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An Industry in Turmoil: The Remaking of The Natural Gas Industry

The natural gas industry has entered a new era—an era unimaginable to its participants even a few years ago. The emergence of the new era can be seen in many indicators: unpredictable and volatile swings in gas prices that have belied industry and government projections; deregulation has proceeded apace, thrusting many market participants into the uncertainties of the competitive market; and competition among natural gas producers has intensified, while competition with alternative fuels and fuel switching among consumers has compounded uncertainty about future sale volumes and prices. The politics of natural gas policy has become increasingly fractuous, pitting segments of the industry against one another, consumers against suppliers, and even created friction between levels of government. Perhaps the most unwelcome aspect of this new era is the tremendous level of uncertainty that has developed. Among market participants, uncertainty impedes construction of reliable trade patterns, straining market relationships and increasing reliance on court action. For public officials, uncertainty has made effective and reasonable policymaking all the more difficult. Truly the gas industry is in turmoil.

My objective in this paper is to trace the development of the turmoil in the gas industry to fundamental transitions in energy markets and to changes in public policy in the United States. Furthermore, I assess the prospects for stabilization in the market in coming years. These issues provide the backdrop for the specific points-of-view that are presented in following chapters in this volume.

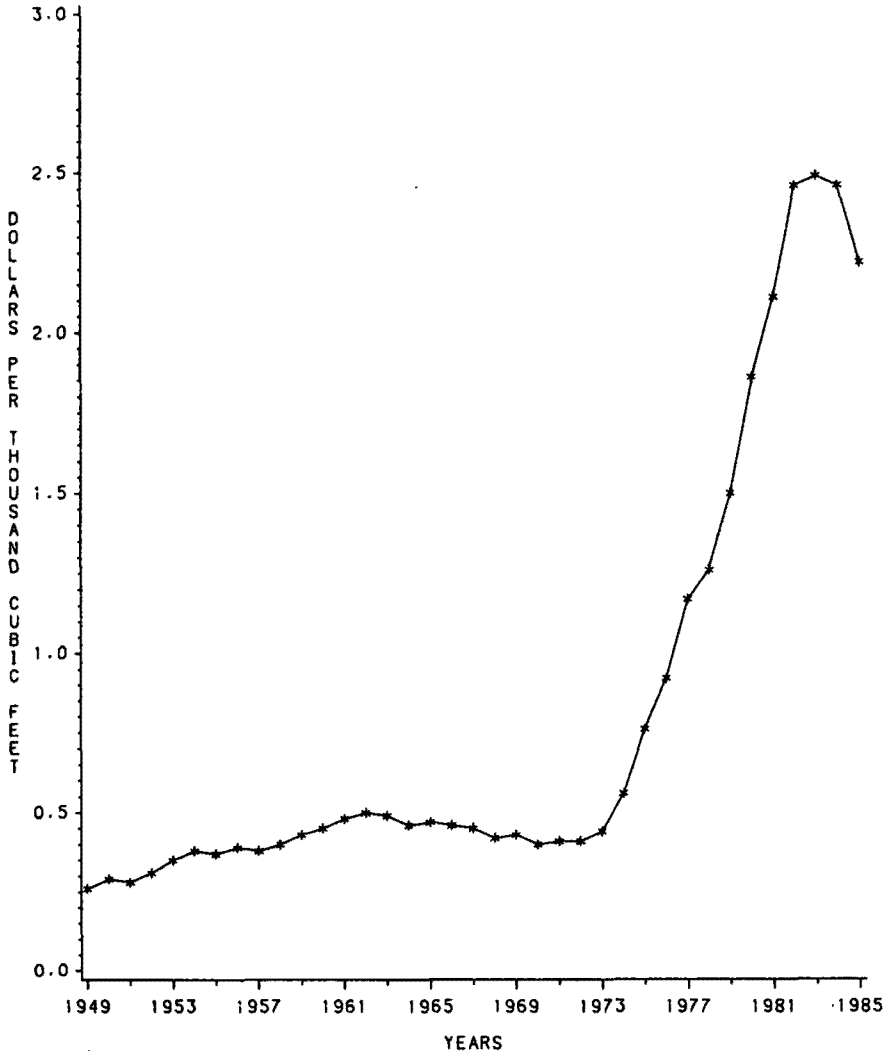
TRANSITIONS IN THE GAS MARKET—THE FIRST TWO ERAS

