Approved 4/28/84
Date

MINUTES OF THE House COMMITTEE ON Energy and Natural Resources.

The meeting was called to order by Rep. David J. Heinemann at
Chairperson

3:30 ~~a.m.~~/p.m. on March 29, 1984 in room 519-S of the Capitol.

All members were present ~~except~~:

Committee staff present:

Ramon Powers, Legislative Research
Theresa Kiernan, Revisor of Statutes' Office
Pam Somerville, Committee Secretary

Conferees appearing before the committee:

Brian Moline, Kansas Corporation Commission
Jack L. Finch, Northwest Central Pipeline
Rick Kready, Kansas Power and Light
Donald J. Schellhardt, American Gas Association
Lon Stanton, Northern Natural Gas

Committee discussion on HB 2557 - An act relating to natural gas pipelines; declaring portions thereof to be common carriers; providing for powers and duties of the state corporation commission.

Mr. Brian Moline, Kansas Corporation Commission, appeared and expressed concern about the drafting of the bill stating he felt there were jurisdictional problems, particularly with the intra versus inter state language. Mr. Moline also stated he was unsure as to how a person would arrive at the 75% figure in line 27.

Donald J. Schellhardt, American Gas Association, Washington, appeared in opposition to the legislation. Mr. Schellhardt expressed concern that the bill did not represent the interests of the natural gas producers. Mr. Schellhardt submitted detailed reports that addressed the issue of mandatory carriage for the committee's review (See Attachments 1A, 1B, and 1C).

Mr. Jack L. Finch, Vice President, Marketing, Northwest Central Pipeline, appeared in opposition to the mandatory carriage act. He cited several statistics to document his testimony regarding the low cost of natural gas in the midwest (See Attachment 2).

Rick Kready, Kansas Power and Light Company, appeared in opposition to HB 2557. He stated he was opposed to the language

Unless specifically noted, the individual remarks recorded herein have not been transcribed verbatim. Individual remarks as reported herein have not been submitted to the individuals appearing before the committee for editing or corrections.

declaring some natural gas pipelines to be common carriers. (See Attachment 3). Discussion concluded on HB 2557.

The Chairman then called for final action on bills previously heard in committee.

HCR 5093 - A concurrent resolution establishing a special task force to study the potential uses of hydrogen and support of research in the development of hydrogen as a reliable fuel source of the future.

Representative Keith Roe made a motion to report HCR 5093 favorably. Representative Ginger Barr seconded the motion. Motion adopted.

SCR 1644 - A concurrent resolution memorializing the President of the United States and the United States Congress to amend the procedures by which the United States Army Corps of Engineers licenses land to the Kansas fish and game commission.

Representative Fox moved to report HCR 1644 favorably. Representative Roe seconded the motion. Motion adopted.

SCR 1664 - A concurrent resolution requesting the members of the Kansas congressional delegation to take whatever action necessary and appropriate to ensure that the Bureau of Reclamation and the U.S. Army Corps of Engineers do not allow waters of the Arkansas river to be reregulated by means of the Pueblo reservoir unless and until an operating plan has been submitted to and approved by the Arkansas River Compact administration.

Representative Fox moved to report SCR 1664 favorably. Representative Farrar seconded the motion. Motion adopted.

SCR 1642 - A concurrent resolution memorializing the President of the United States and the United States Congress to decontrol natural gas.

Representative Fox moved to conceptually amend line 49. Representative Guldner seconded the motion. Motion adopted. Representative Patterson moved to recommend SCR 1642 favorable as amended. Representative Foster seconded the motion. Motion adopted.

There being no further business before the committee, the meeting was adjourned at 4:35 p.m.

David J. Heinemann
Chairman

American Gas Association

MC-84-1
January, 1984

OPERATING PROBLEMS UNDER MANDATORY CARRIAGE

One of the ideas currently being considered by Congress in its deliberations over the gas pricing issue is mandatory carriage. The basic concept of mandatory carriage is to allow gas producers and large gas users or distributors to deal directly with each other and require gas companies to provide transportation between the two parties if they have available excess capacity in their systems. Much of the debate has centered on the effect that this would have on wellhead prices and the cost of gas to consumers. However, little has been said about the effect of such a proposal on the operation of the gas transportation system. Mandatory carriage would cause very serious operating problems.

In theory, the maximum design flow rate in a pipeline is a straightforward calculation, so if the actual flow of gas is below this level, "excess capacity" is available for carriage customers. In reality, however, it would be much more complicated to determine whether the gas system can accommodate a specific carriage arrangement. Decisionmakers would have to recognize that:

- Gas customers demand more from the system than gas. Gas consumers do not want to take delivery of gas until they are ready to use it. Load balancing is necessary to match variable demand with relatively constant production.

Attachment IA
3-29-84

- Seasonal variations in temperature will always affect a pipeline's capacity to deliver gas. The maximum design capacity of a pipeline is based on specific pressure and temperature conditions. The actual maximum capacity will be more or less than design capacity if weather conditions vary from these design conditions.
- Some percentage of design capacity must be used for line pack. Line pack is the industry term for using the pipeline itself as a storage reservoir to meet short-term demand swings. Gas demand varies depending on the time of day, i.e., highest on a winter morning. Since it takes several hours to draw gas out of even nearby storage, operators actually "store" gas in the pipeline to meet the morning surge.
- 100% of pipeline capacity will not be available 100% of the time. Facilities require periodic maintenance, relocation, upgrading, and testing to assure future reliability and to comply with regulatory requirements. Emergency outages will also occur. Capacity must be available to allow for these contingencies and still meet contractual obligations to customers and producers.
- Capacity and capacity utilization are not identical on each segment of a pipeline. Each segment of a pipeline will have a unique usage pattern depending on the proximity of production fields, markets, and storage facilities, as well as other factors.
- Gas production is not precisely controllable. Changes in pipeline pressure will cause the flow of gas from a well or

producing field to vary. In addition, routine maintenance and upsets will periodically stop deliveries from a well completely.

- Pipeline flow is dynamic. Capacity in use is continuously changing depending on the actual and anticipated delivery requirements. Historical data indicates the operating conditions of a pipeline at a given moment or over an average period in the past, but it does not guarantee available capacity in the future.

A mandatory carriage program would place the determination of available capacity in the hands of government regulators. Policy decisions would substitute for operational decisions. The number and complexity of factors which must be considered in such a determination would necessitate a large and complex regulatory program.

The alternative to massive regulation is to rely on free market incentives to encourage negotiated contract carriage. Instead of duplicating the system operators' efforts, the government's role would be to remove institutional barriers to negotiated carriage, to ensure that companies have an adequate financial incentive to enter into such arrangements, and to prevent companies from unjustly refusing to carry gas. The last function is critical. As the guardians of public interest, government regulators need the authority to order transportation in special cases. This free market approach would create an incentive for companies to accept carriage customers if bona fide excess capacity is available. The determination of the availability of capacity would be left to the informed judgment of each company, as designer and operator of their system, with oversight by Federal regulators.

The following discussion of gas system operation is meant to elaborate on these points and to provide some insight into the role and complexity of the gas transportation system.

Role of the Gas Delivery System

The basic purpose of the gas delivery system is to transport energy, in the form of natural gas, from producer to consumer at the minimum cost per Btu delivered. The compressibility of gas makes the operation of a gas pipeline very complex.

When a liquid, such as water or oil, is transported by pipeline, the quantity of liquid inside the pipeline is constant; whenever one cubic foot of liquid is inserted into one end of the pipeline, one cubic foot is pushed out the other end. Liquids are incompressible.

When one cubic foot of natural gas is inserted into a pipeline, an infinite combination of results can occur. One cubic foot of gas could be withdrawn at the other end; or, two cubic feet could be inserted in the other end. Compressible gases follow the ideal gas law, which states that pressure and temperature both affect the volume of a given quantity of gas. By either doubling the pressure or halving the temperature, twice as much gas can be placed in one cubic foot.

To illustrate how this applies to gas pipelines, take for example a transmission pipeline segment 62 miles long and 30 inches in diameter. This segment is equivalent to a storage bottle with a volume of approximately 1.5 million cubic feet. At atmospheric pressure, 14.7 psi, and 60 degrees F, it will hold about 1500 MMBtu of gas. If the quantity of gas is doubled to 3000 MMBtu, the pressure will double to 29.4 psi. Thus by allowing the pressure to rise or fall in a pipeline segment, the quantity of gas in the pipeline can be varied.

Compressibility complicates the transport of gas. For one thing inserting one cubic foot of gas in Texas will not displace one cubic foot of gas 1,000 miles away at the market. The gas will require approximately 50 hours to travel that distance. Even gas consumers with the least variable consumption pattern cannot predict exactly what their requirements will be one hour, let alone 50 hours, in the future. It is impossible to react to short term demand changes by adjusting the amount of gas taken from producers. Therefore, carriage customers will invariably be taking gas from the pipeline or distributor at a different rate than the contract producer is supplying it. The gas system will be forced to deal with the difference through load balancing.

The temperature and pressure dependence of natural gas also affects pipeline capacity. At higher pressures or lower temperatures, gas takes up less volume in the pipeline. Therefore, higher pressures increase capacity. Also seasonal variations in temperature cause gas to expand during the warm summer months and reduces the capacity of the pipeline.

