG&E's testimony: "The standard five dials have been removed to avoid confusion with a standard meter, to avoid discrepancies in the total kWh read listed by the electronic register and the mechanical dials, and because ANSI standards require a frontally located nameplate (the dials are the best location)." (Exhibit 96.) Thus, we conclude that PG&E's decision to not modify these meters in the field is reasonable.

Turning to the economics, the cost and payback analysis is set forth below:

Method 2B
(Deferred taxes, 10-year term)

E-7 DAC meter	Lump-sum Payment	Monthly Charge	Payback Years
DRA cost estimates	$141.80	$1.40	4.93
PG&E cost estimates	$177.51	$1.51	7.10

(Exhibit 97)

The above table indicates that using DRA's cost estimate, Method 2B has about a five-year payback. In other words, after paying PG&E a lump sum of $141.80 and an O&M charge of $1.40 per

month, a customer would break-even after five years. The customer would save $3.10 per month ($4.50-$1.40) during years 6 through 10, but would continue to pay the $1.40 O&M expense charge each month. At the end of ten years the customer would pay a new lump sum of $141.80.

Also the above table indicates that using PG&E's cost estimate, Method 2B has about a seven-year payback. In other words, after paying PG&E a lump sum of $177.51 and an O&M charge of $1.51 per month, a customer would break-even after seven years. The customer would save $2.99 per month ($4.50-$1.51) during years 8, 9, and 10, but would continue to pay the $1.51 O&M expense charge each month. At the end of ten years the customer would pay a new lump sum of $177.51.

It should not be overlooked that the positive cash flow payment streams under the lump-sum plan are sensitive to fluctuating interest rates, or the possibility that the current $4.50 meter charge could be reduced if quantity price discounts are realized on the DAC unit.

Given that the customer must renew the lump sum every 10 years, and there is only a three- to five-year window where the customer may realize savings and there is considerable risk that small changes in discount rates could wipe out anticipated savings, we believe that a customer who has already decided to go on TOU rates will not necessarily opt for the lump-sum plan. Also, we are not convinced that the plan is a sufficient incentive to the customer who is undecided with regard to the benefits of the TOU rate design, to opt to go onto TOU rates.

In summary, we are not persuaded that the cost-effectiveness of the lump-sum plan is so attractive that it justifies adding a new layer of complexity to PG&E's array of rates. The lump-sum plan will not be a simple matter to explain to a customer faced with a choice, especially since the return varies with the interest rate used. The additional administration costs

were not considered in the economic analysis by either PG&E or DRA. Since PG&E has all the meters it needs, and the funding that is necessary for this rate case cycle, we conclude that the lump-sum plan should not be implemented.

Lastly, we agree with CCC that PG&E should submit a TOU marketing plan, including manpower and capital requirements, as part of its 1990 test year general rate case filing. Also, PG&E should address the applicability of its TOU program to low-income and low-usage customers, and examine the possibility of offering "fully paid-up" TOU meters to low-income customers at no additional cost. Since PG&E does offer items such as refrigerator rebates for its more affluent customers, it may likewise consider offering TOU meters to low-income customers. Preferably, the capital cost of these TOU meters should be expensed rather than rate based.

Comments on Proposed Decision

Pursuant to Public Utilities Code § 311 and the Commission's Rules of Practice and Procedure, the Proposed Decision was published on November 22, 1988. Comments were timely filed by DRA and PG&E. Reply comments were timely filed by Edison and PG&E.

After considering the comments, we affirm the Proposed Decision, with the addition of the uncontroversial stipulation set forth below.

Study on Lost and Unaccounted for Gas

In Exhibit 81, DRA addressed the issue of lost and unaccounted for (LUAF) gas, including the scope and timing of the LUAF gas study which PG&E was directed to perform in D.86-12-091. That decision directed the study to be submitted by December 31, 1987. As stated in Exhibit 81, PG&E and DRA staff members met during the course of the 1987 case, and discussed the scope and progress of the LUAF study. As a result of those discussions, the DRA in Exhibit 81 recommended including certain issues in the study and extending the filing date to July 31, 1989.

PG&E agrees with DRA's recommendations on the LUAF study and requests the Commission to change the filing date for the study from December 31, 1987 to July 31, 1989.

We have no objection. The filing date should be changed accordingly.

