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PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

EVALUATION AND COMPLIANCE DIVISION
ENERGY BRANCH

RESOLUTION G-2738
October 16, 1987

R E S O L U T I O N

PACIFIC GAS AND ELECTRIC COMPANY (PG&E). ORDER AUTHORIZING REVISION TO SCHEDULE G-55A, COGENERATION SERVICE, TO UPDATE SPECIAL CONDITION 3, LIMITATION ON ALLOWANCE OF NATURAL GAS, BASED ON THE CURRENT ANNUAL AVERAGE INCREMENTAL ENERGY RATE (IER) ADOPTED IN DECISION 86-12-091. (Advice Letter No. 1422-G, filed August 3, 1987).

SUMMARY

1. By Advice Letter 1422-G, filed August 3, 1987, PG&E requests Commission authorization to amend Special Condition 3 of Schedule G-55A, Cogeneration Service, to update its limitation on allowance of natural gas to cogenerators. The updated limitation on allowance is determined from the current annual average Incremental Energy Rate (IER) of 10,214 BTU/kWh and from a transmission line loss rate of 1.234 percent which were adopted in Decision 86-12-091 in PG&E's 1986 Electric Cost Adjustment Clause (ECAC), Application 86-04-012.

2. PG&E is hereby authorized to update its limitation on allowance of natural gas to cogenerators, as requested in Advice Letter 1422-G.

BACKGROUND

3. The limitation on allowance of natural gas applicable to Schedule G-55A was originally established in compliance with Ordering Paragraph 3 of Decision No. 92792, dated March 17, 1981. The Order stated that the cogeneration gas rate "shall apply to that amount of natural gas which the electric utility in that service territory would require to generate an equivalent amount of electricity." The limitation was established to tie "the amount of gas qualifying for the cogeneration gas rate to the (equivalent) volume of gas a utility would have consumed to make the same kWh" thus relating "the energy savings achieved to the fuel costs avoided by the utility generating plant".

4. The gas allowance requirement was codified in Public Utilities Code Section 454.4 in 1984.

5. The gas allowance ensures that cogenerators with facilities typically more thermally efficient than the utility's plants can purchase the natural gas it uses to produce electricity at a rate not higher than that which the utility uses to generate electricity. To the extent that cogeneration is more efficient than utility generation, the Commission sought to reward this thermal efficiency by providing the cogenerator with an amount of natural gas which the utility would require to produce an equivalent amount of energy (kWh) or the amount required by the cogeneration facility for the sequential production of electricity and steam--whichever is less. In short, the gas allowance is consistent with avoided cost principles.

6. At the time of Decision No. 92792, a gas allowance of 0.114 therms/kWh (11,400 Btu's) was calculated based on then current utility Incremental Heat Rate (IHR) and line loss factors. The IHR was calculated based on the assumption that gas or oil was used at the margin. The gas allowance of 11,400 Btu's has not been updated since D.92792 was issued in 1981.

7. PG&E no longer solely uses gas at the margin. Therefore, the IHR is no longer applicable, but is being replaced with the adopted Incremental Energy Rate (IER). The current IER adopted in Decision No. 86-12-091 is 10,214 BTU/kWh. The current transmission loss factor for primary distribution is 1.01234. Thus, the new gas allowance is calculated to be 10,300 Btu/kWh as shown in Attachment 1.

8. On April 7, 1987, PG&E filed Advice Letter 1403-G seeking Commission authorization to update the limitation on gas allowance. However, in that filing, PG&E calculated the gas allowance from only the IER, and did not include a factor to make allowances for reasonable transmission losses. At the request of Commission staff, PG&E filed a supplement (Advice Letter 1403-G-A) to Advice 1403-G which revised the gas allowance to include transmission losses of 1.234 percent. Transmission line losses of 1.234 percent were adopted in D.86-12-091.

9. Because of the protests received regarding Advice Letter 1403-G and its Supplement, the Commission staff held two workshops to discuss the impacts of these filings. The workshops were attended by representatives from utilities, the

cogeneration industry, and the Commission staff. The major issues discussed were as follows:

- (a) Is the IER a reasonable substitute for the IHR?
- (b) What inputs should be incorporated in the IER?
- (c) What are reasonable transmission losses; should primary and secondary losses be included?
- (d) Did PG&E properly inform G-55A (cogeneration) customers of the impending rate increase which would result from this filing?

