WHAT CAN WE EXPECT FROM RESTRUCTURING IN NATURAL GAS DISTRIBUTION?

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I. INTRODUCTION

In the 1980s, the Federal Energy Regulatory Commission (FERC) restructured the interstate natural gas pipeline business. Various services were deregulated. Open access transmission and some service unbundling was required, and pipelines were taken out of the wholesale merchant function. Perhaps most importantly, billions of dollars in existing commitments to buy natural gas were reformed with pipelines and producers splitting the bill to fund a substantial rate reduction for consumers.

Today, deregulation and unbundling of services provided by electric utilities is well underway. While the final shape and scope of this effort is still to be determined, substantial progress has been made, both in efforts by the FERC to introduce competition at the wholesale level (primarily through ensuring access to interstate transmission) and in various state regulatory commissions. Electric markets have seen a host of new institutional mechanisms—e.g., power exchanges (PXs) and independent system operators (ISOs)—supporting both wholesale and retail competition.

The next target for deregulation efforts likely will be natural gas distribution,[1] the retail end of the gas business. The manner of deregulation and restructuring that occurs here is of interest for several reasons. First, natural gas distribution is a large industry that reaches one way or another into most households. Over 50% of the households in this country use natural gas directly.

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1. For ease of exposition, we employ the term "distribution" throughout this paper in a general sense. It is used to include not only transport of gas through low pressure pipes (the narrowest definition of the term), but also a variety of other services—e.g., merchant supply, storage, balancing, metering, and some high-pressure transmission—that integrated utilities often provide. The various services collectively comprising distribution (broadly defined) are identified in Section II of this paper. A primary focus throughout the remainder of the paper will be on the question of which of these additional services should be unbundled from the core transport service.

Most of the remainder use electricity, the costs of which depend on what happens in retail natural gas markets. Given this dual functionality, deregulation of the natural gas industry may be every bit as important to our economy as electric deregulation.

A second reason that natural gas deregulation is interesting is that its form is uncertain. Prior experience with interstate gas pipelines and electric utilities presents different models for restructuring, running the gamut from comparatively modest rule changes implemented in a piecemeal fashion (pipelines), to a comprehensive one-time restructuring of ownership and operations (electricity).

There are good arguments that the restructuring effort in gas distribution might (and should) follow either direction. For instance, one might suppose that deregulation in gas distribution will amount to little more than an effort to take changes made years ago at the interstate pipeline level and move them downstream. This would entail retail unbundling of transportation and commodity, corporate separation between a local distribution company's (LDC) transportation and merchant activities (spelled out in Order 497-style Codes of Conduct), and open access provisions designed to ensure that would-be merchant competitors could offer a delivered product on an equal competitive footing. After all, gas is gas. What was good leading up to the city gate ought to work just as well on the other side.

At the same time, restructuring and deregulation for interstate pipelines was always a reactive process, yielding a series of Orders addressing whatever narrow problem seemed most serious at the time. It seems clear that the FERC was unsure where it would end up seven years later with Order 636 when it first abolished minimum bills in 1985. Having observed this process, and knowing more today about where we want to end up, we find it hard to resist the conclusion that there is a better way to get there.

Electric deregulation has proceeded differently with respect to both substance and process. Regulatory jurisdictions across the country have plans for large-scale reform. These top-to-bottom efforts to design competitive markets have spawned a whole new regulatory alphabet—ISO, PX, transmission company (TransCo), and the like. The sense of empowerment created by this most recent restructuring experience might be expected to carry over into the deregulation of gas distribution. If this latest effort can be understood to reflect the "state of the art," perhaps we should expect to see a much more extensive restructuring of the rules, asset ownership, and operation in gas distribution than interstate pipelines experienced several years ago.

This article presents the view that a combination of pre-existing market development, gas prices that are already to a great extent market-based, mixed results under the electric model, and a touch of political burnout from the electric experience spell modest changes for the gas distribution industry. Significant reform of the gas industry—in particular, interstate pipeline transportation and wholesale trading—has already occurred. The task for gas distribution is now to integrate the existing, highly competitive markets for upstream services into choices faced by downstream distribution customers.

As will be discuss below, rule changes can do that. Substantive reforms in gas retail markets are not needed. In the initial restructuring inquiries for gas

distribution in California, one of the first states to go through the process,[2] this is just what has happened. The good news is that the already overwrought regulatory vocabulary need not be further strained by the creation of new organizations or institutional mechanisms for creating competition. The bad news is that gas and electricity markets, which are so closely related both as competing energy sources and as input and output, may suffer occasional friction caused by the different approaches to restructuring. And while it is possible that some overarching plan for coordinating reform plans within both gas and electric retail sectors may ultimately emerge, for the time being the restructuring process is very clearly animated by a spirit of experimentation. Incremental adjustments in behavioral rules, not large-scale structural reform, will be the order of the day.

