
The New Age of Natural Gas

How the Regulators Brought Competition

Robert J. Michaels

Although there were several credible candidates for the title, fifteen years ago natural gas was probably America's most misregulated industry. Interstate pipelines and local distributors were natural monopolies governed by the most stereotypical commission procedures. Price controls on gas production had created shortages that exacerbated the energy crises of the 1970s. Today, the controls are gone, and gas prices are about half those of a decade ago. The pipelines have been restructured into competitive entities by—of all people—federal regulators. State-regulated distributors are next in line for the same shock treatment. Instead of husbanding a resource at the end of its availability, federal policy now aims at expanding production and sales in competitive markets.

Remarkably, few people outside the industry have looked at the transformation. Beyond its historical interest, the way the change took place bears examining. The regulators and the courts delivered competition to the gas industry. Some of their actions were impelled by the crises that regulation itself caused. Others were strikingly intelligent applications of theoretical economics.

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Still others were arguable overreaches of authority, but for once those favoring competition got an overreach in their direction. Had other choices been made, the 1970s might still be with us.

Where We Were

Through the 1970s pipelines and distributors had always been regulated, and for the best of reasons. The high-pressure interstate pipelines that linked producing and consuming areas were either natural monopolies or at best oligopolies with high barriers to entry. For the volumes in question, more than a handful of pipelines would have been economically unthinkable. The distribution companies that moved gas to its final consumers were also natural monopolies. No economist ever proposed to increase competition by digging up a city to duplicate an existing distributor's small-diameter pipes.

Since the 1930s the Federal Power Commission (FPC), and its post-1977 successor, the Federal Energy Regulatory Commission (FERC), had regulated interstate pipelines. They attempted to set rates that recovered a pipeline's prudently incurred costs and provided its investors a fair return. Like other regulators, the commissioners had to estimate costs, somehow allocate them among customers, detect imprudent expenses,

and determine a fair return from the testimonies of opposing experts. One characteristic of the industry would prove to be important: instead of transporting gas owned by producers or users, pipelines purchased it at the wellhead and, passing on the purchase price, resold it to distributors.

Distributors hold state-regulated franchise monopolies on gas sales to final users. They are corporations, or occasionally municipal operations, subject to state regulatory oversight. Regulators (local government in the case of municipals) determined their allowable costs, rates to different customer classes, and profitability. In the past those costs included gas purchases from the pipeline and the pipeline's transport costs. Both federal and state regulators faced the generic problems of controlling natural monopolies, and neither seemed interested in increasing competition or enhancing efficiency. As long as markets were predictable, prices reasonable, and shortages minimal, the ossification they presided over would be bearable.

Gas was also regulated for the worst of reasons. In 1954 the Supreme Court issued the *Phillips Petroleum Company v. Wisconsin* decision, which declared that the Natural Gas Act of 1938 required regulation of both pipeline rates and the prices charged by gas producers, known as wellhead prices. As economics, there was no reason to regulate a competitive market containing thousands of producers. As regulation, wellhead price control was theatrical. Instead of dealing with a few dozen familiar pipelines, the FPC had to examine the costs of tens of thousands of gas wells, including those of finding new supplies. By 1960 the FPC had decided ten producer rate cases and had 2,900 pending. It finally cut the backlog by regulating rates on the basis of average costs in an area, first regionally and later nationally.

As policy, wellhead price control was disastrous. Basing its decisions on historic data, the FPC seriously underestimated the costs of replacing exhausted wells. In every year between 1966 and 1978 proved gas reserves in the lower forty-eight states fell. As production fell and shortages worsened, pipelines often had to curtail supplies to distributors, who in turn curtailed their captive customers. Seeing the shortages, the FPC issued several general price increase orders, but they seemed irrelevant in the near term. The oil shocks of the 1970s further aggravated the shortages, as oil users attempted to turn to price-controlled gas.

There were no shortages of gas sold in the state where it was produced. These intrastate markets were not subject to FPC wellhead regulation.

In 1977 newly elected President Jimmy Carter looked at the reserve statistics. Definitely not an economist, he concluded that the planet was running out of gas. Instead of quick price decontrol, he proposed a war on consumption, with producer incentives added almost as an afterthought. Beyond other consumption-limiting policies, the Powerplant and Industrial Fuel Use Act of 1978 regulated gas-burning facilities—beginning with a ban on new gas-fired power plants. By 1990 that act would prohibit any use of gas to generate electricity. On the supply side, the Natural Gas Policy Act of 1978 would alleviate interstate shortages

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by putting intrastate gas under the interstate price controls. That act would deregulate some newly discovered and preexisting gas, but only over the next ten years. Some prices could never rise above shortage levels, and about half of all gas would never be deregulated. The newly created FERC would take over most of the regulation. Everything could only get worse.