The history of the gas industry can be broken into three periods of time based on the prevalent market conditions and levels of regulatory constraint. The first era, lasting roughly from the turn of the century to the early 1970s, was characterized by highly stable prices, an expanding market (as pipeline technology improved and pipelines were constructed), and regulation primarily limited to gas moving in interstate trade.¹ Well-head prices (in 1982 dollars) rose from 26 cents per thousand cubic feet (mcf) in 1949 to about 45 cents per mcf in 1960, and remained fairly

1. E. SANDERS, *THE REGULATION OF NATURAL GAS POLICY AND POLITICS, 1938-78* (1981).

steady at that level through 1973 (see Figure 1).² Overall, this was a period of considerable stability for the industry, in which market relations

FIGURE 1
NATURAL GAS WELLHEAD PRICES



SOURCES: Energy Information Administration, U.S. Department of Energy, ANNUAL ENERGY REVIEW 1985, DOE/EIA 0384(85) (May 1986); Energy Information Administration, U.S. Department of Energy, MONTHLY ENERGY REVIEW: JANUARY 1987, DOE/EIA) 0035(87/01) (April 1987).

tended to be dominated by the major interstate pipelines which acted as both owners and transporters of gas.

The first era was brought to an abrupt end by the onset of the Arab oil embargo and the energy crisis of 1973-74. Rapidly rising oil prices were paced by rapid increases in wellhead gas prices, resulting in a rise from 44 cents per mcf in 1974 to a peak of \$2.66 per mcf in 1984 (in 1982 dollars). Also in the early 1970s, annual dry gas production peaked at 21.73 trillion cubic feet (tcf) and began a sustained decline (see Figure 2). Gas imports, primarily from Canada and Mexico, have made up a significant fraction of the market since the late 1960s (see Waldman article in this volume).

Perhaps the most pervasive change in the gas market, however, stemmed from intensified regulatory efforts by the federal government. Through the 1970s rising energy prices led to intensified conflict between producers and consumers, between various types of producers (for example, deep well "new gas" producers versus "old gas" producers), and regions of the country. This conflict led ultimately to passage of the Natural Gas Policy Act of 1978 (NGPA), which established numerous gas categories—based roughly on the date and cost of well completion—and established price ceilings for each category.³

Market relationships in this era were predicated on the existence of price controls and the perception that demand for energy—and hence demand for gas—would continue to rise. As recently as 1983, for example, the U.S. Department of Energy was predicting a substantial rise in gas consumption—from 17.7 tcf in 1982 to a projected 19.7 tcf in 1985 (actual 1985 consumption was 17.3 tcf).⁴ Given expectations of continued price increases *and* regulated prices, wellhead sales were based in part on nonprice factors such as take-or-pay contract provisions by which producers were assured of sales regardless of whether pipelines needed the gas. Pipelines, in turn, would sell the gas to distributors or other end-users at regulated prices based on average ("rolled-in") wellhead prices, a procedure that gave substantial price advantages to pipelines supplied by large volumes of low-priced "old gas."⁵

