

BEFORE THE RAILROAD COMMISSION
OF THE STATE OF CALIFORNIA.

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In the Matter of the Charges of
Public Utility Gas Corporations for
Natural Gas Delivered at Wholesale
at Points in Los Angeles County out-
side the limits of Incorporated Cities
and Towns.

Case No. 464.

- O'Melveny, Stevens and Millikin, Henry J. Stevens and Sayre Macneal for Midway Gas Company, Southern California Gas Company and Pacific Light and Power Corporation.
- William A. Cheney for Los Angeles Gas and Electric Corporation.
- Trippet, Chapman and Biby for Economic Gas Company.
- H. H. Trowbridge and Harry J. Bauer for Southern California Edison Company and Long Beach Consolidated Gas Company.
- F. S. Wade for Southern Counties Gas Company.
- R. P. Matteson for Western Fuel, Gas and Power Company.
- William Matson for Honolulu Consolidated Oil Company.
- H. C. Booth for Southern Pacific Railroad Company, Kern Trading and Oil Company and Associated Oil Company.
- John Martin, in propria persona.
- William G. Kerckhoff, in propria persona.
- Albert Lee Stephens, City Attorney, and Howard Robertson, Assistant City Attorney, for City of Los Angeles.

THELEN and GORDON, Commissioners.

O P I N I O N .

This is an investigation on the Railroad Commission's own initiative to establish the rate to be charged by public utility gas corporations for natural gas delivered at wholesale at points in Los Angeles County, outside of the limits of incorporated cities and towns. The proceeding was instituted as the result of a resolution adopted by the City Council of Los Angeles requesting the Commission to establish the rates to be charged by producing companies for natural gas delivered at wholesale to distributing companies at the city limits of Los Angeles. As natural gas was being sold at wholesale for delivery in other cities of Los Angeles County, the Commission instituted its inquiry on lines broad enough to cover the whole field

of wholesale delivery in Los Angeles County outside of the limits of incorporated cities and towns. On September 17, 1913, the Commission made its order directing such corporations and persons as were thought to have an interest in the matter to appear before the Commission in Los Angeles on October 23, 1913, to show cause why the Commission should not make its order establishing such rates. The order to show cause was directed to the following corporations and persons: Midway Gas Company, Southern California Gas Company, Los Angeles Gas and Electric Corporation, Pacific Light and Power Corporation, Economic Gas Company, Southern California Edison Company, Southern Counties Gas Company, Western Fuel, Gas and Power Company, Honolulu Consolidated Oil Company, Southern Pacific Railroad Company, Kern Trading and Oil Company, Associated Oil Company, William G. Kerckhoff and John Martin.

The hearing was held in Los Angeles on October 23, 24 and 25, 1913, and the proceeding was submitted on the latter day. The Commission has made an exhaustive investigation into the subject and has tried to secure and analyze all available data bearing on the many different angles of the question. In this work, the Commission has been materially assisted by a number of its experts, particularly F. Emerson Hoar, assistant rate expert and electrical engineer, Arthur R. Kelley, assistant engineer, and T. C. Fankhauser of the department of statistics and accounts.

We shall consider the matter under the following heads:

1. History of project.
2. Production, transmission and delivery.
3. Character and uses of natural gas.
4. Extent of field.
5. Period of available supply.
6. Analysis of contracts.
7. Investment.
8. Operating expenses.
9. Depreciation.
10. Royalties.
11. Rate of return.
12. Rate.

1. HISTORY OF PROJECT.

Natural gas in this state seems to have been first utilized for commercial purposes in Stockton in or about 1890. The Stockton wells are still producing. Natural gas was discovered in the San Joaquin oil fields in or about 1905. The first Standard Oil gas well drilled in the Buena Vista Hills Field was completed October 11, 1909. The first gas well of the Honolulu Consolidated Oil Company, hereinafter referred to as the Honolulu Company, in the same field, came in on April 30, 1910. Until 1911, such gas as was utilized in the Buena Vista Hills Field was used solely for consumption in the oil fields. On April 19, 1911, the California Natural Gas Company, controlled by the Standard Oil Company, entered into a contract with the San Joaquin Light and Power Corporation providing for the delivery to the latter company of natural gas for the supply of Bakersfield and vicinity. In this territory, natural gas has entirely supplanted artificial gas.

In 1910, John Martin and associates became interested in natural gas in the Buena Vista Hills Field. They conceived the idea of building a transmission main a distance of some 111.1 miles to the City of Los Angeles and developing sufficient gas in the oil fields to supply through such main the needs of Los Angeles County and possibly other portions of Southern California. These men accordingly made arrangements both for the production in the oil fields and for the disposition in Los Angeles County of such natural gas. On November 2, 1911, John Martin entered into a contract with the Honolulu Consolidated Oil Company for the supply by the company of natural gas in a minimum amount of 15,000,000 cubic feet per day during the first year after the completion of the transmission main to Los Angeles County and for larger amounts during subsequent years, as will appear in greater detail when we hereinafter analyze the contracts which are relevant in this inquiry.

Thereafter, on November 18, 1911, the Midway Gas Company was incorporated for the purpose of constructing the necessary transmission main or mains. The company has an authorized capital stock of

\$3,000,000., of which amount \$2,500 was issued for cash to the incorporators and \$2,997,500. to John Martin in exchange for his two contracts with the Honolulu Company. Martin and his associates thereafter used a portion of the stock to help sell the bonds, but they now still retain a portion of the stock. On December 5, 1911, before the construction of the transmission main was started, the Midway Gas Company leased such main, when completed, to the Southern California Gas Company for a period of twenty years at a rental of 5 cents per each 1000 cubic feet of gas delivered into the main. The Midway Gas Company thereafter built a transmission main from its Taft Terminal in the Buena Vista Hills Field to West Glendale near Los Angeles at a cost to October 17, 1913 of \$1,519,963.03. This money was secured partly from the sale of bonds and partly from promissory notes. The company has an authorized bond issue of \$3,000,000. six per cent bonds, secured by deed of trust to Mercantile Trust Company of San Francisco. Of this amount bonds of the face value of \$1,500,000 were sold at 90 per cent of face value plus accrued interest. The remaining funds represent a portion of the proceeds of promissory notes amounting to \$210,000. An assessment has recently been levied on the stock to pay these notes as well as \$60,000 of principal of the bonds. Apart from this assessment, no cash was paid on any of the stock except the original \$2,500. The work of construction on the pipe line was started in March or April, 1912, and was completed in September, 1912. Service through the pipe line started on April 28, 1913.

In the meantime, various contracts were entered into to secure control of additional gas lands, as will hereinafter appear. The Southern California Gas Company also guaranteed the payment of the bonds of the Midway Gas Company and took over all its contracts and entered into contracts with local gas companies in Los Angeles County for the sale of natural gas to them for distribution, as will hereinafter appear. Part of the gas so delivered to the local companies has been used as fuel in their artificial gas generators and

mission main, known as the Taft Terminal. The gathering lines from the Honolulu Company's wells were built and are owned by that company. The other gathering lines were built and are owned by the Southern California Gas Company. Upon delivery at the Taft Terminal, the gas is then transmitted a distance of 211.1 miles through the main to its southerly terminus in West Glendale, a few miles from the limits of the City of Los Angeles.

The transmission main consists of 12 $\frac{1}{2}$ inch outside diameter 31 pound lap welded steel pipe, connected with Bresser couplings. In the first ten miles of the main from the Taft end asbestos gaskets were used in making the connections, while in the remaining portions of the line the gaskets are of rubber. The main is designed to carry a maximum of 26,000,000 cubic feet of gas per day at an initial pressure of 450 pounds per square inch and a terminal pressure of 50 pounds per square inch. The officials of the Southern California Gas Company expect that because of lack of uniform demand at all times it will actually carry in the neighborhood of 18,000,000 cubic feet per day. This company is now constructing a compressor plant along the main near the Taft Terminal for the purpose of compressing the gas so as to go into the main at a pressure of 450 pounds. We shall hereinafter give further consideration to this plant.

At the West Glendale terminus of the transmission main, the gas is divided, part going into a 16 inch main which leads to the plant of the Los Angeles Gas and Electric Corporation in Los Angeles and part into a main which leads to the plant of the Southern California Gas Company in the same city. From this plant, the following mains have been constructed:

1. An eight inch main, 2.256 miles in length, to serve the Economic Gas Company in Los Angeles.
2. A twelve inch main, 19.609 miles in length, to serve the Western Gas and Fuel Company for distribution in Redondo, the Pacific Light and Power Corporation for fuel in the same place and an eight inch main, 4.324 miles in length branching therefrom to serve the town of Torrance.

3. An eight inch main, 17.926 miles in length, to serve the Long Beach Consolidated Gas Company for distribution in Long Beach and also the towns of Vernon, Huntington Park and Compton. From this main gas is being distributed or will be distributed to serve San Pedro and Wilmington as well.
4. A main partly eight inches and partly six inches in diameter, 14.75 miles in length, to serve the Southern California Edison Company for distribution in Sawtelle, Santa Monica, Ocean Park and Venice.

All the foregoing mains were constructed by the Southern California Gas Company. The gas so delivered through these mains is then distributed by the various local companies.

3. CHARACTER AND USES OF NATURAL GAS.

The following table shows the results of ten quantitative analyses of natural gas from the Buena Vista Hills Field:

Table 1.

Constituents	Reference Numbers										Avg.
	1	2	3	4	5	6	7	8	9	10	
Liquifiable Hydrocarbon (Benzine etc.)	0	0	0	0	0	0	0	.3	0	0	.03
Heavy Hydrocarbon (Illuminants C_xH_y)	.3	0	0	0	0	0	0	.5	0	0	.08
Methane (CH_4)	81.8	92.6	92.8	97.4	99.1	97.4	91.3	91.2	92.0	91.3	92.69
Ethane (C_2H_6)	11.6	0	0	0	0	0	0	0	0	0	1.16
Carbon Monoxide (CO)	0	0	0	0	0	0	0	0	0	0	.00
Carbon Dioxide (CO_2)	5.4	7	.7	.8	.8	.8	.8	.8	5.8	7.2	3.73
Oxygen (O)	0	.4	.8	1.1	.1	.1	2.2	0	0	0	.37
Hydrogen (H)	0	0	0	0	0	0	0	0	0	0	.00
Nitrogen (N)	.9	0	5.7	1.7	0	1.7	5.7	0	2.2	1.5	1.94
Totals	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.
Btu. per cu. ft.	1068	994	996	1045	1063	1045	980	1001			1024 *

* Average of eight tests.

- Test No. 1 L.A.G. & E. Corp'n. - Typical analysis, Submitted Oct. 18, '13
- Test No. 2 Economic Gas Co., - Analysis of Sample taken at Midway May 24, 1911 (Honolulu 14-2)
- Test No. 3 Economic Gas Co., - Analysis of Sample taken at Bakersfield June 19, 1911. (Standard 22-2) made at P.G. & E. Co's Laboratory in San Francisco.
- Test No. 4 Economic Gas Co., - Same as Test No. 3.
- Test No. 5 Economic Gas Co., - Analysis of sample taken at Bakersfield Aug. 26, 1911 (Standard 22-2) made at P.G. & E. Co's Laboratory in S.F.
- Test No. 6 Economic Gas Co., - Same as Test No. 5. Sample taken August 27, 1911.
- Test No. 7 Economic Gas Co., - Same as Test No. 5. Sample taken August 29, 1911.
- Test No. 8 Economic Gas Co., - Analysis of sample taken at Glendale Terminal Midway line on Sept. 20, 1913, made at Los Angeles by Mr. S.C. Lowe, Supt. Economic Gas Co..
- Test No. 9 Southern California Gas. Co. - Analysis by Uni. of Sou. Cal. Oct. 31, 1913, of sample taken from Midway line at Glendale on Oct. 25, 1913.
- Test No. 10 Sou. Calif. Gas Co. - Same as Test No. 9 of sample of gas taken at Taft on Oct. 25, 1913.

