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ORIGINAL

Decision No. 54465

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of Application of PACIFIC LIGHTING GAS SUPPLY COMPANY for a General Increase in Gas Rates Under Section 454 of the Public Utilities Code.	Application No. 37553 (Amended)

(Appearances and Witnesses are listed in Appendix A)

O P I N I O N

Applicant's Request

Pacific Lighting Gas Supply Company, a California corporation, engaged in the business of purchasing, compressing, transporting, storing, exchanging and selling natural gas to Southern California Gas Company, hereinafter referred to as Cal, and Southern Counties Gas Company of California, hereinafter referred to as Counties, filed the above-entitled application on December 5, 1955 and on September 21, 1956 filed an amendment to conform to proof, seeking authority to increase rates to yield additional gross revenue of $5,283,000, approximately a 27.5 percent increase at the estimated 1957 level of business. The principal reasons given by applicant for this request are:

1. A large increase in capital in service because of the Montebello Gas Storage Project, eventually estimated to cost $10,399,000.
2. An increase in the cost of gas from California producers.
3. Decrease in volume of gas to be sold in 1957.
4. An increase in allowable rate of return from 6.0 percent to the requested 6.9 percent.

Interim Increase

On March 12, 1956, applicant filed a petition for immediate interim rate relief, seeking an increase of $2,361,000 annually pending decision on the main application. On May 8, 1956 the Commission issued Decision No. 53040 authorizing the applicant to increase its rate to Cal by changing the monthly fixed charge from $184,500 to $233,500 and the commodity charge from 21.5 cents per Mcf to 23.5 cents per Mcf, and to Counties by changing the monthly fixed charge from $128,000 to $162,000 and the commodity charge from 21.5 cents per Mcf to 23.5 cents per Mcf. This interim increase was granted with the understanding that the spread of rates in the interim order would not be deemed to be a precedent in deciding the final rate spread. The increased commodity rates were authorized to be effective starting June 1, 1956, but the increased fixed charges were delayed until the date (August 15, 1956) when the Montebello Compressor Plant became operative.

Public Hearing

After due notice, eight days of public hearing were held on this application during the period March 28, 1956 to November 23, 1956 inclusive, before Commissioner Ray E. Untereiner and Examiner M. W. Edwards. The first two days of hearing were primarily concerned with the interim request. All days of hearing were held in Los Angeles, except the last day which was held in San Francisco.

Applicant presented seventeen exhibits and testimony by four witnesses in support of its application. The California Manufacturers Association took an active part in the proceeding, presented two exhibits and testimony by one witness, and extensively cross-examined applicant's witnesses with regard to costs and rate spread. The City of Los Angeles, the California Farm Bureau Federation, and a customer's representative appeared as interested parties and cross-examined some of the witnesses. The Commission staff also took an active part in the proceeding for the purpose of developing a full record to aid the Commission in deciding this matter, presented one exhibit and testimony by four witnesses and cross-examined applicant's witnesses. Closing statements were filed on or before December 7, 1956 and the matter is now ready for final decision.

Applicant's Position

Applicant states that its experience for the years 1954 and 1955, the trends of cost of gas and other costs of business which are adversely affecting its rate of return, plus a forecast for the future, show an urgent need for a general rate increase to avoid an impairment of its financial position and to assure investor confidence in the soundness of its business. Applicant represents that its rate of return on a depreciated rate base was 3.18 percent for 1954 and 5.47 percent for 1955 and estimates that the rate of return would decline to 2.25 percent in 1956 and to less than one percent in 1957 at the level of rates in effect prior to the interim order herein.

Applicant provides a peak load service for its customers as well as providing a year around supply of gas. To implement this service it is investing an estimated $10,399,000 in the Montebello underground gas storage project. This project, when completed, will have the effect of increasing applicant's total rate base by approximately forty percent over its weighted average 1955 rate base. Applicant computes that its costs for the year 1957 will be increased by an amount equivalent to 1.18 cents per Mcf over its 1955 costs because of the increase in rate base.

Because of the necessity of building up a cushion in the Montebello reservoir, applicant will have some 14,000,000 Mcf less gas to sell to its two customers in 1957 as compared to 1955.