THE THIRD ERA

The beginning of the end of the second era of the gas industry com-

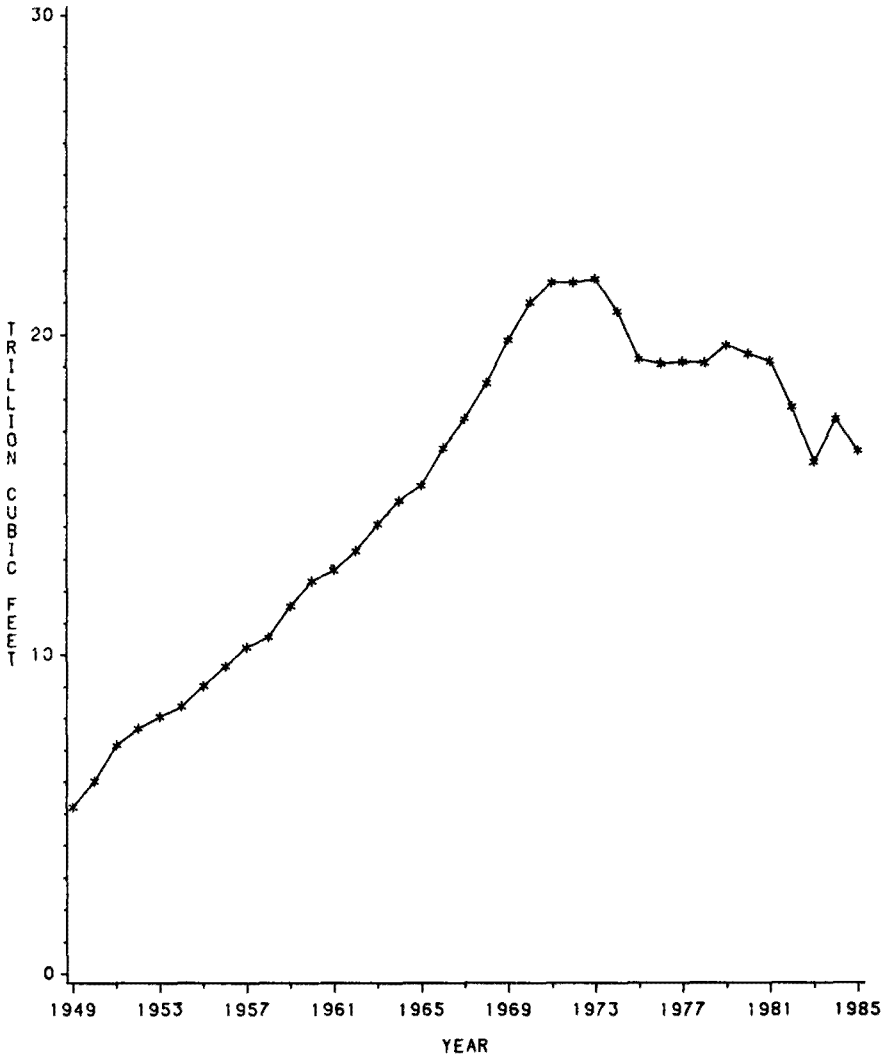
2. Energy Information Agency, U.S. Department of Energy, ANNUAL ENERGY REVIEW, DOE/EIA 0834(85) (May 1986); Energy Information Agency, U.S. Department of Energy, MONTHLY ENERGY REV. (Jan. 1987), DOE/EIA 0035(87/01) (Apr. 1987).

3. Natural Gas Policy Act of 1978, 15 U.S.C. §§ 3301-3432 (1978).

4. Office of Policy, Planning and Analysis, U.S. Department of Energy, ENERGY PROJECTIONS TO THE YEAR 2010, DOE/PE-0029/2 (Oct. 1983).

5. On the influence of average cost pricing, see W. Niskanen, *Natural Gas Price Controls: An Alternative View*, REGULATION (Nov./Dec. 1986).

FIGURE 2
U.S. NATURAL GAS PRODUCTION



SOURCES: Energy Information Administration, U.S. Department of Energy, ANNUAL ENERGY REVIEW 1985, DOE/EIA 0384(85) (May 1986); Energy Information Administration, U.S. Department of Energy, MONTHLY ENERGY REVIEW: JANUARY 1987, DOE/EIA 0035(87/01) (April 1987).

menced with the dramatic price rise of the 1970s, though the effects of the price rise were masked by turbulence in the oil market until the early 1980s. Four basic categories of change marked the end of the era: de-

creasing demand due to conservation efforts; intensified competition with heavy petroleum products; increases in competition with imported natural gas; and deregulation.