Load Balancing

The gas delivery system provides more than just transporation services. Gas consumers do not want to take delivery of gas until they are ready to use it. Few gas consumers have the capacity to store gas for future use. Such storage is costly and subject to large economies of scale. Therefore, gas consumers' demand for gas from the delivery system is subject to wide seasonal variation.

Gas producers, on the other hand, wish to receive a stable income from gas sales in order to finance past and present exploration and production costs. They do not want their operations to be subject to

swings in cash flow as a result of seasonal variations in gas demand. Therefore producers emphasize continuity of income, through contract clauses requiring minimum takes or other means, when finding a buyer for their gas.

The gas delivery system provides a service to both parties when it satisfies these disparate needs of gas producers and consumers. This service is known as load balancing. In practice, load balancing is a function of the gas control department of each gas company and is accomplished through careful, constant monitoring and adjustment of every component in the pipeline network.

Since each transmission company has numerous sources of supply, operators can "make-up" gas from other wells if an emergency, or even scheduled maintenance puts a well, or a whole field, out of service. Last year, a hurricane in the Gulf of Mexico shut-down deliveries from offshore, but transmission companies were able to compensate by drawing gas from other fields and storage. Conversely, if gas demand is down, gas companies can use their capacity to fill storage reservoirs instead of shutting-in wells.

Gas distributors balance load by adjusting takes from suppliers, by utilizing storage, and by adding or shedding interruptible customers. The latter are large industrial users that can use either gas, oil, or propane--usually as a boiler fuel. When demand is low in the summer, distributors serve their interruptible customers, generally at very advantageous rates. When demand peaks, the distributor sheds the interruptibles in favor of residential and commercial customers. This system benefits the interruptibles that get cheaper rates and it benefits residential and commercial customers because their utility has higher baseload sales over which to spread fixed costs.

Mandatory carriage makes load balancing more difficult. It creates not just technical or engineering problems, but affects the reliability and cost of gas service. Mandatory carriage customers that buy gas from a limited number of sources have a higher risk of emergency shut-ins. Unless the pipelines' or distributors' service obligation has been statutorily reduced, the utility will have to step-in with its own gas supplies. This will require that the gas company maintain supply source and/or storage above and beyond what is required by its regular customer. It would be inequitable to charge these fixed costs to non-carriage customers, so the expense of maintaining such stand-by service would have to be borne by the carriage customer. Furthermore, the loss of interruptible customers increases utilities' storage and peak shaving costs. Lastly, when a company does not control the sources of gas it takes, it is difficult to adjust to increases or decreases in gas demand.

Line Pack

A major effect of the compressibility of gas is to make it possible to disassociate the production of gas from the seasonal, daily, and hourly swings in gas demand. By increasing or decreasing average pressure in the system, the quantity of gas within the pipeline can be changed. More gas can be inserted into the pipeline than is being withdrawn or vice versa. The inventory of gas in the pipeline is called line pack.

The use of line pack is illustrated by the following example: Figure 1 represents a typical 24-hour demand pattern for a market. Gas demand is highest in the early morning, falls throughout the afternoon followed by an upsurge from 4 p.m. to 8 p.m., then falls to its lowest

FIGURE 1
TYPICAL MARKET HOURLY DEMAND

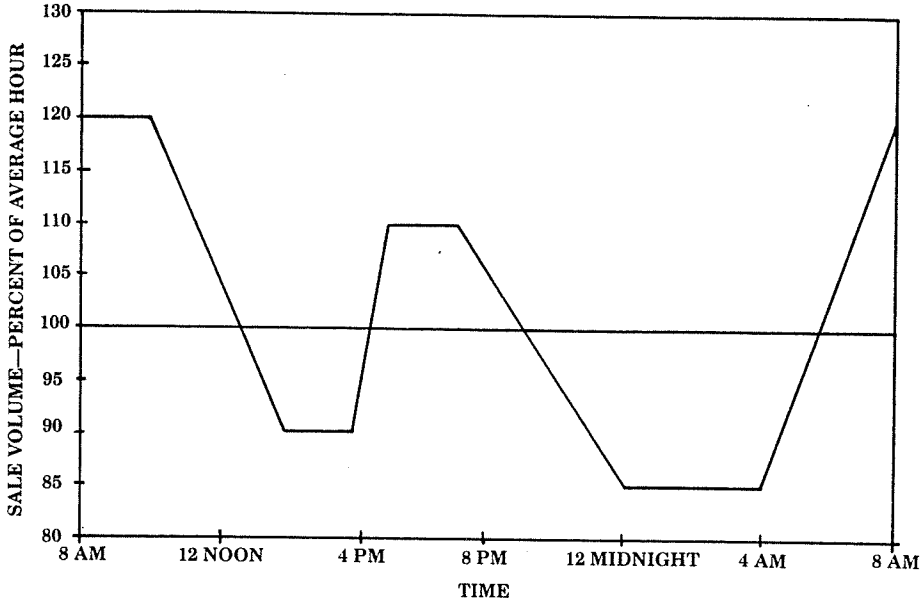


FIGURE 2
HOURLY LINEPACK

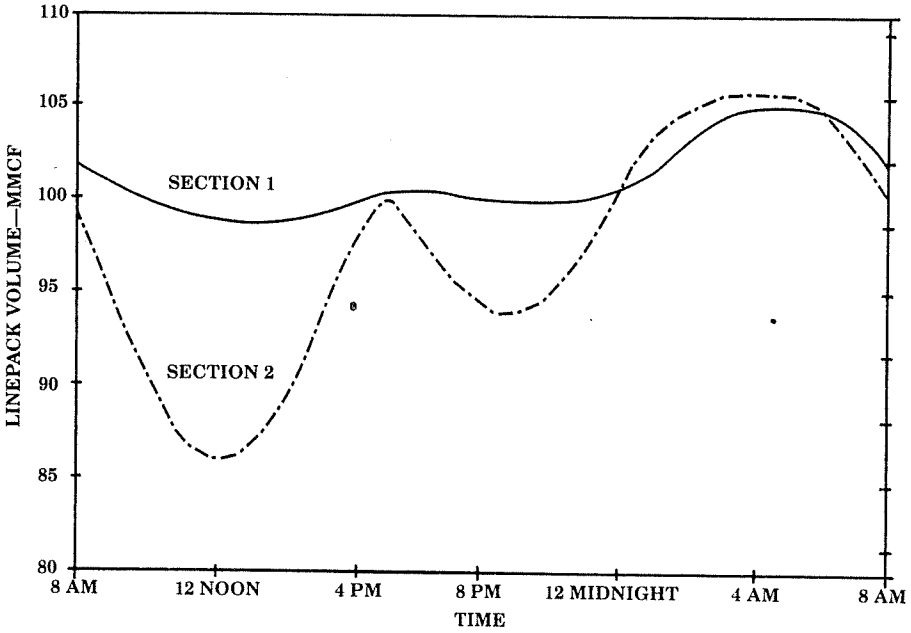
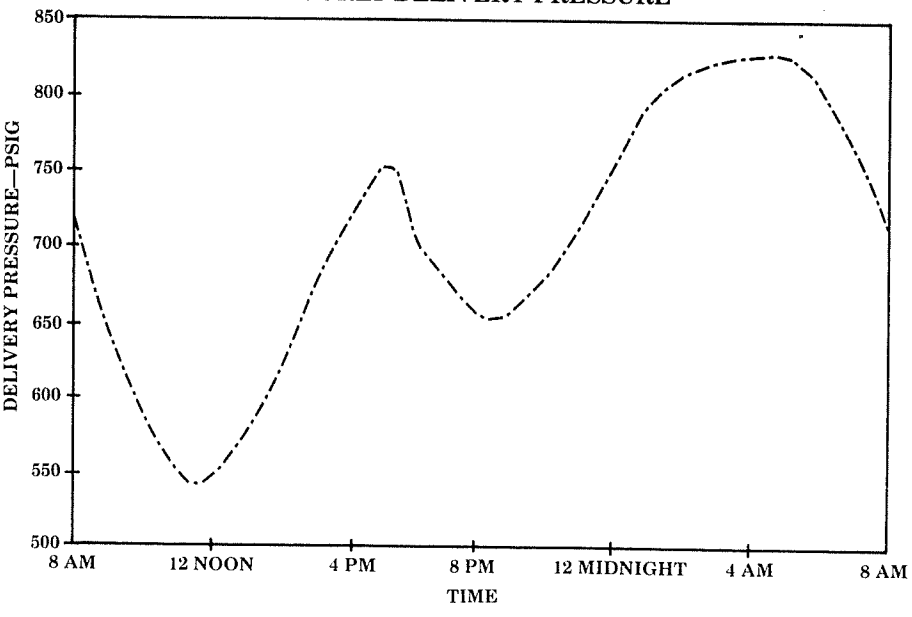