10. PG&E addressed the issue of improperly notifying G-55A customers by withdrawing Advice Letter 1403-G-A and subsequently filed Advice Letter 1422-G on August 3, 1987. Advice Letter 1422-G was served on all G-55A customers and proposed the same limitation on gas allowance as did Advice Letter 1403-G-A.

PROTESTS

11. Protests were received regarding Advice Letter 1422-G from Morrison and Foerster (M&F), representing the California Cogeneration Council (CCC), and the Cogeneration Service Bureau (CSB).

12. M&F does not believe that the IER is identical to the IHR and constitutes a change in the methodology adopted in D.92792. However, M&F is willing to accept the IER provided that PG&E incorporates the geothermal adder and cash working capital allowances into the IER value. (The geothermal adder is an adjustment mechanism which, when adopted by the Commission, will adjust avoided geothermal costs on an annual basis as related to QF production.)

13. M&F also believes that the Commission should reject PG&E's proposed line losses of 1.234 percent because it fails to account for primary and secondary voltage level line losses. "Public Utilities Code Section 454.4 requires the commission to maintain parity in gas rates for cogenerators and utility electric generation plants. This special gas rate for cogenerators applies to the lesser of: (1) the quantity of gas actually consumed by the cogenerator in the sequential production of electricity and steam, heat or useful work, or (2) the quantity of gas required by a UEG plant to produce an equivalent amount of electricity based on the utility's -average annual incremental heat rate and reasonable transmission losses-."

14. "Since the utilities avoided costs include both producing the electricity and transmitting it, -reasonable transmission

losses- must not only include losses at the transmission level, but also losses incurred at the primary and secondary voltage level as the utility's electricity is transmitted to the customer." M&F recommends a transmission loss factor of 1.05875 which is the product of transmission, primary and secondary voltage factors of 1.01234, 1.02432 and 1.02101, respectively.

15. CSB's protest was based on two grounds. "First, the filing will result in a significant increase to some customers - roughly 7 to 9 percent. Second, the filing is presented as an update of an already established methodology under D.92792, but the decision used 5 percent transmission losses, not the 1.234 percent as filed here."

16. "...There appear to be 16 small cogenerators whose regular rate schedule for gas (in excess of the allowance) is G-2. The G-2 rate is about \$.57/therm compared to \$.26/therm for UEG gas. Depending on the cogenerator's gross heat rate per net kWh generated, CSB estimates that the increase in the charges to these 16 G-2 customers would be 7 to 9 percent." CSB does not consider this increase to be "minor in nature".

17. "PG&E's claim that they are using an already established methodology fails because the 5 percent allowance for electrical transmission losses is not included. The 5 percent allowance was adopted in D.92792 and used by PG&E and SDG&E. It was further established by P. U. Code Section 454.4 which requires -reasonable transmission losses-. A loss of 1.234 percent is not developed using the same definition of transmission losses that produced a 5 percent loss under D.92792."

18. PG&E responded to these two protests jointly by letter on August 27, 1987.

19. In response to including the geothermal adder and cash working capital, PG&E states, "M&F confuses the amount of gas required to produce an incremental kWh and costs of producing that incremental kWh. Although the G-55A gas allowance entitles qualifying facilities to a volume of gas that PG&E would use, it does not entitle such customers to cost savings. Cost savings are paid to qualifying facilities through Standard Offer energy and demand payments. Thus, adding the geothermal adder and cash working capital to IER allows facilities to -double dip-".

20. To address the line loss issue, PG&E states, "In accordance with PU code 454.4, PG&E calculates the gas allowance using -reasonable transmission losses-, and hence uses the transmission line loss factor of 1.01234 as adopted in appendix C-1 of D.86-12-091."