It will be noted that the average heating value in British thermal units per cubic foot of this natural gas is 1024. The average British thermal units of artificial gas manufactured by the Southern California Gas Company during the years 1909, 1910, 1911 and 1912 was as follows:

<u>Year</u>	<u>B.T.U.</u>
1909	604
1910	603
1911	606
1912	609
Average	<u>605.5</u>

As the British thermal unit is the measure^{of} heating value, it appears from the foregoing tables that the heating value of artificial gas is only about 60% of that of the natural gas from the Buena Vista Hills Field. While the value of natural gas for lighting purposes is but slight if used in an open flame, this gas has about the same superiority over artificial gas for lighting as for heating if burned in an incandescent gas mantle burner. In other words, for both heating and lighting purposes (if an incandescent gas mantle burner is used) the natural gas has an efficiency in the vicinity of 66 $\frac{2}{3}$ % greater than that of the artificial gas. It would seem to follow that when natural gas replaces artificial gas, the amount of gas consumed will materially decrease, at least at first. This has been the actual result since the "mixed" gas has been introduced in Los Angeles. The evidence, however, shows that with the more efficient natural gas, the uses for the gas expand, so that the former consumption of gas is gradually regained. In addition to its uses for lighting and domestic heating, natural gas is being used at the present time in place of oil in the gas generators and under the boilers of several gas companies in Los Angeles and it is largely used in the eastern sections of this country to replace coal as fuel for manufacturing purposes.

4. EXTENT OF FIELD.

The location of the known gas field from which the Southern California Gas Company and the California Natural Gas Company obtain their supply is confined to a portion of the Buena Vista Hills, which extend in a northwesterly direction from a point immediately west of

Buena Vista Lake in Kern County to Section 37, Township 31 South, Range 23 East, M. D. E. & M.

With reference to the extent or area of the gas producing field, the evidence contains the following estimates:

J. G. WHITE & COMPANY(November 2, 1911). In a report prepared for J.G. White & Company, W. E. Barrett, its gas engineer, reaches the following conclusion with reference to the area of the gas field:

"The present gas bearing territory is principally located in one township of about 36 square miles, which is only a very small portion of the possible area, as the Midway oil fields which are either in operation under development or held in reserve, cover a territory of some hundred square miles."

The minimum area estimated by Mr. Barrett was thus 23,040 acres. It appears that he did not include the so-called southern field, located in Township 32 South, Range 24 East.

FORD, BACON AND DAVIS (May 24, 1913). This report of an investigation made early in 1913 by Mr. W. L. McCloy, General Superintendent of the Natural Gas Department of the Philadelphia Company (Pittsburg, Pennsylvania) and Mr. H. M. Bacon of Ford, Bacon and Davis, contains the following estimate of area of the gas field:

"We estimate that in the Buena Vista Hills an area of 7,300 acres will probably produce gas in quantities sufficient to warrant drilling. Of this area 5,900 acres are controlled by the Honolulu Consolidated Oil Company, Associated Oil Company and Kern Trading Company."

This area was derived by drawing a line around the outermost gas wells then producing and is consequently conservative. The report finds two fields, known as the northern and southern fields, separated by Section 36, Township 31 South, Range 23 East and Section 1, Township 32 South, Range 23 East. This estimate is apparently an estimate simply of proven territory.

E. T. DUMBLE(October 31, 1911). This estimate was prepared at the request of Mr. A. D'Heur, of the Kern Trading and Oil Company, and is shown on a map submitted by Mr. A. C. Balch at the hearing. The area shown on the map as gas bearing is as follows:

Buena Vista Hills,

Northern Area	17 sq. miles	10,880 acres.
Southern Area	13 sq. miles	8,320 acres.

Elk Hills, 2 sq. miles 1,280 acres.

Total Area 20,480 acres.

This estimate is interesting in that it includes a part of the Elk Hills territory as probable gas producing land.

ASSOCIATED OIL COMPANY - Prior to October, 1911, Mr. Williams prepared a map for the Associated Oil Company, which map is in evidence in this case and shows an estimated gas area as follows:

Buena Vista Hills 19,200 acres.

Elk Hills 1,280 acres.

Total Area 20,480 acres.

H. H. McCLINTOCK - Mr. H. H. McClintock, the Superintendent of the Northern Exploration Company indicated on a map marked "Northern Exploration Company's Exhibit #5" what he considered to be the proven gas territory. He indicated two areas in the North District and three areas in the South District, having areas approximately as follows:

North District:	East Area	595 acres
	West Area	<u>160</u> "
		755 acres

South District:	East Area	67 acres
	South Area	75 "
	West Area	<u>320</u> "
		462 acres
		<u>1217</u> "

Mr. McClintock drew lines closely around the existing gas wells and was apparently playing absolutely safe.

LANDS UNDER CONTRACT - As indicating what area the promoters of the Midway Gas Company considered as possible gas producing territory, it will be interesting to refer to the lands under contract for natural gas development as follows:

Southern Pacific Railroad Company	} 14 sections	8,960 acres.
Kern Trading & Oil Company		
Associated Oil Company	2 sections	1,280 acres.
Honolulu Company	7 sections	<u>4,480</u> acres
		13,720 acres.

The following table shows the various foregoing estimates concerning the gas bearing area:

J. G. White & Co. (minimum)	23,040 acres
Ford, Bacon & Davis	7,300 "
E. T. Dumble	20,480 "
Associated Oil Company(Williams)	20,480 "
H. H. McClintock	1,217 "
Assumed from land contracts	13,720 "

While it is unnecessary in this proceeding to determine the extent of the gas bearing territory, we have given the foregoing estimates to show the wide divergence of opinion on this point and to illustrate the difficulty in ascertaining exact information as to the facts surrounding the production of natural gas.

5. PERIOD OF AVAILABLE SUPPLY.

The extent of the field is really only one element in the ultimate problem, which is the length of time during which the Southern California Gas Company may draw gas from this field. In order to answer this question accurately it would be necessary to know both the available supply and the annual drain therefrom from waste and from utilization. Owing to the fact that the field is still in its infancy and that accurate data on these points has not been secured, it will be necessary in this case arbitrarily to fix a minimum period during which the Southern California Gas Company or its successors may draw gas from the field.

The men who conceived and financed the project testified that in their opinion this period will be from ten to fifteen years. John Martin testified that the Midway Gas Company was financed on an assumed period of ten years during which gas might be available for its proposed transmission main. Mr. Cyrus Pierce who with an associate sold \$450,000 face value of the Midway Gas Company's bonds and who has taken a leading part in financing the project, testified that in selling to customers he stated that from the best information he could secure he had good reason to hope that the life of the field would be 15 years. These bonds are ten year bonds. Mr. A. C. Balch testified that he and his associates had invested some \$620,000.00 in the Midway Gas Company and that it was estimated that the life of the field would not be to exceed twelve or fifteen years and that the average amount of gas that would probably be fed through the

main would be about 18,000,000 cubic feet per day. It thus appears that the men who financed this project were of the opinion that they could rely on a supply of gas for at least ten years.

This Commission's rate department has made an exhaustive study of all the elements entering into this question in so far as help could be secured from the evidence in this case. Consideration has been given to the questions of available supply, number and thickness of gas bearing strata, pressure, voids, volume of gas from wells, waste and utilization. In estimating waste, consideration must be given to a number of elements, such as improper drilling, casing and plugging, flowing oil wells, transmission and distribution losses, inefficient utilization in the field and other items. In estimating utilization, it is necessary to consider both the present and the probable future uses. The domestic and commercial requirements of Los Angeles and adjacent territory, now supplied by the present distributing systems, will amount during the coming year, in terms of artificial gas, to approximately 6,800,000,000 cubic feet^{or 2}/daily average of something over 18,600,000 cubic feet. The estimated requirement of Los Angeles and adjacent territory for the next five years in terms of artificial gas for domestic and commercial purposes, if the present normal growth continues, has been estimated as follows;

1914	-	6,800,000,000	cubic feet	or	18,600,000	cubic feet	daily.
1915	-	7,700,000,000	"	"	21,000,000	"	"
1916	-	8,825,000,000	"	"	24,150,000	"	"
1917	-	10,000,000,000	"	"	27,400,000	"	"
1918	-	11,325,000,000	"	"	31,000,000	"	"

While the amount of gas consumed will drop materially during the early use of natural gas, the consumption of gas will doubtlessly be increased by reason of the reduced price, so that the consumption will again resume its normal.

It must also be remembered that Los Angeles and vicinity will not be the only customers for natural gas from this field. The California Natural Gas Company (a subsidiary of the Standard Oil Company) utilized during March, 1913, an average daily consumption of 19,000,000 cubic feet for use in the oil fields and distribution in Bakersfield and vicinity. The drain by this company during this year is estimated to

amount to about 6,240,000,000 cubic feet. The Honolulu Company is also a heavy user of gas for consumption in the field.

From a careful study of all these elements, the rate department has reached the conclusion that the Southern California Gas Company may reasonably expect to draw on this field for the service of Los Angeles and vicinity for a period of 15.6 years. While the Commission does not adopt this figure, we refer to it as representing the result of a careful study of all the elements entering into the problem.

In order to be absolutely fair to the gas companies, we shall assume, for the purposes of the present proceeding that the period during which they may reasonably expect to serve Los Angeles and vicinity from this field is the minimum period on which the men who financed the project counted - a period of ten years.

While we shall allow a rate of depreciation sufficient to return the property within this short period of time, it must be remembered that the conclusions herein reached are only tentative and that when more accurate data has been secured from the experience of the next few years it may be necessary to revise the conclusions herein reached. This necessity for a revision may arise from the construction of a second transmission main, or evidence showing more accurately the life of the field or from other causes. In the meantime, an estimate of a minimum life of ten years will certainly be fair to the men who have financed the project on that period as a minimum.

6. ANALYSIS OF CONTRACTS.

We shall now refer briefly to the various contracts which have been entered into and which bear on the subject matter of this proceeding. These contracts may roughly be grouped as follows:

- (a) Contracts to secure adequate gas supply.
- (b) Contracts to control available supply.
- (c) Contract for lease of transmission main.
- (d) Contract for developing wells.
- (e) Contracts with local distributing companies.

We shall now refer to these contracts and comment on them.

seriatim.

(a) Contracts to secure adequate gas supply.

1. November 2, 1911 - Honolulu Consolidated Oil Company
and John Martin.

Under this contract the Honolulu Company agrees to deliver to Martin and Martin agrees to take from the Company for the period of 20 years from the completion of the pipe line to be constructed from the oil fields to Los Angeles, the following quantities of natural gas produced from the lands of the Honolulu Company:

First year - not less than an average daily supply during each month of 15,000,000 cubic feet;

Second year - not less than an average daily supply during each month of 20,000,000 cubic feet;

Third year -and thereafter - not less than an average daily supply during each month of 25,000,000 cubic feet.

An option is also given to Martin to take an additional 5,000,000 cubic feet per day if the Honolulu Company should have any unsold gas at its disposal. The Honolulu Company reserves the right to sell gas for use in the Midway oil fields under its existing contracts or renewals thereof not to exceed one third of the gas used in the field and also to use gas produced by it for the development of its own properties in the Midway oil field.

Martin agrees to construct with diligence a 12-inch main to the City of Los Angeles, to be completed within ten months from the date of the contract.