Furthermore, the quantity of gas available to it from producers is declining, and whereas applicant sold 88,762,131 Mcf of gas in 1955, it expects to sell only 66,614,000 Mcf in 1957. It computes that the increase in its unit costs resulting from this lesser quantity is equivalent to 1.07 cents per Mcf.

Of major concern to the applicant is that the price it is having to pay producers for gas is increasing and it estimates that this factor will cause an increase of 3.14 cents per Mcf in 1957 above the average cost of gas in 1955.

Applicant also computes that increasing the rate of return from 5.47 percent in 1955 to the proposed 6.9 percent would require an increase of 2.06 cents per Mcf after allowing for increased income tax payments. Other increases in cost, such as transmission expense, depreciation and taxes (other than income taxes), computed by the applicant at 0.49 cents per Mcf for these several items make up the remainder of the increase alleged by the applicant to be required.

Rates - Prior to Interim and Proposed

Applicant represents that its gross revenue should be augmented through increased resale rates to its customers. The pre-interim rate for service to Cal consisted of a monthly fixed charge of $184,500 and a commodity charge of 21.5 cents per Mcf. Applicant proposes that the monthly fixed charge now be permanently set at $233,500 and the commodity charge raised to 28.0 cents per Mcf.

The pre-interim rate for service to Counties consisted of a monthly fixed charge of $128,000 and a commodity charge of 21.5 cents per Mcf. Applicant proposes that the monthly fixed charge now be permanently set at $162,000 and the commodity charge raised to 28.0 cents per Mcf.

Earning Position

The applicant and the Commission's staff presented evidence on revenues, expenses, rate base and rate of return. The applicant's study covered the years 1954 through 1957 and in Exhibit No. 8-A showed results on recorded and estimated bases as follows:

Applicant's Exhibit No. 8-A		Rate of Return
Year 1954	Recorded	3.17%
Year 1955	Recorded	5.64
Year 1956	Estimated	2.26
Year 1957	Estimated	(.13)

(Red Figure)

The applicant also showed results for these same years after adjustment of taxes on income to the basis followed by the Commission staff, but stated that it is predicating its request for an increase upon the above estimated results for 1957.

The staff's study was confined to the years 1955, 1956 and 1957 and showed the following results:

Staff's Exhibit No. 18		Rate of Return
Year 1955	Recorded	5.84%
Year 1956	Estimated	2.58
Year 1957	Estimated	.80

The two studies for the estimated year 1957 may be compared in more detail in the manner shown below:

Estimated 1957 Results of Operation - at Pre Interim Rates

	Applicant's Exh.No.8-A	Staff's Exh.No.18
Operating Revenues	$ 19,199,000	$ 19,198,000
Operating Expenses:		
Production (Cost of gas)	14,270,000	14,026,000
Transmission	2,506,000	2,482,000
Administrative & General	782,000	782,000
Depreciation	782,000	786,000
Taxes	907,000	825,000
Total Operating Exp.	$ 19,247,000	$ 18,901,000
Net Revenue	(48,000)	297,000
Rate Base (Depreciated)	37,323,000	37,030,000
Rate of Return	(.13%)	.80%

(Red Figure)

From a review of the above table it will be observed that there were appreciable differences between the staff and the applicant in the items of production expense, taxes and rate base. These differences will be discussed below.

Production Expense

Production expenses of the applicant consist solely of the cost of gas purchased from California producers. In order to obtain the cost of gas sold to the applicant's customers, however, the cost of gas purchased must be adjusted to reflect gas received as free fuel and allowances, gas withdrawn from underground storage, gas injected into underground storage for later withdrawal or as cushion gas, gas utilized by the applicant as compressor fuel in its storage and transmission operations and unaccounted for gas. There were no substantial differences in the quantities of gas estimated for these various functions as between the staff and the applicant, the principal difference being in the price of purchased gas. The staff estimated this figure at 21.18 cents per Mcf whereas the applicant estimated it at 21.48 cents per Mcf.

The staff in its exhibit followed a proper procedure in considering only the 1957 contract prices for purchased gas in effect at the time the exhibit was prepared, in its estimate of the cost of gas. A staff witness testified that had the volume of gas covered by contracts which applicant expects to renegotiate been priced at applicant's proposed 1957 prices, the estimated cost of gas would be increased by some $253,000. Prior to the submission of this proceeding, applicant presented evidence that contracts had been executed for 1957 which would result in an additional purchased gas cost of $147,000 above the staff's estimate. This amount clearly would be additive to the cost of gas. The remaining difference is in the order of $100,000 representing offers made by applicant to the gas producers. While it is not the Commission's usual practice to recognize offers, it is our desire to arrive at the closest possible approximation to applicant's costs for 1957. In order to achieve this result it is our opinion that the additional amount should be included and the company's figure of $14,270,000. will be adopted.

