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# Turning up the Heat in the Natural Gas Industry

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**T**he natural gas industry has undergone revolutionary changes over the past 10 years. These changes engendered a more competitive and consumer-oriented natural gas industry. But more needs to be done.

Most of the reforms in the industry, up until now, have centered on the wellhead and pipeline sectors. Future reform activities will focus on the retail or local gas distribution company (LDC) level.

The major premises outlined in this article are that to increase consumer welfare, (1) competition in the natural gas industry needs to advance further; and (2) regulation, where it is still justified, needs to adapt to new market forces. The development of a more competitive marketplace, in turn, requires major reforms of the LDC sector. These reforms should include state regulators giving LDCs more pricing flexibility, providing LDCs with stronger incentives for efficiency,

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and comprehensive unbundling of LDC services. Probably most important, reform should also encompass deregulation of those services with competitive features.

The second premise carries a definite message to state public utility commissions (PUCs): *look closely at the new gas market and decide what form of regulatory control, if needed, best accommodates market forces.* Regulatory rules should “move in line” with extant market forces by becoming more responsive to customers. Optimal regulation, in terms of maximizing the long-term interests of consumers, is almost impossible to determine even in theory. Nevertheless, we can safely say that in view of the ongoing changes in natural gas markets, continued support for existing regulatory rules is highly suspect.

The current thinking throughout most of the world is that markets work better than regulation in protecting consumer interests. Most analysts would agree that imperfect markets on occasion require regulatory oversight. Recent experiences in the United States and elsewhere, and new scholarly studies, however, caution that

government intervention in imperfect markets often produces worse economic outcomes.

At the beginning it should be recognized that market forces in the natural gas industry are robust and are unlikely to stop at the city gates. Some observers of the natural gas industry have argued that competitive conditions in the retail or LDC sector are unlikely to develop as much as they have in the wellhead or even pipeline sectors.

This article argues that this is a false premise. Competitive forces can be as vigorous in the retail sector as they are in the pipeline sector. In the years ahead, much can be done to create new competitive forces in the retail gas sector. Competitive conditions in most components of the retail gas sector, in fact, are inevitable and in the best interests of all consumers.

This article will, among other things, identify some future developments at the LDC level that run parallel to a more competitive natural gas industry. These pro-competitive developments, whether or not they are championed by state regulators, represent a natural outgrowth of advancing market forces in the natural gas industry. They will inevitably change the modus operandi of state public utility regulators.

This article is organized around seven questions pertaining to where the natural gas industry is and should be heading and the implications for future developments in the industry.

Brief responses to seven questions regarding past and future developments in the natural gas industry follow. We also discuss several features of a competitive retail gas sector.

### **What Has Happened over the Past 10 Years?**

The natural gas industry has recently undergone three phases of restructuring and reform. The first was wellhead deregulation. In response to natural gas shortages in interstate markets, Congress passed the Natural Gas Policy Act of 1978. The act called for the phase-out of wellhead regulation. Total deregulation of wellhead gas was completed by January 1, 1993.

Pipeline reform started in 1984 when the Federal Energy Regulatory Commission (FERC) issued Order 380. This order eliminated the variable-cost component of an LDC's minimum bill requirements. This made it economically feasible for many LDCs to switch gas suppliers. Shortly afterwards came orders 436 and 500. Order 436

### **PRO-COMPETITIVE DEVELOPMENTS IN THE NATURAL GAS INDUSTRY OVER THE PAST 10 YEARS**

- Erosion of pipeline/LDC market power
- Unbundling of gas services
- Bypass opportunities at the LDC Level
- More flexible, market-oriented prices
- More purchased gas choices by LDCs
- Development of spot and futures markets

allowed for voluntary open pipeline access in return for a blanket certificate to transport third-party natural gas. Order 500 required gas producers to credit against a pipeline's take-or-pay liability any natural gas transported for them.

