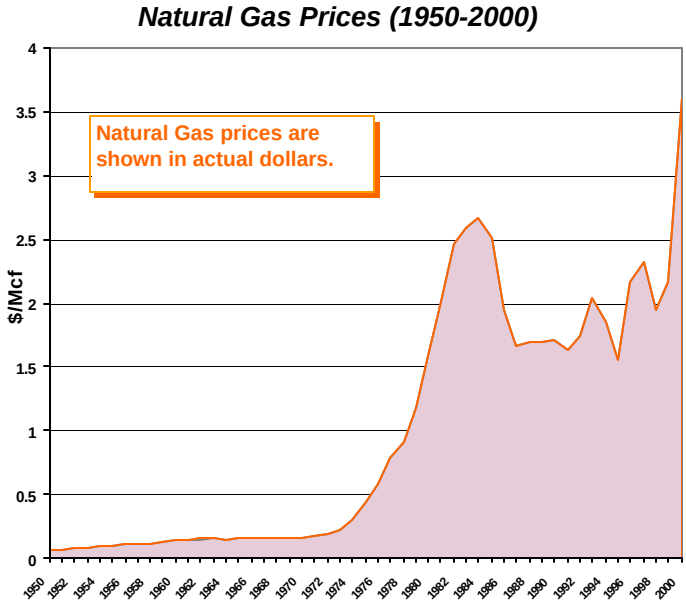
Natural Gas Production: Where Price Controls Failed, The Market Succeeded

The history of natural gas production in North America provides a clear example of both the failure of long-term price controls and the success of the competitive market. At the same time the emergence of natural gas as a commodity presents the challenges of attracting capital and developing this essential resource to meet future demand within the volatility of the market.

Natural gas and petroleum are found together – and have been since the Drake well in 1859. But, because it is a gas, natural gas required the creation of capable transportation technology to bring it to its full development. Initially, gas was used for lighting during the late 1800s, but the emergence of electric lights effectively ended this use. Inventions of burner technology and thermostats moved natural gas to broader uses. By the 1920s the invention of seamless welded pipe allowed long distance pipelines to be constructed to bring natural gas from producing regions to major northeastern and midwestern cities. This market began to expand after World War II as the residential use of clean burning natural gas was promoted in the 1950s.

Price Regulation Begins To Take Effect

While natural gas regulation initia lly began as a result of the Natural Gas Act of 1938, the Supreme Court decision in the *Phillips* case in 1954 triggered the price control process under the Federal Power Commission (FPC). The FPC created a pricing system that kept wellhead prices extremely low and involved bureaucratic case procedures that delayed all decisions, for unusually long periods. The effect was to spur both residential and industrial demand, but it did little to encourage supply. With low wellhead prices, new natural gas supplie s were largely determined by exploration for petroleum. There was little exploration for natural gas.



Thus, demand was rising and supply was not. The interstate market could not react to the situation because of the regulation that applied to its prices. But by the early 1970s, intrastate natural gas markets began to develop because these prices were uncontrolled. Nationally, however, regional spot shortages for natural gas began to develop. Natural gas demand peaked at an all-time high in 1973 of 22 trillion cubic feet (Tcf). During the severe winter of 1976-77, gas was curtailed throughout the major consuming regions and curtailment plans were enacted by state utility regulators to ration gas. Shortages were viewed as chronic and probably worsening with time.

Demand for natural gas began to decline as supplies diminished and prices increased. The supply emergencies pushed Congress to enact the Natural Gas Policy Act of 1978 (NGPA 78). The goal of the legislation was to deregulate natural gas prices over time, to encourage exploration, and to reduce the price differentials between interstate and intrastate markets.

Meanwhile, in the intrastate markets, producers, industrial users, and marketers were buying and selling gas and having it transported by displacement to the burner tips, through the lines of state regulated public utilities. But, this could not be done on an interstate basis.

Decontrol Benefits Consumers and the Economy

NGPA 78 created considerable instability in the natural gas market as the Federal Energy Regulatory Commission (FERC) – the successor to the FPC – began to implement it. Congress had given FERC the task of unbundling the complex relationships in the natural gas production, pipeline, and distribution systems throughout the country. Natural gas prices were initially controlled under that law, based on their status at the time of the legislation, but they were allowed to increase under escalation provisions, and were to be deregulated completely in the mid 1980s.

