

REPORT OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON LIQUEFIED PETROLEUM GAS
(1949-1950 Committee)

April 26, 1950

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W. K. Warren
Warren Petroleum Corporation
Tulsa, Oklahoma

TRANSPORTATION SUBCOMMITTEE

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Union Tank Car Company
Chicago, Illinois

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National Petroleum Association
Washington, D. C.

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Tide Water Associated Oil Co.
New York, New York

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Woodley Petroleum Company
Houston, Texas

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Bartlesville, Oklahoma

J. H. Forrester
Stanolind Oil & Gas Company
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Humble Oil & Refining Co.
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LaGloria Corporation
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Skelly Oil Company
Tulsa, Oklahoma

DEMAND SUBCOMMITTEE

CHAIRMAN - J. W. Foley
The Texas Company
New York, New York

R. T. Goodwin
Shell Oil Company, Inc.
New York, New York

Arthur C. Kreutzer
Liquefied Petroleum Gas Assn.,
Inc.
Chicago 3, Illinois

J. M. Gardiner
Republic Oil Refining Company
Pittsburgh, Pennsylvania

The Committee on Liquefied Petroleum Gas, appointed by the National Petroleum Council to bring up to date a 1948 study of the liquefied petroleum gas situation, has completed its work sufficiently to submit a report.

The Chairman of the 1949-1950 Committee followed the procedure of the 1948 Committee by appointing Subcommittees to prepare separate reports on Demand, Transportation and Production.

This report, accordingly, contains the completed studies and conclusions of the Demand and Transportation Subcommittees, and the data which has been obtained to date by the Production Subcommittee.

Since 54 out of a total of 161 companies had not replied to the Production Subcommittee's questionnaire by the deadline for this report, and since some 12 or 14 of those companies are of such size that their combined production represents a sizable portion of the total national production, the Production Subcommittee now is engaged in a re-solicitation by mail and personal contacts for data so that it can have the most accurate picture possible of the production outlook for the next two years. The Subcommittee accordingly has suggested that it be permitted to supplement its current report when, and if, sufficient additional data has been obtained to justify such action.

Most of the factors which forced the 1948 Committee to subject its conclusions and recommendations to numerous qualifications now have lost most of their importance. New and increased producing facilities were completed at a speedier rate than had been anticipated as the materials of construction suddenly became freely available. At the same time the mild winter of 1948-1949 in most of the areas of heaviest consumption of LP-Gas kept demand from accelerating as rapidly as had been predicted. Potential production accordingly gained sufficient ground over demand to eliminate the old bug-a-boo of extreme shortages in seasonal periods of heaviest demand.

Particularly was this true as transportation facilities were brought more nearly in balance.

The Demand Subcommittee estimates an over-all increase of 11 per cent in demand for liquefied petroleum gas in 1950 over the preceding year. It estimates domestic demand will be up 19.5 per cent; chemical manufacturing demand up 5 per cent, utility and gas manufacturing requirements up 2 per cent, and refinery uses from outside sources up 2 per cent. It sees no increase for industrial and synthetic rubber uses.

The Production Subcommittee reports that, on the basis of replies from approximately two-thirds of the companies to whom questionnaires were sent, production will increase 15.8 per cent this year. The addition of the combined production of certain large companies who have delayed replying to the questionnaire, would materially increase this percentage figure.

The Transportation Subcommittee reports that the 9680 tank cars already available and the 200 to 300 likely to be added to the fleet in 1950 should be adequate to meet the needs of the industry, providing, of course, that the same transportation agencies are used in the percentage relationship as previously experienced.

The Committee on Liquefied Petroleum Gas accordingly is of the opinion that producing capacity and transportation facilities now are sufficient to meet adequately the anticipated demands for liquefied petroleum gas for the next year or two.

REPORT OF THE DEMAND SUBCOMMITTEE
OF THE
COMMITTEE ON LIQUEFIED PETROLEUM GAS

Mr. W. K. Warren, Chairman of the National Petroleum Council's Committee on Liquefied Petroleum Gas, in a letter dated November 22, 1949, appointed a Demand Subcommittee to make a study of all possible phases pertaining to demand for LP-Gas.

On January 24, 1950, a meeting of this Demand Subcommittee, composed of the following, was held in New York:

J. W. Foley, Chairman
The Texas Company
New York, New York

R. T. Goodwin
Shell Oil Company, Inc.
New York, New York

J. M. Gardiner
Republic Oil Refining Company
Pittsburgh, Pennsylvania

A. C. Kreutzer
Liquefied Petroleum Gas
Association, Inc.
Chicago, Illinois

All members had been supplied with graphs prior to the meeting showing the Bureau of Mines data on consumption of LP-Gas during certain preceding years. The Subcommittee had available data from The Compressed Gas Association, Liquefied Petroleum Gas Association, Inc., the Gas Appliance Manufacturers Association, Inc., the publication "Rubber Age" and data from the U. S. Census Bureau.