FIGURE 3
HOURLY DELIVERY PRESSURE

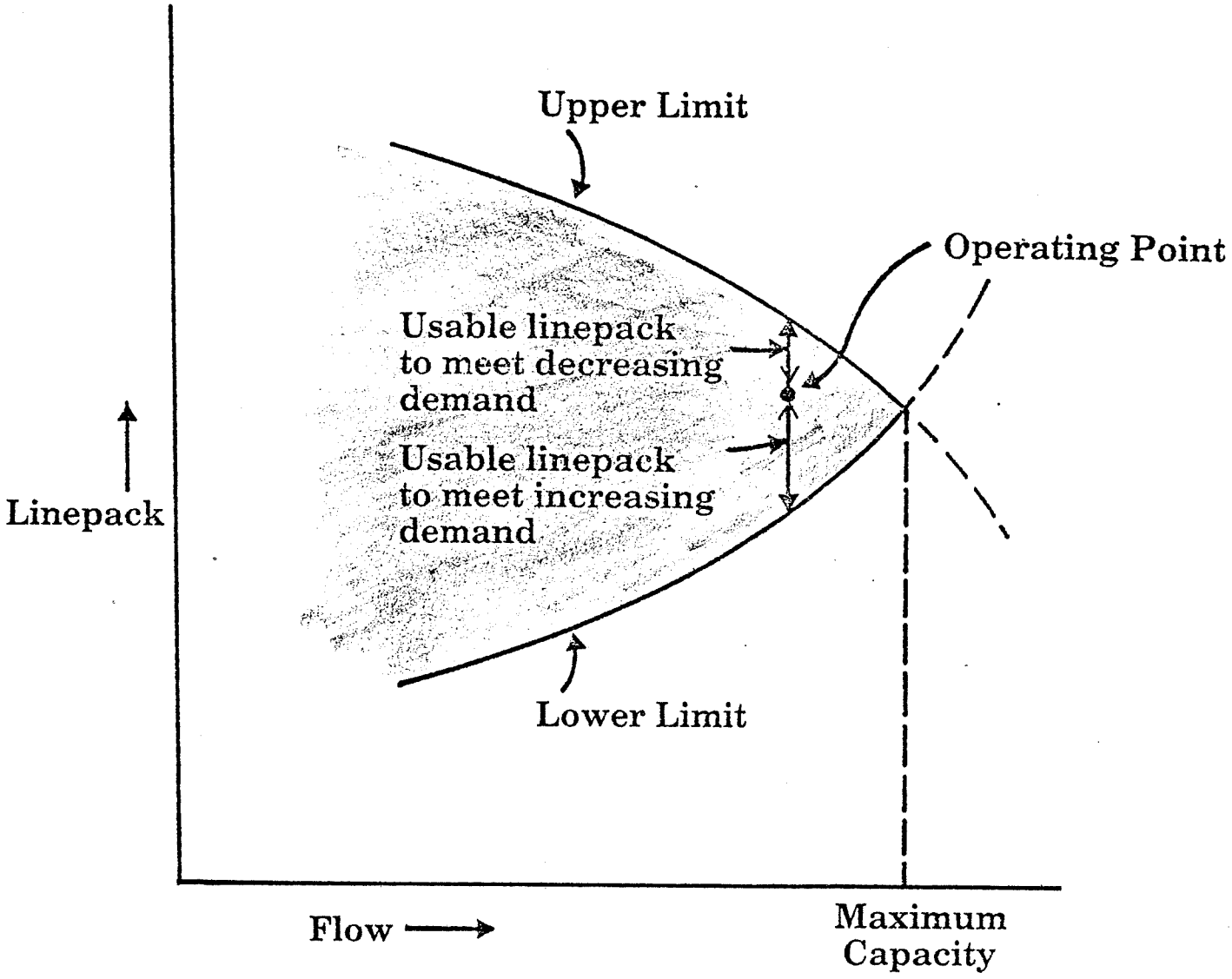


point after midnight. The actual mix of residential, commercial, and industrial demand in the particular market area can modify this pattern significantly. While the market area demand will vary, gas supply to a pipeline is normally at a steady hourly rate.

Line pack in the pipeline system can be adjusted to meet the hourly demand swings. Between 8 a.m. and noon, the line pack can be reduced by almost 15 MMCF, delivering 15 MMCF more to the market than is taken from suppliers during this peak demand period. Between noon and 4 p.m., the demand is below average and line pack is restored to 100 MMCF. Figure 2 shows these changes and Figure 3 illustrates the direct relationship between line pack and system pressure. Note that the pressure in pipeline section decreases by approximately 150 psi between 8 a.m. and noon.

There are physical constraints on line pack that limit its use to only short term demand swings. The upper limit of line pack is fixed by the maximum allowable operating pressure of the pipeline (MAOP). MAOP is a function of pipe size, wall thickness, steel strength, and other factors. The pressure cannot be allowed to exceed this limit at any point in the pipeline. The lower limit of line pack is determined by the minimum suction pressure which must be maintained at compressor inlets and the minimum delivery pressure as specified in contracts with customers. (Figure 4 shows the operating range for usable line pack.) It is important to note that, as flow increases, the upper and lower limits converge and the quantity of usable line pack decreases. At the maximum design capacity of a pipeline, none of the line pack is available to satisfy short term variability in demand.

FIGURE 4
RANGE OF LINEPACK FOR PEAKSHAVING



Shaded area represents the range of possible pipeline operating conditions.

Adapted from R. L. Pargett and D. V. Krenz "Gas Transmission System Pack Management and Station Horsepower Utilization," A.G.A. Operating Section Proceedings, 1977, page T-36.

Mandatory carriage requires a company to make "excess capacity" available for transporting gas purchased by consumers directly from producers. In every proposal discussed, excess capacity is defined as the difference between various operating levels and the maximum design flowrate for a pipeline. This assumes that 100% of theoretical design capacity is available for transportation. This ignores the fact that in actual system operation, design capacity is utilized for both transportation capacity and storage capacity. Both are absolutely necessary if the company is to provide reliable service. Storage capacity is only available to the extent that actual capacity usage for transportation is below 100% of maximum capacity. Therefore, pipeline capacity utilization below 100% of design maximum represents prudent operation, not necessarily the availability of capacity for mandatory carriage.

The optimum level of pipeline capacity is a function of factors unique to each pipeline and pipeline segment. It depends on the proximity to the market. Segments closer to markets will experience more pronounced variability in linepack requirements. It depends on the variability of hourly demand, which is in turn a function of the mix of residential, commercial, and industrial customers in the market area. It is influenced by the experience of each gas company reacting to previous hourly swings. Finally, since reduction in storage increases the probability that gas will be unavailable under extreme demand conditions, it is a function of the degree of risk acceptable to each company.

There is no hard and fast rule that can calculate the amount of pipeline capacity that should be retained for storage service for each

pipeline. On the other hand, it is relatively straightforward to calculate the maximum design capacity of any given pipeline. However, it would be a grave mistake to compare any flow levels with maximum design capacity for the purpose of imposing mandatory carriage of gas on a company.

Reserve Capacity

In order to ensure uninterrupted service, pipelines must be designed to accommodate the loss of operating equipment, e.g., a compressor station, or an offshore platform, especially during the peak winter periods. This necessitates a certain amount of "reserve" capacity to handle such events. While a theoretical calculation for any pipeline at any point would likely suggest that some spare capacity was available, it would be a serious mistake to base pipeline operations on the presumption that all equipment will be available 100% of the time.

Similarly, facilities require periodic maintenance in order to ensure their future reliability. Maintenance, relocation, upgrade and testing are required by laws such as the Natural Gas Pipeline Safety Act (49 U.S.C.1671 et seq.). These activities reduce the capacity available for sales and transportation for others.

Companies must also maintain reserve supply sources to allow for interruptions in gas deliveries from individual suppliers. Routine maintenance activities, such as well cleaning and well testing, and upsets, such as freeze offs, plugging, and gas quality problems, are unavoidable and temporarily restrict the delivery of gas from the affected wells. Any gas customer that is contractually linked to a particular well, as through mandatory carriage, will inevitably have to

rely on the gas company's other suppliers or be cut off under these circumstances.

Satisfying Seasonal Demand Changes

To be able to meet demand fluctuations of longer duration, such as the seasonal peaks during the winter months, gas companies maintain extensive storage facilities near gas markets. Underground storage of gas at high pressures in depleted oil or gas reservoirs, aquifers, and other geological formations offers an efficient means of balancing gas supplies with market requirements. Gas is injected into storage when market demand falls below available supplies. This allows companies to continue to take gas during off peak periods. When demand exceeds pipeline supplies in winter months, gas is withdrawn from storage to meet the excess demand.

Gas is only available from underground storage to the extent that it has been previously injected during periods when supply exceeds demand. Adequate inventories of gas must be placed in storage before demand picks up and once again requires that pipeline capacity. Storage fields must be filled rapidly enough that an early onset of winter weather will not catch the company with inadequate inventories of stored gas to satisfy winter demands. On the other hand, storage must not be filled too early or storage may not be available to mitigate take or pay obligations should an unseasonably warm Autumn depress gas demand.

The rate at which storage reservoirs can be filled is limited by the quantity of gas that can be diverted to storage, the capacity of the compressors at the storage field, and the porosity, strength, and other geological properties of each storage formation. In many

cases,the injection rate will be higher at the beginning of the injection cycle when the pressure in the storage field is lowest. Since additional compression is often required for injection, the economical operation of the compressor is also a consideration.

