

## **Appendix C**

### **Natural Gas Regulation in the United States**

#### A. Development and regulation of the interstate pipeline system in the United States

By 1935, several interstate gas pipelines were transmitting natural gas over fairly long distances. In that year, the U.S. Federal Trade Commission (FTC) issued a report recommending federal regulation of interstate gas pipelines. A primary concern of the FTC was that interstate pipelines were natural monopolies and that more competitive segments of the natural gas industry, notably exploration and production, needed protection by the federal government against possible market abuses by these pipelines.

Accordingly, Congress passed the Natural Gas Act in 1938. This Act authorized the Federal Power Commission (FPC) to regulate interstate gas pipelines as public utilities, subject to "price and entry" regulations. The FPC was authorized to issue certificates of public convenience and necessity to interstate pipelines. In this way, the government recognized the economies of scale inherent in natural monopolies by limiting entry to a particular market to one pipeline company. However, to prevent monopoly abuses, the FPC also established maximum rates pipelines could charge for transporting gas and allowable rates of return on investment pipelines could earn. The FPC also assumed other functions normally determined in the marketplace for an unregulated company. Rate-making became a contest between the regulators and the regulated pipeline companies in which the winner was often the best negotiator and the regulators were often "captured" by the pipeline companies they regulated.<sup>1</sup>

In practice, the FPC sometimes granted certificates for overlapping markets. A major consequence of the regulatory regime established in 1938 was the construction of a number of interstate pipelines in the United States which came close to or even crossed one another. Guaranteed markets and minimum rates of return made investment in natural gas pipelines highly "bankable."

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<sup>1</sup> The regulatory history is told in greater detail in Paul MacAvoy and Stephen Breyer, *Natural Gas Regulation*, Washington, D.C.; The Brookings Institution, 1970's, Chapter 2.

Regulated pipeline companies were able to assume extraordinary amounts of debt relative to equity. As a result, by 1980, thousands of miles of pipe had been laid and there were around 25 major and over 100 smaller interstate natural gas pipelines in the United States. Although many of these lines were not interconnected, the United States had the potential for a major integrated pipeline system.

During the period when Federal Power Commission regulation was encouraging construction of so many transmission lines, the U.S. Supreme Court handed down a decision with momentous consequences for the natural gas industry in America. In 1954 the Court ruled that the Commission was required by the Natural Gas Act to regulate interstate natural gas prices at the point of first sale or delivery to pipelines. That is, the price of all gas sold for transportation across a state line had to be regulated. In effect, this meant that regulation was extended to producers, that segment of the natural gas industry that the FTC had found in 1935 to be highly competitive.

Although the Commission expended an enormous effort over the years attempting to devise a workable system of wellhead price controls, it never succeeded. By the mid-1970s, unduly low wellhead price ceilings established by the FPC in the mid-to-late 1960s had begun to exact a toll. The United States was faced with severe regulation-induced shortages of natural gas in the interstate market resulting from the interstate pipeline companies' inability to purchase adequate supplies of gas from producers now selling primarily for consumption within the state where the gas was produced, the intrastate market. After a prolonged debate, wellhead prices were eventually deregulated.

In 1978, the Congress enacted the Natural Gas Policy Act (NGPA). This law, which began the process of deregulating wellhead prices, also gave legislative sanction to widespread open access to natural gas pipelines as a means of achieving greater competition among interstate gas pipelines. Traditionally, transmission companies bought gas from the producer in the field and resold it at the other end of the line to local distribution companies or final consumers. With open access this merchant function of gas pipelines was displaced by a form of contract carriage. Under this new regime, most companies transported gas owned by others. This change in function was accompanied by a major change in the regulation of the U.S. gas pipeline industry.

B. Definition and description of open access and deregulation in North America in the 1980's.

Among the consequences of the deregulation of wellhead prices was an increase in interstate gas prices, the transfer of reserves from the intra- to the interstate market, lower than anticipated overall demand for gas, and a surplus of natural gas in both intra- and interstate markets. Lower than anticipated demand for natural gas was accompanied by lower than anticipated demand for pipeline capacity.

To increase the use of their pipelines, several U.S. gas transmission companies introduced programs that, in effect, allowed limited use of transportation by others. They sold space on their pipelines to those wanting to buy gas from a field in, say Texas, for consumption in New England. At first, the transmission companies restricted access to transportation under these special marketing programs to those customers that could demonstrate that they would otherwise lose gas sales to alternative fuels, such as fuel oil, or to other gas suppliers. And, through a series of orders based on the NGPA, the Federal Energy Regulatory Commission (FERC), the successor to the Federal Power Commission, essentially blessed these programs.

While selling space on their line to some, the transmission companies nonetheless continued to use the bulk of their capacity for moving gas they had bought at the wellhead. But this means of maximizing the use of pipeline capacity without, at the same time, undermining the merchant function performed by the pipeline companies came to a crashing halt in 1985 with the decision in the Maryland Peoples' Council Case by the D.C. Circuit Court of Appeals. In this decision, the Court ruled that the special marketing programs allowed by the FERC were discriminatory and in violation of the Natural Gas Act and other U.S. laws. The Court ordered the FERC either to require pipeline companies to offer transportation to all qualified parties who sought it on a non-discriminatory basis, i.e. open transportation, or to deny transportation to all potential pipeline users.

The FERC chose the first option. Later in 1985, it issued an order giving pipeline companies the option of offering transportation for others on an open, nondiscriminatory basis. Under this order, pipelines could maintain their merchant function while, at the same time, transporting natural gas for others as

long as they did so under the same terms and conditions applicable to all other transporters.