Where We Are

Things did not get worse. Instead, the unimaginable happened. Fifteen years later, the shortages are gone. All gas prices are determined in unregulated, competitive markets. The average wellhead price peaked in 1984, at \$2.66 per thousand cubic feet. By 1990 that price, unadjusted for inflation, had fallen to \$1.71 and for a brief period in early 1992 was under \$1.20. The Natural Gas Wellhead Decontrol Act of 1989 removed the last of the controls, which had in any case become redundant. By 1987 every major provision of the Fuel Use

Act had been repealed. Administratively granted exceptions had effectively nullified that act some time earlier.

For both economic and environmental reasons, gas will be the fuel of the future. Instead of being banned, many new electricity generators are small gas-fired plants not owned by utilities. All stages of the gas industry are actively trying to find new customers, and the Department of Energy is funding the development of new gas-burning technologies. The interim chairman of FERC, Democrat Elizabeth Moler, criticized a policy adopted during her prior tenure as a commissioner. She asserted that FERC "should be encouraging pipelines to seek new markets for natural gas, not discouraging them." At least one competent expert guessed that within the next five years American gas exports to Mexico would exceed imports from Canada.

The industry would be transformed not by shortage but by surplus. Sources of the surplus included the decline in industrial demand and the delayed success of earlier FPC orders to increase wellhead prices.

Economists had good reason to expect that wellhead decontrol would end the shortages, but the rest of the industry seemed hopeless. Since the pipelines and distributors were obvious natural monopolies, economists relegated them to the backwaters of incompetent regulation and redistributionist politics. But by the late 1980s the regulators had brought competition to them. The interstate pipelines are no longer resellers of gas who can force distributors to accept and pass on the cost. Almost overnight, nearly 90 percent of their business became the transportation of gas owned by others. Their former captives now make their own deals with producers and use the pipeline only for delivery. Smaller producers and inexperienced customers have at their disposal a growing industry of gas marketers and brokers, who can familiarize them with the market and individualize their transactions. Over two-thirds of all gas sales are now effectively in "spot" markets, with terms of thirty days or less. Pipeline interconnections have grown in capacity and complexity to

open up a national market. Futures contracts and options are traded on the New York Mercantile Exchange.

The changes have reached the state-regulated distributors. In the era of shortages many of their industrial customers installed fuel-switching capabilities. Industry's new sensitivity to prices meant that state regulators would find it increasingly difficult to force industrial users to subsidize residential customers. Federal policy adds to the state regulators' problem. FERC now allows industrial users to bypass their local distributors, purchase gas from producers, and have interstate pipelines deliver it. In a growing number of states regulators have responded by allowing distributors to turn themselves into transporters of their customers' own purchases. In some states small end-users can free themselves from dependence on their distributor by hiring brokers to make group purchases that would be uneconomic if made individually.

The Bubble Arrives

The industry would be transformed not by shortage, but by surplus. Shortly after passage of the Natural Gas Policy Act in 1978, the Department of Energy was chagrined to announce that there was in fact a surplus of deliverable gas. Although we cannot pinpoint the sources of the surplus, they certainly included the decline in industrial demand and the delayed success of earlier FPC orders to increase wellhead prices. Thus began the gas "bubble," an excess of uncommitted gas beyond the buffer stocks usually seen in well-functioning markets.

It had been so long since the gas market was near equilibrium that everyone assumed that the bubble was an anomaly. The pipelines reasonably expected that shortages would soon replace the surplus. Knowing that they had an indefinite resale obligation to distributors, the pipelines bought large amounts of deregulated gas at prices that were sometimes more than triple those of controlled gas. Many contracts had take-or-pay clauses that obligated pipelines to pay for fixed monthly amounts of gas, whether they took the gas in that month or not. (Generally, they allowed postponement of the take as long as the payment was made, and hence much of the take-or-pay problem discussed below was actually a matter of financing rather than of wasted payments.) Oddly,

few of the contracts contained so-called market-out provisions that would have mitigated take-or-pay if the market price of gas fell.

Take-or-pay seemed to pose few risks, since everyone knew that the shortages would soon return. The price of the new gas may have been high, but regulators would see that the pipelines had made prudent investments in assured supplies. Lock-step price pass-throughs would further protect the pipelines. FERC regulated the pipeline's price of gas to distributors at the weighted average of gas costs. Most distributors had no supply other than pipeline resales, and state regulators also allowed full pass-through of purchased gas prices. If demand were insensitive to price, revenue from final customers would still cover everyone's gas costs.