The gas delivery system becomes much more complex when line pack, gas storage, and diverse suppliers and consumers are included in the system. The management of the system is an important and highly skilled responsibility. In any system, there are literally an infinite number of combinations of takes from suppliers, pipeline segment flow rates, storage input and output rates, and compressor loadings which will satisfy the day-to-day demands for gas by each company's customers. The gas dispatcher must take into account physical limitations of the equipment, contractual obligations with suppliers and customers, and government safety regulations in selecting the optimum operating configuration to satisfy each constraint at the least cost. The optimum operation at a given moment could result in some pipeline segments operating at 100% capacity such as when storage fields are being filled, while other sections operate at some fraction of capacity.

Conclusion

Because of the complexity of gas system operation, decisions involving the capacity to transport gas are best determined by those responsible for its day-to-day management, the companies themselves. Under mandatory carriage, regulators with little or no technical experience will be called on to second guess the operational judgments of the company in paper exercises to create available capacity. The rate of storage injection and the amount of capacity reserved for

linepack, for maintenance, or for unanticipated outages each require informed judgment on the part of each company. Reducing any of these safety factors will create the illusion of additional capacity to deliver gas. Legislation imposing contract carriage over the objections of a company would be in effect a governmental mandate to reduce the margin of safety designed into the gas delivery system. A more proper role for the regulators would be to ensure that its regulations do not restrict the ability of gas companies to accommodate carriage customers when bona fide excess capacity does exist and to ensure that gas companies can receive adequate compensation for the added administrative costs inherent in contract carriage. Only in special cases where companies unjustly refuse to carry gas should regulators step in and mandate carriage.

ENERGY ANALYSIS

American Gas Association

Policy Evaluation & Analysis Group
American Gas Association
1515 Wilson Boulevard
Arlington, VA 22209
703-841-8400

1984-2 February 14, 1984

COMPETITION IN THE NATURAL GAS INDUSTRY

Digest

This study analyzes the level of competition in the gas industry at the city-gate (point of resale to distributors) and burner-tip (point of final sale). It also summarizes the results of studies on concentration in gas sales and purchases at the wellhead.

In general, the study found that the natural gas market is competitive. Over 80% of gas pipeline sales for resale are to distributors with other sources of supply, or to other pipelines. This load is therefore vulnerable and a portion could be lost to alternative pipelines. In addition, the study concluded that if a pipeline is a sole supplier to an individual distributor, competition for gas sales to other distributors with multiple pipeline sources should result in the entire pipeline functioning as a competitive system. While load or contractual limitations may temporarily limit the ability of some distribution companies to switch suppliers, the volume of gas sold at the city-gate in a competitive environment and the elasticity of end-use markets sharply limit any inherent monopoly power of the gas transportation industry.

This study rebuts a widely publicized hypothesis that mandatory carriage for pipelines and distributors is necessary because there is insufficient competition in the gas industry. The data in this analysis suggest that adequate competition exists in all segments of the gas industry to guarantee a functioning market place.

© 1984 by the American Gas Association.

Attachment IB
3-29-84

COMPETITION IN THE NATURAL GAS INDUSTRY

A. Introduction

Between 1978 and 1982, the gas industry experienced sharply rising gas prices, soft markets, and a growing surplus of deliverable gas supplies. Regulators and consumers were confused as to how surplus supplies and rising prices could occur at the same time.

Many of the institutional problems which create this supply/price dichotomy were the product of the system of wellhead price regulation which was in effect until passage of the Natural Gas Policy Act of 1978 (NGPA). While the current market problems are associated with pre-NGPA wellhead price controls (and contract terms institutionalized during that period), the solutions to these problems have unfortunately been focused on the structure of the transportation and distribution segments of the industry. For example, reshaping of the transportation function of the gas industry, through federally mandated carriage, is one proposal receiving considerable attention as a market-ordering mechanism.

The stated goal of federally mandated carriage is to increase the amount of competition in gas purchasing and selling and thus avoid market rigidity. The purpose of this analysis is to evaluate the current and potential levels of competition in city-gate and burner-tip natural gas markets.

B. Executive Summary

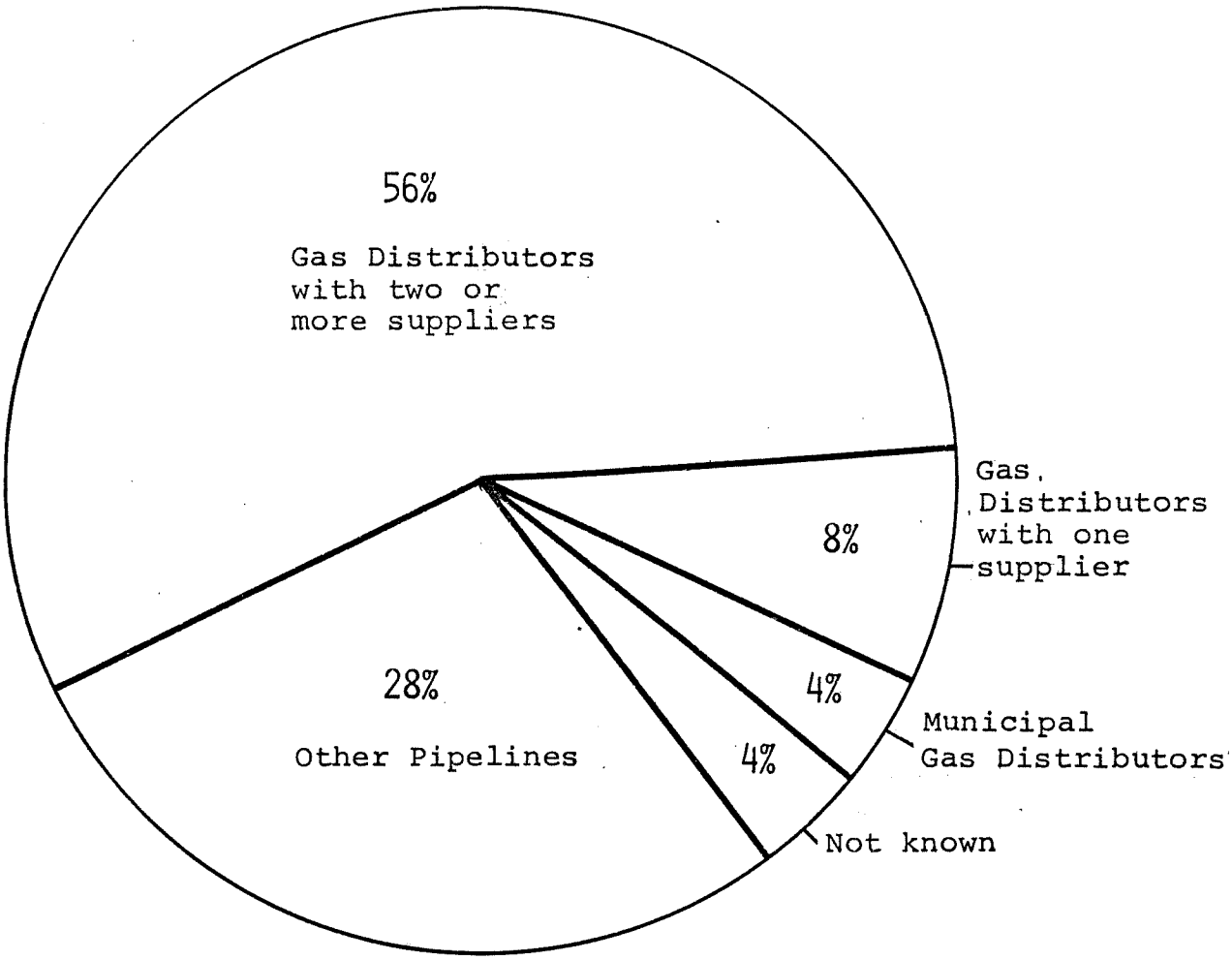
This study found that there currently exists sufficient competition in the gas industry at the city-gate (point of resale to distributors) and burner-tip (point of final sale) to ensure a smoothly functioning market. It also summarizes the results of studies which indicate that the wellhead market for gas is competitive.

- The gas pipeline industry is not highly concentrated and there is generally competition for sales at the city-gate. About 56% of pipeline sales for resale are to distributors with other sources of supply, and 28% of sales for resale are to other pipelines (see Figure 1). This combined load of 84% of total sales for resale is potentially vulnerable to competitive pressures from other suppliers.

  - An examination of supplies to 80 gas distribution companies indicates that privately-owned companies representing 72% of the sample sales had access to three or more suppliers, and 12% had access to two suppliers. About 10% of 1982 gas sales for the sample had only one supplier. In addition, 6% of

Figure 1

LEVEL OF COMPETITION IN THE NATURAL GAS INDUSTRY AT THE CITY-GATE



Percent of Gas Sold by Interstate Pipelines for Resale[1]

[1]Based on a sample of 26 interstate gas pipelines which account for 89% of 1982 sales for resale, or 11.9 Trillion cubic feet.

1982 gas sales were by municipally-owned gas companies that normally have access to only one supplier.

- The extent that individual distributors can switch among pipeline or producer suppliers is influenced by minimum bill requirements, actions by intervenors, FERC rules and decisions, and state regulatory bodies.