Findings of Fact

Fuel Oil Lump-Sum Proposal

1. In SDG&E's ECAC decision, the Commission declined to adopt DRA's lump-sum proposal for fuel oil inventory because this would be equivalent to placing the carrying cost of fuel oil inventory in the AER, it would single out fuel oil inventory for different ratemaking treatment, and could result in perverse incentives for utility management to focus on inventory costs more than other energy costs (D.87-12-069).

October 1986 Burns

2. In October 1986 PG&E burned 45,205 barrels of fuel oil in its Morro Bay power plant that was excess to its needs. This fuel oil was prudently acquired at the time of purchase, it could not be sold, and it was not to be replaced in the foreseeable future.

3. By using the excess fuel oil at Morro Bay instead of gas, PG&E saved the additional carrying costs which would have accrued. Eight months of avoided carrying cost was $4.19 per barrel.

4. Since PG&E saved the additional carrying costs by not holding excess fuel oil, the October 1986 fuel oil burn at Morro Bay was reasonable.

January 1987 Burns

5. The price of fuel oil in the open market on the day of the burn is incidental if replacement fuel oil will not be purchased on that day.

6. When burning fuel oil that has to be replaced, in order to make an economic choice, it is necessary to consider the forecasted replacement cost of the fuel oil discounted to present

value less the carrying cost saving of not holding that fuel oil in storage. This cost should be compared with the cost of burning gas.

7. Curtailing its Tier III sales to SoCalGas and other customers on its Canadian line in January 1987 would not have made more lower priced spot gas available on the PG&E system, thereby making it more economical for PG&E to burn gas in its power plants rather than fuel oil.

8. The fuel oil burned in January 1987 had to be replaced. Since the discounted replacement cost of fuel oil ($2.17 per million Btu) was less than the cost of the next incremental source of gas ($2.67 per million Btu), it was reasonable for PG&E to burn fuel oil during this month.

TOU Meter Program

9. At present, TOU residential customers pay a meter charge of $4.50 per month.

10. PG&E has an ample supply of residential TOU meters available and funding for purchase of these meters is not a problem in this rate case cycle.

11. Under the proposed lump-sum plan, using DRA's lower costs, a prospective TOU customer would have to pay a lump sum of $141.80 every 10 years to save $3.10 per month during years 6 through 10. There would be an on-going O&M expense charge of $1.40 per month. This would be an alternative to the present charge of $4.50 per month.

12. We are not persuaded that a significant number of customers would elect to go on TOU rates simply because the lump-sum plan is offered as an alternative. The economics of the proposed lump-sum plan are not attractive enough to justify adding another layer of complexity to PG&E's rates, along with added administrative and recordkeeping expense. Therefore, the lump-sum plan should not be implemented.

Conclusion of Law

PG&E's electric and gas energy costs under its ECAC and its GAC for the period February 1, 1986 through January 31, 1987, are reasonable.

FINAL ORDER

IT IS ORDERED that:

1. Pacific Gas and Electric Company's (PG&E) electric and gas costs under its Electric Cost Adjustment Clause and its Gas Adjustment Clause for the period February 1, 1986 through January 31, 1987 are reasonable.

2. PG&E shall submit a Time-of-Use (TOU) marketing plan, including manpower and capital requirements, as part of its 1990 test year general rate case filing. Also, PG&E shall address the applicability of its TOU program to low-income and low-usage customers.

3. The filing date for PG&E's study on lost and unaccounted for gas shall be changed from December 31, 1987 to July 31, 1989.

4. This proceeding is concluded.

This order becomes effective 30 days from today.

Dated JAN 11 1989, at San Francisco, California.

G. MITCHELL WILK
President
FREDERICK R. DUDA
JOHN B. OHANIAN
Commissioners

Commissioner Stanley W. Hulett being necessarily absent, did not participate.

I CERTIFY THAT THIS DECISION WAS APPROVED BY THE ABOVE COMMISSIONERS TODAY.

Victor Weisser, Executive Director

fuel oil inventory carrying cost in the AER.*"

"* If DRA believes that the utility should accept more of the risks and the benefits of its fuel and purchased power cost management, then a straightforward approach would be to recommend an increase of the AER percentage. This approach would treat all energy expenses in a consistent manner."

* * *

"Findings of Fact

"11. DRA has proposed that SDG&E's fuel oil inventory be given 'lump sum' ratemaking treatment equivalent to placing the carrying cost of fuel oil inventory in the AER.