DISCUSSION

21. At the time D.92792 was issued in 1981, California's electric utilities were generally burning gas at the margin to produce electricity, and therefore, the natural gas allowance was based on then current average incremental heat rate of gas plants. However, PG&E no longer solely relies on gas at the margin, so the Commission has accepted the incremental energy rate (IER) in lieu of the incremental heat rate (IHR).
22. The IER is derived from marginal energy costs of all projected forecasts taken from utilities' production simulation model; these models include estimates of the costs of all projected resources at the margin over the term of the forecast.
23. Although the IER is not a heat rate, the Commission has accepted it as a measure of overall system efficiency on which payments to qualifying facilities are made. The E&C Division believes it is reasonable to use the IER as a measure of the cost to produce electricity on which the gas allowance to cogenerators is determined. This is consistent with the Commission's intent to tie the amount of gas which the electric utility would require to generate an equivalent amount of electricity.
24. The Public Utilities Code Section 454.4 requires that the gas allowance be adjusted for "reasonable transmission losses". Appendix C of D.86-12-091 adopted transmission line losses of 1.234 percent, and thus, a transmission loss factor of 1.01234, as proposed in Advice Letter 1422-G, is reasonable.
25. Authorization of this advice letter would lower the gas allowance at the Utility Electric Generation (UEG) rate for cogenerators by 1060 Btu/kWh. The maximum annual revenue increase to G-55A customers would be approximately \$67,442 from a total annual revenue of approximately \$65,690,000, or about 0.10 percent. However, the bill impact on individual cogenerators will depend on their otherwise applicable rate. Industrial cogenerators will be impacted the least, since their otherwise applicable rate is close to the UEG rate, and they comprise most of PG&E's cogenerators. There are a few cogenerators, however, who are commercial customers and they may experience bill increases of up to 5.2 percent.
26. The E&C Division recommends approval of this advice letter for the following reasons:
- (a) At the workshops held regarding this matter, the parties were in general agreement that the IER is an appropriate substitute for the IHR. The disagreement arose as to whether the geothermal adder and/or cash working capital should also be

incorporated in the IER. PG&E has adequately explained in its response to protests why these two inputs should not be incorporated in the IER.

- (b) Public Utilities Code Section 454.4 requires an allowance for "reasonable transmission losses" to be incorporated in the gas allowance. This may be interpreted to imply the losses through the transmission voltage level as PG&E has done. Decision 86-12-091 adopted transmission line losses to be 1.234 percent.
- (c) Although the cogeneration industry was represented by the California Cogeneration Council and the Cogeneration Service Bureau, no individual cogenerators protested this advice letter. This advice letter was served on all G-55A customers.

FINDINGS

1. The Incremental Energy Rate is an appropriate measure of a utility's electric generation efficiency from which to determine the natural gas allowance to cogenerators when resources other than gas or oil are used at the margin.
2. Decision 86-12-091 adopted transmission line losses of 1.234 percent; this is a reasonable level of transmission losses to apply to the natural gas allowance.
3. A minor revenue increase (\$67,442 annually) will result from this increase in Schedule G-55A rates.
4. We find that the rate, charges and conditions of service proposed in this advice letter are just and reasonable; therefore,

IT IS ORDERED that:

1. Pacific Gas and Electric Company is authorized to amend its Schedule G-55A, Special Condition 3, to modify the limitation on allowance of natural gas based on the current incremental energy rate and transmission line loss values as adopted in Decision 86-12-091.
2. Advice Letter 1422-G and accompanying tariff sheets shall be marked to show that they were approved by Resolution G-2738. The tariff sheets shall be effective for service on and after November 1, 1987.
3. This Resolution is effective today.

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I hereby certify that this Resolution was adopted by the Public Utilities Commission at its regular meeting on October 16, 1987. The following Commissioners approved it:

STANLEY W. HULETT
President

DONALD VIAL
FREDERICK R. DUDA
G. MITCHELL WILK
Commissioners



Executive Director

Commissioner John B. Ohanian, being necessarily absent, did not participate.

ATTACHMENT I
ADVICE NO. 1422-G

CALCULATION OF LIMITATION

Current Annual Incremental Energy Rate (IER) = 10,214 Btu/kwh
(from Decision 86-12-091, page 99)

Current Line Loss Factor = 1.01234
(from Decision 86-12-091, Appendix C-1 Marginal Transmission Line Loss)

Limitation = IER x Line Loss Factor = 10,214 x 1.01234 = 10,340 Btu/kwh
= 10,340 Btu/kwh x 1 therm/100,000 Btu = .103 therms/kwh