In essence, the FERC adopted a form of contract carriage. Under contract carriage, a pipeline company provides transportation for all those seeking it and, if pipeline capacity is limited, it must be allocated to potential users on a first come-first served bases. This differs from common carriage where limited capacity is offered to potential users on a pro-rata bases.

Two years later, another D.C. Circuit Court ruled that the system of open transportation established by the FERC was far from voluntary and that the FERC could not impose open transportation on pipeline companies without first taking steps to resolve the companies' difficulties with their contracts with producers. These contracts, termed "take-or-pay" because the pipeline companies committed to pay for a certain amount of gas each month whether or not they actually took it, were creating enormous difficulties for the pipeline companies because both gas demand and prices were falling. The FERC responded in 1987 with Order No. 500. This order established several sweeteners designed to gain pipeline acceptance of open transportation. The most important of these sweeteners was a mechanism through which pipelines adopting open transportation could pass through to their customers some of the costs of contract reformation necessary to resolve their take-or-pay problems. This Order broke the log jam. It was followed very quickly by the acceptance of open transportation by most U.S. pipeline companies.

As it happened, the FERC had been moving towards open transportation on its own and might well have established much the same open access program that it eventually adopted without intervention by the courts. During the 1980s, the theory of contestable markets found significant support in both the legal and economics professions.<sup>2</sup> Under this theory, a competitive market differs from a contestable market. The key obstacle to establishing a competitive market is a limited number of firms in that market, while the key obstacle to establishing a contestable market are barriers to entry. If a market is contestable, according to proponents of this theory, it will yield the same benefits as a competitive market

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<sup>2</sup> See, for example, Robert Bork, *The Antitrust Paradox*, 1978, and William J. Baumol, The American Economic Review, circa May 1980.

without the need for a large numbers of firms and much of what is commonly thought of as antitrust policy. All that is necessary in a contestable market is low-cost entry and exit and, if these conditions are satisfied, policy makers would find it much easier to adopt policies that make markets contestable rather than competitive.

The theory of contestable markets has, perhaps, its best application as a counter to price and entry regulation of natural monopolies. According to proponents of contestable markets here, restricting entry into an industry such as gas transmission is just the opposite of the policy that is needed.<sup>3</sup> Policy-makers should focus on ways of reducing barriers to entry, and not erecting them in the form of certificates of public convenience and necessity and exclusive markets.

One way to eliminate or lessen barrier to entry in industries characterized by substantial economics of scale and high sunk costs is to established contract carriage. The theory of contestable markets has its critics.<sup>4</sup> Whether or not they are right, the fact remains that the FERC was heavily influenced by this theory in its adoption of open access.

One important result of open access in the United States has been the creation of a highly integrated and competitive pipeline system. Because gas flows have been rationalized, open access has stimulated both new construction of pipeline capacity and a series of mergers and acquisitions intended by individual pipeline companies to extend their markets and build nationwide pipeline systems.

Open access has encouraged new construction and inter-connection of pipelines. Some new long-distance pipelines have been built. A good example is the Kern River Pipeline Company which moves natural gas from southwestern Wyoming to Kern County in California. This line has opened up large areas of the Rocky Mountains for gas production and has made the California market

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<sup>3</sup> See, Elizabeth Bailey, American Economic Review, circa 1981.

<sup>4</sup> See, William Shepard, several articles in the American Economic Review, in the 1980s.

even more competitive than it had previously been. Another example of a new pipeline inspired by open access is Iroquois. This pipeline brings Alberta natural gas shipped eastward via TransCanada from the U.S./Canadian border east of Lake Ontario to markets for natural gas in and around New York City.

However, for the most part, recent pipeline construction has involved the building of relatively short spurs, access lines, and interconnections intended to bring together what had previously been, under price and entry regulation, separate pipeline systems. A good example is the Northern Border and Frontier extensions, which have opened up markets in Illinois and Michigan and New York and New England, respectively, to Canadian natural gas from Alberta. As a result, competition in both the U.S. and Canadian natural gas markets has increased dramatically. Because of this and other new pipeline construction, Canadian and U.S. gas markets have now been totally integrated into one highly competitive North American pipeline system subject to open access.

Open access and greater competition among U.S pipeline companies has also been accompanied by a series of mergers and acquisitions that have led to the creation of nationwide pipeline companies. This was an unintended result of open access similar to the mergers and acquisition that followed, for example, the deregulation of the U.S. railway and airline industries in the 1970s and 1980s. Enron (then Houston Natural Gas) led the way with its acquisition of Northern, Florida, and Transwestern, yielding a pipeline network extending from the Atlantic to the Pacific and from Texas to the Canadian border with the United States. Panhandle Eastern acquired Texas Eastern and, in this way, united the two companies' markets in the northcentral and northeastern United States. Colorado Interstate, which is owned by the Coastal Corporation, acquired ANR, a pipeline company serving Michigan and Wisconsin. There are other examples.

It might be argued that these mergers and acquisitions have lessened competition in the gas transmission industry. Not so. Under open access, pipeline companies are required to move gas for others on an open and nondiscriminatory basis. If a pipeline were to give preference to its own gas or to gas owned by an affiliate, it would be in violation of federal regulations and could be prosecuted accordingly. Most of these mergers have been vertical or conglomerate in nature. Rather than seeking greater control in any one market, they have been intended to extend the companies' markets for gas. While the pipeline industry may be

more concentrated and seem less competitive because of open access, it is also far more contestable and that, in the end, was what the U.S. regulators really sought.

While open access might be viewed as a form of government regulation over the natural gas transmission industry, it is also, in the United States at least, a form of deregulation. It has made possible a substantial relaxation in price and entry controls while, at the same time, assuring a highly competitive or, more properly, contestable industry.