The contract provides that "the gas shall be delivered at a pressure, according to the requirements of the buyer, up to 450 pounds to the square inch."

Martin agrees to pay for all gas delivered the sum of 5¢ for each 1000 cubic feet, calculated on a 4-ounce pressure basis. The Honolulu Company agrees to use its best endeavors to develop and maintain a continuous flow of gas upon its lands sufficient to supply the requirements of the buyer, but agrees that if at any time it should fail to deliver to the buyer the amount of gas agreed to

be delivered, the buyer should have the right to enter upon the lands of the Honolulu Company, and if necessary, to drill his own wells at the Honolulu Company's account and expense.

The lands covered by the contract include seven sections, or about 4480 acres. This contract was assigned on November 18, 1911, by John Martin to Midway Gas Company.

This is the contract under which the Honolulu Company is at present supplying gas to the Southern California Gas Company. The Honolulu Company is delivering gas from three wells and is supplying all or almost all of the needs of the Southern California Gas Company. This gas is being delivered at a pressure which has increased from an average pressure of 148.4 pounds in June, 1913, 155.5 pounds in July, 1913 and 196.5 pounds in August, 1913, to an average pressure of 242 pounds in September, 1913. There is a dispute between the Honolulu Company and the Southern California Gas Company on the point as to whether it is the duty of the Honolulu Company to deliver the gas at a pressure of 450 pounds to the square inch, and as to whether it is the duty of the Honolulu Company to install a compressor so as to accomplish such delivery or to pay to Southern California Gas Company the price of compressing the gas in the compressor which the Southern California Gas Company is erecting near the main transmission line near the Taft Terminal. Captain Matson, the president of the Honolulu Company, testified that his company intends to deliver the full amount of gas specified in the contract.

This contract was primarily entered into for the purpose of securing an adequate supply of gas in order to insure the success of the proposed pipe line. . One of the contracts which the Southern Pacific Railroad Company, Kern Trading and Oil Company and Associated Oil Company, hereinafter referred to, also provides for securing an additional supply of gas in addition to containing provisions inserted primarily for the purpose of securing control in so far as possible of the gas which might be developed in the oil fields.

(b) Contracts to control available supply.

We shall now consider a number of contracts the primary purpose whereof seems to have been to secure control in so far as possible of such natural gas as might be produced in the Buena Vista Hills Field or any other portion of the Midway oil field.

1. November 17, 1911 - Honolulu Consolidated Oil Company and John Martin.

This contract, after referring to the contract of November 2, 1911, provides that if the Honolulu Company should at any time have at its disposal gas in addition to its requirements under its existing contracts or renewals thereof, it would not sell the gas to any person other than Martin in the State of California, outside of the counties of Los Angeles, Orange, San Bernardino, Riverside and San Diego without giving to Martin a 30 days' option to take such gas on terms equal to those which might be offered by the other party. The Honolulu Company further agreed that if it should desire to market natural gas at any point in the designated counties, being the remaining portion of California, it would market the same "through the said buyer at a price which shall net to the seller the same rates as it shall be entitled to receive for the gas sold under said contract of November 2, 1911." This contract ^{also} was assigned by Martin to the Midway Gas Company on November 18, 1911.

On January 10, 1913, the foregoing contract was modified by an agreement between the Honolulu Company and the Southern California Gas Company, the assignee of the Midway Gas Company. This agreement recites that the Honolulu Company "believes that there exists and that it will be able to produce in the lands referred to in said Contract of November 2, 1911, an amount of gas in excess of the amount agreed to be sold by said contract to said Midway Gas Company, as the assignee of said John Martin, including the said five million cubic feet per day covered by said option and in excess of the amounts reserved for first party's (Honolulu Company's) own use in development work and for the operation of gasoline plant up to a capacity of four million cubic feet per day, and the amount required to be furnished to the California

Natural Gas Company." The parties thereupon agreed to the cancellation of the contract of November 17, 1911, and of a certain agreement between the Honolulu Company and William C. Kerckhoff, dated February 3, 1912, and the Southern California Gas Company exercised its option to take an additional five million cubic feet of gas per day, commencing with the fourth year of the 20-year period referred to in said contract of November 2, 1911.

The Honolulu Company thereupon granted to the Southern California Gas Company the right to purchase and take all of its excess gas at the price of 5¢ per 1000 cubic feet and the Honolulu Company agreed that it would not "sell or otherwise dispose of any of such excess gas to any person, firm or corporation other than the second party (Southern California Gas Company) at any time during the term of this contract." The Honolulu Company agreed to drill all necessary wells to serve the purposes of the Southern California Gas Company and that in case of its failure so to do, the Southern California Gas Company might itself enter upon the Honolulu Company's lands and there drill for gas. Delivery of gas by the Honolulu Company was to be made at the Taft Terminal of the pipe line constructed by the Midway Gas Company, at a pressure "according to the requirements of the second party up to 450 pounds to the square inch." The contract then contains certain provisions to the effect that the Southern California Gas Company should not drill for gas on territory adjacent to that of the Honolulu Company within certain distances from the boundary lines thereof. There are other provisions in this contract to which it is not necessary to refer. The obvious purpose of the contract is to secure the control of the gas produced on the property of the Honolulu Company.

We shall now consider two contracts between the Southern California Gas Company and the Southern Pacific Railroad Company, the Kern Trading and Oil Company and the Associated Oil Company, which latter three companies will hereafter for convenience be referred to as the Southern Pacific Companies.

2. March 1, 1912 - Southern Pacific Companies and
Southern California Gas Company.

This agreement, which is at times referred to as the "Exploration Agreement," after reciting that the Southern California Gas Company desires "to obtain the exclusive right to develop gas on the lands of the parties of the first and second part herein referred to", and describing the lands covered by the contract, including 8960 acres claimed by the Southern Pacific Railroad Company and the Kern Trading and Oil Company, provides that the Gas Company may enter upon said lands to develop gas thereon during a period of 20 years and that this right should be "exclusive to the gas company, except as hereinbelow otherwise specified." The Gas Company is to bear the entire expense of developing said lands for gas and of producing and carrying gas therefrom. The Gas Company is to offset all gas wells in contiguous sections threatening the lines or boundaries of the lands referred to in the contract. The Gas Company is to begin drilling for gas with at least two strings of tools on such of the lands of the Associated Oil Company as the latter may designate and shall during the first ten years of the contract, run at least two strings of tools constantly upon said lands. The Gas Company is prohibited from drawing from said lands without the written consent of the Southern Pacific Companies any gas in excess of two-thirds of the gas produced, purchased and piped by the Gas Company from the Midway oil field. It is provided that in case the Gas Company should in its operations upon these lands strike an oil well, that the Southern Pacific Companies should have the right to purchase such well at cost and on the other hand that if in drilling for oil the Kern Trading and Oil Company or the Associated Oil Company should encounter gas to the extent of 3,000,000 cubic feet or more daily flow for 30 consecutive days, the Gas Company should at the option of the party upon whose land such oil well should be found, buy it at actual cost.

The contract further provides that the Gas Company should not be obligated to take gas encountered by the Southern Pacific Companies in excess of the following amounts, provided that it should have use therefor:

First year - 15,000,000 cubic feet per day.

Second year - 20,000,000 cubic feet per day.

Third year - 25,000,000 cubic feet per day.

The Gas Company agrees to pay to the Southern Pacific Companies 3¢ per thousand cubic feet for all gas produced and saved by it from the lands embraced in the agreement. As the gas wells encountered by the Southern Pacific Companies are to be paid for by the Gas Company and as the Gas Company is, at its own expense, to conduct the drilling operations upon this property, so that the expense of developing the wells is in this way borne by the Gas Company, it is evident that the price of 3¢ per thousand cubic feet so provided covers a rental or compensation for the use of the land and the price for the gas itself.

3. March 1, 1912 - Southern Pacific Companies, Southern California Gas Company, Midway Gas Company and William G. Kerckhoff.

This agreement is at times referred to as the "Supplemental Agreement". After certain recitals the Gas Company agrees to pay to the Southern Pacific Companies in addition to the 3¢ per thousand cubic feet to be paid for all gas produced and saved upon the lands of the Southern Pacific Companies the further sum of 3¢ per thousand cubic feet "on all gas produced and saved, purchased or piped by the parties of the third and fourth parts, or any of them, from the lands of the Honolulu Consolidated Oil Company, or from the lands of any other owner, lessee or occupant in the Buena Vista Hills and Midway oil field, and also 3¢ per thousand cubic feet on all gas produced and saved from the lands of said Honolulu Consolidated Oil Company in Buena Vista Hills district or Midway field whether or not produced by the parties of the third or the fourth part, or any of

them, except not exceeding one-third of the gas which shall be sold by the California Natural Gas Company, for use in the Midway oil field, and except the gas which shall be used by said Honolulu Consolidated Oil Company in the development of its own lands in said Midway oil field, and except the gas which shall be used in the extraction of gasoline from and compression of gas to be transmitted under said contracts with John Martin". In other words, the Gas Company agrees to pay to the Southern Pacific Companies 3¢ per thousand cubic feet for all gas, with the exceptions stated, produced on the lands of persons other than the Southern Pacific Companies. While there are other provisions in this contract, this provision for the payment to the Southern Pacific Companies of 3¢ per thousand cubic feet for gas produced entirely on the lands of other people is the principal provision of the contract. We shall hereinafter consider in greater detail the purpose of this contract and whether or not the payment of such sum by the Southern California Gas Company may be used to increase the rate which the consumers of gas would otherwise be obliged to pay.

(c) Contract for lease of transmission main.

December 5, 1911 - Midway Gas Company and

Southern California Gas Company.

By this contract the Midway Gas Company leases to the Southern California Gas Company the transmission main which the lessor contemplated constructing from the oil fields to Los Angeles, for the term of 20 years after its completion for a rental of "five cents per thousand cubic feet for all gas received by the lessee (Southern California Gas Company) in said pipe line." The Southern California Gas Company agrees to perform all of the Midway Gas Company's obligations under the contract of November 2, 1911, with the Honolulu Company, and recites that the Midway Gas Company has placed in escrow a deed conveying to the Southern California Gas Company all its properties and the Southern California Gas Company has executed and placed in escrow an agreement to pay at maturity the principal and

interest of all bonds secured or to be secured by the Midway Gas Company's mortgage to Mercantile Trust Company of San Francisco, dated November 20, 1911. The agreement further recites that both parties have signed and delivered to their depository their joint written instructions to the effect that in the event of the termination of the lease or of default under the mortgage, the deed of conveyance from the Midway Gas Company to the Southern California Gas Company shall at once be delivered to the Southern California Gas Company and the Southern California Gas Company's agreement shall likewise be delivered to the Mercantile Trust Company of San Francisco, the trustee under the bond mortgage. The Southern California Gas Company agrees to operate and maintain the pipe line in good condition, the expense of operation, repairs and renewals to be repaid by the Midway Gas Company out of its rentals.

The effect of this agreement is to place the Southern California Gas Company in the shoes of the Midway Gas Company in the matter of contracts with the Honolulu Company, to place the Southern California Gas Company in possession of the pipe line to be constructed and to relegate the Midway Gas Company to the position of the owner of property receiving rental therefor and simply paying for its maintenance and repairs. As a result of this agreement the Southern California Gas Company becomes the responsible party engaged in the production, transmission and delivery of natural gas from the Buena Vista Hills Field.

(d) Contract for developing wells.

July 1, 1912 - Northern Exploration Company and
Southern California Gas Company.

