

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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to Executive Director

RESOLUTION: E-2039

EVALUATION & COMPLIANCE DIVISION

BRANCH: Energy

DATE: May 1, 1985

Director  
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Accounting Officer

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ENERGY BRANCH  
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R E S O L U T I O N

ORDER AUTHORIZING PACIFIC GAS AND ELECTRIC COMPANY (PG&E) TO IMPLEMENT A PROPOSED RATE SCHEDULE FOR EXPERIMENTAL ELECTRIC SERVICE. SCHEDULE A-RTP, REAL-TIME-PRICING SERVICE

By Advice Letter Nos. 1064-E and 1064-E-Supplemental filed March 18, 1985 and March 25, 1985, respectively, PG&E has requested authorization to implement a proposed rate schedule, Schedule A-RTP, and a proposed form for electric service agreement, Electric Service Agreement - Experimental Real-Time-Pricing Service (Form 79-704) to accompany Schedule A-RTP, as set forth on Cal. P.U.C. Sheets Nos. 9033-E through 9038-E, inclusive. The facts are as follows:

1. By Decision No. 83-12-068, dated December 22, 1983, in Application No. 82-12-048, the Commission authorized PG&E to conduct an experiment in real-time-pricing applicable to large commercial and industrial users. Under this experimental program participants will be given a daily price schedule by hour of energy usage with 24-hour notice in advance. The Commission adopted funding of \$419,000 in 1984, adjusted for escalation. (See Attachment 1, Table V-4, Line 26 from Decision No. 83-12-068). PG&E filed the above mentioned advice letter filing with the intent to utilize the new rate schedule, Schedule A-RTP--Real-Time-Pricing Service, to make its initial test of the feasibility and potential of real-time-pricing (RTP).
2. Real-time-pricing is the practice of continually updating prices to reflect changes in the cost of producing and delivering electricity, i.e., it is based on marginal costs of electricity. Ideally, RTP can be viewed as a refinement of time-of-use rates. The proposed new schedule offers customers who can adjust their patterns of use the opportunity to lower their bills. Additionally, it makes possible better use of utility capacity.
3. Rates paid by participating customers will be subject to hourly changes. Customers will be notified on a daily basis, through equipment supplied by PG&E, of the prices that will be in effect each hour of the following day. Prices will be determined by means of a real-time-pricing algorithm.
4. The rate is designed to collect the same revenue requirement with RTP's as would have been collected with the A-22 Tariff Schedule if there is no shift in the customer's load. The algorithm will produce an RTP each hour

which is the sum of the 1) base energy rate 4.22 mills/kWh to recover AER, CFA, SFA, RCS, Steele Surcharge and CPUC reimbursement fee and 2) spot energy rate. The spot energy rate is composed of the 1) hourly marginal energy cost; 2) marginal shortage cost (based on current as-available capacity payments to qualifying facilities); and 3) a seasonably differentiated fixed adder to produce revenue neutrality and marketability. The RTP algorithm reasonably meets the goals of representing marginal costs, recovery of base charges, maintaining revenue neutrality and being marketable. The fixed adder should be adjusted to maintain revenue neutrality if changes to gas rates and/or rate design compromise this RTP goal and constraint, and we expect the staff and PG&E to make that adjustment as necessary.

Comparison of Typical Rates \$ per kWh

Period A Summer Month, August

		<u>A-22 Rate</u>	<u>Real-Time Pricing Rate *</u>
On Peak	3:00 p.m.	.11434	.1400
Partial Peak	9:00 p.m.	.09375	.0690
Off Peak	2:00 a.m.	.06507	.0500

Period B Winter Month, January

		<u>A-22 Rate</u>	<u>Real-Time Pricing Rate *</u>
On Peak	3:00 p.m.	.10950	.0740
Partial Peak	9:00 p.m.	.08423	.0710
Off Peak	2:00 a.m.	.07040	.0390

\* Approximate values from graph of real-time-price estimates by PG&E.

5. The proposed rate schedule, as well as the overall design of the experiment, reflects the Commission Staff's strong interest and input. PG&E has been working closely with the Staff in developing the scope and direction of the project.

6. PG&E plans to recruit up to five participants for the experiment from among customers in the East Bay Region currently being served on Schedule Nos. A-21 and A-22, Time-Metered General Service. Restricting the experiment to only one region will facilitate close coordination between PG&E and participants.