Taxes

One principal difference in the tax estimate results from the fact that the applicant allowed some $44,000 for state corporation franchise taxes which are based on the prior year's taxable income, whereas for rate making purposes the staff computes the tax on the basis of current earnings which in this case are zero for the earnings expected under the pre-interim rates.

While, in fact, applicant would have to pay these taxes in 1957 even if then operating at a loss, the staff's treatment provides a clearer picture of the utility's rate needs for the future and will be adopted.

The other principal difference was $42,000 in the estimate of ad valorem taxes. The applicant estimated an increase in the average tax rate for 1957 over 1956, whereas the staff used the known average 1956 tax rates. The staff's position in this regard is not to allow for speculative tax rate increases that may not eventuate. In this regard also the Commission will adopt the staff's estimate of ad valorem taxes.

Rate Base

The difference in rate base is $293,000. Most of this difference stems from the fact that, while the staff included some $400,000 of fixed capital put in place subsequent to the preparation of applicant's exhibits and not included therein, the staff excluded the applicant's claimed allowances of $462,000 for materials and supplies and $285,000 for working cash.

The reason for this treatment by the staff was that it found that the applicant had normally on hand some $1,366,541 of funds which it held by virtue of a substantial lag between the time it collected from its customers, both of which are affiliated with applicant, and the time it paid its bills. The staff concluded that the accumulation of such funds in applicant's hands eliminated the necessity for any allowance for working capital, either in the form of materials and supplies or working cash in the rate base.

We need not, for purposes of this decision, comment on the staff's position as it applies to the allowance for working cash. We are convinced that the necessary materials and supplies must properly be included in the rate base. If this item be added to the staff's figure for rate base, it exceeds the applicant's claim, even with no allowance for working cash. Applicant's rate base of $37,323,000 will therefore be adopted.

Other Expense Items

With regard to the difference in transmission expenses, such difference is primarily due to the fact that the staff did not allow a 3½ per cent wage increase which the applicant expects will be made effective on April 1, 1957. The staff's position to allow no expense for speculative wage increases appears reasonable.

While the staff's total proposed allowance for administrative and general expense is the same as that estimated by the applicant, individual items varied and the applicant suggested full allowance for dues and donations and some $19,500 greater allowance for insurance.

The staff excluded a portion of the dues and donations based on past Commission practice of excluding dues to social clubs, expenditures for political purposes, and, in part, donations to charitable organizations. The staff recommendation in this respect appears reasonable and will be adopted.

The staff did not allow in full the applicant's accrual to the insurance reserve since the accruals have for a number of years been in excess of the actual charges to the reserve. The allowance comprised premiums which the staff estimated will be paid, estimated departmental expense, and estimated payments for self-insured losses. Applicant represents that such accruals are in lieu of premiums which would be paid to an insurance company, but that it cannot obtain insurance at reasonable cost on some of the risks which are self-insured. Since applicant has become a utility, the insurance reserves have increased because the accruals have been in excess of the charges.

Applicant desired a larger insurance reserve because of increasing risks with greater amounts of gas being placed in storage. Applicant did not credit interest on the reserve to the extent that the reserve was invested in plant and earning a return. The total insurance reserve was $834,271 as of May 31, 1956, and an interest rate as low as 2½ per cent would more than account for the difference that the applicant is seeking for this item. Our conclusion on this subject is that the staff's proposed allowance is reasonable for rate-making purposes.

Adopted Operating Results

A summary of the adjusted operating results for the estimated year 1957, constructed in accordance with the foregoing review based on pre-interim rates and hereby found reasonable and adopted for the purposes of this decision follows:

Operating Revenues	$19,198,000
Operating Expenses:	
Production (Cost of Gas)	14,270,000
Transmission	2,482,000
Administration and General	782,000
Depreciation	786,000
Taxes	825,000
Total Operating Expense	19,145,000
Net Revenue	53,000
Rate Base (Depreciated)	37,323,000
Rate of Return	.14%

If the rates proposed by the applicant could have been in effect for the full year 1957 the net operating revenues based on the above adopted results, would have been $2,656,000 and the rate of return 7.12%.