This contract, after reciting certain of the previous contracts hereinbefore referred to, provides in effect, that the Exploration Company shall do all the drilling for gas wells which the Southern California Gas Company is obligated to perform under its contracts with the Southern Pacific Companies or which the Southern California Gas Company may desire to perform for the production of gas. The functions of the Northern Exploration Company are to be limited to

the drilling and bringing in of wells and all other expenses are to be paid by the Southern California Gas Company. The Northern Exploration Company is not to be obligated to keep more than five strings of tools running at any one time. Immediately after any well has been drilled and completed by the Northern Exploration Company it shall be turned over to the Southern California Gas Company. The term of the contract is 20 years.

The Southern California Gas Company agrees to pay the Northern Exploration Company as follows:

(1) Four cents per thousand cubic feet for all gas transmitted through the transmission main of the Midway Gas Company, except such gas as might be used by any electric light or gas company in manufacturing artificial gas or electricity, entirely irrespective of whether this gas is produced as the result of the operation of the Northern Exploration Company or whether it is produced by the Honolulu Company or any other producer. 5% of the amount of gas consumed is to be excepted to provide for waste or leakage.

(2) Three quarters of a cent per thousand cubic feet for all gas transmitted through such pipe line and consumed by an electric light or gas company in the manufacture of artificial gas or electricity for public distribution, entirely irrespective again of whether or not such gas is developed by the Northern Exploration Company.

The testimony shows that the Northern Exploration Company is a subsidiary of the Southern California Gas Company and that practically the same men own both companies. The Exploration Company was incorporated for the purpose of conducting the drilling operations of the Southern California Gas Company. Instead of paying the Northern Exploration Company the actual cost of its operations, the Southern California Gas Company agreed to pay an arbitrary amount of four cents per thousand cubic feet for all gas transmitted through its main, except such portions thereof as might be used for the manufacture of artificial gas or electricity for public distribution, while for the latter gas the Northern Exploration Company was to receive 3/4¢ per

thousand cubic feet of gas so consumed. It is evident that the price so to be paid to the Northern Exploration Company has no logical connection whatsoever with the service performed by that company and as will hereinafter appear, this price is considerably in excess of the cost of producing the gas. The officials of the Southern California Gas Company tried to explain the reason why two prices, one being 4¢ and the other being 3/4¢ per thousand cubic feet were paid for gas as to which the services of the Northern Exploration Company were exactly the same in either event. The explanation to the effect that it is necessary to have a lower price for gas to compete with oil for manufacturing purposes is not convincing as a justification for a differentiation in the payment to Northern Exploration Company for services which are exactly the same in connection with the production of gas for either use. It would be far simpler if the Southern California Gas Company, instead of having created this subsidiary corporation, itself conducted the drilling operations, in which event the actual cost of such operations, no more and no less, would be charged. It should be noted that of the 5¢ per thousand cubic feet of gas which the Southern California Gas Company claims after paying the Honolulu Company, the Southern Pacific Companies and the Midway Gas Company, 4¢, while nominally paid to the Northern Exploration Company, is in effect paid to the Southern California Gas Company itself, and that instead of that company having only 1¢ for its services, it is really receiving 5¢ for the work performed by itself through the Northern Exploration Company and for its own overhead and other expenses. The Commission can give no consideration whatsoever to this contract, but will endeavor to ascertain what it actually costs to produce the gas and to give credit in that amount, and that amount only, to the Southern California Gas Company.

(c) Contracts with local distributing companies.

We shall now consider the contracts which have been entered into by the Southern California Gas Company with the local distributing companies in Los Angeles County for the sale by the former as a whole-

saler to the latter as retailers of natural gas transmitted through the main constructed by the Midway Gas Company.

1. March 22, 1912 - Southern California Gas Company
and Long Beach Consolidated Gas Company.

This contract provides that the Southern California Gas Company shall sell to the Long Beach Consolidated Gas Company all the gas which the latter shall use or distribute in the City of Long Beach, together with all extensions to the City of Wilmington and San Pedro and such other beach cities to the south of the City of Long Beach as may hereafter be supplied by the Long Beach Company, this gas to include both artificial and natural gas. The Southern California Gas Company agrees to construct at its own expense a suitable pipe line for transmitting the gas, not to exceed 8 inches in diameter from its gas plant in the City of Los Angeles to a point on the northerly limits of the City of Long Beach. The point of delivery is at the termination of this pipe line outside of the limits of the City of Long Beach. After providing for the payment to be made for artificial gas, if delivered, the agreement specifies the price to be paid for natural gas, which shall be "the actual cost to the company of such natural gas at the terminus of the Midway Gas Company's pipe line, including cost of compression at the Company's works, if necessary," together with interest at the rate of 6% per annum on that proportion of the Company's investment which is necessary to supply the consumer, based on the ratio that the proceeds of gas delivered to the consumer bears to the total proceeds of gas generated or transmitted by or through such investment, which investment includes for natural gas the high pressure transmission line from the terminus of the Midway Gas Company's line to the Company's gas works, the machinery located in said gas works used in the compression or delivery of gas to the consumer and the high pressure transmission line from the gas works to the point of delivery to the consumer. Depreciation at 5% per annum is to be included on the investment as well as an

amount to provide for taxes equal to 4% of the gross amount paid by the consumer to the company under the agreement. This amount has now been increased by the Legislature of this State to 4.5%. An allowance of 5 $\frac{1}{2}$ % shall also be added to provide for leakage on the transmission line. The agreement is to last for ten years from the date of the completion of the pipe line from the Southern California Company's gas plant.

Under this contract the Southern California Gas Company constructed an 8 inch main from its works in the City of Los Angeles to the boundary of the City of Long Beach, a distance of 17.926 miles at an expense of \$67,583.13 and mixed gas is now being delivered through said pipe line to the Long Beach Consolidated Gas Company.

2. September 23, 1912 - Southern California Gas Company and Southern California Edison Company.

This agreement provides that the Southern California Gas Company shall deliver to the Southern California Edison Company and the latter company shall take all gas, both natural and artificial, which the latter company may use in the operation of its gas distributing system in the cities of Venice, Santa Monica and Sawtelle. The Southern California Gas Company agrees to construct at its own expense a suitable pipe line not less than 6 inches in diameter for conveying gas from its regulator station in Wilshire Boulevard at the corner of Van Ness Avenue in Los Angeles to a point on the north-westerly line of the city of Sawtelle. The point of delivery is at the termination of this pipe line. The consumer agrees to pay to the Southern California Gas Company for natural gas a sum equal to its cost at the point of delivery, together with an additional sum of 1¢ for each one thousand cubic feet of gas delivered. The term "cost to the company" is defined to include, in the case of natural gas, the actual cost to the Southern California Gas Company at the terminus of the Midway Gas Company's pipe line, including the cost of compression at the company's works, if necessary, plus interest figured at 6% per annum and depreciation figured at 5% per annum on that proportion of the cost of the transmission line from the terminus of the

Midway Gas Company's line to the company's gas works necessary to supply the consumer, based on the ratio that the natural gas sold to the consumer bears to all gas transported through said line, plus a fixed sum of \$300 per month to cover depreciation on the transmission line from the company's works necessary to supply the consumer, plus an amount for taxes equal to 4% of the gross amount paid by the consumer to the company under the agreement, plus an allowance of 5 $\frac{1}{2}$ % to provide for leakage on the transmission main.

The term of the agreement is to be 10 years from the date of the completion of the pipe line to the point of delivery.

Under this agreement the Southern California Gas Company has constructed a pipe line partly 8 inches in diameter and partly 6 inches in diameter to Sawtelle, a distance of 14.749 miles, at an expense of \$38,344.70.

3. October 26, 1912 - Southern California Gas Company and
Los Angeles Gas and Electric Corporation.

This contract provides for the supply by Southern California Gas Company to Los Angeles Gas and Electric Corporation of all the natural gas necessary each day to properly supply all the latter company's customers and consumers, not exceeding 70 per cent of the carrying capacity of the transmission main or mains. The point of delivery is to be the West Glendale Terminus of the Midway Gas Company's main at the corner of San Fernando Road and Sycamore Avenue, in the county of Los Angeles outside the limits of the city of Los Angeles. The Southern California Gas Company agrees to construct a 16 inch main from the southerly end of the Midway Gas Company's main to the intersection of the northerly limits of the city of Los Angeles, from which point the gas is carried through a main built for account of the Los Angeles Gas and Electric Corporation, to the works of the latter company. The Los Angeles Company agrees to pay to the Southern California Gas Company for the use of the main to be built by the latter between the end of the Midway Gas Company's main and the city limits of Los Angeles an annual rental equal to 12% of the cost of the construction and installation thereof. The term of the contract is to be until December

1, 1932.

The prices to be paid for all gas other than such as is used by the Los Angeles Company at its artificial gas and electric generating plants, compressor stations and offices are as follows:

(a) For gas from the lands of the Honolulu Company 18 cents per one thousand cubic feet.

(b) For gas from the lands of the Southern Pacific Companies, 13 cents per one thousand cubic feet: provided that if the Southern California Gas Company must pay 5 cents instead of 3 cents per one thousand cubic feet for any of this gas, the price to be paid shall be increased from 13 cents to 15 cents.

(c) For gas from any other lands in the Buena Vista Hills or Midway Oil Fields, 13 cents per one thousand cubic feet plus the price paid by the Southern California Gas Company to the party from whom it secures the gas.

The prices to be paid for all gas furnished for the Los Angeles Gas and Electric Corporation's own consumption, at its artificial gas and electric generating plants, compressor stations and offices are as follows:

(a) For gas from the lands of the Honolulu Company 14.3 cents per one thousand cubic feet.

(b) For gas from the lands of the Southern Pacific Companies, 8.8 cents per one thousand cubic feet, with 11 cents if the Southern California Gas Company pays 5 cents instead of 3 cents per one thousand cubic feet.

(c) For gas from any other lands in the Buena Vista Hills or Midway Oil Fields, the price paid for gas used for other purposes less 5 cents per one thousand cubic feet plus 10 per cent.

Mr. A. C. Balch of the Southern California Gas Company testified that certain of these prices were ascertained as follows:

(a) For gas from the lands of the Honolulu Company and thereafter distributed among domestic consumers:

To the Honolulu Company.....	5 cents
" " Southern Pacific Companies.....	3 cents
" " Midway Gas Company.....	5 cents
" " Northern Exploration Company.....	4 cents
" " Southern California Gas Company.....	<u>1 cent</u>

Total..... 18 cents.

(b) For gas from the lands of the Honolulu Company and thereafter used under the boilers of the Los Angeles Gas and Electric Corporation, etc.:

The same as above except that 3/4 cents only is paid to the Northern Exploration Company, leaving a total of 14.3 cents.

(c) For gas from the lands of the Southern Pacific Companies and thereafter distributed among domestic consumers:

The same as (a) except that the 5 cents paid to the Honolulu Company is not payable here, leaving a balance of 13¢. If the Southern California Gas Company pays 5 cents instead of 3 cents to the Southern Pacific Companies, the price to be paid by the Los Angeles Gas and Electric Corporation will be increased from 13 cents to 15 cents.

The Southern California Gas Company also agrees in this contract to build a second main transmission line from the Taft Terminal to the West Glendale Terminal, to have a diameter of sixteen inches and to be in operation not later than November 1, 1913, unless otherwise expressly provided. This second main has not been built, nor has any release of this obligation been given.