Following the meeting, a form letter was mailed to numerous oil and gas producing companies, including major refiners, particularly those with alkylation plants which consume isobutane. Replies were received and used in preparing the estimated consumption of LP-Gas.

It was agreed by the Subcommittee that we should attempt to forecast the consumption of LP-Gas for the year 1950 only. After study by the Subcommittee, followed by an exchange of correspondence, the following tabulation was prepared which sets out the Subcommittee's estimated demand for LP-Gas during 1950:

Estimated Demand in Thousand Gallons During 1950

		<u>% Increase Over 1949</u>
(a)	Domestic	19.5
(b)	Industrial	0.0
(c)	Chemical Manufacturing	5.0
(d)	Utility and Gas Manufacturing	2.0
(e)	Synthetic Rubber	0.0
(f)	Refinery Use from Out- side Sources	2.0
	<u>472,000</u>	<u>2.0</u>
	<u>3,775,000</u>	<u>11.0</u>

(a) The domestic consumption of LP-Gas is influenced to a considerable degree by the weather, business conditions and product prices. It was assumed that business conditions during 1950 would be off slightly from that experienced in 1949. The price of the product at the beginning of 1950 was appreciably less than the average price during 1949. The U. S. experienced a warmer than average winter during the first and last part of 1949 and it was estimated by the Subcommittee that colder weather would be experienced during the same periods of 1950. It has been estimated that there would be a 25% increase in the sale of gas appliances during 1950 over the previous year. It has recently been less difficult for retailers of LP-Gas to finance bulk plant and storage facilities and it is easier for customers to finance their tanks and appliances. The population of the U. S. is increasing at a high rate and it is assumed that the number of LP-Gas customers will continue to increase. It is estimated that over 800,000 new housing units will be built during 1950. The number of tractors and tractor trucks consuming LP-Gas will increase sharply because of the large reduction in the cost of outfitting these units to consume LP-Gas. Included in the domestic demand is a certain amount of LP-Gas consumed by drilling rigs serviced by retail suppliers of LP-Gas.

In view of all of the above stated reasons, the Subcommittee concluded that the domestic consumption of LP-Gas during 1950 would exceed that for 1949 by 19.5%.

(b) The industrial consumption of LP-Gas experiences violent fluctuations from year to year as its consumers use most of the LP-Gas for make-up fuel. We estimate no change in the consumption as we know of no large storage tanks on order, or any appreciable number of any new industrial customers. Perhaps some of the industrial LP-Gas load will be lost to gas transmission lines, however, peak load will continue to be supplied by the LP-Gas industry and new industry connecting to gas transmission lines will offer a new source of consumption for LP-Gas during peak requirements.

(c) The consumption by chemical manufacturing will, we estimate, be up slightly (5%) to take care of new plants completed during 1949. The Subcommittee knows of no major expansions in progress to be completed during 1950.

(d) The consumption by utility and gas manufacturing will be up slightly (2%) due to colder weather and a greater use by utility plants to meet peak demands. In certain cases, gas manufacturing companies will supply their entire demand by LP-Gas rather than manufacturing gas because of the unsettled coal situation. Certain utility companies are entering the LP-Gas distribution field by selling customers around the periphery of their city distribution system, thus avoiding the expansion of distribution lines and thereby adding another income producing source.

(e) The Subcommittee had no evidence that the synthetic rubber industry would change its rate of consumption of LP-Gas. The amount of LP-Gas consumed per ton of rubber produced has varied appreciably over past years and it is realized that the consumption by this industry is controlled by the Government, whose actions we would not attempt to predict.

(f) The Demand Subcommittee's report dated July 29, 1948, did not attempt to estimate the LP-Gas consumed by refineries in the manufacture of aviation gasoline or automotive fuel. Since the refineries consume from outside sources approximately 12.5% of the total LP-Gas consumed, the Subcommittee is of the opinion that an estimate should be made of the amount of the product which this industry would consume during 1950. There was considerable discussion on this subject and in view of reports that certain refineries were planning to step up the consumption of isobutane through their alkylation plants, it was decided to canvass this industry to determine their estimate of LP-Gas consumption during 1950 from outside sources, such as gasoline plants and cycling plants. There is evidence that certain refineries are using greater quantities of relatively cheap butanes to raise the vapor pressure of their gasoline and at the same time produce gasoline at a lower cost. The result of this study indicated that refineries consumption would be up approximately 2%.

The total estimated demand for 3,775,000 gallons of LP-Gas during 1950 indicates that the consumption during 1950 will exceed that consumed in 1949 by approximately 11%.

REPORT OF THE TRANSPORTATION SUBCOMMITTEE
OF THE
COMMITTEE ON LIQUEFIED PETROLEUM GAS

Based on the estimated increased demand in 1950 for liquefied petroleum gas of approximately 400 million gallons over 1949, it appears that the available tank cars plus the construction planned should be adequate to meet the needs of the industry, providing, of course, that the same transportation agencies are used in the percentage relationship as previously experienced.

This takes into consideration the elimination of the use of Modified cars constructed as a war emergency but will not be acceptable in interchange for the handling of liquefied petroleum gas after May 1st, 1950.