"12. DRA's 'lump sum' approach would single out fuel oil inventory for different ratemaking treatment.

"13. The isolated treatment of fuel oil inventory proposed by DRA could result in perverse incentives for utility management to focus on inventory costs more than other energy costs." (D.87-12-069.)

With regard to Edison, in D.87-11-013 dated November 13, 1987, the Commission stated:

"11. Edison's motion to consolidate Commission consideration of the accounting issues related to PSD's fixed fuel oil inventory carrying costs is granted as follows: To the extent that the decision in Pacific Gas & Electric Company's A.87-04-005 establishes accounting procedures for fixed fuel oil inventory carrying costs, those accounting procedures shall be adopted by Edison. In all other respects, Edison's motion is denied." (Ordering Paragraph 11, D.87-02-019.)

DRA contends that the proper economic analysis is to look at the actual recorded cost of the fuel oil burned, deduct the carrying cost savings from the cost ($1,775.005 less $28,798 = $1,746,207), and compare it with the spot market replacement cost of gas at the time of the fuel oil burn ($515,337). DRA considers PG&E's actions unreasonable and recommends that the ECAC balancing account be reduced by $1,230,870 ($1,746,207 - $515,337), plus related interest, to reflect the difference between the net recorded cost of the fuel oil burned and the replacement cost of gas (Exhibit 90).

Lastly, DRA argues that PG&E's inventory target level is only a target level. DRA contends that Commission ratemaking allows a utility to carry fuel oil in excess of its target, for a reasonable period, without penalty.

Discussion

The evidence shows that in October 1986, with spot gas priced at $10.13 per barrel equivalent, PG&E was forecasting that there was no foreseeable likelihood of gas becoming more expensive than the $39.26 per barrel excess fuel oil that it was was holding. Since sale of this fuel oil was ruled out, PG&E had only two options: (1) hold it and accrue carrying costs, or (2) burn it and cease accruing carrying costs. The avoided carrying cost for eight months, as estimated by PG&E, was $4.19 per barrel (Exhibit 83); eight months is the length of time that would have elapsed if the fuel oil was to be replaced. Gas costs were forecasted to not increase in the foreseeable future. Therefore, if PG&E held the excess fuel oil, unnecessary carrying costs would have accrued for an indefinite period. The DRA position does not recognize that under option (2), PG&E did cut its losses by terminating the accrual of unnecessary carrying costs.

Lastly, with regard to DRA's argument that the Commission allows a reasonable period for a utility to reduce inventory without penalty, we conclude that given the embedded cost of the

were not considered in the economic analysis by either PG&E or DRA. Since PG&E has all the meters it needs, and the funding that is necessary for this rate case cycle, we conclude that the lump-sum plan should not be implemented.

Lastly, we agree with CCC that PG&E should submit a TOU marketing plan, including manpower and capital requirements, as part of its 1990 test year general rate case filing. Also, PG&E should address the applicability of its TOU program to low-income and low-usage customers, and examine the possibility of offering "fully paid-up" TOU meters to low-income customers at no additional cost. Since PG&E does offer items such as refrigerator rebates for its more affluent customers, it may likewise consider offering TOU meters to low-income customers. Preferably, the capital cost of these TOU meters should be expensed rather than rate based.

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4. Since PG&E saved the additional carrying costs by not holding excess fuel oil, the October 1986 fuel oil burn at Morro Bay was reasonable.

January 1987 Burns

5. The price of fuel oil in the open market on the day of the burn is incidental if replacement fuel oil will not be purchased on that day.

6. When burning fuel oil that has to be replaced, in order to make an economic choice, it is necessary to consider the forecasted replacement cost of the fuel oil discounted to present value less the carrying cost saving of not holding that fuel oil in storage. This cost should be compared with the cost of burning gas.

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per month. This would be an alternative to the present charge of $4.50 per month.

12. We are not persuaded that a significant number of customers would elect to go on TOU rates simply because the lump-sum plan is offered as an alternative. The economics of the proposed lump-sum plan are not attractive enough to justify adding another layer of complexity to PG&E's rates, along with added administrative and recordkeeping expense. Therefore, the lump-sum plan should not be implemented.

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FINAL ORDER

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3. This proceeding is concluded.
This order becomes effective 30 days from today.
Dated _____, at San Francisco, California.