But by 1981 industrial customers consumed 25 percent less gas than they did in 1972. They had abandoned gas for other fuels or invested in fuel-switching capability to cope with curtailments. The provisions of the Fuel Use Act encouraged further declines in their consumption. Downstream prices also rose because the fixed costs of pipelines and distributors had to be spread over fewer cubic feet of delivered gas. State regulators responded by saddling industrial customers with rates that subsidized residential users.

Around 1982 world oil prices collapsed. Gas prices, however, continued to rise as the fraction of deliveries under take-or-pay grew. Although volume was declining, pipeline revenue was partially protected by "minimum bill" provisions, which required certain payments by resale customers regardless of the amount of gas delivered. Minimum bills covered both a pipeline's fixed costs and some of its variable costs. To further protect pipeline revenue, in 1983 FERC approved the introduction of so-called special marketing programs. They allowed some price-sensitive users to buy inexpensive gas directly from producers in the developing short-term or "spot" market. The pipeline then delivered the gas to the buyer, contingent on the producer's releasing the pipeline from an equal amount of take-or-pay liability.

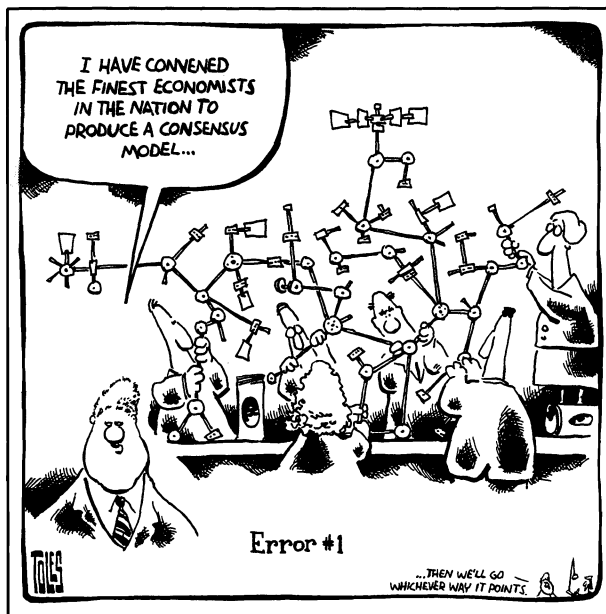
The Coming of Open Access

In 1984 FERC issued Order 380, its first major competition initiative. Order 380 eliminated the variable cost components of pipeline minimum bills. FERC reasoned that minimum bills were anticompetitive because they needlessly raised the

cost of switching suppliers. The apparent inequity of special marketing programs was taken to the U.S. Court of Appeals for the District of Columbia, in two lawsuits brought against FERC by the Maryland People's Counsel. Plaintiffs argued that the programs lowered gas prices to the most price-sensitive users, while forcing those without alternatives to bear the burden of take-or-pay. Captive customers only benefitted to the extent that the pipeline's fixed costs were spread over a larger throughput. In 1985 the court put an end to the programs. Both liberal Judge Ruth Bader Ginsburg and then-Judge Antonin Scalia held them unnecessarily discriminatory under the Natural Gas Act. If FERC wanted to institute transport, only nondiscriminatory programs would do.

FERC's first major competition initiative, Order 380, eliminated the variable cost components of pipeline minimum bills. FERC reasoned that minimum bills were anticompetitive because they needlessly raised the cost of switching suppliers.

Uncertain of its legal powers over transport, FERC issued Order 436 on October 9, 1985. Order 436 offered a seeming option. A pipeline could choose "open access" status—offering to transport gas purchased by any of its customers. Customers not choosing transportation could continue to use resale service. A pipeline that did not opt for open access would not be allowed to transport any third-party gas and could only provide resale service. FERC sweetened the deal by offering open-access pipelines an "optional expedited certificate" for new facilities. Ordinarily, obtaining a permit to build new facilities required a costly and often contested FERC proceeding that might take years. With optional expedited certification, FERC would presume that a project was in the public interest if the pipeline would bear the risk. A pipeline that wished to compete needed open access, since otherwise all of its projects risked delays in certification. Order 436 changed the industry. Within months every important interstate pipeline had applied for open access status. Within two years, 75 percent of all interstate throughput was transported rather than resold.



Order 436 largely passed legal muster in June of 1987, when a panel of the D.C. Court of Appeals decided *Associated Gas Distributors v. FERC*. Judge Stephen Williams, a law and economics scholar, ruled that FERC had the power to institute transport programs, to offer expedited certification, and to bundle both in a hard-to-refuse

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package. The court understood FERC's logic: if several pipelines served a consuming area and one of them chose open access, those that did not follow would face a growing competitive disadvantage. But open access applied to all of a pipeline's customers, including those in areas where it had no competition.

