

The Natural Gas Industry of Indiana

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The state of Indiana, with increasing importations of natural gas available through pipe lines, has rapidly expanded its industrial, commercial and residential consumption. Imported natural gas is favored because of its convenience, low cost and an average B.T.U. content of 1050 per cubic foot of imported gas as compared to less than 600 for most manufactured gas and Indiana natural gas. Privately owned A and B state gas utilities dealing mainly in natural gas had a fixed investment of \$84 million at the end of 1949, an increase of 9% over 1948¹ with increased valuation mainly in natural gas installations. Total gas revenues for Indiana reached slightly over \$40 million divided as follows: natural gas 53%, manufactured gas 30%, mixed manufactured and natural gas 16%, and liquid petroleum gas less than 1%. Indiana among the states ranks 15th as a consumer of natural gas and 20th as a producer, as well as ranking 20th in reserves.

Data on this industry are available from several reports (1, 2, 3).

Production

The first gas well drilled in the state was in Delaware County in 1876 and foreshadowed a sizeable industrial development between 1886 and 1905 with the drilling of additional wells. Cities such as Muncie, Marion and Anderson owe their early importance in glass manufacturing to these local gas supplies which, however, soon proved inadequate and were supplemented by manufactured gas and later by natural gas piped from West Virginia. Projects to supply large amounts of natural gas from local sources have not been successful for more than a short period of time although attempts were made by a pipe line from Greentown to the Calumet region and from Pike and Gibson Counties to Evansville. To the present time over 9000 gas wells have been drilled in the state with a total recorded production of over 550,000 million cubic feet, but proven reserves at the present time are only 25,200 m.c.f. Thus even though 30 new wells were drilled in 1949 and many wells in older fields are still producing, the amount of state natural gas consumed is insignificant when compared with the total imported.

Most towns and communities dependent on local gas have obtained standby facilities or are in the process of doing so as service cannot be maintained satisfactorily during winter months. Most of the towns still without standby facilities are located south and southeast of Indianapolis with major users in Henry, Rush and Decatur Counties. A large part of the gas supply is concentrated around Rushville and Vincennes but total

¹ All statistics are for 1948 unless otherwise indicated.

production is decreasing rapidly. The 1949 production of 625 m.c.f. is about 7000 m.c.f. below the total for 1906 and 2875 m.c.f. under the peak wartime production of 1941.

Manufactured gas is produced in large quantities principally in Terre Haute and Indianapolis, but with the completion of a pipeline now being constructed between the latter city and Zionsville both cities will have supplementary supplies of natural gas available for mixing. Seven of eight other towns and cities with facilities for making manufactured gas also have natural gas facilities. There are 17 liquid petroleum gas plants in the state of which 16 use propane gas and one butane, but these are in general used for standby facilities except in four cases where natural gas supplies are unobtainable.

Transmission and Distribution

The first major supply of natural gas imported into Indiana came by pipeline from West Virginia in 1913, but by 1918 the supply was far short of demand and manufactured gas began to supply most of the gas needs of the northeast counties. The Kentucky Natural Gas Company (whose transmission lines are now operated as the Texas Gas Transmission Company) in 1931 built a transmission line into Indiana to Evansville and later extended it to Terre Haute to connect with the Panhandle Eastern Pipeline Company and serve the southwest and south central parts of the state. Also in 1931 the Panhandle Eastern Pipeline Company, which obtains its supplies from the Hugoten and Panhandle fields, completed a transmission line to Dana, Indiana, near the Illinois state line, which pipeline has become the major supplier of imported gas for Indiana. Lines were built to serve northern Indiana while the old West Virginia transmission lines (purchased in 1942) were connected to the aforementioned company's pipelines which are supplied by two 24 inch pipes (Fig. 1).

The Calumet District in 1938 made connection with the Chicago District Pipeline Company, which obtains its supply from the Texas Panhandle Field, and the supply continues to be used for mixing with natural gas or for an interrupted supply in the north and northwest areas. The Louisville Gas and Electric Company transports gas into southern Indiana for use in Jeffersonville, New Albany and Corydon.

In 1946 the United States Government agreed to transport natural gas on its Big Inch and Little Big Inch lines, originally constructed to transport gasoline, to meet fuel shortages. Two years later this line was purchased by the Texas Eastern Transmission Corporation which contains two pipes, of 24 and 20 inch diameters, entering Posey County in the southwest corner of the state and leaving through Franklin County in the southeast. A line of the Texas Gas Transmission Corporation crosses the southeast corner of the state, serving Madison and Lawrenceburg before continuing into Ohio. In the northwest the Michigan-Wisconsin Pipeline Company serves the northwest corner of the state through the Northern Indiana Public Service Company.

Thus Indiana has six major suppliers of imported natural gas, with

about 60% of the supply coming from Texas, and next in order of importance are Kansas, Oklahoma, Kentucky and Louisiana.