- In addition to competition among pipelines for distributor sales, there is significant competition between gas and other fuels at the burner-tip. The risk of lost gas sales at the burner tip provides an incentive for competitive behavior at the wellhead and the city-gate as well as the burner-tip.

  - Through the end of 1983, actions by pipelines and distributors in response to all of these competitive pressures have resulted in the stabilization of retail gas prices for the first time since the 1960's. This was accomplished without a major restructuring of the gas industry.

- The production sector of the gas industry is not highly concentrated. Studies by federal agencies and an independent organization have concluded that there is no significant producer or pipeline concentration in producing regions of the U.S.

C. Background

Pipeline transportation is an extremely capital-intensive industry with significant economies of scale. Interstate natural gas pipelines have long been regarded by Congress and federal regulators as natural monopolies. That is, because the unit costs of moving gas through a pipeline decrease as the pipeline size increases, it is generally more efficient to have one optimally-sized pipeline serving a given market area. This natural monopoly argument was a primary rationale for the government regulation of gas pipelines and distribution companies.

State regulatory commissions have had authority over distribution companies and intrastate pipelines since the first public utility commissions were established in 1907.[1] At the federal level, the passage of the Natural Gas Act of 1938 gave the Federal Power Commission (now the Federal Energy Regulatory Commission) authority over interstate pipeline companies. The FPC was given authority to regulate the wellhead price of gas sold in interstate markets in 1954 by the Phillips decision.[2] The Natural Gas Policy Act of 1978 began a process of gradual decontrol of wellhead prices that will culminate in 1985 in the decontrol of an estimated 60% of total gas production -- with an

additional 15% under relatively high ceiling levels -- and the total decontrol of all future exploration activities.

The original purpose of public utility regulation was to secure for the public the advantages and economics of a natural monopoly that furnished an essential service within a given service area. The principal rationale was that, given a lack of competition, government regulation is necessary to protect consumers. However, as gas markets have grown, the natural monopoly assumptions have been called into question. In a large market, it may be more cost effective to have several pipelines provide gas rather than one pipeline. This has been the case in most major metropolitan areas for a number of years.

There appears to be no baseline for defining an acceptable level of competition either now or for the future. A judge in the landmark Atlantic Seaboard case stated: "The high fixed costs and immobility of pipeline facilities are economic characteristics of the natural gas industry precluding the sort of competition expected as a norm elsewhere in the economy."[3] A study by Public Citizens' Congress Watch, which focused on vertically integrated gas companies, apparently extended the analysis to cover all gas pipelines by concluding that "Lack of competition between pipelines in consumer markets usually makes natural gas users dependent upon one supplier of fuel."[4] A study by David Mead for the FERC examined the potential for short term competition in gas receiving (production) and delivery (city-gate) markets. He concluded that there is "...a moderate amount of competition in the receiving markets but very little competition in the delivery markets."[5]

In contrast, a study prepared for A.G.A. by the Energy Futures Group (EFG) stated that "...in a substantial part of the country, pipelines do not have monopolistic power in supplying distribution companies. Moreover, since most pipelines typically serve several distribution companies, there is no serious problem of monopsonistic buying by distribution companies."[6] The EFG study also notes that a study that indicates the volume of U.S. gas sales accounted for by distributors with more than one supplier would be useful in evaluating pipeline market power.

D. Competition in the Gas Industry

The cost of building a pipeline system would seem to indicate a highly concentrated industry due to significant barriers to entry. However, the regulated gas industry is not highly concentrated. The structural barriers are balanced by a customer base which is highly diverse in terms of service requirements and geography. Gas load can be highly seasonal, firm for the entire year, or dual fuel capable. Pipeline service areas cover huge regions of the U.S. Over 85% of the U.S. population is in states served by three of more pipelines.[7] Intrastate pipelines provide additional local service that is

regulated solely by the state. As Table 1 illustrates, neither the pipeline nor producer segments of the gas industry are highly concentrated.

Producer/Pipeline

The production sector of the gas industry is not highly concentrated. The 20 largest gas producers accounted for 46% of all production in 1982 (see Table 1). A study prepared by the Federal Trade Commission concluded that given the technology requirements of gas production, the production sector of the gas industry is actually less concentrated than most other "extractive" industries.[8] As shown in Table 2, the gas production and transportaton industries are less concentrated than many manufacturing industries.

Most analysts tend to agree that there is adequate competition in gas producing areas. A study of natural gas reserve ownership by the Energy Information Administration concluded that there is no significant producer concentration in producing regions of the United States,[9] and a study by the Federal Energy Regulatory Commission concluded that there is moderate competition among pipelines in producing areas.[10] Preliminary evidence from a study underway at Resources for the Future suggested that "... few wellhead markets, if any, are characterized by a high degree of seller concentration without some appreciable level of countervailing buyer concentration and vice versa."[11]

These studies conclude that in general gas producers enjoy a competitive price for their product (not subject to price controls).

Pipeline/Distributor

The level of potential competition at the point where gas changes ownership from the pipeline to its customers is of critical importance in the current debate about the structure of the gas transportation industry. The first step in analyzing market concentration is determing the volume of gas which is sold to distributors with other sources of supply.

To obtain volume-weighted estimates of the number of suppliers to each distributor, data from the FERC Form 2, "Annual Report of Natural Gas Companies, Class A and B," were examined for 26 interstate pipelines that accounted for 89% of 1982 sales for resale. The sample included the 20 major interstate pipelines plus 6 smaller pipelines.

The interstate sales of natural gas during 1982 to gas utilities and to pipeline companies for resale were segregated by customer type: privately owned gas distribution companies; municipally-owned gas utilities; and other pipelines (inter- or intrastate). Sales for resale to distribution companies were

Table 1

CUMULATIVE MARKET SHARE OF THE LARGEST 30 COMPANIES IN THE NATURAL GAS INDUSTRY

Number of Companies	Gas Producers (% of 1982 volumes produced)	Interstate Gas Pipelines (% of 1982 sales for resale)
4-firm	17%	30%
8-firm	28	50
20-firm	46	85
30-firm	51	93

Source: Gas production data are from American Petroleum Institute, Market Shares and Individual Company Data for U.S. Energy Markets: 1950-1982. Gas sales for resale are from The Energy Information Administration, Statistics of Interstate Natural Gas Pipeline Companies - 1982.

Table 2

MARKET SHARE OF FOUR LARGEST COMPANIES IN SELECTED INDUSTRIES

Selected Energy Industries[1]
(share of volume produced or sold)

Uranium Concentrate Production[2]	37%
Natural Gas Sold for Resale[3]	30
Petroleum Refining Output	29
Motor Gasoline Sales	27
Crude Oil, Condensate and Natural Gas Liquids Production	25
Bituminous Coal and Lignite Production	21
Natural Gas Production	17

Selected Manufacturing Industries[4]
(share of value of industry shipments)

Motor Vehicles	93%
Flat Glass	90
Primary Copper	87
Primary Aluminum	76
Aerospace Industry	61
Steel Mill Products	45
Air Conditioning, Heating and Refridgeration Equipment	41
Nitrogenous Fertilizer	34
Flour and Grain Mill Products	33
Paper Mills	23

---

1. Source: American Petroleum Institute, Market Share and Industrial Company Data for U.S. Energy Markets, 1950-1982.

2. Data for some uranium producers were not available.

3. Source: Energy Information Administration, Statistics of Major Interstate Pipeline Companies, 1982.

4. Source: U.S. Department of Commerce, 1977 Census of Manufactures.

further segregated into those companies with no supplier other than the reporting company and those companies with at least one additional supplier. Suppliers included interstate pipelines, intrastate pipelines, other distribution companies, and gas producers. The volumes reported by each pipeline for resale were then totalled to obtain the percentage of gas sold to each customer type (see Table 3).

The data show that only about 8% of the sample volumes were to gas distribution companies with no other interstate pipeline supplier; 56% were to distributors with access to more than one supplier. Sales to municipal gas companies which normally have only one pipeline supplier accounted for 4% of the sample sales for resale, and sales to other pipelines accounted for 28%. For about 4% of the volumes reported by the 26 pipelines, no determination could be made on how many suppliers served them.

While 56% of interstate pipeline sales for resale in 1982 were to distribution companies with more than one supplier, distribution companies can have as many as six or seven suppliers. Load requirements, geography, and competition determine the number of pipelines in a given service area. Local producers and intrastate pipelines also serve distributors.

To get an estimate of the amount of gas sold to distributors with multiple suppliers, data provided by gas companies on the A.G.A. 1982 Uniform Statistical Report on gas purchases were examined. The Uniform Statistical Report (USR) is the industry-wide survey which provides the basis for the annual gas industry yearbook Gas Facts. Gas purchases from a sample of 80 privately owned gas distributors accounting for 88% of 1982 end use sales were analyzed to determine the volumes of gas sold through distributors with an interstate pipeline as the sole supplier, as well as volumes sold from two, three, four, five, and six or more suppliers.

Gas utility sales in 1982 of 13.9 Tcf include interstate and intrastate sales from pipelines and distributors to end use markets. To match the distributor sample more closely to the pipeline sample described earlier, sales to end user markets by transmission companies and sales to distributors served only by an intrastate pipeline were subtracted. Of the total adjusted end use sales of 11.1 Tcf, the sample of 80 distribution companies equalled 9.8 Tcf, or 88%.