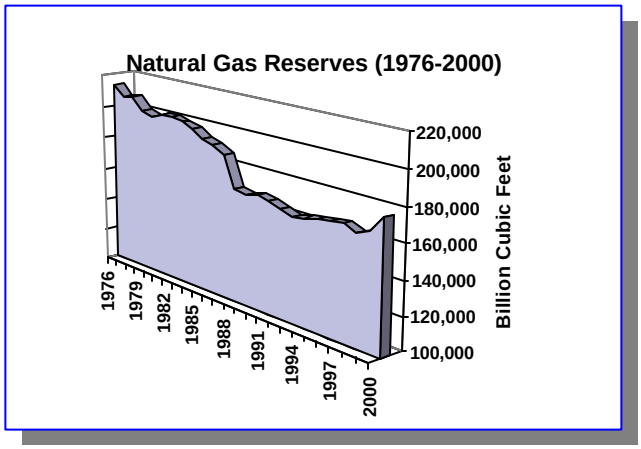
While demand dropped further during the recession of 1982, the higher wellhead prices did encourage the development of new supplies of natural gas. The combination of the lower demand and the new supplies produced a "Gas Bubble" in the 1980s that benefited consumers and the national economy, with low to moderate natural gas prices through the remainder of the decade and through the 1990s.

In 1990, with natural gas prices decontrolled, the New York Mercantile Exchange (NYMEX) launched its natural gas futures contract. Natural gas could be bought and sold by consumers and producers at a pre-determined time in the future, and prices could be moderated through hedging techniques. Thus, while the volatility of the commodity market can impact prices, producers and consumers can also achieve some of the longer-term price stability through the use of those techniques.

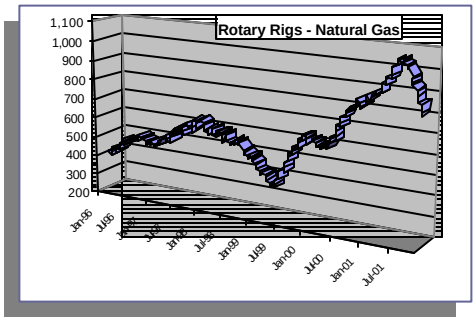
In 1985, FERC issued Order 436, allowing transportation of gas owned by parties other than the pipelines. This created a system similar to the intrastate transportation plans and thus allowed interstate gas to compete in those markets. Subsequently, FERC issued Orders 636 and 637 that provide more flexibility to pipelines to negotiate terms and conditions for capacity utilization.

The End of the Bubble; The Beginning of Tight Supply

While stable prices benefited the national economy, they also limited the capital available to increase natural gas exploration and production. Lower returns on investment and the loss of access to government controlled resources, particularly in the 1990s, resulted in deterioration of proven natural gas reserves. But, the petroleum price collapse of 1998-99 created the most devastating blow. These historically low petroleum prices resulted in capital expenditure budget cuts for domestic producers exceeding 30 percent in 1999. The natural gas drilling rig count dropped by over 40 percent at its lowest point. In 1999, new wells failed to replace existing reserves.



The petroleum price recovery and the industry's recognition that future natural gas demand would increase as more and more electricity will be generated by gas powered turbines triggered a robust rebound in drilling for natural gas. Rig counts went to record levels resulting in an increase in reserves. But, the lag in new production caused by the low petroleum prices left a tight market by the end of 2000. Prices soared in the beginning of 2001 resulting in more drilling rigs searching for natural gas. However, the higher prices also reduced short-term demand. In the latter months of the year, prices had fallen to levels comparable to the first part of 1999 and rig counts began to fall as well.



As 2002 begins, the domestic natural gas production increases that are needed to meet future demand will hinge on several factors. One will be the global oil market. If a low price crisis continues due to conflicts between OPEC and other producer nations, it can create similar capital deficiencies for natural gas development as those in 1999. More directly, natural gas demand needs to return to its growth pattern to sustain the investment needed to develop the domestic reserves. And, the industry needs to have access to both adequate capital and the domestic resource base.