As a final federal regulatory reform, the Federal Energy Regulatory Commission's Order 636 was issued in 1992. The order prohibited pipelines from providing bundled gas service; established a capacity-releasing program; redesigned pipeline rates on the basis of the straight fixed-variable methodology; and generally gave transport customers nondiscriminatory rights to the pipeline network. Order 636 will stimulate competition in the natural gas industry down the pipeline to the distribution level.

At the retail level, reforms and restructuring have thus far occurred on a piecemeal basis. For example, state commissions have allowed LDCs to offer unbundled transportation service to large customers; occasionally to provide flexible pricing in competitive markets; and to engage in other competitive activities. More comprehensive reform of the retail sector will soon follow. Up until now, we have only seen the very beginning of LDC restructuring. The key question facing LDCs is: How far will competition penetrate the retail gas market? Our response is, "very far."

### **What Have Been the Results?**

By most indications, performance in the natural gas industry has improved dramatically over the past 10 years or so. From 1984 to 1993 the wellhead price declined by 24 percent. Natural gas

prices have fallen from their mid-1980s levels to the point where retail gas consumers cumulatively saved as much as \$100 billion. During the period 1984 to 1993 the average retail price of natural gas declined by 16 percent.

The pipeline and distribution sectors have experienced significant improvements in productivity as well. During the period 1984 to 1993, for example, labor productivity in these sectors improved by 24 percent, and operation and maintenance expenses per unit declined by 18 percent.

One conspicuous outcome since the mid-1980s has been the decline in the retail price of gas for large customers relative to small customers (for example, residential and certain commercial customers). Wellhead gas prices have decreased more during nonwinter periods, which disproportionately benefits customers with high load factors (e.g., industrial customers), and the prices of transmission and distribution services have fallen more for large customers, such as industrial and electric utility customers. During the period 1984 to 1993, for example, residential customers benefited from a 12 percent decline in the real price of transmission and distribution services, while industrial and electric utilities enjoyed 63 percent and 55 percent declines, respectively.

Whether the movement of gas rates in this direction reflects an undesirable outcome is debatable. It may simply reflect gas service providers' price discrimination in favor of price-elastic customers. With more competition and regulatory flexibility, providers would be expected to have a greater inclination and ability to price on the basis of market conditions. With large customers having more market choices, it is not surprising that they were able to enjoy larger rate declines. Overall, this pattern of gas rates has probably improved economic efficiency: it reflects the pressures placed by market forces to reduce the size of extant cross-subsidies. As of 10 years ago, large customers were subsidizing other customers. The changed pattern of retail rates since that time represents a movement toward cost-based rates. The general impression of industry observers is that industrial customers were subsidizing other customers. Unlike the cases of the telecommunications and electric power industries, there has been little formal study of this issue.

In any event, there is a legitimate concern that

small retail customers, relative to other gas customers, may have received too few of the benefits from the recent reforms in the natural gas industry. One can argue that this phenomenon is the typical pattern in public utility industries encountering major restructuring—large customers receive most of the benefits during the initial years, while a broader group of customers has to wait longer. The dispersion of benefits across all gas customer groups will necessitate a more broadly competitive retail gas market than what currently exists.

### **Where Are We Now?**

Until competition in the retail sector is fully developed, we can say that the natural gas industry is in a transition period. During this time, state regulators and legislatures will have the task of setting in place rules and policies that will ultimately produce a more competitive and efficient natural gas industry.

As a policy matter, regulators should pay more attention to expanding market opportunities for small retail customers. This would accelerate the flow of benefits from competition to those gas customers who up to now have received less than their fair share. Whether these customers will benefit from Order 636 restructuring in the immediate future is highly questionable. Pressure to increase the rates of small retail customers will come from the straight fixed-variable pipeline rate design, pipeline transition costs, and the inclination of LDCs to price-discriminate in favor of large customers in a less-than fully developed competitive environment. Small customers would benefit directly from reforms if they acquire greater rights to make choices and receive protection from the LDC's revenue losses in competitive markets (which under traditional state regulation an LDC could recover from its base customers). Two ways to protect small customers from competition in other markets include deregulating those markets and severing the linkage between the revenues earned in competitive markets and the rates charged to regulated customers in noncompetitive markets. Price-cap regulation, for example, can achieve the second outcome. By pressuring LDCs to become more cost conscious and customer oriented, state regulators can do much to help small customers. State regulators can best do that by expanding the scope of market forces in the retail gas sector.