Suppliers cited by the sample were interstate or intrastate pipelines, or gas producers. Because respondents to the USR did not always provide detailed information on gas wellhead purchases, all purchases from gas producers were counted as one source of supply. In fact, many distribution systems have contracts with a large number of gas producers.

Table 3

INTERSTATE PIPELINE SALES FOR RESALE BY CUSTOMER TYPE[1]

	Percent of Sales for Resale
Sales to Privately Owned Distribution Companies	
with one supplier	8%
with two or more suppliers	56
Sales to Municipal Gas Distribution Companies	4
Sales to Other Pipelines	28
Not known	4
	100%

1. Based on a sample of 26 interstate pipeline companies which account for 89% of 1982 resale volume, or 11.9 Trillion cubic feet of gas sales for resale.

Gas distribution companies included combination gas and electric companies and integrated companies. Municipal gas companies included in the sample were assumed to be served by only one pipeline, although in some cases municipal companies do have multiple suppliers.

As shown in Table 4, companies representing 16% of gas sales had only one supplier. This included 19 companies of the 80 company sample accounting for 10% of sales and the approximately 800 municipally owned companies accounting for 6% of sales. Another 15 companies, representing 12% of 1982 end use sales, had access to two suppliers; 25% had three, 16% had four, 12% had five and 19% had access to six or more suppliers.

Overall, the data show that 84% of pipeline sales for resale are to distributors with other sources of supply or to other pipelines. Further, data from the distribution company sample shows that 72% of sales to end users are by distributors with three or more sources of supply. These findings indicate that, in general, the interstate sale for resale market is sufficiently competitive.

These estimates are based on pipeline sales for resale and gas utility sales in 1982. Voluntary carriage of gas between producers and distribution companies increased significantly during 1983. This analysis therefore probably underestimates distribution company access to additional gas suppliers through voluntary carriage arrangements.

Distributor/End User

The final area of competition occurs at the burner-tip. Natural gas must compete at the meter with alternative fuels. The ability to compete for existing and new customers is now a key factor in the future outlook for gas.

Competition from electricity in the residential market, along with the continued impact of former restrictions on new gas hook-ups that were prevalent in the mid-1970's, has reduced the market share for gas in new housing from 60% in the early 1970's to 39% in 1982. Many gas utilities have found that they must cross entire subdivisions that were built during the period of restrictions in order to get to new developments. This can be very costly. The electric industry's promotion of "all electric homes," the electric heat pump for new homes, and the add-on electric heat pump for existing gas heated homes has created a highly competitive residential energy market. Promotional electric heating rates have intensified this competition.

Commercial gas markets face similar competition from the electric industry for new space conditioning, water heating, and cooking appliances. Large commercial load is also vulnerable to fuel switching to oil (both No. 2 and No. 6 fuel oil). A recent

Table 4

NUMBER OF SUPPLIERS FOR A SAMPLE OF GAS DISTRIBUTION COMPANIES SERVED BY THE INTERSTATE TRANSMISSION SYSTEM

	No. of Companies	Percent of Sample Gas Sales[1]
Served by		
Six or more Suppliers	11	19
Five Suppliers	8	12
Four Suppliers	8	16
Three Suppliers	19	25
Two Suppliers	15	12
One Supplier/ Municipal[2]	19	16
TOTAL	80	100

Source: Company Data

1. Gas sales volume for the sample is 9.8 Tcf.

2. There are approximately 800 municipally owned gas companies.

A.G.A. survey of the commercial market concluded that 14% of all commercial load is dual-fuel capable with oil.[12] Again, like the residential market, gas maintains a strong competitive position nationally, but faces market pressures in certain applications and service areas.

The industrial market is highly competitive due to increased price sensitivity (i.e., conservation potential) and fuel-switching capability. Over half of gas sales to the industrial sector are to dual-fuel capable users, and close to 90% of gas-fired electric generation load is dual-fuel capable.

The gas industry saw industrial markets decline during 1982 and into 1983. It was not until some degree of economic recovery and competitive pricing strategies began to take effect that vulnerable load was effectively retained or regained. The extent of price sensitivity in the industrial sector is illustrated by recent sales trends. Between July 1982 and July 1983, industrial gas prices rose 7%, and industrial sales by utilities dropped by 20%. By November 1983, industrial gas prices were nearly 4% lower than July and sales had increased by 6%. The U.S. average retail gas price was 1.7% higher in November 1983 compared to November 1982.

The risk of lost gas sales at the city-gate or the burner-tip in 1982 and 1983 provide the incentive for lower gas prices. Through the end of 1983, actions to reduce gas costs resulted in the stabilization of retail gas prices for the first time since the 1960's. Retail industrial gas prices actually declined during 1983. All of this was accomplished without a major restructuring of the gas utility industry.

E. Discussion of Results

Before evaluating the results outlined in the previous section, one issue should be addressed: To what extent can gas distribution companies switch from one supplier to another?

Distributors must be assured of adequate pipeline capacity for peak demand periods. In many cases, distributors cannot switch away from a pipeline because all available capacity is needed.

There are contractual limitations on some distributors' abilities to switch gas purchases between pipelines. The principal contractual arrangement is the "minimum bill." Under minimum bills purchasers are required to pay a monthly demand charge (which recovers fixed costs) and/or a commodity charge for a specified percentage of contracted-for quantities of gas whether taken or not. According to FERC, minimum purchase obligations can range from 66-90% of contracted quantities.[13]

Minimum bills ensure that the pipeline has capacity available to meet the distributor's maximum contract demand.

They also protect the interests of existing customers of a pipeline from having to pay additional fixed costs if load from one pipeline is transferred to another. From a pipeline perspective, they assure minimum payments to cover fixed charges, and enable the pipeline to meet its obligations from take-or-pay contracts.

A related issue concerns regulatory policy on competition. Historically, FERC decisions on whether to issue a Certificate of Public Convenience and Necessity to allow more than one pipeline to serve a given area have been based on factors such as: load requirements; geography (is one pipeline closer to a particular segment of a market than another); minimum bill requirements; cost considerations (can one pipeline supply additional gas load to a market more economically than another); arguments made by intervenors (other pipeline customers concerned about supply or fixed costs) and the view of FERC towards competition at the time the Certificate is requested.

A detailed discussion of minimum bills and regulatory policy is outside the scope of this analysis. FERC has recently taken action approving company requests for special marketing programs that essentially open up more markets to competition. In the past federal regulators took actions to discourage competition at the city-gate level for certain types of load.[14] To summarize, now and in the future, minimum bills, intervenors, and FERC consideration of competitive pipeline practices will continue to have a significant effect on the extent of competition at the city-gate.

In general, the natural gas market at the city gate is competitive. Over 80% of gas pipeline sales for resale are to distributors with other sources of supply, or to other pipelines. This load is vulnerable and a portion could be lost to competitors. Therefore even if a pipeline is a sole supplier to an individual distributor, competition for gas sales to other distributors on that pipeline system should result in the entire pipeline functioning as a competitive system. While load or contractual limitations may temporarily limit the supply flexibility of certain distribution utilities, the volume of gas sold in a competitive environment and the elasticity of end use markets sharply limits any inherent monopoly power of the transportation industry.

F. Conclusions

This study analyzed the level of potential gas industry market concentration at the city-gate and burner tip. The gas utility industry does not now and will not in the foreseeable future operate in a deregulated environment. While the requirements of public utility regulation tend to limit the level of competition, evidence exists that the gas transportation market is generally competitive.

The gas industry is only moderately concentrated and has a highly diverse geographic and customer profile. The majority of gas is sold to distributors with alternate sources of supply or pipelines. Because of high capital costs and regulatory requirements, the physical structure of the industry can change only over the long term. Given the distortions caused by contract provisions left over from the pre-NGPA system of regulation, the gas utility industry is reacting remarkably quickly to bring gas prices to market clearing levels. This response of the gas industry to market forces is the result of the competitive city-gate and burner-tip markets in which gas is sold.

FOOTNOTES

1. American Gas Association Gas Rate Fundamentals (Arlington, VA: American Gas Association, 1978) p. xxi.

2. Phillips v. State of Wisconsin, 347 U.S. 672 (1954) 3d 129.

3. Atlantic Seaboard Corp. v. F.P.C. 404 F.2d 1268 (DC Cir. 1968).

4. Public Citizens Congress Watch Pipeline to Profits-Monopoly Power in the Natural Gas Industry (November 1983), p. 11.

5. David E. Mead, "Concentration in the Natural Gas Pipeline Industry" (Federal Energy Regulatory Commission), August 1981, p. ii.

6. Energy Futures Group, New Market Mechanisms for Natural Gas, Supplement No. 2: Potential for Competition in the Gas Industry (Arlington, VA: American Gas Asssociatio., June 1982) p. 9.

7. Energy Futures Group, p. 3.

8. Federal Trade Commission, The Economic Structure and Behavior in the Natural Gas Production Industry (Washington, DC: February 1979) p. 57.

9. Energy Information Administration, Producer Revenues, Prices and Concentration in the Natural Gas Market (Washington, DC: November 1983) p. 23.