The court found problems with FERC's neglect of take-or-pay issues and remanded Order 436 for further rulemaking. The court wanted FERC to address the possible conditioning of a producer's

access to a pipeline on the resolution of outstanding take-or-pay contracts. Judge Williams sympathized with FERC's reluctance to alter contracts. He noted that intervention would "raise extremely serious problems regarding the ability of private parties in the gas production industry to rely on private contracts." Nevertheless, he remanded on grounds that the contracts had been written in the all-resale era. Since the contracts were a response to regulation that required resale pipelines to find adequate gas supplies in a shortage period, the commission should have the power to modify them if the regulatory order changed. The court also remanded the order's provisions on customer rights to convert resale service to transport service for a more reasoned rulemaking. Although the court noted that private contracts were again being abrogated there, it reasoned that the resale contracts originated in the era when they were the only terms available from pipelines with monopoly power.

The court gave little guidance on how to deal with take-or-pay. Out of many options, including a reasoned choice of inaction, FERC issued Order 500 on August 7, 1987. That order required that a producer credit any gas transported for it against the transporting pipeline's take-or-pay liability. To minimize the intrusion, Order 500 mandated cross crediting only on a subset of all contracts that had been written during 1986 and 1987. To force rapid settlements, the order imposed a sunset deadline of December 31, 1988, for recovery that was later extended by three months. To avoid future take-or-pay problems FERC adopted the ratemaking principle of a gas inventory charge, which would compensate the pipeline for standing ready to provide its resale customers' requirements.

Efficiency won again, this time in the D.C. Court of Appeals' 1989 decision in *American Gas Association et al. v. FERC*. Judge Douglas Ginsburg, another law and economics scholar, wrote the opinion. He first noted that as of late 1987 almost 80 percent of take-or-pay liabilities had been voluntarily renegotiated. Hence, approving Order 500 would affect at most one or two billion dollars in liability, depending on whose figures one used. Even though much of the burden had been lifted, he ruled that the law allowed FERC to order the new contractual terms. Although he remanded the sunset provision, Judge Ginsburg made it clear that he understood FERC's desire to get the negotiations over with before ever issuing a final rule.

But by the time of his decision, the game was over: to go back to square one FERC would have had to invalidate the renegotiated contracts. By administrative fiat, as approved by the court, FERC had brought about a change that would have been impossible to legislate.

The Final Wellhead Decontrol

At the same time FERC was exploring the boundaries of the law's mandate that it set prices at "just and reasonable" levels. FERC felt that the Natural Gas Policy Act's vintage controls on old gas violated that standard because they held prices below replacement cost. In 1986 FERC issued Order 451, which collapsed the act's fifteen vintages into one and set a ceiling price that was above the market-clearing price. That FERC had the will to upset a complex legislative bargain and make the ceilings redundant was remarkable. Producers rejoiced, and pipelines that bought controlled gas for resale protested. Like the open access orders, Order 451 would force the abrogation of some contracts on grounds that they had been written under regulatory duress. Anticipating that shortage prices would rule indefinitely, many long-term contracts for controlled gas specified that the pipeline pay the legal ceiling price. With ceilings now above market prices, FERC effectively specified new contractual terms: the pipeline could decline to pay the new ceiling price, conditional on its agreeing to transport the gas to any other buyer whom the producer might find.

Over one stinging dissent, in September 1989 a three-judge panel of the Fifth Circuit Court of Appeals overturned Order 451 in *Mobil Oil Exploration and Producing Southeast et al. v. FERC*. The court found the order beyond FERC's authority and stated that the commission was attempting to do what only Congress could do. In January 1991 a unanimous Supreme Court reversed that decision. The Court endorsed FERC's use of the "just and reasonable" standard and ruled that FERC could compel renegotiations. In an odd twist the Court said that FERC was not deregulating "in any legally relevant sense" since it was still declaring a ceiling price, albeit one that the market had overruled. The Court also minimized the importance of the wealth loss the order caused the pipelines. Order 451 had important consequences for competition. With all gas uncontrolled, wasteful rent-seeking efforts to obtain or defend access to price-controlled gas would vanish. Whatever

the courts said, Congress concurrently validated FERC's action. It passed the Natural Gas Wellhead Decontrol Act of 1989, which would remove even the redundant ceilings by January 1, 1993. Congress too had little choice, since legislating a new set of controls would probably have been impossible in the changed industry.

The Final Restructuring Rule

Although transported gas dominated their throughput, pipelines entered the 1990s with residual responsibilities to those customers who still elected resale service. They also remained responsible for reliable operation and for coordinating receipts, deliveries, and storage, both for themselves and for third-party transporters. Most pipelines also owned marketing affiliates that sold gas in competition with producers and brokers.