Under this contract, the Southern California Gas Company constructed a 16 inch main from the West Glendale Terminal to the

city limits, a length of 1.008 miles. The cost of this line, together with a further 2.227 miles which the Southern California Gas Company seems to have constructed within the city of Los Angeles for account of the Los Angeles Gas and Electric Corporation, was \$34,175.26. The cost applicable to the main owned by the Southern California Gas Company would seem to be \$10,648.73. The delivery of natural gas through this line to Los Angeles Gas and Electric Corporation started on April 28, 1913 and the amounts delivered from May have been as follows:

May, 1913.....	7,358,400 Cu. ft.
June, 1913.....	96,132,000 " "
July, 1913.....	136,121,000 " "
August, 1913.....	193,259,000 " "
September, 1913.....	228,842,000 " "

Of the amounts so delivered, over one half have been used in the gas generators and under the boilers of the Los Angeles Gas and Electric Corporation in lieu of oil for the manufacture of artificial gas.

By agreement dated April 28, 1913, between these two companies, it is recited that the Southern California Gas Company has been unable to deliver the full amount contracted to be delivered, and it is provided that the price to be paid by the purchaser until the full supply is available shall not exceed an average price of 12¢ per one thousand cubic feet. A letter from A. N. Kemp, First Vice President of the Southern California Gas Company to the Los Angeles Gas and Electric Corporation, dated April 19, 1913, and attached to the contract, states that approximately one-half of the gas will be billed at 8.8 cents and the other half at 14.3 cents, making an average price of approximately 11.55 cents per one thousand cubic feet.

4. October 26, 1912 - Southern California Gas Company and Economic Gas Company.

This contract provides for the delivery by Southern California Gas Company to Economic Gas Company of Los Angeles, of natural gas sufficient to supply all the customers and consumers of the Economic Gas Company and for its own uses in operating its artificial gas generating plant, compressor station and offices, not less than 200,000,000 cubic feet per year nor more than an average of 3,000,000 cubic feet per day, but not in ~~xxxxx~~ excess of 7 1/2 per cent of the carrying capacity of the Midway Gas Company's main or mains. The point of delivery is to be at the West Glendale Terminus of the Midway Gas Company's main. It is thence to be conveyed through the Southern California Gas Company's 16-inch main to the latter company's works in Los Angeles and thence through an 8-inch main, specially constructed by the Southern California Gas Company for that purpose to Economic Gas Company's plant in Los Angeles. The Economic Gas Company agrees to pay to Southern California Gas Company for the use of the pipe lines constructed by the latter company such proportion as the gas conveyed through them for the Economic Gas Company bears to the total gas conveyed through them, of 12 per cent per annum of the cost of the construction and installation of said pipe lines. The prices to be paid for natural gas so delivered are the same as those specified in the contract between the Southern California Gas Company and the Los Angeles Gas and Electric Corporation, dated October 26, 1913, and hereinbefore referred to. The term of the contract is to be until December 1, 1932.

Under this contract, the Southern California Gas Company, in addition to its 16-inch main from the West Glendale Terminal to its works in Los Angeles, has constructed an 8-inch main for a distance of 2.256 miles from its works to the works of the Economic Gas Company in Los Angeles, for the latter company's exclusive use, at a cost of \$17,698.24. Under this contract, the Southern California Gas Company has been delivering and is now delivering "mixed gas" to the Economic Gas Company through said main.

5. January 17, 1913 - Southern California Gas Company and Western Fuel, Gas and Power Company.

By this contract, the Southern California Gas Company agrees to deliver and the Western Fuel, Gas and Power Company to buy all the gas which the latter company shall distribute in Redondo or in the vicinity thereof. The point of delivery is the point where the seller's transmission line intersects the city limits of Redondo, but outside of said limits. The customer agrees to pay to the seller in the case of natural gas the sum of one cent for each thousand cubic feet delivered plus the cost to the seller, which is defined to include, in the case of natural gas, the actual cost to the company of such gas at the southern terminal of the Midway Gas Company's pipe line; plus cost of compression at the company's works, if compressed; plus interest at six per cent per annum and depreciation at five per cent per annum on that proportion of the cost of the transmission line from the terminus of the Midway Gas Company's line to the Southern California Gas Company's gas works and that proportion of the cost of the transmission line from said company's works to the point of delivery, based on the ratio that the natural gas sold to the customer bears to all gas transmitted through said lines; plus an amount for taxes equal to the percentage of gross amount paid by the customer to the seller, now 4.6%, plus an allowance of 5 1/4% of the total cost for leakage.

Under this contract the Southern California Gas Company built a 12-inch main a distance of 19.609 miles from its works to Redondo with an 8-inch branch line to Torrance, at a total cost of \$139,217.66. This line is much larger than the lines built to serve other points in the vicinity, for the reason that the Southern California Gas Company expected to deliver through it a large amount of gas for use under the boilers of the Redondo plant of the Pacific Light and Power Corporation. Delivery under this contract started on July 7, 1913, since which time nothing but natural gas has been delivered through this main.

The foregoing contracts all contain provisions for the delivery by the Southern California Gas Company of artificial gas as well as natural gas, and many other provisions, to which it has not been thought necessary to refer.

The basic principle underlying all these contracts is a payment by the distributing company of the cost of the gas delivered at the West Glendale end of the Midway Gas Company's main, plus interest and depreciation on the additional investment on the part of Southern California Gas Company necessary to serve each local distributing company, plus items for taxes and leakage. It should be noted that ⁱⁿ the contracts with the Los Angeles Gas and Electric Corporation and the Economic Gas Company, the point of delivery is clearly stated to be at the West Glendale Terminal.

The Commission's object in this inquiry is to ascertain the fair and reasonable cost of the gas delivered at the West Glendale Terminal. The Commission is not disposed at the present time to interfere with the contracts in so far as they provide for interest and depreciation on additional investment, taxes and leakage. The contracts were made at arm's length and represented what the parties considered a fair sum to be paid by each local distributing company in addition to the cost of the gas at the West Glendale Terminal. The theory of the contracts is that each company should pay an added ~~xxx~~ amount proportionate to the additional investment necessary to convey the gas to it from the West Glendale Terminal. While this arrangement presents a very important question in the theory of public utility rates, the Commission does not deem it necessary at the present time to disturb the contracts in the respects hereinbefore indicated. In permitting the contracts to stand, for the present, in these respects, it must not be assumed that the Commission necessarily approves the theory on which they are based or the details of arriving at the amounts to be paid. It will be sufficient for the present inquiry to ascertain and establish the rate to

be paid for natural gas delivered at the West Glendale Terminus of the Midway Gas Company's line, and to this problem we shall now address ourselves in detail.

To determine this matter, it will be necessary now to consider the following subjects: investment, operating expenses, depreciation, royalties, rate of return and the rate.

7. INVESTMENT.

Under this head we shall consider the following items:

- (a) Wells.
- (b) Drilling equipment.
- (c) Gathering lines.
- (d) Transmission main.
- (e) Compressor station.

(a) Wells.

A return on the Honolulu Company's investment in gas wells is included in the price of 5 cents per thousand cubic feet which the company receives for all gas delivered by it. As full credit will be given these payments under the head of operating expenses, we shall consider under the head of investment for wells only the investment made on other lands to serve the transmission main.

The cost of the wells now completed has been as follows:

Purchased from Associated Oil Company.

Well No.1 - S 20, T. 31 S., R. 23 E.....	\$62,688.59
Well No.2 - S 20, T. 31 S., R. 23 E.....	29,159.62
Well No.1 - S 26, T. 31 S., R. 23 E.....	51,984.77

Drilled by Northern Exploration Company.

Well No.2 - S 26, T. 31 S. R. 23 E.....	40,645.89
Well No.3 - S 26, T. 31 S. R. 23 E.....	25,781.72

Cost uncompleted wells drilled by Northern Exploration Company, with amount estimated to complete them, as given by Superintendent E. H. McClintock, is as follows:

	<u>Expended</u>	<u>Estimated to complete</u>	<u>Total.</u>
Well No.4 - S.26, T.31 S, R.23 E.	13,793.77	32,000.00	45,793.77
Well No.1 - S.22, T.31 S, R.23 E.	34,508.88	20,000.00	54,508.88
Well No.3 - S.22, T.31 S, R.23 E.	27,665.69	10,000.00	37,665.69
Well No.1 - S.16, T.32 S, R.24 E.	19,822.11	11,000.00	<u>30,822.11</u>
	Grand total,		379,051.04

The wells drilled by the Associated Oil Company were taken over by the Southern California Gas Company as provided in the contract between the Southern Pacific Companies and the Southern California Gas Company dated March 1, 1912. Their cost is in excess of their real cost as gas wells for the reason that the Associated Oil Company wants oil and not gas and that after reaching gas further large expenditures were made in an effort to convert the gas well into an oil well. The cost price of the two wells hitherto completed by the Northern Exploration Company was taken from the books of the company and includes charges for overhead expenditures, such as superintendence and office expenses. The three wells drilled by the Associated Oil Company have never been drawn upon, and the two drilled by the Northern Exploration Company are used only in case of failure of the Honolulu Company to deliver the entire amount of gas needed by the transmission main. Hence these five wells may ~~xxx~~ all be properly regarded as reserve wells.

There is considerable doubt as to what portion of the uncompleted wells being drilled by the Northern Exploration Company should be included as investment in this proceeding. Any one of them may come in as an oil well any day, in which event its cost could not be considered in this inquiry. Only recently Well No. 2, on Section 22, T. 31 S., R. 23 E., which was being bored by the Northern Exploration Company for gas came in as a big flowing oil well. Of the four uncompleted wells, two show indications of oil, one looks like a gas well, and the fourth is suspended and may be a loss. By allowing the present and estimated future cost of ^{all} these four wells,

the Commission will be more than liberal in its estimate.

We shall allow the full present cost and estimated cost to complete all these wells, amounting to a total of \$379,051.04. For the reasons hereinafter stated, we shall estimate the cost of producing any additional gas which it may be necessary to develop and shall consider such cost under the head of operating expenses.

(b) Drilling equipment.

In addition to the investment in wells, there should be included in the investment the drilling equipment necessary to continue drilling operations to provide for a supply of gas in the future. As representing a reasonable investment, we desire to draw attention to the following investment for this purpose claimed by the Northern Exploration Company, which is now running five strings of tools:

Drilling tools	\$24,990.73
Equipment	2,777.92
Field lines (gas and water)	1,912.19
Buildings	5,387.21
Field instruments	326.74
Automobiles	3,138.13
Materials and supplies	19,777.39
Office furniture and fixtures	1,004.31
Commissary	1,025.78
General field information	222.72
Legal expenses	2,381.03
Insurance,	1,038.00
Total,	\$63,982.20

For the purpose of this investigation, we shall allow an investment of \$70,000 as ample to cover all necessary field development equipment.

(c) Gathering lines.

The report of this Commission's department of statistics and accounts shows that Southern California Gas Company invested in gathering lines to convey gas from the wells to the Taft Terminal to September 30, 1913, the sum of \$67,337.06. This amount will be allowed.

It appears that the Southern California Gas Company is also contemplating the construction of additional gathering lines in the

field and the construction of a second transmission main connecting therewith and running from the Taft Terminal past but not through the compressor station into the present transmission main for the purpose of transmitting gas of a pressure so high that it is not necessary to pass it through the compressor station. The estimate for these gathering lines is \$61,597.69, and for the transmission main \$34,796.59. None of these expenditures have as yet been incurred. The argument in support of such expenditure is that the company does not desire to mix high pressure gas with low pressure gas for the reason that it would result in injury to either the high pressure or the low pressure wells in the field and that such a course would save the operating expenses for compression for part of the gas.