It is important to consider how fast retail reform should occur. One view is that reform should move slowly and incrementally. From a typical state regulator's perspective, this may seem like the appropriate course of action. After all, as a general rule, doing nothing or doing the minimum may be less risky than doing something significant and being wrong. In addition, if a major change is warranted, an expected reaction by state regulators may be to let others do it first. In other words, it may be easier for a state regulator to be a follower than an innovator. This would hold true especially when the outcome of a major action is highly uncertain.

A more rational position is that proceeding too slowly and incrementally carries a high social cost. Why procrastinate when significant change is inevitable? Consumers could be deprived of large benefits from increased competition. Such benefits include lower-priced gas services and a wider selection of services. Besides, from their self-interested perspective, if regulators wait too long, market forces and lawmakers will "call the shots." Regulators will then have little control over the future.

Under an accelerated-reform posture, regulators cannot and should not "fine-tune" change. Guiding market forces in a particular direction is futile. Rather than trying to "fine-tune," regulators should instead recognize that their primary job in the new environment is rapidly and expeditiously to accommodate emerging market forces.

### Where Should We Be Heading?

Congruent with a more competitive retail gas sector, fundamental changes are required. These changes revolve around three themes:

- *Retail gas customers should have a wide array of services from which to choose.* Customer choice requires rate/service unbundling and customer access to new services.
- *LDC services that have competitive features should be deregulated.* Competitive markets effectively substitute for regulation in protecting consumer interests.
- *The long-held "regulatory compact" and command-and-control regulation should undergo a transformation.* Little support should exist for current regulatory rules, including the regulatory rate-making paradigm itself, in view of the transformed gas markets.

### What Path Should We Take?

State regulators and other policymakers can endorse one or more of four paths to the future. These include: the status quo; stricter enforcement of command-and-control regulation; market-accommodating regulation for noncompetitive services; and deregulation.

The first path, the status quo, is ill advised and highly unlikely to be sustainable. Doing little or nothing is simply not acceptable in the unprecedented, fast-moving gas market. Such a policy can inflict large economic losses on market participants, including retail consumers and LDC shareholders. Besides, it is self-defeating to regulators. Regulators should have a direct stake in improving economic efficiency. After all, economic efficiency potentially translates into economic benefits to all stakeholders. Why would regulators not want to assist these stakeholders, who comprise what is commonly referred to as the "public interest"? Sticking with old regulatory rules and policies that may have worked reasonably well in the past is a sure recipe for disaster.

Regulators can also better guide change if they are willing to adapt to new conditions. The history of regulated industries has consistently shown that major economic malfunctionings caused by regulatory activities tend to be unsustainable under competitive conditions or when major stakeholders suffer large economic losses. Market forces tend to correct for such outcomes by placing a great deal of pressure on regulators either to reform or bear the political consequences.

The second path, stricter enforcement of command-and-control regulation, should be immediately discounted. It clearly moves regulation in the wrong direction. One can easily argue that regulatory activities, such as integrated resource planning and regulatory preapproval of an LDC's activities, run contrary to the tenets of a competitive market. As their major flaw, they shift risks to consumers and directly place regulators in the role of secondary managers. Regulatory preapproval that includes assured cost recovery creates what economists call a "moral hazard" problem; an LDC would tend to shirk its responsibility to minimize costs, thereby being indifferent to the ultimate outcomes of its decisions. It can be argued that as a general rule, the risks of decisionmaking should fall upon those making the decisions—in this case, the LDC.