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Transporters were concerned that a pipeline could use its operational knowledge and its information about their transactions to advantage itself as a gas merchant, particularly during peak periods. Conversely, pipeline resales were disadvantaged by cumbersome abandonment regulations that did not apply to transport service.

Other problems, by no means minor, remained. Inefficient rate designs from the old regime continued in effect. The rates charged more than cost for usage-related services and less than cost for the reservation of capacity. The misloading of the charges encouraged excessive use at peaks, unnecessarily favored interruptible over reliable ("firm") service, and produced delivered prices that sometimes created inefficiency because buyers would not purchase from the lowest-price producer. Some transactions were foreclosed because pipelines did not offer customers access to storage facilities on the same grounds as they allowed themselves. Others were foreclosed because pipelines with capacity rights on upstream pipelines did not allow upstream users access equal to their

own. Users also did not have the same flexibility as the pipeline in altering their receipt and delivery points. Finally, transport customers who wished to buy or sell their rights to use the pipeline operated in a market where information was costly to obtain.

On April 8, 1992, FERC addressed all of those issues in its 250-page Order 636, known as the final restructuring rule. Order 636 levels the playing field by forcing the "unbundling" of pipeline services and symmetric treatment of the pipeline and its customers. Transport customers will have specific rights to the pipeline's main line capacity, storage, and rights on upstream pipelines. With those rights a transport customer can duplicate virtually any service the pipeline can offer a resale customer. To make treatment more symmetric Order 636 requires that pipeline resales be made as far upstream as possible, after which the pipeline must treat resold and transported gas equally.

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On their side pipelines will have the right to resell gas at "market-based" rates—they are free to sell at competitive prices, subject to existing regulation of affiliate relationships. The order also loosens requirements that a pipeline continue providing uneconomic services. Pipelines are now allowed "pregranted abandonment" of many shorter-term obligations when the underlying contracts expire.

Order 636 restructures transportation rates to conform to the "straight fixed-variable" method, which efficiently puts all fixed costs in the capacity charge and all variable costs in the transport charge. The prior misloading subsidized uses with low load factors, such as residential heating. The new rates will make such users responsible for the cost of the capacity they actually use in peak periods. Distributors with poor load factors are understandably upset, but Order 636 also requires that pipelines mitigate the damage if the new rates

impose over a 10 percent shift in revenue from a customer class. Competition may have compelled the change. Canadian pipelines, with straight fixed-variable rates, had been able to underprice American pipelines on deliveries to the Northeast.

Finally, Order 636 institutes "capacity release" programs to reallocate transport space. Each pipeline administers its own program, with an electronic bulletin board on which shippers can post bids for available segments. The original holder of the capacity remains responsible for paying the pipeline its regulated rates. The details of coordinating capacity between pipelines and ensuring flexibility of receipt and delivery points have yet to be worked out. In early 1993 a nonprofit corporation, the National Registry of Capacity Rights, was founded. It will function as a title registry, maintaining a public database on capacity along thousands of pipeline segments.

The capacity release program has one remarkable flaw: Order 636 imposes price caps on resold capacity. The price caps will have the expected consequences. They will produce shortages that allocate space to low-valued users who were there first, wasteful efforts by victims to mitigate the effects of being shut out, and poorer price signals to tell where new capacity should be built. Before Order 636, traders could circumvent similar caps with "buy-sell" transactions, in which a final user without transport capacity could buy gas in the field and immediately resell it to someone with capacity. After the gas moved downstream, the final user would repurchase it at a price that included the actual value of the transport service. Order 636 prohibits new buy-sells but grandfathers some existing ones. Traders will surely find ways around the new price caps. As noted below, even state regulators probably do not want the caps.

The Downstream Consequences

In 1988 Martha Hesse, then-chairman of FERC, called gas distributors "an island protected by monopoly—and they are the only remaining protected island in a sea of competition." Although FERC cannot regulate distributors, it is using what leverage it has to move them toward competition. Competition at the distributor level requires that final users who would otherwise be captives be given more service choices. If the choices are denied, states can continue to impose cross-subsidizing rate structures. In his partial

dissent from *Associated Gas Distributors*, Judge Abner Mikva saw the writing on the wall. If a pipeline has an optional expedited certificate, it becomes less likely that a bypassed distributor can successfully petition FERC to deny direct pipeline service to an industrial customer. According to Judge Mikva, the certificate would “vitate the ability of state commissions to provide affordable energy for their residents”—that is, to cross subsidize.