Demand for natural gas has fallen steadily since 1979, from 20.2 tcf to only 16 tcf in 1986. In part this decline represents a reduction in demand for energy of all kinds as conservation measures are taken in response to the rise in energy prices since 1973. Also in part, the decline in energy consumption has been due to the relatively low rates of economic growth that have occurred since 1980. These influences on demand can be seen in that U.S. energy consumption of all kinds reached almost 79 quadrillion Btu (QBtu) in 1979, fell to a low of 70.5 QBtu in 1983, and has stagnated near 74 QBtu since 1983.

But overall energy consumption is only part of the story: the *relative* decrease in oil prices has also done much to reduce gas consumption. Driven by a price war within OPEC, the price of imported oil plummeted from an average of about \$26 per barrel in 1985 to a low of \$9.72 in July of 1986. Many of the industrial and utility consumers of natural gas are capable of switching between natural gas and such heavy oil products as basic boiler fuels. As oil prices began their dramatic slide in 1986, many of these consumers began switching from gas to oil. From 1985 to 1986, for example, industrial and utility consumers reduced gas use by 11.4% and 14.5% respectively. Over the same period, fuel oil consumption has risen by about 1.3%, and residual fuel use by 16.4%. Thus, due in large part to fuel switching capabilities, gas prices and demand levels have become highly sensitive to fluctuations in the price of oil.

The increased competition with oil products has been compounded by intensified competition with natural gas imports. In response to falling energy prices, the Canadians have adopted a highly flexible pricing policy that has permitted their gas exports to remain competitive—and even to increase market share in some strategic U.S. markets (see the Waldman article in this volume). Along with competition with oil, these imports have served to keep downward pressure on the price of domestically produced natural gas.

Perhaps more than any other factor, the third era of the natural gas industry has been characterized by deregulation. Under the NGPA, regulated price ceilings have been phased out for many categories of gas produced in the U.S.; as of November 1979, wells started after February 1977 and drilled to a depth in excess of 15,000 feet were deregulated, as were wells drilled in geopressured brine, coal seams, and in Devonian shale. By 1985 any “new” gas wells were deregulated, along with wells drilled after April 1977 that were deeper than 5,000 feet, and wells producing gas for certain categories of interstate trade. Thus much of the price regulation of the NGPA has been lifted—and even prices of the

still-regulated "old gas" categories appear to have fallen below NGPA price ceilings. These developments have served to replace much of the influence of government wellhead price regulation with the discipline of market forces.

Deregulation has not stopped, however, with wellhead prices. The Federal Energy Regulatory Commission (FERC), and some states (notably New Mexico) have moved toward "contract carriage" provisions that permit producers and consumers to ship gas on pipelines for a fixed carriage fee. Such provisions are designed to allow for much greater competition among producers and pipelines for sales of gas. Current deregulatory emphasis at FERC has shifted from the wellhead to pipeline transport and to pricing policy for sales by pipelines to distributors and end users.⁶

EFFECTS OF THE NEW MARKET CONDITIONS

What have been the effects of the new era for the natural gas industry? The first and perhaps most fundamental change has been the introduction of price and demand variability. Whereas the first era was characterized by stable prices, and the second era by the expectation of continuously rising prices, the industry now faces prices that can be expected to rise *and* fall. As noted earlier, gas prices and demand are now highly sensitive to fluctuations in oil prices, which are likely to remain volatile for the foreseeable future.

The immediate effect of price variability has been a shrinkage of demand for domestically produced gas as oil products and as foreign gas suppliers have enlarged their market share. While this situation is likely to be reversed as oil prices climb (spot oil prices have more than doubled since their low in July 1986), the most marked and lasting effect of market variability on the industry is likely to be a fundamental restructuring of trade relationships—and accompanying friction—within the industry.

An immediately apparent indicator of the changed trade relationships and friction is the increased frequency of litigation among firms in the industry. Disputes have flared over contract renegotiation between producers and pipelines, access of producers and consumers to pipeline carrying capacity, and the structure of rates for various classes of gas customers (see the Campbell and Baca articles in this volume). Also becoming restive are natural gas consumers, some of whom perceive themselves to be by-passed by the reductions in gas prices that are benefiting other gas consumers (see the Wellinghoff article in this volume).