Stricter enforcement of command-and-control

regulation also requires regulators to have access to better information. In a dynamic natural gas market it becomes especially difficult, if not impossible, for regulators to obtain information that they can correctly interpret and apply in the public interest.

Regulatory-preapproval-type actions also tend to give an LDC the incentive to stay too long with a previous decision. As new market conditions evolve—and they certainly will in the gas market—an LDC may take the safe course by sticking to a decision for which the regulator previously gave his blessing. In the new environment, it has become essential for an LDC to adapt in a timely manner to changed market conditions. Failure to do so can inflict great harm on consumers and LDC shareholders.

The third path, market-accommodating regulation, has much merit as a transitory mechanism. It recognizes that regulation, in serving the public interest, must be geared to the market environment within which a utility operates. In the competitive gas market of the future, LDCs will need to respond quickly to new conditions. Flexible pricing (e.g., contracting, discount pricing), as well as pro-competitive incentives, should be the hallmarks of future regulatory control.

The path of deregulation recognizes that some of an LDC's unbundled services can be sold in a competitive environment. Before deregulating, policymakers will first want to make sure that competitive conditions exist. Over the long term, deregulation offers the greatest benefits to natural gas consumers. Based on the historical experiences of other industries undergoing transformation, many of an LDC's unbundled services are likely to be more competitive than is commonly assumed.

In sum, a combined regulation/deregulation path represents the superior course of action over the next several years. Reformed regulation entails departing from command-and-control regulation and moving toward relaxed regulation, allowing LDCs more flexibility, while giving them more responsibility.

### **What Specific Reforms Are Needed?**

Consistent with strengthening pro-competitive forces, several actions can be taken in the retail sector. The following measures should improve the overall economic performance of the retail

gas markets in a direction that disperses the benefits of competition across all gas consumer groups.

**Further Unbundling.** Pressures for gas service unbundling will escalate, since customers want the lowest-priced services. Unbundling would improve economic efficiency by allowing customers more choices, encouraging the entry of efficient gas-service providers, and ending or at least making it difficult to continue with existing cross-subsidies and inefficient rate designs. Unbundling could also prevent self-dealing abuse, in which the LDC would favor its own gas suppliers. On the down side, unbundling can be problematic if it opens up competition while anachronistic pricing, obligation-to-serve, and other rules remain in place. Unbundling should, therefore, involve addressing an array of questions that lie at the heart of public utility regulation. If one takes a pro-competitive stance, then it is clear that further unbundling of LDC services should pass, and the sooner the better. Service unbundling should include services provided to residential and other small customers.

**Deregulation of Competitive Services.** Competitive services include those unbundled services—for example, gas purchasing, storage, balancing, and back-up—that a customer can purchase from the LDC, pipelines, marketers, brokers, or other providers. Some gas customers can quickly and at low cost substitute other sources of energy for natural gas. For such customers, little reason exists to regulate any gas services, whether unbundled or bundled. This argument pertains to delivery and other natural-monopoly services as well. If regulation of such services continues, at the minimum, it should be market-accommodating and flexible. Most gas customers are unable to substitute for natural gas in the short term. Nevertheless, if certain unbundled gas services they demand can be acquired in competitive markets, those services should be deregulated as well.