FERC has been permissive in allowing industrial users to tap directly into interstate pipelines for delivery of their own purchases. Three appellate circuits are now in agreement that those bypasses are in interstate commerce and thus are subject to FERC jurisdiction. Nonfederal regulation is generally insulated from federal scrutiny (including antitrust) by the so-called state action doctrine, which allows lower levels of government to regulate as long as the regulation has a well-articulated purpose. Those purposes can include a desire to redistribute, to favor local interests, or to suppress competition. Whatever it has done for competition, bypass policy has encouraged candor. FERC recently approved a bypass in which Lawrence Paper Company contracted with Williams Natural Gas, an interstate pipeline, for delivery of Lawrence’s own gas purchases. Invoking the state action doctrine, Kansas Public Service, the bypassed distributor, told FERC that the bypass “thwarts state efforts to subsidize residential consumers with economic rents secured from business.” FERC noted that in the summer Williams charged \$.119 to transport a thousand cubic feet of gas several hundred miles, while Kansas Public Service charged \$1.08 to move it the last 1,600 feet from the pipeline to the plant.

If its bypass policy succeeds in lessening retail cross subsidization, FERC will have done another remarkable thing. It will be encouraging states to deregulate some aspects of distribution, and there are good reasons for distributors not to fight that action. In the new market order distributors can earn neither political nor economic profits by continuing as full-requirements resellers of gas. As bypass expands, their customers will be mostly small users with poor load factors. To meet peaks distributors will have to make expensive gas purchase and transport arrangements, for which they can charge only those customers. Their best bet is to follow the lead of the pipelines and turn themselves into transporters.

A number of states are moving in that direction. The California Public Utilities Commission has required the state’s three large distributors to become transporters for “noncore” end-users who wish to purchase their own gas. The distributors must file cost-based rates for intrastate transport and dedicate parts of their interstate pipeline capacity to such use, to the extent that FERC allows the latter. Their remaining “core” customers also have increased options. Under a pilot “core aggregation” program brokers can collect customers too small to qualify for noncore status. A certified customer group can enter the interstate market as a purchaser, with local transport guaranteed. Successful aggregations of schools, hospitals, and small industrials have already been made. Apparently, even low-load-factor customers can do that. Citizens Resources, a nonprofit corporation in Massachusetts, has already taken advantage of its state’s transport programs to deliver wellhead purchases to low-income users.

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FERC policy is encouraging efficiency in other aspects of state regulation. The California commission recently completed a multiyear study of the long-run marginal costs of serving different types of customers. In December 1992 it announced that future gas ratemakings would be based on those more economically efficient measures of cost causation. The regulatory departure from traditional arbitrary methods of cost allocation has been impelled by the distributors’ need to accurately measure the costs of responding to competition. At least three new or expanded interstate pipelines entering California threaten to take away major parts of the distributors’ industrial loads. One, Kern River, devotes most of its capacity to industrial users who are bypassing distributors. State regulators have responded by instituting rules that allow distributors to offer competitive transport rates more expeditiously.

Although it is unclear how, if at all, the capacity release price caps of Order 636 will affect state-level policy, an interesting symmetry might arise. In the past FERC pressured the states to remove regulations that impaired competition in interstate markets. If the caps impair the efficiency of distributors or deny them resale revenues, states may put similar pressure on FERC. Mitchell Wilk, former head of the California commission, recently said that "FERC is applying a form of rent control to capacity release" and that the best signal for new facilities "would be to let the price for released capacity go to whatever level the market will bear."

What Happens Next?

Fondness for an imaginary past transcends politics and profession, and the gas industry is no exception. In its cost-benefit analysis of Order 636, FERC's Office of Economic Policy argues that the order will facilitate the formation of long-term

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contracts for gas, which are vanishing from the market. Adding to the spectrum of feasible contracts is indeed a benefit, but FERC fails to ask who in today's gas market would want such a contract. (Small electricity producers may be an important exception.) It is hard to envision anything closer to the textbook ideal of perfect competition than today's gas market. That market contains many buyers and sellers, a standardized commodity, abundant price information, few glitches in deliverability, and now even futures and options. Long-term supply arrangements are rare in such markets, because price is almost always at a level that ensures that the good will be available on short notice. Those who wish to hedge against price risks (or to gamble on bearing

additional risk) can hold inventories, futures positions, or options. If an existing supply package is not exactly what the buyer wants, numerous brokers and marketers can customize it.

The past was indeed an era of long-term contracts, full-requirements pipeline resales, exclusive territories, take-or-pay, and fully bundled distribution service. Those institutions were rational responses to fundamental errors in regulation that are now gone and will probably never return. Even in the shortage era, they did not make the world more predictable. When they became unbearable, as in the take-or-pay and vintage decontrol episodes, FERC and the courts swept them aside. Long-term deals made sense in a world of well-head price controls where fears of resource exhaustion were pervasive. As economists David Hatcher and Arlon Tussing remarked in a recent report to the National Regulatory Research Institute, "the gas procurement practices and performance standards that were appropriate prior to the advent of spot markets and open-access transportation are no longer compatible with the preferences of consumers, the commercial realities faced by natural gas producers, or the redefined economic responsibilities of natural gas pipelines and [distributors]." In short, spot gas will dominate the future.