10. Mead, p. ii.

11. Harry G. Broadman, "Elements of Market Power in the Natural Gas Industry and the Role of Private Carriage," a paper presented to the Tenth Annual Rate Symposium of the Institute for Study of Regulation, Washington, D.C., February 1984.

12. American Gas Association, Commercial Gas Market Survey: 1982 (Arlington, VA: American Gas Association, 1984), p. 29.

13. 48 Fed. Reg. 39238 (August 30, 1983).

14. Interstate Natural Gas Association of America Natural Gas Carrier Status During the Current Transition: A Critique of Mandatory Contract Carriage (Washington, DC: January 1984) p. 11.

FERC WORKLOAD UNDER MANDATORY CARRIAGE PROPOSALS

The American Gas Association is firmly against sweeping mandatory carriage legislation that would radically restructure the gas industry. In the past several years, many industries such as telephones, airlines, trucking and railroads have been restructured. The results, even though these industries were extensively studied prior to the restructuring, have been unpredictable and mixed. In some cases, consumers have benefited. In others, consumers have been left worse off.

A.G.A. believes that mandatory carriage has not been adequately studied and that current legislative proposals containing broad mandatory carriage provisions are unworkable and counter to the public interest. This paper is designed to illustrate the inadequacy of the conceptual framework within which mandatory carriage has been discussed by debunking one myth that has been widely circulated; that is, that mandatory carriage represents a "free market" solution to current gas marketing problems. To say that mandatory carriage is a free market solution is to stand the concept of a free market on its head. In fact, the provisions within the mandatory carriage proposals offered thus far in the Senate and House are based on pervasive, rigid federal intervention into the market and into the traditional concerns of States.

In all major bills containing mandatory carriage prvisions, FERC is provided with new and expanded authority paired with additional workload.

- FERC jurisdiction, now limited to interstate pipelines, would be expanded to cover, depending on the bill, gathering systems, intrastate pipelines, Hinshaw pipelines, and local distribution companies. State jurisdiction could be maintained by certifying to FERC that the state has, and will exercise authority to mandate carriage.

- FERC must determine available capacity. Such a determination requires an in-depth assessment of capacity at each point of pipeline interconnection, at each compressor station, and at storage fields. The capacity at each of these points must be analyzed in conjunction with seasonal demands and operational flexibility (to allow for hourly use patterns) and a host of other factors influencing capacity. Such information will be difficult and expensive to collect, collate, and file for an interstate pipeline. It could be prohibitively expensive for smaller Hinshaw pipelines. (Hinshaw pipelines are primarily distribution companies operating within a single state but who also make sales for resale by other distributors within the state.) The term, Hinshaw pipeline, should be understood to mean a distribution-oriented company that makes some sales-for-resale. Distribution companies such as Michigan Gas Utilities of Monroe, Michigan, and Northern Indiana Public Service Co. of Hammond, Indiana are, in fact, classified as Hinshaw pipelines. There are approximately 200 Hinshaw pipelines. The list of potential FERC-jurisdictional companies (now about 150) would,

3-29-84
ATTACHMENT IC

therefore, approximately double in size just by adding Hinshaw pipelines. When intrastate pipelines are added, and, as in the Bradley proposal, local distribution companies are added, over 1000 companies previously regulated solely by states could be subjected to FERC mandatory carriage orders. It is clear that FERC's potential work-load could grow explosively.

- FERC must set rates for transportation. While any rate case is controversial, FERC is geared to handle the workload of setting rates for interstate pipelines. The potential workload of setting transportation rates for intrastate, Hinshaw, and local distribution companies, however, is staggering. The sheer number of rate cases would be overwhelming. The difficulties of establishing a non-discriminatory transportaiton rate (a requirement in all the bills) within the context of rates set generally by a state authority would likely create a tangled maze of federal/state rate conflicts.

- The legislation is specifically designed to encourage end-users to purchase gas directly and file for transportation service through at least one, and most likely, several pipelines and distributors. The thousands of potential requests must be matched against the thousands of calculations of "available capacity" on each point a of thousand pipeline and distribution systems. Either every request must be treated individually, or an enormously complex computer filing system must be created with every gas transporter cross-indexed to every other transporter further cross-indexed to seasonal and daily demand patterns on each system and further cross-indexed with all the other factors influencing capacity.

- FERC would have only 45 to 90 days (depending on the bill) in order to determine whether capacity existed!

In short, mandatory carriage legislation will increase FERC's workload considerably even if FERC jurisdiction were limited to its current scope of interstate pipelines. Expansion to distribution companies (whether or not classified as Hinshaw pipelines) and intrastate pipelines would cause explosive growth in workload.

Bradley Proposal (also incorporated in Nov. 14 "Compromise" proposed by Sen. McClure).

- To order carriage by interstate pipelines, FERC
  - Must find "available capacity of "partial capacity".
  - Must set incentive rates based on whether a pipeline's objection was "reasonable" to protect its ability to "render adequate service to existing customers." This would require an evidentiary hearing which implies notice, depositions, testimony, and a final order by an Administrative Law Judge with a right to appeal to the Commission.
  - Must set "fair and equitable" rates.

- After consultation with State Governor, FERC shall order carriage by intrastate pipelines (includes "Hinshaw" pipelines which are generally distribution companies located within a single state that also sell gas for resale).
  - Must determine if intrastate pipeline has "available capacity" which implies detailed and time-consuming filings on system configuration including pipeline capacity at each point of interconnection and branch under varying assumptions of system demand, storage facilities, and compression by intrastate pipelines to FERC.
  - Must set incentive allowance, if none has been set by state, which implies an evidentiary hearing and a finding of whether the intrastate pipeline's objection to carriage was "reasonable" to protect the pipeline's aility to "render adequate service to its existing customers."
  - Must set "a fair and equitable" transportation rate, if none has been set by state, which implies detailed cost and financial data filings by the intrastate pipeline to the FERC, full evidentiary hearings, and a FERC determination of the rate.

- After consultation with State Governor, shall order carriage by local distribution companies.
  - Must determine if local distribution company has "available capacity" which implies detailed and time-consuming filings on system configuration including pipeline capacity at each point of interconnection and branch under varying assumptions of system demand, storage facilities, and compression by local distribution companies to FERC.
  - Must set incentive allowance, if none has been set by state, which implies an evidentiary hearing and a finding of whether the local distribution company's objection to carriage was "reasonable" to protect the distribution company's ability to "render adequate service to its existing customers."
  - Must set "a fair and equitable" transportation rate, if none has been set by state, which implies detailed cost and financial data filings by the local distribution company to the FERC, full evidentiary hearings, and a FERC determination of the rate.

- Information required to be filed by potential carriage customers includes:
  - Notice of request for transportation service.
  - Evidence of good faith negotiations to obtain voluntary carriage service.
  - Historic and present gas use by facilities.
  - End use of gas so Commission may set a "contract carriage service priority" (FERC must determine gas demand requirements of existing high priority customers.)

- FERC must, by rule or order, require lower priority load to be shed in favor of carriage customer if "available capacity" becomes unavailable. (Note that this occurrance would be proof positive that

"available capacity" was incorrectly determined to exist, and that, in fact, the pipelines's ability to transport gas for the carriage customers was either non-existant or existed only under conditions at the time carriage was demanded. In either case, an existing system customer would be forced off the system in favor of the carriage customer.)

- FERC must determine how to allocate incentive allowances where multiple pipeline and distribution companies are involved in a carriage arrangement.

- FERC must set up, within 90 days, transportation rate designs to ensure that carriage customers pay "an equitable percentage of fixed costs" of the transporting pipeline.

- FERC may order construction of new minor facilities.

- FERC must define, by rule or order, what "minor facilities" are within 120 days.

- FERC must oversee service obligation reductions of a pipeline when an existing customer of the pipelines elects to reduce purchases. This may be a reasonable requirement, but is must be noted that FERC is currently struggling with the concept of "service obligation." This issue of whom a pipeline must serve and what service must be provided, likely will be one of the most difficult regulatory problems facing FERC under mandatory carriage legislation.

- FERC must reduce minimum bills and demand charges to offset effects of carriage. Minimum bills and demand charges are extremely delicate issues currently being discussed and litigated at the FERC. Their impacts within the current structure of the gas industry are disputed. Mandatory carriage legislation will increase debate.

- FERC may terminate carriage service after determining that actual supplies or deliveries vary substantially from those authorized. Note the non-parallel construction of the proposal: carriage is automatically authorized if no decision is reached by FERC within 90 days; carriage is terminated, only after a FERC determination -- implying a full evidentiary hearing.

- FERC must oversee storage arrangements to assure non-discrimination in providing and charging for storage. This is, in essence, "mandatory storage."

- FERC must require and establish separate tariffs for "purchase, transportation, storage, and sale of natural gas." This proceeding alone will be enormously time-consuming. Allocation of costs to set rates for various classes of customers is already the most controversial part of natural gas regulation. Allocation of costs among classes of customers by class of service multiplies the problem.

- FERC must hear protests and make all above findings within 90 days.

Richardson/Broyhill Proposal

- FERC jurisdiction, now limited to interstate pipelines, would be expanded to require carriage not only by interstate pipelines but also by intrastate pipelines and Hinshaw pipelines (to the extent of their facilities used in making sales for resale by other distributors).