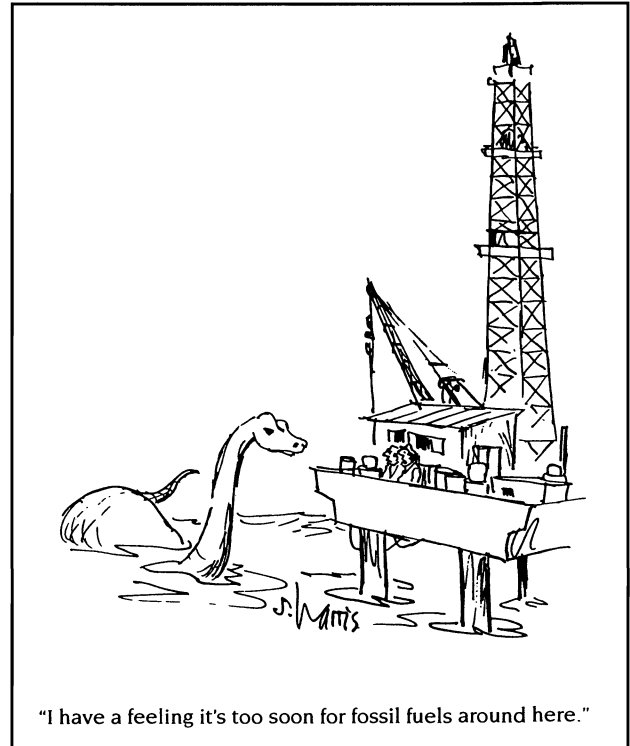
We can not necessarily infer the minimum degree of regulatory protection from the required firmness of gas service. A widely held view is that those customers demanding firm service need stringent regulatory protection. But that is erroneous. For consumers who require on-demand service, the market can readily accommodate reliable and reasonably priced service as long as those customers have a choice of service providers. Even residential consumers may need

little regulatory protection (e.g., safety), with the possible exception of LDC delivery services and other natural-monopoly services. At a minimum, deregulation requires that those consumers have the opportunity to deal with market intermediaries for the purchase of needed unbundled services.

**LDC Offering of Repackaged Services.** An LDC should be allowed to compete directly with other service providers in its franchised area by combining various gas services into a single package. Repackaging should be conditional on the other providers receiving nondiscriminatory access to the essential facilities controlled by an LDC. LDCs should also be prohibited from erecting other barriers to discourage or drive out potential competitors. Therefore, as a requirement for an LDC to offer repackaged services, potential competitors must have a fair opportunity to sell their services within the LDC's franchised area. The repackaged services that have competitive features should be unbundled and deregulated.

**Market-Based Integration of Energy Services.** One option that takes into account the integration of energy services is to allow regulators to set strict rules and make decisions on the basis of a process called "Integrated Resource Planning." Such an option, which has become popular in recent years, runs counter to the operation of a competitive market because of its similarity to centralized or prescriptive planning. In lieu of Integrated Resource Planning, the proper mix of different energy usage can be derived from two sources: (1) energy brokers performing an "arbitrage" function; and (2) economically efficient pricing. For example, the seasonal pricing of both electricity and natural gas should help make natural gas cooling economical to more customers. As a pro-competitive policy, prices for different forms of energy should give consumers the correct signals for making choices respecting energy mix. Regulators should also encourage the entry of energy brokers, who can provide a wide array of gas services at competitive prices.

**Performance-Based Regulation.** Command-and-control regulation will become less attractive as competition fully develops in the retail gas sector. A new rate-making model, known as "Performance-Based Regulation," can more efficiently control prices of those services not yet supplied in competitive markets. Several kinds of Performance-Based Regulation mechanisms



exist. Currently, most such mechanisms for LDCs are the partial kind, applied mostly to gas procurement, capacity brokering, demand-side management, storage, or service quality.

In the future, Performance-Based Regulation mechanisms for LDCs should increase in number and expand in scope as the industry moves toward greater competition. They are likely to include profit-sharing plans and price caps. These mechanisms will feature pricing flexibility, more risk-shifting to LDC shareholders, compensatory profit opportunities for LDCs, and multi-year price reviews. Such features are compatible with a more competitive marketplace. State regulators are more favorably inclined toward a PBR mechanism that makes political sense. In other words, an acceptable mechanism would allow an LDC to make more money, while benefitting gas consumers.