If the future will be spot gas, what will be the future of the pipelines? In September 1992 Commissioner Branko Terzic chaired the first meeting of FERC's task force on pipeline competition. Former FERC chairman Martin Allday called the task force "the next logical step for the FERC . . . in the new age." (Yes, new age!) The task force hopes to determine when competition is strong enough that pipeline services can be sold at market-based—unregulated—rates. The job is hard because structural measures of competition, such as the number of pipelines reaching a city gate, carry little meaning. If end-users have control of their gas purchases and can exchange transportation entitlements, the fact that they all use the same pipeline is immaterial. Because the new age has been around for such a short time, we do not yet know how services compete with one another. For example, to what extent are interruptible transport and purchases of released capacity substitutable?

It is possible that the task force will deal with the price caps on released capacity imposed by Order 636. By turning the pipelines into transporters, FERC articulated a belief that gas users are

the best judges of how to arrange their own supplies. If so, it is hard to believe that users are incompetent to buy transportation at market prices. FERC's draft order in a 1992 Colorado Interstate Gas Co. docket indicates some openness to alternatives. Although it rejected the pipeline's rate proposal, FERC said that it would entertain rates that allocated transport by price but left the pipeline recovering no more than its cost of service. FERC failed to note that this outcome would occur in an uncontrolled secondary market for rights to released capacity, as long as the holder of the capacity was responsible for paying the pipeline's regulated rate.

FERC's theoretical argument for price caps is that they prevent the exercise of monopoly power. FERC has not produced data on monopoly power and has not shown that a resale price cap is an efficient way to regulate such power. The argument for caps is weak everywhere. Even if the sole customer on a pipeline segment, a distributor with transport rights will have difficulty earning monopoly profits from their sale. (The pipeline will continue to receive only its allowable return.) For success, it must reserve capacity that it will never use and then dupe state regulators into believing that its expense was prudent. If it somehow succeeds in reselling the capacity at high prices, state regulators will pass the windfall through to its customers. The resale gives only a one-shot gain, after which purchasers can reallocate the space competitively. Other aspects of regulation render the withholding of capacity self-defeating. Generally, a pipeline must make unused firm capacity available for interruptible service. The more idle capacity a would-be monopolist acquires, the greater the reliability of interruptible service.

Between the 1960s and the 1980s distributors were constrained by state-imposed public utility obligations and buffeted by federal shortage policies beyond their control. With no customers but captives, they gained extensive experience as crisis managers and political actors. The experience left them ill-prepared for today's markets. The distribution plant on which they have a natural monopoly will remain in their hands—and regulated. The gas on which they once had an accidental monopoly will only be theirs to resell if they learn to compete in an increasingly competitive market. In that market they have few natural advantages.

As they did for the interstate pipelines, federal policies and market forces are transforming distributors. Large end-users in states without

distributor transport programs will press regulators to institute them, and they now can credibly threaten federally sanctioned bypass. Mirroring events at the federal level, states are fast losing the ability to cross subsidize. Bruce Henning, chief economist for the American Gas Association, asserted: "It's an increasingly competitive world out there, and rates have to reflect the value of the services being provided. . . . [C]ross subsidies are just not sustainable in the long run. People will be looking at what California does in great detail."

It looks as if California is duplicating the federal experience. In December 1992 state regulators approved capacity brokering for customers of distributors. The programs have gone into effect concurrently with capacity release programs on the interstate pipelines that reach the area. Two months later, state regulators facilitated a major

As they did for interstate pipelines, federal policies and market forces are transforming distributors. Large end-users in states without distributor transport programs will press regulators to institute them, and they now can credibly threaten federally sanctioned bypass.

geographic widening of competition by issuing an order that allows Southern California Gas Company to market its local storage facilities to users outside California. Non-Californians can inject gas into SoCal's facilities during offpeak periods. In peak periods, they can use SoCal's upstream pipeline capacity to transport their own purchases, while Southern California draws on local storage to meet its needs. A California distributor thus competes with interstate pipelines in the market for storage and hence produces a more efficient year-round utilization of pipelines in the bargain.

The future holds potential problems, but relative to those of 1978, they seem almost trivial. Order 636 contains two major shifts of wealth that Congress might nullify. First, it allows pipelines to roll the transition costs of restructuring into their rates, and some pipelines have put their costs such as reformulating contracts in the hundreds

of millions. Second, the move to straight fixed-variable rates will raise the gas bills of many low-load-factor residential customers. Rep. Mike Synar has announced his intention to hold hearings on the impact of Order 636 as soon as he has received a report on it from the General Accounting Office. More ominously, recent resignations at FERC have left President Clinton with four vacancies (of five seats) to fill. The law, however, states that no more than three commissioners can be of the same party.