NOTE: States currently regulate intrastate and Hinshaw pipelines and could maintain jurisdiction if a specified type of state, legislation was enacted or by requesting delegation authority in which case the state would be required to follow FERC regulations.

- FERC must promulgate regulations establishing a methodology to determine "available capacity".

- FERC must promulgate regulations establishing allocation of capacity at times when available capacity diminishes.

- FERC must set "just and reasonable" transportation rates.

- FERC must implement rate design standards to assure uniformity among carriage customers and system sales customers in transportation rates.

- FERC may establish incentive rates for transportation. FERC must determine how incentives are to be allocated among multiple transporters.

- FERC must oversee and establish the terms and conditions under which a pipeline's obligation to serve (from system supply) is to be restored for a former carriage customer that had previously received general service, but then had elected carriage service.

- FERC must review requests to bypass a local distribution company and hook-up directly to a pipeline under Sec. 7 of the Natural Gas Act. (FERC currently has this obligation.)

- FERC must review petitions to terminate carriage arrangement.

- FERC must ensure that storage is provided to carriage customers on a non-discriminatory basis.

- FERC must require and establish separate pipeline tariffs for "purchase, transportation, storage and sale" of natural gas. As discussed above, this provision alone will result in massive regulatory burdens as the current controversy over allocation of fixed costs among various classes of customers is multiplied to allocate fixed costs among classes of customers by use of various pipeline services.

Dingell/Sharp Proposal

- FERC must prescribe regulations within 9 months to require interstate pipelines to transport gas without discrimination to the extent the pipeline has firm or interruptible capacity.

- These regulations will also apply to intrastate pipelines and field gathering systems unless the state with jurisdiction over such companies certifies to FERC that the state "has and will exercise" authority to order carriage.

- FERC must prescribe regulations within 9 months to allocate "available capacity" in times when "pipeline capacity" is not sufficient to meet all obligations.
(NOTE: This event would be positive proof that FERC's original determination that "available capacity" existed was in error, and, in fact, that such capacity existed only during summer months or under special conditions applicable at the time the demand for carriage service was made.)

- FERC must set "just and reasonable" rates for transportation that do not "discriminate" between rates for transportation of system gas.
(NOTE: Most FERC standards using similar language allow FERC flexibility by requiring only that rates not be "unduly discriminatory." The Dingell/Sharp language, in essence, would prohibit otherwise valid rates that were justifiably different among different classes of customers.)

- FERC may set an incentive rate different than the just and reasonable rate if the FERC determines (requiring a hearing and either an order or a rulemaking) that such a rate would further the purposes of the Act.

- FERC authority and workload are reduced in the areas of pipeline service obligation and minimum bills. Both are automatically reduced, (without need for Commission approval as under current law) by the extent of carriage services received by the customer of the pipeline.
(NOTE: There is an ambiguity within the bill which can be read to allow a pipeline customer to receive services but elect not to have its minimum bill or the pipeline's service obligation reduced.)

- FERC must define "minimum bill."

- FERC must oversee through an unspecified process that is intended to yield non-discriminatory reestablishment of pipeline service to customers who opted for carriage service. (FERC must, at the very least, hold hearings and promulgate standards.)

- FERC must review requests by existing customers of local distribution customers for direct pipeline interconnection under Sec. 7 of the Natural Gas Act. (This weakens FERC authority since such review is now performed in all cases of direct interconnection whether by an existing customer or not.)

- FERC may require expansion of pipeline facilities under an undefined standard of "as appropriate to further the purposes of the Act."

- FERC must collect and store semi-annual reports from each pipeline (including intrastate and Hinshaw pipelines, unless exempted by state certification) detailing the "available capacity" of the pipeline by 1) geographic location, 2) duration, and 3) current and projected transportation. (Note that such a standard would entail an enormous data collection expense to calculate capacity on each segment of pipeline, interconnection, compressor station and storage field, all points of which must be cross-referenced against seasonal variations, (perhaps even daily use patterns), and projected use of capacity by previously approved carriage customers even though that customer can opt out of carriage service on a moment's notice.)

NORTHWEST CENTRAL PIPELINE CORPORATION

COMPARISON OF PRICE PER 100 THERMS OF NATURAL GAS NATIONALLY AND IN MAJOR MARKET AREAS TO THE PRICE IN KANSAS CITY AREA

PRICE PER 100 THERMS OF NATURAL GAS

JANUARY, 1984

NATIONAL AVERAGE	$61.562
ST. LOUIS	$65.873
DENVER-BOULDER	$56.421
HOUSTON	$52.990
DALLAS-FT. WORTH	$55.552
KANSAS CITY AREA	$51.468

SOURCE: BUREAU OF LABOR STATISTICS
KANSAS CITY RATE WAS 16.4% LOWER THAN NATIONAL AVERAGE.

Attachment 2
3-29-84

NORTHWEST CENTRAL PIPELINE CORPORATION

GAS PURCHASE MIX COMPARISON
TARGET PRICE PROGRAM

	PERCENT OF TOTAL PURCHASES	
	BEFORE TARGET PRICE	AFTER TARGET PRICE
FOREVER REGULATED 104, 106, 108	20.7%	42.4%
HIGH COST GAS 102, 103, 107, 109	37.0%	25.1%
TRANSMISSION LINES ARKLA TRANSWESTERN	42.3%	32.5%
TOTAL	100.0%	100.0%
SYSTEM AVERAGE PURCHASE GAS COST	$3.51	$2.72

Testimony of Richard D. Kready
On Behalf of The Kansas Power and Light Company
and The Gas Service Company

Hearings on House Bill 2557 Before
House Energy and Natural Resources Committee
March 29, 1984

Mr. Chairman and Members of the Committee:

I appear here today on behalf of both The Kansas Power and Light Company and The Gas Service Company in opposition to House Bill 2557, which would declare portions of some natural gas pipelines to be common carriers.

In order to protect utility ratepayers from diminished service standards and from further escalating prices, you should not go forward with mandatory carriage legislation such as HB 2557.

An argument in favor of mandatory carriage usually is based upon the concept of "free enterprise" in the natural gas business. However, utility companies are regulated, and thus not allowed to compete in a free-enterprise atmosphere.

Utilities are required to supply their services to all customers in their service area, and are not permitted the free-enterprise luxury of choosing to work only with profitable customers. We believe the current structure is a better way to assure reliable natural gas service and in the long run, the most reasonable rate for all customers.

Mandatory carriage could temporarily reduce costs for large-volume natural gas users, but it also would likely increase costs to all other consumers. If large-volume users can save even only a few pennies per unit of gas, mandatory carriage would provide an incentive for those users to leave the local utility system in order to purchase gas directly from a producer.

Attachment 3
3-29-84

If that happens, residential customers and other small-volume users will discover their costs for natural gas service increase because they have to pay a larger share of the utility's fixed costs.

Such a situation will further aggravate problems interstate pipeline companies face in regard to high percentage "take-or-pay" clauses in existing long-term supply contracts with gas producers. Mandatory carriage could result in large-volume users contracting for gas supplies to meet needs already allowed for in contracts signed by the utility company, which had planned to serve the large-volume user.

When such an event occurs, the pipeline will be forced to pay contractual penalties associated with the take-or-pay contracts and/or decrease use of low-cost old gas in order to meet take-or-pay obligations. Either way, the remaining utility customers will end up paying more for their natural gas service.

The combination of paying a larger share of the system's fixed costs and higher rolled-in gas costs could mean a significant increase in the bills received by the remaining customers, which would be a further incentive for more and more large-volume users to abandon the utility system and turn to mandatory carriage.

Eventually, it could become economically prohibitive for residential and other small users to remain connected to the natural gas system.

It is evident that, under mandatory carriage, utility companies would have difficulty in determining the volume of gas for which they should contract. A number of questions must be answered.

What happens when that mandatory carriage customer's contract terminates, or when a problem in delivery of their contracted-for gas arises? Who has utility responsibility for meeting their needs? Should the utility plan to

meet their needs in emergencies, when the mandatory carriage contract expires, or never since the user might renew the contract or sign another one?

If the customer returns to the utility system in a few years when there is no longer a glut of gas available, it could put the utility in the position of negotiating a less-favorable contract for an additional supply of gas to meet the needs of the returning customer. However, the effect of the new, less-favorable contract would also impact on all other customers of the utility through higher natural gas bills.

It is noteworthy that the National Association of Regulatory Utility Commissioners Gas Committee appointed a Task Force to review and monitor the mandatory carriage issue. The five-member task force included a member of the Kansas Corporation Commission.

In its report, the Task Force recommended legislation that would encourage negotiated contract carriage, not mandatory contract carriage, and would empower the Federal Energy Regulatory Commission to order carriage only where refusal by a pipeline to transport was discriminatory or when the requested carriage was in the public convenience and necessity.

Both the Gas Committee and the NARUC Executive Committee adopted the Task Force's recommendations.

In conclusion, I want to again urge you to not go forward with mandatory carriage legislation such as HB 2557. While such legislation may temporarily result in lower natural gas prices for a few select customers some of the time, it will undoubtedly result in higher prices for most customers most of the time.

Thank you.