**Customer-Oriented Investment Strategies.** An LDC's investment strategies should focus on the consumer. Under such strategies, the decision to add new capacity will be dictated by the expected value to consumers. In a competitive environment the reliability or firmness of gas service will depend more on the value that consumers place on different levels of reliability. Under this "bottom up" approach to investment

strategies, pricing and market incentives become cardinal factors. Overall, customer-oriented strategies incorporate flexible, market-based rules accommodating both competitive forces and the demands of individual customers.

Two major outcomes from this pro-market strategy paradigm will emerge. First, capital investment costs will be limited by what consumers are willing to pay for various LDC services and products. Second, demand-side management services will be regarded as stand-alone services: the LDC will provide such services only if the targeted customers place a higher value on them than what they cost the LDC. This implies that such activities will not be subsidized by customers as a group, but rather, paid for by direct beneficiaries.

**Pricing of Unbundled Services.** When an LDC offers unbundled services, it should price each of the services in a profitable manner. It becomes important both for regulators and the LDC that the cost of those services not subject to competitive pressures should be measured. As a primary objective, regulators would want to assure consumers that the prices of noncompetitive, unbundled services correspond closely to costs, or at least do not deviate significantly from costs. For commercial viability, an LDC itself would want to make sure that prices do not fall below costs; otherwise it could suffer financial losses if customers exploit those unbundled services priced below cost.

Prices of competitive unbundled services will move toward marginal costs or market-based levels. In conveying the proper price signals to consumers, an LDC will place greater emphasis on load management, as well as seasonal, time-of-day, real-time and quality-of-service pricing. One expected outcome is a fixed-variable rate design that efficiently communicates to consumers commodity rates corresponding to marginal cost. A fixed fee or reservation charge will recover those fixed costs not recovered through the commodity rate.

### What Are the Challenges for PUCs?

A more competitive natural gas industry will demand a new role for PUCs. They will face questions and challenges unprecedented in state regulation of LDCs. Compatible with a pro-competitive policy, PUCs should enhance market forces in the retail gas sector. These forces

### PRO-COMPETITIVE DEVELOPMENTS IN THE RETAIL GAS MARKETS

- Further unbundling of rates and services
- Deregulation
- Market-based energy integration
- Efficient rate design
- Flexible rate-making paradigm
- Customer-oriented investment strategies

should improve economic efficiency, promote fairness, maintain or improve service reliability, and increase overall social welfare. For example, competitive pressures should induce more efficient rate design and least-cost operating and planning decisions.

To achieve these various goals in the new world of competition, PUCs must:

- assure that all retail gas consumers benefit from competition;
- accommodate competitive forces;
- reassess the desirability and ability to advance certain social goals through subsidies;
- promote "fair" and efficient competition;
- identify competitive and noncompetitive services and markets; and
- find the "proper fit" for regulation in the new market environment.

Most state public utility commissioners seem to concede that changes are necessary, given the ongoing trends in the public utility industries. At a recent meeting cosponsored by the National Regulatory Research Institute and the National Association of Regulatory Utility Commissioners, the commissioners largely agreed that they needed to revamp their mission, internal organization, and processes. Whether they will actually support and execute the necessary changes, of course, is another matter.

### Conclusion

Over the past 10 years the natural gas industry has made major strides toward becoming more competitive, customer-responsive, and economically efficient. This trend needs to continue in the retail sector. The ball is now in the hands of

the LDCs and PUCs.

Restructuring and reform of the retail gas sector should include fundamental changes in how LDCs operate their systems, plan for new capacity, and price their services. Regulators will play a crucial role in sanctioning new pricing and planning rules, new incentives, and new rules for promoting competition.

In the future, regulators should pay more attention to the welfare of small retail customers. These customers should have the same right as other customers to benefit from a competitive natural gas industry. Although they will likely see small economic gains over the next few years, all customers should ultimately benefit from a more efficient and customer-responsive natural gas industry.

Finally, PUCs should reassess their mission, practices, and policies. The public utility industries have changed radically. There is no reason why regulation should not also.

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