Trend of Rate of Return

In order to learn the basic trend of its rate of return during the past few years of increasing costs of labor, materials and supplies, applicant made certain adjustments to the results of operation for the years 1954, 1955 and 1956 to place such years on a basis comparable to the level of costs expected to be experienced in 1957. Adjustments for the increased cost of gas, reduced volume of gas for sale, increased wages and other items resulted in the following trend of rate of return:

	Rate of Return
Year 1954 (Trended)	1.23%
Year 1955 (")	.90
Year 1956 (")	.54
Year 1957 (")	(.01)

During this period the average rate of decline has been 0.41% a year. The staff did not prepare a similar study to determine the trend of return with all conditions adjusted to the 1957 level.

Rate of Return

Applicant's request for a rate of return as high as 6.9%, which contemplates a declining trend of .50% is based on its conclusion that the specialized service rendered, and the operation of large underground gas storage reservoirs, is subject to greater potential risks than the more diversified operations of companies that have integrated transmission and distribution of gas, and which would continue in business with manufactured gas when natural gas is insufficient. In Exhibit F (in the application) and as supplemented by Exhibits Nos. 7 and 11, applicant listed the rates of return allowed forty-six natural gas companies in the United States from January 16, 1954 to May 25, 1956 by State Regulatory Commissions. Such return when related to a net investment rate base ranges from 4.40% to 8.90%, or an average of 6.46% for all forty-six utilities. Included in this list of natural gas companies is the Southern California Gas Company at 6.00%.

Applicant's capital structure consists entirely of capital stock of a par value of $25.00 per share. Outstanding are 874,133 shares of common stock with an aggregate par value as of August 31, 1956 of $21,853,325.

One of applicant's witnesses expressed the view that the applicant company could not secure bond money at this time. He gave as his reasons the fact that the applicant does not have long term purchase contracts and long term sales contracts. More pertinent, he stated, is the fact that a prerequisite to any satisfactory type of public financing is a good earning record for a number of years prior to the issuance of the securities. Applicant also represents that it is exposed to all of the risks normally found in the utility business, plus some that are peculiar to its business of delivering substantially increased volumes of gas during peak periods. It states that its business could be more closely compared to that of an oil company inasmuch as both obtain a product that is not replaceable in kind and is frequently referred to as a wasting asset. It represents that these risks are real risks and are known to people in the investment business.

The City of Los Angeles stated that inasmuch as the applicant is wholly owned by interests which also control its two customers, the return of the applicant should be at a rate no higher than that allowed its affiliate utilities; namely, six per cent. The City takes the position that applicant's request for a return 0.5 of a percentage point in excess of the indicated average in Exhibit No. 11 is not substantiated by the record and should be rejected. The City points out that testimony by one of applicant's witnesses indicates that the over-all life of the gas purchase contracts has been lengthened from a weighted average term of about 2½ years to one of approximately eight years and argues that the applicant's risk in this respect may be said to have decreased, if anything, from what it was when a six per cent rate of return was last found reasonable.

The ultimate determination of the rate of return to be allowed the applicant in this proceeding must be made by the Commission through the exercise of its informed judgment, taking into account all the factors in the situation. One of those factors is the fact that applicant is engaged in expanding its plant capacity with additional facilities which we have found to be in the public interest. The present condition of the money market calls for revision of rates of return that might have been fair and reasonable when adequate funds at lower interest rates were available. The ultimate consumers receive a full measure of benefit from applicant's operations and applicant is entitled to rates which will yield it a fair and reasonable return. Taking into consideration all of the facts and special circumstances brought out in this record, we are of the opinion and find that a fair and reasonable rate of return to applicant at the present time is 6.5 per cent. However, if rates just sufficient to produce a rate of return of 6.5 per cent were to be authorized herein, such rate of return would not be realized in 1957 because the authorized rates will not be in effect for the full year. In view of this fact, and the declining tendency in rate of return, rates will be authorized which would produce a rate of return of 6.9 per cent, the return requested by applicant, and which reasonably may be expected to produce for the future a rate of return not in excess of that herein found reasonable. Accordingly, an increase of $5,150,000 will be authorized.