On the supply side, Texas, Oklahoma, and Louisiana recently instituted prorationing of gas production—for the same mix of conservation and economic reasons that supported oil prorationing for so long. Although ultimately excluded, provisions to prohibit state gas prorationing almost wound up in the 1992 energy bill. In any case, prorationing may have little effect on prices over

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the long run. The prorationing states account for less gas than before, as production shifts to the Southwest, the Rockies, and Canada. The Clinton energy program favors increased gas use but also proposes broader and more stringent limits on drilling. Offshore wells now produce 25 percent of the nation's gas. If the dilemma is not dealt with, the United States may find itself dependent on imports from Canada.

Where Did We Go Right?

Economists have often noted how difficult it is to regulate only one market in a competitive system. As the shortages spill into related markets, regulation must expand. Gas presents the obverse. If the strain on a single market in a regulated system becomes unbearable, it will be hard to deregulate that market alone. Had we bitten the bullet and kept the wellhead market at shortage prices, the regulation of the 1970s might well still be with

us. It could probably have dealt indefinitely with production shortages and curtailments of supply to resale pipelines and distributors.

Instead, the pipelines misread the markets of the late 1970s and early 1980s. Believing that shortages would be perpetual and that they would always be able to pass on their costs, the pipelines signed take-or-pay contracts at outrageous prices. Threatened with insolvency because demand turned out to be elastic, they got regulatory relief in the form of special marketing programs. Even after *Maryland Peoples' Counsel* invalidated the programs, the old regime might have limped along. FERC could have told the pipelines to eat their take-or-pay exposure (which producers had always argued was overstated) and allowed some to go bankrupt or to be acquired. Instead, the commission issued Order 436 and reinvented the industry.

There is little question that pipelines should always have been transporters rather than resellers. A 1935 FTC report on them said so, and as the market grew, the case became stronger. Although the *Associated Gas Distributors* decision discussed the legal issues in detail, the court was clearly concerned with the efficiency of Order 436. Had Judge Mikva rather than Judge Williams been in the majority, he might have invalidated the order because it might redistribute in the wrong direction. Although Orders 436 and 500 abrogated certain contracts, in both cases the courts used efficiency arguments to rationalize their intrusions. Whether regulation actually compelled the parties to write the terms they did, the apparent deference to markets was noteworthy.

Order 451 presents a more problematic overreach. Here, FERC reclassified and deregulated gas that Congress clearly meant to keep regulated. The commission claimed that it was obeying the Natural Gas Act's requirement that it set "just and reasonable" prices. A different FERC might have found it just and reasonable to lower the price of uncontrolled gas in the interest of justice. When the Supreme Court upheld Order 451, it essentially approved a refusal to regulate. Twenty-five years earlier, the *Phillips* Supreme Court said that the Natural Gas Act compelled the FPC to regulate wellhead prices. The courts that have ruled on distributor bypass have favored FERC, but Judge Mikva might not have, if his dissent in *Associated Gas Distributors* is relevant. A redistributionist FERC might have issued a very different Order 636—or none at all. The commission could have

argued that since pipelines had always been resellers to distributors, their advantages should continue, or that straight fixed-variable rates should not be instituted because they hurt widows and orphans.

In important ways the friends of competition got lucky this time, particularly in the courts. Few proponents of limited government complained about judicial overreach when it favored competition. What happened at FERC is more encouraging. Bipartisan as a matter of law, it issued every important order in this episode unanimously.

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Individual commissioners sometimes concurred in part or dissented in part, as one might expect, with orders that were 200 pages long. But they all seemed to listen to the economic parables of competition and efficiency, as retold in the strange context of the gas industry. (For those who want to look, FERC staff's study of Order 636 contains "consumer surplus" diagrams.)

Unlike many other times, economists were taken seriously, in large part because their understanding of the industry and its regulation allowed them to present practical rather than mathematical arguments to the commissioners. Academics

have a long history of complaining that the regulators never listened to them and have invented theories of regulation to explain why. The theories were often just "public interest" theories with the algebraic signs reversed. The regulators had good reason not to listen to us reread our textbooks to them: they had real industries to deal with. Many price theory textbooks use the pipeline as an example of natural monopoly. None ever discusses how space in a pipeline might nevertheless be allocated competitively. The University of Chicago and public choice literatures on regulation are necessary antidotes to fables of an economist-king who can cure "market failures" by fiat. But the case of natural gas points out something else. At the margin informing real regulators with economic ideas might make a difference.

Selected Readings

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