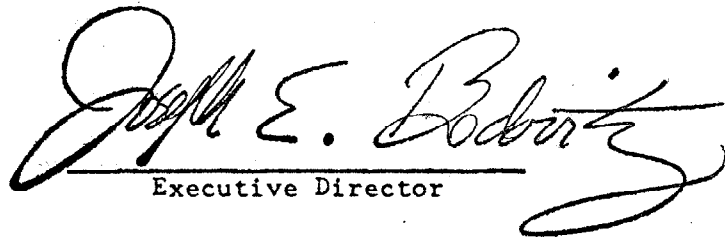
7. PG&E wishes to begin serving customers under the new Schedule commencing on or after June 1, 1985.
8. Per agreement with PG&E, Staff believes that the tariff should be approved to be effective only through March 31, 1986. Modifications to the tariff may be possible after the experience gained in 1985. The Commission will want to approve those changes before additional case studies begin.
9. PG&E has agreed with Staff on the reporting requirements and will provide a draft report on the 1985 case study with the NOI and application for PG&E's Test Year 1987 general rate case, and a final report to be submitted by February 1, 1986. Attachment 2 to this Resolution provides the reporting details.
10. As agreed to by PG&E, PG&E will continue RTP algorithm development concurrently with the 1985 case study, for potential implementation in the 1986 case study. Among other elements, the Commission Staff expects PG&E to include a shortage cost component in its RTP formula for the 1985 sensitive study and refinements to shortage costs for subsequent studies in 1986-87.
11. Copies of this advice letter have been sent to all interested parties which appear on the attached service list to the advice letter and supplemental advice letter. The Commission has received no protests in this matter.
12. This filing has been reviewed by the Commission Staff and approval is recommended.
13. We find that this advice letter is just and reasonable and will not increase any rate or charge, cause a withdrawal of service, or conflict with any other schedules.

THEREFORE:

1. Advice Letter 1064-E and 1064-E-Supplemental and accompanying tariff sheets shall become effective under Sections 454 and 490 of the Public Utilities Code.
2. PG&E is hereby authorized to implement proposed rate Schedule A-RTP, Real-Time-Pricing Service and to implement the proposed Electric Service Agreement Experimental Real-Time-Pricing Service Form 79-704 commencing on or after May 1, 1985 to be effective only through March 31, 1986.

3. The above mentioned Advice Letter 1064-E and Advice Letter 1064-E-Supplemental and tariff sheets shall be marked to show that they were authorized for filing by Commission Resolution E-2039. This resolution is effective today.

I certify that this resolution was adopted by the Public Utilities Commission at its regular conference on May 1, 1985. The following Commissioners approved it:

  
Executive Director

DONALD VIAL  
President  
VICTOR CALVO  
PRISCILLA C GREW  
WILLIAM T BAGLEY  
Commissioners

TABLE V-4

Pacific Gas and Electric Company  
Proposed and Adopted Load Management Expenditures  
Test Year 1984  

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(Thousands of 1984 Dollars)

<u>Name of Program</u>	<u>PG&amp;E</u>	<u>Staff</u>	<u>Adopted</u>
<u>Residential</u>			
Air Conditioner Direct Control	\$ 5,608	\$ 2,930	\$ 3,376
Water Heater Direct Control	190	0	164
Time-of-Use (TOU)	11,460	1,328	3,000
Swimming Pool Pump Timer	413	386	384
<u>Agricultural</u>			
Large Customer TOU (PA-2)	5,133	3,188	1,000
Small Customer (PA-3)	1,871	0	500
Interruptible (PA-T)	355	296	329
Odd-Even Service (PA-R)	1,160	1,010	1,075
<u>Commercial/Industrial</u>			
Mandatory TOU A-23/A-22/A-21B	150	28	144
A-23, Special Condition 10	300	99	278
A-22, Special Condition 10	167	41	154
Group Load Curtailment	3,607	1,806	2,000
A-18B Interruptible	130	60	119
Small Commercial Interruptible	99	36	90
A-21A Optional TOU	1,312	0	440
A-7 Optional TOU	1,591	0	560
→ Real Time Pricing	438	0	419
Commercial A/C Direct Control	498	0	462
<u>General and Support Programs</u>			
Community Electricity Management	3,465	1,114	1,000
Load Analysis			
a. End-Use Analysis	5,174	1,913	4,796
b. Metering of Small Power Producers	323	311	299
c. PURPA and Class Load Analysis	185	80	170
Data Acquisition System	826	416	776
Demand Control Center	266	138	246
Energy End-Use Data Collection	1,967	1,416	1,782
Marginal Cost/Economic Analysis	739	0	0*
Metering Systems Evaluation	1,539	651	1,488
Administrative Functions	3,194	0	1,634
Total Electric Load Management	\$52,160	\$17,713	\$26,685

REPORTING ON RTP PROJECT

The focus of the 1985 case studies should be to:

- a. Develop and demonstrate an RTP formula.
- b. Demonstrate hardware to transmit RTP's and measure responses.
- c. Work with customers to develop scenarios for customer responses to RTP's.

While collecting response data in the 1985 case studies will be interesting, the data will itself not be useful for measuring cost-effectiveness of RTP's (e.g., the sample results cannot be generalized to the population). The response data collected in 1985 should be used to test whether data is being collected (and can be collected) which is needed from the 1986-87 studies for the policy decisions. To that end, the report should include at least the following:

- a. Policy Context and Goals (and how the studies will provide information to answer policy questions).
- b. Development of RTP Formula.
- c. Case Studies:
  1. Experience with RTP (what were the forecasted prices, actual prices, range, influential factors).
  2. Hardware/software description and experience.
  3. Discussion of potential customer response scenarios.
  4. Response (actual and projected sales and revenues, elasticities).
  5. Ability to collect data needed for policy analysis.
  6. Customer acceptance (what they liked, did not like and customers' suggested modifications).
- d. Sensitivity Study.
- e. Associated Efforts: Analysis of RTP associated efforts (page 47 of February 1985 Project Plan).
- f. Summary/Conclusions of Case Studies, Sensitivity Study and Associated Efforts.
- g. Recommendations for 1986 Experiments.