Rate Spread

The spread of rates between the applicant's two customers and the amount of revenue to be derived from the fixed charge were given considerable attention during the hearing. The California Manufacturers Association took the position that fair and equitable rates for the public served by the two distributing companies can be made only if the true identity of the costs incurred by applicant in providing the wholesale service is preserved in applicant's rates to the retail distributing companies. It stated the issue involved is whether or not any of the ordinary rate-making factors, other that cost of service, is applicable to the spreading of the rates to be charged by applicant, and it took the position that none of them are. The City of Los Angeles stated that the issue of rate spread has been belabored in this proceeding out of all proportion to its relative significance and it joined with the California Farm Bureau Federation in urging the Commission to resolve this matter by issuing an explicit statement of the weight it can reasonably be expected to give to cost of service studies in rate proceedings of this kind and the extent to which that subject can profitably be pursued.

It is the Commission's opinion that cost studies are important in rate cases and are an aid in determining rate spread, but as we have indicated previously cost is not the only item considered in the making and spreading of rates. In this proceeding cost studies were introduced by the applicant and the California

Manufacturers Association. While the Association characterized the studies by the applicant as allocation studies or pricing studies rather than cost studies, they were made with points of view that differ from those advanced by the Association. They all add to the extent of the record, and, in the Commission's opinion, are all entitled to consideration. We cannot prescribe a limit to the amount of time that profitably may be devoted to cost studies because the need varies as between various cases.

Cost Studies

The cost studies are presented in Exhibits Nos. 14, 15 and 17. The Association's study, Exhibit No. 14, is predicated on a segregation as between what it has designated as fixed costs and variable costs. It assigns practically all of the items of depreciation, income tax and return to the fixed costs, whereas the applicant in Exhibit No. 15 assigns only 50 per cent of income tax and return to what it designates as the demand charge.

The Association's study is summarized below:

California Manufacturers' Association
Exhibit No. 14

Item	Total Amount	To Fixed Costs Ratio	To Fixed Costs Amount	To Variable Costs Ratio	To Variable Costs Amount
Cost of Gas	$14,270,000	- %	$ -	100.0%	$14,270,000
Transmission Expense	2,506,000	48.9	1,224,636	51.1	1,281,364
Admin.& Gen.Exp.	788,982	77.8	613,599	22.2	175,383
Depreciation	782,000	100.0	782,000	—	—
Taxes:					
Ad valorem & Payroll	863,000	99.4	858,106	.6	4,894
State Fran. & Fed. Income	2,697,724	99.8	2,693,522	.2	4,202
Return @ 6.9%	2,575,287	99.8	2,571,276	.2	4,011
Total	$24,482,993	35.7	$8,743,139	64.3	$15,739,854

In addition to the above segregation the Association allocated the fixed and variable costs to the applicant's classes of customers as follows:

	Fixed Costs	Variable Costs	Total Costs
Southern California Gas Co.	$ 4,286,981	$ 8,229,935	$ 12,516,916
Southern Counties Gas Co.	4,452,696	6,733,593	11,186,289
Exchange Service	3,462	776,326	779,788
Total	$ 8,743,139	$15,739,854	$24,482,993

The results of the study prepared by one of applicant's witnesses follows:

Applicant's Exhibit No. 15

	Total Amount	To Demand Charge Ratio	To Demand Charge Amount	To Commodity Charge Ratio	To Commodity Charge Amount
Cost of Gas	$14,270,000	- %	$	100.0%	$14,270,000
Transmission Expenses	2,506,000	45.7	1,145,000	54.3	1,361,000
Admin. & Gen. Exp.	789,000	53.0	418,000	47.0	371,000
Depreciation	782,000	74.0	579,000	26.0	203,000
Taxes:					
Ad valorem & Payroll	863,000	100.0	863,000	—	—
State Fran.& Fed.Inc.	2,697,000	50.0	1,349,000	50.0	1,348,000
Return @ 6.9%	2,575,000	50.0	1,287,000	50.0	1,288,000
Total	$24,482,000	23.0	$5,641,000	77.0	$18,841,000

In addition, another of applicant's witnesses, by Exhibit No. 17, prepared a cost study on the assumption that the demand charge should be based on storage costs as follows:

Applicant's Exhibit No. 17

Compressor Station - labor and expense	$ 139,000
Engine fuel and lube oil	46,000
Payment to State Lands Comm. - La Goleta	14,000
Payments to More interests - La Goleta	12,000
Maintenance structures and compressor sta. eq.	77,000
Supervisor, admin. and general exp.	128,000
Depreciation	156,000
Taxes:	
Ad valorem and Payroll	372,000
State Fran. and Fed. Income	1,988,000
Return - 6.9% of $24,620,000	1,699,000
Total	$4,631,000

In Exhibit No. 15 the applicant allocated practically the same full cost of doing business as the Association did in Exhibit No. 14. In Exhibit No. 17 the applicant took into consideration only those items that it considered were primarily concerned with peaking service. The Commission has clearly in mind the different viewpoints used in making these studies and finds all of them helpful in considering this application.

Authorized Rates

The evidence shows that the estimated 1957 peak day demand of Southern California Gas Company is 379,700 Mcf and of Southern Counties Gas Company is 394,900 Mcf. In view of the fact that the peak demands are nearly equal, it would appear reasonable to provide for monthly fixed charges that are the same for each of the two customers; also, in our opinion the monthly fixed charge to each of the two customers should be $233,500 per month. In order to provide the revenue increase authorized herein, a commodity charge of 26.5 cents per Mcf is required.

Findings and Conclusions

After considering the evidence of record it is the finding and conclusion of the Commission that the pre-interim level of rates will not provide a reasonable return in the future on applicant's plant devoted to the public service and that authority to increase the fixed charge and commodity charge to levels higher than the interim level of rates should be granted. The Commission finds: that the increases in rates and charges authorized herein are justified; that present rates and charges, insofar as they differ from those the applicant may file as a result of this order, for the future are unjust and unreasonable; and that an order should be issued authorizing changes substantially as hereinbefore described.

O R D E R

The Pacific Lighting Gas Supply Company having applied to this Commission for an order authorizing increases in rates and charges for gas service, an interim increase having been granted and it appearing to the Commission that further increases are warranted, public hearing having been held, the matter having been submitted and being ready for decision; therefore,

IT IS ORDERED as follows:

1. Applicant is authorized to file in quadruplicate with this Commission after the effective date of this order, in conformity with the Commission's General Order No. 96, revised tariff schedules Nos. G-60 and G-61 for Resale Natural Gas Service with a monthly fixed charge of $233,500, a commodity charge of 26.5 cents per Mcf and a price of not less than 26.5 cents per Mcf for emergency or call gas, and upon not less than five days' notice to the Commission and

the public, to make said rates effective for service furnished on and after February 23, 1957.

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

Dated at Los Angeles, California, this 29th day of JANUARY, 1957.

President

Commissioners

APPENDIX A

LIST OF APPEARANCES

For Applicant: O. C. Sattinger and J. R. Elliott.

Interested Parties: Roger Arnebergh by Claude E. Hilker, and Alan G. Campbell, T. M. Chubb, Manuel Kroman, and R. W. Russell, for City of Los Angeles; Norman Elliott and Joseph T. Enright of Enright & Elliott by Norman Elliott, Eugene R. Rhodes and Waldo A. Gillette, for Monolith Portland Cement Company; Bruce Renwick, R. E. Woodbury, H. W. Sturges, Jr. by C. W. Wiley, for Southern California Edison Company; Brobeck, Phleger & Harrison by George D. Rives, for California Manufacturers Association; Bert Buzzini, for California Farm Bureau Federation; W. D. MacKay for Challenge Cream and Butter Association; Henry E. Jordan, for City of Long Beach; Harry P. Letton, for Southern California Gas Company.

Commission Staff: Boris Lakusta, Mary Moran Pajalich, Carol T. Coffey, Charles W. Mors, William W. Eyers and Theodore Stein.

LIST OF WITNESSES

Evidence was presented on behalf of the applicant by

Robert A. Hornby, W. D. Morningstar, Raymond W. Todd and C. E. Pearman.

Evidence was presented on behalf of the California Manufacturers Association by Edwin Fleischmann.

Evidence was presented on behalf of the Commission Staff by C. F. Clark, Richard Entwistle, Robert O. Randall and Robert Paul Hamilton.