On the other hand, the Honolulu Company has contracted to deliver 15,000,000 cubic feet of gas during the first year, 20,000,000 cubic feet during the second year and more thereafter "at a pressure, according to the requirements of the buyer, up to 450 pounds to the square inch." The Honolulu Company is now delivering gas to the present capacity of the transmission main and will soon be called upon to deliver 20,000,000 cubic feet per day, which will be at least the capacity of the present main when the gaskets have been replaced so as to stop the present serious loss from blow-outs. At the hearing, Captain Watson, of the Honolulu Company, testified that his company intended to live up fully to its contracts and we are convinced that the company will do so if it can. As bearing on its ability to do so, we would draw attention to the fact that the Southern California Gas Company's full needs are now being supplied from three of the Honolulu Company's wells. We call attention also to the fact that the pressure at the Taft Terminal has gradually increased from an average of 151 pounds on June 1, 1913 to an average of 246 pounds on September 30, 1913. In other words, the contrast is not between high pressure wells and low pressure wells, but between high pressure wells and other wells whose ^{average} pressure is considerably above the low pressure units of the compressor plant. While we do not desire to be placed in the position of advising the Southern California

Gas Company whether or not it should incur this additional expenditure of almost \$100,000, we are convinced that it would not be reasonable at the present time to include these possible expenditures as a part of the investment in this proceeding. The expenditures have not been made, and there would seem to be considerable doubt as to the wisdom of incurring them, at least for some time to come.

(d) Transmission main.

As hereinbefore stated, the transmission main to carry the gas from Taft Terminal to the West Glendale Terminal consists of 111.1 miles of 12 3/4-inch outside diameter 31 pound lap welded steel pipe, connected by means of Bresser couplings.

This main was constructed by the Midway Gas Company, whose records show accurately and in detail the entire expenditure thereon. These expenditures have been examined by this Commission's experts, who report them to be reasonable in amount. The entire cost of the mains as of August 31, 1913, as shown by the Midway Gas Company's books, is as follows:

	Prior to Apr. 28, 1913	Subseq. to Apr. 28, 1913	Total
Franchises	\$	\$ 200.00	\$ 200.00
Rights of Way	39,151.09		39,151.09
Transmission Mains	1,194,260.66	706.06	1,194,966.72
Surveys	11,827.66		
Roads and Bridges	78,809.91		
Rent Storage Yards	487.00		
Local General Group	68,353.35		
Home Office Group	25,079.23		
Trenching	81,587.86		
Pipe f.o.b. Mill	308,792.20		
Pipe Coating	18,283.48		
Freight	188,803.71		
Valves	11,556.66		
Service Connections	1,468.95		
Couplings	67,514.42		
Pipe, Storage and Loading	12,559.75		
Hauling Pipe	97,690.85		
Laying Pipe	40,821.51		
Testing	13,143.64		
Subsidiary Connections	8,156.85		
Clearing Landscape	2,856.58		
Engineering Fees	22,500.00		
Los Angeles Office Expense	1,091.70		
Interest and Discount	74.12		
Auxiliary Opr. Features	10,893.22		
Employment Agency	3,459.70		
Test (Misc. Account)	17,921.42		
Automobile Equipment	31,621.83		
Tools and Equipment	35,852.31		
Boarding House Equipment	13,244.22		
Hospital Equipment	251.78		
Stable Equipment	5,018.42		
J. C. White, Sundry Expense	3,310.27		
Insurance	4,959.71		
Price Waterhouse and Co.	2,500.00		
Pay Roll	2,707.53		
Miscellaneous	1,060.82		
Patrol Houses	19,327.60	400.54	19,728.14
Terminal Stations and Houses	53,616.15	8748.98	62,365.13
Motors and Regulators	10,359.44	92.66	10,452.10
Telephone Lines	33,184.61	-	33,184.61
Special Foundations	28,084.97	-	28,084.97
Auto Equipment	11,125.00	-	11,125.00
Tools and Equipment	4,438.00	1015.69	5,453.69
General Equipment		36.00	36.00
Boarding House Equipment	1,169.34	12.32	1,181.66
Stable Equipment	1,051.59	242.87	1,294.46
Water Mains	15,958.97	-	15,958.97
Engineering Equipment	605.80	-	605.80
General Office Equipment	312.85	9.45	322.30
Legal Expense during Const.	5,640.00	-	5,640.00
Taxes During Construction	641.06	-	641.06
Interest During Const.	82,142.00	-	82,142.00
Miscellaneous	5,962.28	-	5,962.28
	\$1,507,031.41	\$11,464.57	\$1,518,495.98

To this total should be added the following items:

Construction work in progress	\$	380.60
Legal expenses		755.00
Incorporation fees		307.00
Miscellaneous		24.45
		<hr/>
Grand total,		\$1,519,963.03

With reference to promotion expenses, it appears that capital stock of the face value of \$2,997,500 was issued to John Martin in exchange for his two contracts with the Honolulu Company and without the payment of any cash. As will hereinafter appear, the Southern California Gas Company can produce gas for at least as low as ^{the} 5 cents per thousand cubic feet which it pays to the Honolulu Company under said contracts. While Martin and his associates used portions of this stock to aid in the sale of the bonds, it appears that Martin sold bonds of the face value of \$500,000 at the full price which he paid for them and that he retains about 7% of the stock. The other promoters also retain large portions of the stock for which they gave nothing. In view of the fact that the rate of return herein allowed will be larger than the interest paid on the money borrowed to build the plant plus the amount necessary to amortize the discount on the bonds, so that there will be a margin for dividends on the stock or for increasing the value of the plant, we believe that the promoters have already been compensated in the ownership of the stock for promotion services and that no additional amount need be added to investment under this head.

We shall accordingly allow as investment for transmission main and appurtenances the sum of \$1,519,963.03.

(e) Compressor station.

The Southern California Gas Company is now constructing near the Taft Terminal, along the main transmission line a compressor station for the purpose of increasing the pressure of the gas to 450 pounds to the square inch. The present installation is to consist

of three Cooper-Hall two-stage compressor units of 1000 H.P. each. The rated capacity of each unit is 15,000,000 cubic feet per day of continuous operation. One unit is to take the gas at a pressure of 45 pounds and to deliver it at 145 pounds and the other two are to take it at or ~~xxxxx~~ above 145 pounds and to deliver it into the line at a pressure of 450 pounds. The expenditures for the compressor to October 1, 1913, were represented by the Southern California Gas Company to be \$45,996.80 and the estimated total expenditure for the installation of the three units now being built is \$461,593.10. It is estimated that when the fourth unit is installed, if installed, it will cost the sum of \$60,000, making the total complete for the four units \$521,593.10.

In view of the Honolulu Company's contract to deliver during this ensuing year 20,000,000 cubic feet of gas per day and during the next year 25,000,000 cubic feet - an amount clearly in excess of the capacity of the present single transmission main - and of the Honolulu Company's apparent ability to make good, considerable doubt has arisen in our minds as to whether we could reasonably at the present time with only one transmission main allow any portion of the cost of this plant under the head of investment. If it became necessary to compress the gas delivered by the Honolulu Company and to charge the cost against that company, the charge so made would appear as a deduction from the 5 cents per thousand cubic feet of gas now paid to the Honolulu Company and would thus be taken care of in operating expenses.

Mr. A. C. Balch testified that the plant was being constructed largely as a protection to assure a continuous supply of gas in case the Honolulu Company should fail to carry out its contract and in case it were found impossible then to develop and maintain enough high pressure wells to supply the needs of Los Angeles County. Such evidence as there is in this proceeding tends strongly to show that

neither of these contingencies will occur. While we have finally concluded, in order to be absolutely fair to the men who are financing this enterprise, to include this item in investment, we shall not allow the \$60,000 which is the estimated amount to construct the second low stage unit which it is not now planned to construct. Nor shall we allow the cost of the low stage unit now being constructed for the reason that this stage only compresses gas from 45 pounds to 145 pounds, while the pressure of the gas being delivered by the Honolulu Company has attained an average of 246 pounds and is steadily advancing. In other words, there is absolutely no need for any low stage unit now and no reasonable prospect for its need during the next few years. While we have been unable to ascertain the proportion of the cost of the compressor which is fairly chargeable to the low stage unit now being constructed, it will be considerably in excess of the \$60,000 unit for which space has been provided in the plant as now being built. By subtracting only \$60,000 from the estimated cost of \$461,593.10 to complete the first three units, we shall err, if at all, on the side of liberality. We shall allow \$401,593.10 for this item as investment.

The total investment to be allowed, on which a reasonable return should be earned, is accordingly as follows:

<u>Item</u>	<u>Present</u>	<u>Required</u>	<u>Total.</u>
Wells (completed)	\$210,260.59	\$	\$210,260.59
Wells (drilling)	95,790.45	73,000.00	168,790.45
Drilling equipment	63,982.20	6,017.80	70,000.00
Gathering lines	67,337.06		67,337.06
Transmission main	1,519,963.03		1,519,963.03
Compressor station (estimate to complete these units)	<u>461,593.10</u>	Subtract <u>60,000.00</u>	<u>401,593.10</u>
Total,	\$2,418,926.43	19,017.80	\$2,437,944.23

8. OPERATING EXPENSES.

As hereinbefore stated, the wells drilled and now being drilled for gas other than those of the Honolulu Company, will be considered as part of the investment, but the cost of such wells as must hereafter be drilled will be charged to operating expenses.

As a matter of theory it would be possible either to consider the cost of these wells as a part of capital account, charging off each year the proper amount for operation, maintenance and depreciation, or to ascertain the cost of producing the gas and simply to charge this amount to operating expenses, as has been done with the gas secured from the Honolulu Company. In view of the fact that the life of the wells is comparatively short and that they will in part be completely worn out prior to the expiration of the ten year period herein referred to and of the difficulty of estimating the exact number of wells necessary to be drilled during said period, and of the presence in the record of sufficient evidence on which to reach a conclusion under the second method, we have decided to ascertain the cost per thousand cubic feet of producing additional gas and to allow that amount as operating expenses. The net result under either theory would be practically the same.

The first item to be considered under this head is the cost of developing additional gas, consisting of the cost of drilling the wells and the cost of the gathering lines.

The evidence shows that the average cost of drilling the three gas wells which were drilled by the Associated Oil Company and turned over to the Southern California Gas Company was \$47,944.33. These wells, as hereinbefore pointed out, were unusually expensive. The average cost of these three wells plus the two drilled by the Northern Exploration Company was \$42,052.12. The evidence shows that the average cost of drilling the successful gas wells of the Honolulu Company was \$34,092.00. Assuming one failure to two successful gas wells, which assumption is established by the evidence, the average cost of a successful gas well, making due allowance for failures, would be \$51,138.00. By adding an average cost of \$3,000.00 for gathering lines, as assumed by Ford, Bacon and Davis, we secure a total of \$54,138.00, which we shall consider to be the cost of an average successful gas well in this field, with the necessary gathering lines.

We shall now direct our attention to the average life of these wells and the average estimated daily output. From a study of the history of all the gas wells in this field, beginning with the earliest Standard Oil Company well, No. 1 on Section 26, Township 31 South, Range 23 East, which was completed on October 11, 1909, up to the present time, including three wells of the Associated Oil Company, fourteen of the Standard Oil Company, two of the Northern Exploration Company and seven of the Honolulu Company, bearing in mind the performance of the wells bored, the initial open flow volume and rock pressure and the subsequent reductions both in volume and

pressure, we have reached the conclusion that it is reasonable to assume an average life of five years per well with an estimated daily output during said period of 2,000,000 cubic feet. We accordingly have the following table showing the cost of maintaining a gas supply, as an operating expense:

Estimated cost of each producing well.....	\$54,138.00
Estimated daily output for 5 years.....	2,000,000 cu. ft.
Estimated total output.....	3,650,000 M. cu.ft
Cost per M. cu. ft of gas deliverable into line	1.48¢ per M. cu.ft

It should be noted in this connection that in the contract with the Honolulu Company and the Southern Pacific Companies the parties apparently assumed a cost of 2¢ per thousand cubic feet for producing the gas and 3¢ for rental of the land and the value of the gas itself. As hereinbefore shown, the cost of developing the gas will probably/less than that assumed in these contracts.