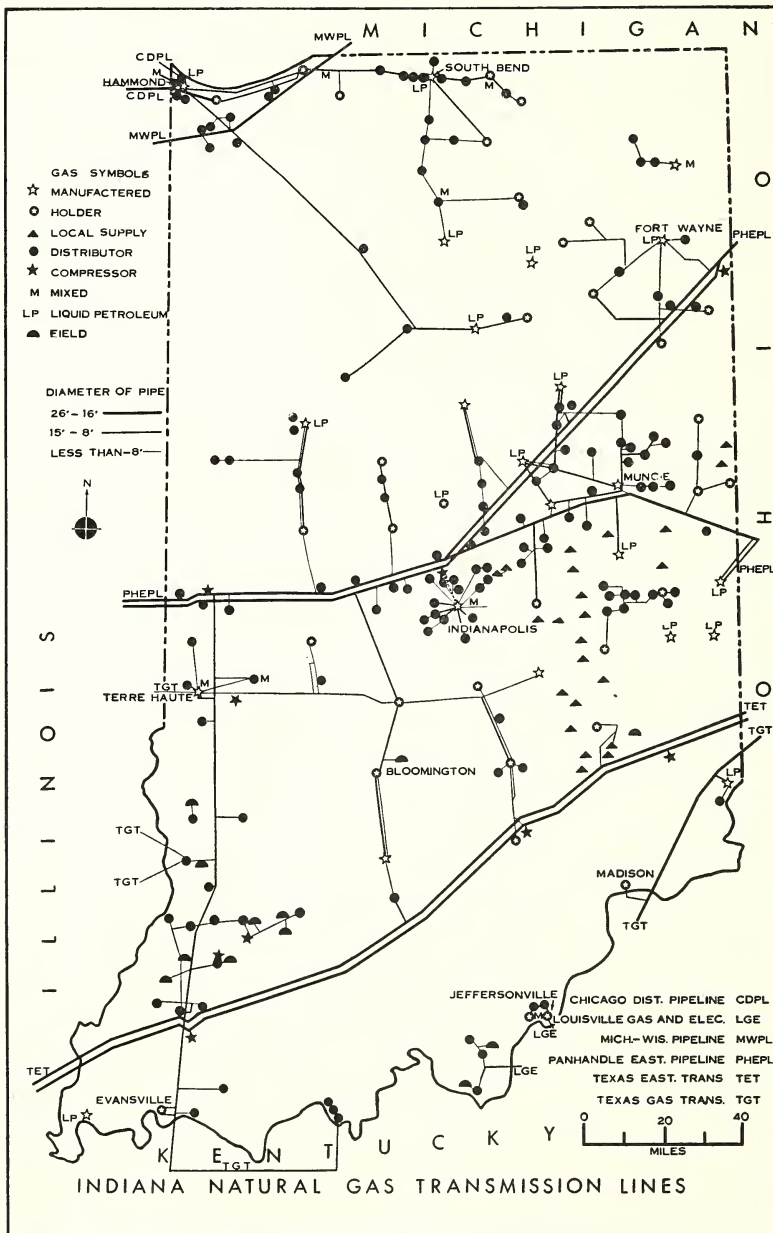


Fig. 1. Transmission lines for natural gas in Indiana.

exports small amounts of gas into Illinois where location along the boundary warrants it. Indiana has 8,630 miles of all types of pipeline divided as follows: 4,900 miles for natural gas, 2,700 for manufactured gas, 970 miles for mixed and 60 for liquid petroleum gas. The natural gas pipelines were utilized as follows: 2,950 miles for distribution, 1,830 for transmission, and 120 for field and gathering. Many of the gas utilities are associated with electrical utilities while there are 25 major distributors of natural gas in Indiana in addition to municipal units.

Sales and Utilization

The consumption of natural gas has increased from 5,904 m.c.f. in 1933 to 38,885 m.c.f. in 1948, or an increase of 85% during the 15 year period, while estimates for 1949 and 1950 indicate a continued rise. Manufactured gas although continuing a steady growth in consumption has lagged far behind natural gas in rate of increase, as during the same period manufactured gas increased from 9,061 to only 15,848 m.c.f. or an increase of 43%. Mixed gas has also shown a spectacular increase to almost 10,000 m.c.f. per year while liquid petroleum gas, especially popular in residences, is rapidly becoming an important fuel.

Industry was by far the greatest single consumer of natural gas, using 25,161 m.c.f. or 64% of the total as compared to 28% for domestic and 8% for commercial and other users. However, of a total revenue of \$21,320,000 industry despite being the largest consumer of natural gas accounted for only 39% of the sales revenue, which was possible through preferential consumption rates. The number of customers is dominated by residential users, approximating 93% of the total, while less than 1% was industrial. The number of natural gas customers in the 15 year period to 1948 has increased 41% to 230,000 whereas the number of manufactured gas customers has decreased slightly to approximate those of natural gas.

Gas sales are largest during the winter months when residential requirements are at a maximum. A great difference in heating degree days² exists between the northern and southern parts of the state with 6203 for Ft. Wayne and 4405 for Evansville, so that allocations of gas supplies are generally more critical in the north during cold winters.

According to average index numbers, using 1935-1939 as a base, the cost of gas and electricity actually decreased to 1948 adding to its popularity, whereas all items had an increase of 73% and food and clothing increased over 100%. Another factor which accounts for the rapid increase of supply and consumption of natural gas for Indiana and the United States as a whole is reflected in the higher net incomes of natural gas utilities as compared to those of manufactured gas. Thus the net income for natural gas utilities in the United States showed a 15% profit, mixed gas 9.8%, and manufactured gas only 4.8%, while

² One degree day is counted for each degree of deficiency for every day on which a deficiency occurs—using 65° as the base temperature.

natural gas distributing utilities had a 10.4% profit as compared to 18.5% for transmission utilities.

Conclusions

Indiana has a shortage of natural gas while distribution is not adequate in some parts of the state. In recent years new sources for importing natural gas have been utilized while compressor stations have increased pumping pressures, but demand still exceeds supply. Thus especially in the northern parts of the state industrial development has in some cases been hampered and restrictions continue on residential gas consumption.

Literature Cited

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2. Gas facts—A statistical record of the gas utility industry in the United States, 1948. American Gas Association Bureau of Statistics, New York.
3. Minerals yearbook. 1948. U. S. Dept. Interior.