6. *Id.* and C. M. Naeve's article in this volume for more information on current natural gas regulatory activities.

Yet another far reaching implication of the new era in the gas industry has been a trend toward shifting regulatory responsibility from the federal government—and specifically FERC—to the states and their regulatory bodies. As FERC moves toward federal deregulation many aspects of regulation, formerly the responsibility of FERC, will devolve to the states (see the articles by Naeve and Baish in this volume). This trend may raise some difficulties for some firms in the industry (particularly those directly involved in interstate trade) due to the need to respond to multiple regulatory bodies that may have conflicting policy objectives. Difficulties are also raised for the state regulatory agencies, which will be charged with regulation of an industry over which they have only partial jurisdiction. State regulators will also be confronted by a welter of issues, many of them complex and rapidly changing, that will tax the expertise and resources of their staffs (see the Ellis article in this volume). These are problems that will become increasingly urgent as the deregulation initiative at the federal level makes further headway.

Finally, while the implications of the third era of the gas industry for consumers remain far from clear, some trends in gas pricing for different classes of consumers can be discerned. For example, as pipelines are forced to respond to the threat of major consumers (industrial or utility users) leaving the system, they are likely to develop a pricing strategy that favors large volume users over smaller consumers that have fewer alternatives to gas. Already residential gas consumer groups are claiming that the reductions in gas prices over the past few years have by-passed them in favor of utilities and industrial users (see the Wellinghoff article in this volume). On the basis of these claims, it can be anticipated that strong political pressure will be put on states and the federal government to maintain or expand pipeline and distribution company regulation to assure that residential consumers are not charged “unfair” rates relative to other gas users.

PROSPECTS FOR STABILITY?

Will the turmoil in the gas industry continue? In some respects, the answer is almost surely *yes*. Demand for gas, and hence gas prices, are now tied for better or worse to the oil markets. Factors endemic to the international oil markets (for example, tensions within the OPEC cartel) are likely to maintain highly volatile supplies and prices for the foreseeable future. The likelihood of volatile prices, in turn, is likely to encourage more consumers to develop fuel switching capabilities that will tie the gas and oil markets together still more tightly. Thus demand and prices will remain a source of volatility for the gas industry.

But fluctuations in prices and quantity demanded need not lead to the

sort of turmoil we have witnessed in recent years. The extent to which the industry regains stability will depend on the degree to which market participants are able to establish new trading patterns that can be flexibly adapted to changing market conditions, and on the extent to which new regulatory initiatives at both the state and federal level permit or encourage the development of such flexible trade patterns. Given the instability of energy markets generally, it is now widely conceded that it will not be possible to impose fixed price or allocation controls without inflicting severe damage on both consumers and producers.⁷ What, then, are the prospects?

The following chapters are intended to address precisely that question from a range of viewpoints emanating from public regulators and from key segments of the natural gas industry. Naeve, Waldman and Ellis are written by public officials, looking at the role of the federal government in deregulation (Naeve), the regulation of gas imports (Waldman), and at the increasing dilemmas of state level regulators (Ellis). The subsequent articles assess prospects for the future from the perspectives of majors segments of the industry: interstate and intrastate (Balsh and James) pipelines, integrated and independent gas producers (Baca and Campbell), and gas consumers (Wellinghoff). Finally (in Kelly), a former Chairman of the New Mexico Public Service Commission attempts to sift these viewpoints for common and divergent themes, assessing the broader question of what consensus—if any—exists regarding where the industry should go from here.

7. For a careful examination of the analogous case of oil price and allocation controls during the 1970s, see J. KALT, *THE ECONOMICS AND POLITICS OF OIL PRICE REGULATION* (1983). An analysis of natural gas price controls is contained in G. LOURY, *Efficiency and Equity Impacts of Natural Gas Deregulation*, *PUBLIC EXPENDITURE AND POLICY ANALYSIS* (R. Haveman, J. Margolis, 3rd ed., 1983).