The following table represents what we consider to be fair annual operating expenses in addition to the cost of developing the supply:

<u>OPERATING EXPENSES.</u>			
<u>Item</u>	<u>OPERATION</u>	<u>MAINTENANCE</u>	<u>TOTAL</u>
Gas wells	\$ 7,581.02	\$ 3,790.51	\$11,371.53
Drilling equipment		700.00	700.00
Gathering lines	3,366.85	1,346.74	4,713.59
Compressor plant			
Labor	12,060.00		
Supplies	<u>2,000.00</u>	11,043.81	25,103.81
Transmission System	<u>45,598.89</u>	<u>15,199.63</u>	<u>60,798.52</u>
Total	70,606.76	32,080.69	102,687.45
General Expense			<u>18,214.25</u>
		Grand Total	120,901.70

There is no evidence bearing on the question of the operating and maintenance expenses applicable to wells. We have allowed 2% of their cost for operating and 1% for maintenance, which allowance we believe to be ample. Referring to drilling equipment,

the operating expense and a greater portion of current repairs are necessarily included in the cost of maintaining a gas supply. However, we have added 1% of the total value for maintenance annually. The charge for gathering lines is 5% for operation and 2% for maintenance. The operating expenses for the compressor plant have been calculated on the basis of one superintendent, three engineers, three assistants and two helpers. The maintenance expenses are two or three times as much as they would have been had the plant been constructed as a steam driven station. For the transmission main we have estimated an annual operating expense of 3% of the transmission investment for operation and 1% for maintenance. This estimate is slightly in excess of the expenses shown by the report for an actual operation of this main during four months, as prepared by the Commission's department of statistics and accounts from the actual records.

To these operating expenses will be added taxes, amounting to 4.6% of the gross revenue, as provided by Chapter 6 of the Laws of 1913. An allowance of 13.3% of the gas received, will also be made for losses, estimated as follows:

Compressor station

Fuel.....	2.74%	
Misc.....	.16	2.9%
Transmission line		10. %
Not classified.....		.4%
		13.3%

9. DEPRECIATION.

The allowance here made under the head of depreciation is not the allowance usually made for deterioration of the physical property due to use, age, obsolescence or inadequacy. The allowance, here made, is much larger than would be necessary for these purposes. As hereinbefore stated, we have assumed a minimum life of ten years for the field available to Southern California Gas Company. The actual life of most of the physical elements of the

plant will undoubtedly be in excess of ten years. Under the heading of depreciation, we shall now allow a sufficient amount for each item such that if deposited at only 4% compound interest it will at the end of ten years retire the entire principal less the estimated salvage at the end of said period. In other words, this allowance will repay to the promoters of this enterprise their entire capital invested, within only ten years, less the salvage. If the field lasts longer than ten years, as is probable, it is obvious that a further adjustment in the rate must hereafter be made. For the present, we believe that we are entirely fair to the promoters of this enterprise by providing for the return of the entire investment in ten years in addition to allowing a reasonable return on the investment in the meantime. If the field lasts longer than ten years, the owners of this enterprise will thereafter make very large profits which it might be fair then to share with the public on some basis hereafter to be determined.

The following table shows the capital invested, the estimated salvage and the so-called depreciation annuity for each of the items which enter into the investment:

<u>ITEM</u>	<u>CAPITAL</u>	<u>SALVAGE</u>	<u>DEPRECIATION ANNUITY</u>
Wells	\$ 379,051.04	\$ _____	\$ 31,587.59
Drilling equipment	70,000.00	17,500.00	4,375.00
Gathering lines	67,337.06	13,467.41	4,489.14
Compressor station	401,593.10	200,796.55	16,733.05
Transmission line	1,518,876.58	293,649.47	102,102.26
Intangible	<u>1,086.45</u>	<u>_____</u>	<u>90.54</u>
	2,437,944.23	525,413.43	159,377.58

In the foregoing table, the depreciation annuity in each case is 8 1/3% of the principal less salvage. No salvage is allowed on the wells. A salvage value of 25% has been estimated for drilling equipment and 20% for the gathering lines. Due to its undoubted value in connection with an artificial gas plant ^{which might} be established in the Midway Field when the natural gas has become partially or entirely exhausted, we have allowed a salvage of 50% for the com-

pressor. For the transmission main, we have allowed the salvage of 19 1/3%, ^{which is less than the amount} estimated by Mr. W. E. Barrett, consulting engineer and assistant general manager of Southern California Gas Company, in his testimony on the hearing in Application No. 202 before this Commission.

The total annual charge allowed for depreciation annuity is \$159,377.58.

10. ROYALTIES.

We shall now refer again to the two contracts entered into on March 1, 1912 between the Southern Pacific Companies on the one hand and the Southern California Gas Company and affiliated parties on the other. The first of these contracts, called the "Exploration Agreement", in effect gives the Southern California Gas Company the exclusive right to enter upon the lands of the Southern Pacific Companies for twenty years and to drill for gas. The Gas Company agrees to offset at its own expense by means of wells on this land all gas wells drilled on adjacent lands and to keep two strings of tools constantly at work on the land of the Associated Oil Company. The contract contains reciprocal provisions for the turning over at cost to the Gas Company of gas wells drilled by a Southern Pacific Company and of oil wells drilled by the Gas Company to the Southern Pacific Company on whose land the well is drilled. The Gas Company agrees to pay to the Southern Pacific Companies 3¢ per thousand cubic feet for all gas taken by it from their lands, except that 5¢ shall be paid for such gas as may be taken from wells drilled and operated by a Southern Pacific Company for oil but containing gas in conjunction therewith. The 3¢ represents merely the rental of the land and the value of the gas. The 5¢ includes rental of land and value of gas plus cost of developing the well, which latter amount is here apparently agreed upon by the parties to be 2¢ per thousand cubic feet of gas. All payments made under this contract are made either for rental of land used in drilling wells or for value of the gas actually produced therein or for development of wells--in either case for

actual services rendered or commodities supplied.

The other contract of the same date, called the "Supplemental Agreement", is of an entirely different character. This contract provides in effect that in addition to the payments agreed upon in the preceding contracts, the Southern California Gas Company shall pay to the Southern Pacific Companies the further sum of 3 cents per 1000 cubic feet for all gas delivered into the transmission main from all lands in the field not owned or controlled by the Southern Pacific Companies. In other words, if the Southern Pacific Companies should do no work whatsoever in developing gas wells on their lands, and if the gas transmitted into the main should be taken exclusively from other lands, the Southern Pacific Companies would nevertheless receive 3¢ per thousand for each cubic foot thereof. Based on the theoretical carrying capacity of the Midway main, the annual payments or royalties to the Southern Pacific Companies for gas secured from wells drilled on other peoples' lands would be \$284,700.00. The contract further provides that as long as the payments provided therein are made the Southern California Gas Company shall be relieved of the necessity of offsetting wells bored on lands adjacent to the Southern Pacific Companies lands.

The parties to this contract attempted at the hearing to justify it as follows--the Gas Company because it was trying as far as possible to secure the control of the entire field and also because of the release of the obligation to drill on the lands of the Southern Pacific Companies to offset wells on adjacent lands, and the Southern Pacific Companies because they claimed that otherwise the gas under their lands would be drained away by wells on adjacent property without any compensation to these companies. We shall now examine each of these contentions.

Whatever may be said for or against the merit of an attempt to secure control of the field is irrelevant here for the reason that the Southern California Gas Company did not succeed in securing such control. Out of the twenty-two wells now producing gas in the Buena Vista Hills Field, twelve are owned by the Standard

Oil Company, one by the United Oil Company, and two by the Honolulu Company to supply customers other than the Southern California Gas Company. The wells of the Standard Oil Company are in the very heart of the pioneer gas territory and are producing at the present time almost one half of all the gas utilized from this field.

Neither are we impressed with the argument that the release of the obligation to offset wells is of great advantage to the Southern California Gas Company. That company will have to drill additional gas wells from time to time in any event and there seems no good reason why it should not drill them on the Southern Pacific Company lands as offset to other wells, as they have secured specific permission to do under the "Exploration Agreement". It is clear that if the procedure outlined in the "Exploration Agreement" is followed, the Southern California Gas Company will save large sums of money each year as contrasted with the payment of the royalties to the Southern Pacific Companies.

Referring now to the contention of the Southern Pacific Companies, the evidence shows that a gas well in this territory draws gas from some distance in each direction, but how far does not appear. Hence it might follow that a gas well drilled on other land near the boundary of land of the Southern Pacific Companies might drain gas from under that land, but we are of the opinion that the proper remedy of the Southern Pacific Companies in such event would be to offset such well themselves or to call upon the Southern California Gas Company to offset it as provided in the "Exploration Agreement", instead of exacting a payment of 3¢ per thousand cubic feet for all gas produced in the fields even though it be produced on the lands of other persons without drawing any gas from the lands of the Southern Pacific Companies. If such offsetting well is drilled by the Southern California Gas Company, as provided in the "Exploration Agreement", the Southern Pacific Companies will receive, without any expenditure on their part, 3¢ for each thousand cubic feet of gas taken therefrom. On the other hand, if the well is drilled by the Southern Pacific Companies them-

selves, they may either use it together with other wells to supply a new market, or they may turn it over to the Southern California Gas Company which company, as provided in the "Exploration Agreement", will be compelled to reimburse the Southern Pacific Companies for their entire expenditure in drilling the well and thereafter to pay 3¢ for each thousand cubic feet of gas taken therefrom. Whatever course is followed, the rights of all the parties will be fully protected.

We find no justification for the payment by Southern California Gas Company to the Southern Pacific Companies of 3¢ or any other sum for gas which the Southern Pacific Companies do not produce and with reference to which they perform no service whatsoever. For gas produced on the lands of the Southern Pacific Companies, the Honolulu Company receives no royalty. Then why should the Southern Pacific Companies receive a royalty for gas drilled without any effort or expense on their part on lands of the Honolulu Company or any other lands which they do not own or control?

The practical effect of the "Supplemental Agreement" is to give the Southern Pacific Companies a royalty of 3¢ for each thousand cubic feet of gas produced at the expense of other parties on the lands of other parties without any expenditure, service or effort whatsoever on the part of the Southern Pacific Companies. We find no justification for imposing the burden of this royalty on the consuming public, as is now being done. In establishing the rate herein, we shall entirely disregard this royalty.

11. RATE OF RETURN.

Referring now to the rate of return to be allowed on the investment in this case, we desire to reaffirm what this Commission said in City of Palo Alto vs. Palo Alto Gas Company, Case No. 288, decided on March 12, 1915, and appearing in Vol. 2, Opinions of Railroad Commission of California, 300, 316:

"No fixed percentage applicable to all cases and all classes of utilities can be established by this Commission. Each case must be judged on its own merits.....The most

that can be said by way of general principles is that the return should be at least the average return which is earned by other classes of business of the same degree of hazard in the same community. The Commission in fixing a rate of return must be liberal, lest too strict a policy result in turning capital to other fields of enterprise. California needs development by public utilities, and this Commission's policy should be a broad and liberal one, so as to encourage capital to develop the State by legitimate public utility enterprises where needed. The Commission should be careful not to permit an inflation of prices in ascertaining the value of the property of a public utility used and useful for the public purpose, but should be liberal in establishing the rate of return on that value."