Attention must again be directed to the necessity of moving production to the area of consumption in as equal monthly amounts as is practical.

The expense of maintaining Class 105-A-300 and 105-A-400 cars in an amount sufficient to move a less orderly distribution is a matter of economics as to whether it is cheaper to provide tank cars for only a short period of use than it would be to invest in storage facilities reducing the peak demand for tank cars to a minimum.

It is the belief of your committee that the distribution of tank cars between the various points of production is becoming more equitable than in the past and probably pretty nearly in balance.

According to the survey recently made there were 7971 Class 105-A-300 and 105-A-400 and Class 104-A cars available January 1, 1949, to the liquefied petroleum industry and during 1949 there were 1709 cars constructed (727 Modified IV cars retired), bringing the total as of January 1, 1950, to 9680 cars not including 409 Modified cars in service January 1st. It is estimated that between 200 and 300 Class 105-A cars will be added to the available cars during 1950.

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REPORT OF PRODUCTION SUBCOMMITTEE
OF THE
COMMITTEE ON LIQUEFIED PETROLEUM GAS

The Production Subcommittee devoted considerable attention to the preparation of a questionnaire with instructions and definitions, in an effort to get the most accurate picture possible of the production of liquefied petroleum gas which will be available to the LP-Gas markets.

The questionnaire requested data relative to Propane, Butane and Butane-Propane Mixtures for January, 1950, and the estimated production of those products for January, 1951. (A copy of the instructions and definitions is attached to this report.)

The questionnaires were sent to 161 companies. Replies have been received to date from 107 companies. Among those 54 companies who have not replied are some 12 or 14 companies whose combined production of liquefied petroleum gas represents a sizeable percentage of the total production of the country.

The Subcommittee accordingly has repeated its request for data from those companies and members of the Subcommittee also are undertaking to follow up those second requests with personal contacts.

The Subcommittee is submitting this report, therefore, with the request that it be permitted to supplement the data contained herein when, and if, it has obtained sufficient additional statistics to justify that action.

The replies from the 107 companies to date are combined in the following table:

LIQUEFIED PETROLEUM GAS PRODUCTION
(Gallons)

<u>Period</u>	<u>Propane</u>	<u>Butane</u>	<u>Butane-Propane Mixture</u>	<u>Total</u>
A. January 1950	125,975,858	65,272,817	27,162,959	218,411,634
B. January 1951 (Est.)	146,125,157	80,717,653	26,063,731	252,906,541
Percentage Change 1951 Over 1950	+ 16%	+ 23.7%	- 4.05%	+ 15.8%

The Subcommittee is of the opinion that the decrease in Butane-Propane Mixtures production is due largely to the fact that several plants which heretofore were equipped to produce only mixtures will be in a position to separate their butane and propane before the end of this year, and accordingly have reported the production separately as butane and propane as requested.

The Demand Subcommittee has estimated an 11 per cent increase in demand in 1950. The Production Subcommittee has arrived at a 15.8 per cent increase in production for this year, exclusive of several large manufacturers, the inclusion of whose production figures would boost materially the present reported percentage gain.

On the basis of statistics already at hand, together with a conservative estimation of the combined production of companies which have not replied to the questionnaire to date, and in the light of the experience of the industry in being able to supply market demands in 1949 with a minimum of complications, the Production Subcommittee is of the opinion that liquefied petroleum gas production will be in sufficient quantity in 1950, and possibly through 1951, to meet LP-Gas market demand.

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Instructions and Definitions
Pertaining to Questionnaire on LPG Production

1. "Liquefied Petroleum Gas Production" means that quantity of LPG produced in your plants which meets commercial grade specifications of NGAA, CNGA or similar, and which is available to the LP-Gas market. It does not include that quantity of LPG produced by you which is normally used or consumed in your refineries or other plants for essential operations.
2. State the quantity of LP-Gas separately as propane or butane, providing the facilities at the producing plant are such as to permit separating the two components even though a mixture of the two is produced or taken from the plant. That quantity produced at plants which do not have facilities for separating propane and butane should be shown as butane-propane mixture.
3. For "I. Gasoline Plants" state your total production at all gasoline plants. Do not list the plants individually. Do the same for cycling plants and refineries.
4. For "January 1950" state your actual "production of LP-Gas" for the entire month.
5. For "January 1951 (Estimate)" state the quantity of LP-Gas which you anticipate producing, or could produce, from both present plants and new plants or facilities to be completed by that time. For gasoline plants, assume that state controlled production will be at the same allowable for January 1951 as it was for January 1950. For refineries, use the same crude runs for your January 1951 estimate as you actually ran in January 1950.
6. The production of joint ownership plants should be reported in total by the operator of the plant and not individually by the joint owners.
7. Please return questionnaire at an early date to:

Mr. K. W. Rugh, Chairman
Sub-committee on Liquefied
Petroleum Gas Production
c/o Phillips Petroleum Company
Bartlesville, Oklahoma