In the present proceeding a number of very unusual elements concur, with the result that the decision herein as to the rate of return can not properly be used as a precedent in other cases. The most important of these elements is the hazard of the enterprise. While the evidence shows far more certainty and much less hazard in this undertaking than has been claimed for it by its promoters, the fact remains that no one absolutely knows the life of the gas field or the extent to which the wells will stand up. Considerable information on these points is already available and within a few years enough additional evidence will be at hand to enable the proper rate fixing authority to make such revision in the rate as may have proven necessary. Again, we shall give consideration to the fact that the consummation of this project has resulted in giving to the people of Los Angeles County a far more efficient gas at rates which will undoubtedly be materially lower than those hitherto paid by them for artificial gas. It ^{clearly} appears/~~that~~ the promoters of this enterprise are performing a distinct public service, provided that the rates for natural gas are reasonable. After a careful consideration of all the evidence bearing on this question, we have concluded that at the present time a rate of return of 10% on the value of the property used and useful for this purpose, as fixed herein, is at least a fair and equitable rate of return.

In establishing this rate of return for the present, we desire to point out that this is only a temporary adjustment and that within ^a few years this return will undoubtedly be too large. As

the investment is repaid to the projectors of this enterprise, year by year, as herein provided in the so-called depreciation annuity, a return of 10% on the entire original investment becomes in reality a return of considerably more on the capital remaining invested from time to time. This fact emphasizes the necessity of a further examination into this question within the next few years. For the present, a return of 10% is certainly ~~xxxxxxxx~~ just and reasonable. ~~xx~~

12. THE RATE.

We are now in a position to establish the rate to be paid for natural gas delivered at wholesale at the end of the Midway Gas Company's transmission main in West Glendale. A summary of all the fixed charges and operating expenses in connection with the delivery of this gas at the West Glendale terminal is as follows:

<u>ITEM</u>	<u>Interest at 10%</u>	<u>Depreciation Annuity</u>	<u>TOTAL Fixed Charge- es</u>	<u>O&M Expens- ses</u>
Wells	\$ 37,905.11	\$ 31,587.59	\$ 69,492.70	\$11371.53
Drilling equipment	7,000.00	4,375.00	11,375.00	700.00
Gathering lines	6,733.71	4,489.14	11,222.85	4713.59
Transmission main	151,996.30	102,192.80	254,189.10	60798.52
Compressor station	<u>40,159.31</u>	<u>16,733.05</u>	<u>56,892.36</u>	<u>25103.81</u>
Total	243,794.43	159,377.58	403,172.01	102687.45

<u>Item</u>	<u>Total Charges</u>		
Wells	\$ 80,864.23	Total Charges	\$505,859.46
Drilling equipment	12,075.00	General Expenses	<u>18,214.25</u>
Gathering lines	15,936.44	Total charges & expen- ses.	\$524,073.71
Transmission main	314,987.62		
Compressor station	<u>81,996.17</u>		
Total	\$505,859.46		

To secure the entire cost, the foregoing total must be increased so as to cover the following items:

- Losses..... 13.3% of all gas received.
- Taxes..... 4.6% of gross revenue.

Cost of Maintaining gas supply apart from rental....1.48¢ per
M. cubic feet of gas re-
ceived from wells other
than those of the Honolulu
Company.

We shall now ascertain the cost of gas delivered at the West Glendale terminal of the Midway Gas Company's line under each of the following three conditions:

Condition A - Assume that the Southern California Gas Company will deliver an average of 18,000,000 cubic feet of gas per day, all of which is to be purchased from the Honolulu Company.

Condition B - Assume that the Honolulu Company will supply only one half of the gas required and that the Southern California Gas Company will itself acquire or develop the remainder of the daily output of 18,000,000 cubic feet.

Condition C - Assume that all the gas will be derived from lands other than those of the Honolulu Company and that the Southern California Gas Company will pay the cost of field development.

1. CONDITION A.

We are assuming that the price of 5¢ per thousand cubic feet paid to the Honolulu Company under its contract represents a fair price for the cost of developing that company's gas plus interest on the investment plus payment for the gas itself. In order to secure an average daily delivery of 18,000,000 cubic feet of gas at the West Glendale terminal and assuming a transmission loss of 10.4% from the lower end of the compressor station to this terminal, it would be necessary to deliver a total of 7,332,589 thousand cubic feet of gas annually out of the compressor station if the gas were all compressed. Assuming further a loss for fuel and other losses of 2.9% in the compressor station, it would be necessary to deliver at the Taft terminal 7,551,585 thousand cubic feet of gas annually in order to deliver at the West Glendale terminal an average of 18,000,000 cubic feet of compressed gas per day.

Assuming that the total annual charges and expenses for the collection, compression, transmission and delivery of the gas amount to \$524,073.71, as hereinbefore found, that 2.9% of the gas delivered at the Taft terminal will be consumed or lost in the compressor station and that 10.4% of the compressed gas will be lost in transmission to the West Glendale terminal and that taxes amount to 4.6% of the gross revenue, the cost for these items would be 8.389% per thousand cubic feet delivered at the West Glendale terminal. This sum includes the cost of operating and maintaining the compressor station together with interest and depreciation thereon. If the compressor station is operated at all, under this assumption, it will be for the purpose of compressing the gas to a pressure of 450 pounds to the square inch, as provided in the Honolulu Company contract. In that event, the cost of the operation, interest and depreciation should be subtracted from the 5% paid to the Honolulu Company. The total annual charge for the compressor station has hereinbefore been estimated to be \$81,996.17. On the basis of a delivery to it of 7,551,585 thousand cubic feet of gas per year and a loss of 2.9% of the gas received and passed, for fuel and other losses, the charge to each cubic foot of gas for compression would be 1.118% per thousand cubic feet.

Under this condition, we accordingly have the following result:

CONDITION A.

1. If the Honolulu Company's gas is compressed at the expense of the Southern California Gas Company,

Cost of Honolulu gas increased for
transmission losses and taxes.....5.837% per M. cu. ft.

Cost of collection, compression,
transmission and delivery of gas
at West Glendale..... 8.389% per M. cu. ft.

Total cost delivered..... 14.226% per M. cu. ft.

2. If the cost of compression is deducted from cost of Honolulu Company's gas,

Cost of Honolulu Gas.....	5¢ per M. cu. ft.
Cost of compression.....	<u>1.118¢</u> per M. cu. ft.
Net cost.....	3.282¢ per M. cu. ft.
Above cost increased for 10.4% additional loss plus 4.6% for taxes.....	4.540¢ per M. cu. ft.
Cost of collection, compression, transmission and delivery.....	<u>8.389¢</u> per M. cu. ft.
Total cost delivered.....	12.929¢ per M. cu. ft.

2. CONDITION B.

Under the second condition, one half the gas is delivered by the Honolulu Company and the other half by Southern California Gas Company, resulting in an average cost of gas delivered under these circumstances as follows:

Cost of one half delivered gas received from Honolulu Company....	5.237¢ per M. cu. ft.
Cost of one half gas delivered from other sources on basis of 1.48¢ for field development, 3¢ payment to land owners, 2.9% consumption and loss in compressor, 10.4% in subsequent transmission and 4.6% for taxes.....	<u>5.42¢</u> per M. cu. ft.
Average cost.....	5.6285¢ " " " "

The following result accordingly obtains as to

Condition B:

CONDITION B.

1. Average cost of gas.....	5.6285¢ per M. Cu. ft.
2. Cost of collection, compression, transmission and delivery of gas at West Glendale as per Condition A.....	<u>8.389¢</u> per M. cu. ft.
Total.....	14.0175¢ " " " "

If one half cost of compression is charged to

Honolulu Company:

Cost of Honolulu Company's gas as per Condition A.....	4.540¢ per M. cu. ft.
Cost of other gas as per Con- dition B.....	<u>5.42¢</u> " " " "
Average cost.....	4.98¢ " " " "

Cost of collection, compression, transmission and delivery.....	8.389%	per M. cu.ft.
	13.369%	" " " "

3. CONDITION C.

Under the third condition, it is presumed that all the gas will be received from sources other than the Honolulu Company's lands. As the latter company is now supplying all the gas needed by the Southern California Gas Company and is preparing to supply the 20,000,000 cubic feet per day provided in the contract for the second year, there is only the slightest possibility that this assumption will ever be realized. The results, however, are given for purposes of comparison.

CONDITION C.

Cost of delivered gas received from other sources than Honolulu Company's lands as per Condition B.....	5.42%	per M. cu. ft.
Cost of collection, compression, trans- mission and delivery at West Glen- dale, as per Conditions A and B.....	8.389%	" " " "
Total.....	13.809%	" " " "

The condition at present prevailing and which we may reasonably expect to continue, at least to a large extent, is Condition "A".

It will not be necessary in this proceeding to establish a separate rate for gas ultimately used for fuel purposes under the boilers and in the generators of the local gas and electrical companies, nor to pass on the merits of the claim that a low rate should ultimately be established for gas consumed for this purpose. Attention is drawn, however, to the fact that the demands of the inhabitants of Los Angeles County for natural gas for lighting and heating purposes are even now almost sufficient to tax the capacity of the present transmission main if those people are supplied with straight natural gas. The public interest demands that the natural gas shall be put to the most beneficial public use. Whether this gas shall be used for such fuel purposes and if so to what extent is a matter

which we leave to the city authorities of the localities in which there may be a demand for such use.

Our function is simply to establish a just and reasonable rate for natural gas at wholesale at the West Glendale terminus of the Midway Gas Company's main. The contract with the Los Angeles Gas and Electric Corporation and the Economic Gas Company specifically provides for delivery at this point. The contracts with the other local distributing companies, which for the time being will be allowed to stand in these respects, all provide a price which starts with the cost of delivery at this point, so that a determination of this cost fixes definitely the price to be paid under each of these contracts.

The price hitherto claimed by Southern California Gas Company as representing the cost of gas delivered at this point has varied from 18¢ per thousand cubic feet for gas ultimately used for domestic consumption to lesser amounts for gas ultimately used under the boilers and in the generators of the local gas and electric companies, as hereinbefore pointed out. After a careful review of all the evidence in this case, with a desire to do full justice to all parties concerned, we find as a fact that the rates at present being charged by Southern California Gas Company for natural gas delivered at wholesale at the West Glendale terminus of the Midway Gas Company's main are unjust and unreasonable in so far as they differ from the rate herein established, and we further find as a fact that a just and reasonable rate to be charged for natural gas delivered at wholesale by Southern California Gas Company at said point is the sum of 14¢ per thousand cubic feet.

As hereinbefore stated, this adjustment is only temporary. If permitted to continue for more than the first few years, it would result in larger revenues to the Southern California Gas Company than even a most liberal course on the part of the public authorities would justify. For the present, however, we are convinced that this

is a just and reasonable rate and that its adoption will show persons desiring to invest moneys in more or less hazardous public utility enterprises in this state, resulting in material benefits to the public, that they may do so in reliance on fair treatment from the public authorities.

We submit the following form of order:

O R D E R .

A public hearing having been held in the above entitled proceeding and the case having been submitted and being now ready for decision and the Commission having made the findings of fact which are contained in the opinion which precedes this order, on which findings the order in this case is based,

IT IS HEREBY ORDERED that Southern California Gas Company be and the same is hereby ordered to establish and file with this Commission, to become effective within thirty (30) days from the date of this order the rate of 14¢ for each one thousand cubic feet of natural gas delivered by said company at the West Glendale terminus of the Midway Gas Company's transmission main.

The foregoing opinion and order are hereby approved and ordered filed as the opinion and order of the Railroad Commission of the State of California.

Dated at San Francisco, California, this 20th day of December, 1913.

John W. Ashburn

H. D. Leonard

Alex Gordon

Max J. Keen

Edwin O. Edgerton

Commissioners.