One additional factor argues for modest reform. The impetus for change within the gas distribution sector is very different from that which drove previous reforms of interstate pipelines and electric utilities. In interstate pipelines and electric utilities, the driving force for change was embedded costs for supply (and, by extension, rates) that greatly exceeded then-current market alternatives. This created a strong advocacy for reform (i.e. consumer representatives) and, because of the potential that large existing investments might be stranded by any reforms, the undivided attention and commitment of most utilities.

Things are different today in gas distribution. For the most part, the commodity and storage components of gas distribution rates today do not exceed market alternatives. The process of reforming the retail gas sector is not primarily about reducing customer costs.[3] Indeed, the process appears to be driven less by the perception of an existing problem and more by the identification of opportunities for improving customer welfare by introducing products and services outside the boundaries of the traditional regulated distribution business. There is strong advocacy for this sort of reform (consumers do not seem to be aware of or much concerned about services they may be missing out on). There is no impassioned opposition. The prospects for stranding assets are limited compared with prior restructuring efforts. The impetus for change has come primarily from companies that envision a world of energy convergence and greatly expanded opportunities for new and highly valued services to existing LDC customers.

The importance of drawing a clear distinction between promoting competition and promoting competitors will be more critical in this process than it had been before. Deregulation in gas distribution will be much more competitor-driven than the prior deregulation efforts. While this is not to say that the arguments for change are invalid, it does call for heightened skepticism and caution concerning claims of competitive benefits. The challenge will be to sort out proposals that promote competition from those that act instead to promote competitors at the expense of true competition.

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2. In addition to its position as one of the first states to experiment with—and begin implementing—reform of the gas retail sector, California, because of its size and its general status as a leader in regulatory reform (reinforced by its recent restructuring of the power sector), provides useful evidence on the approaches to reform likely to be employed by other states.

3. Of course, as discussed in later sections of the paper, there is potential for cost savings through more efficient use of resources in the provision of several services. The key point is that, in this instance, it appears that other factors predominate.

The full discussion of these issues will begin in Section II with a description of the current state of the gas distribution sector, focusing primarily on characterizing the primary services provided by a typical LDC. Section III describes the motivation for reform and its implications for the reform process. Section IV identifies the critical economic issues associated with different types of deregulatory efforts. Sections V through VII describe recent domestic experience, first through a broad overview of activity throughout the country, and then through a more detailed review of the Georgia and California processes. The article concludes with an assessment of how future deregulatory efforts are likely to develop.

II. COMPETITION AND REGULATION IN GAS DISTRIBUTION TODAY

Gas distribution, as we employ the term throughout this paper, consists of a combination of services bundled within a single commercial transaction. These services are generally organized within four categories: (1) local transportation and delivery service (through low-pressure pipes); (2) storage service (serving several different functions, discussed below); (3) merchant service (the location, aggregation, and purchase of commodity gas for resale to customers); and (4) revenue cycle services (metering and billing for the other services).

These services are provided to two traditional customer classes. The first class is residential and small commercial customers (referred to here as "small" customers). These customers typically purchase gas for cooking and space heating, vary their purchases according to weather, and even on cold days, buy modest volumes. The second class includes large commercial and industrial gas users as well as electric generators (referred to here as "large" customers). These customers typically use gas as an input to the production of final products, buy gas in large volumes, and have purchase patterns that may or may not vary with weather (depending on demand for the final products).

The mix of regulation and competition existing in gas distribution today differs for the different component services within gas distribution and according to customer classes.

A. Local Transportation and Delivery Service

Transportation and delivery (T&D) services are typically handled by franchised utilities. As a result of scale economies, gas transportation systems tend to be natural monopolies. There is generally a single system serving each local customer area (usually a city or metropolitan area). While these systems face some competition from the threat of bypass projects, the scale requirements necessary to make these projects economic generally limit their availability to either the largest customers or large clusters of adjacent customers.

The natural monopoly transportation systems are subject to regulation. In some areas, they are regulated by the local municipality. In others areas, state utility commissions are responsible. Rates for the transport service are typically under a cost-of-service approach (i.e., establishing rates to provide compensation for all prudently incurred costs, including the cost of capital). In some areas, performance-based ratemaking (PBR), which provides improved financial incentives to the LDC, is now being employed.

Despite some recent fine-tuning in the price-setting mechanisms, the need for regulatory treatment of the T&D service is not under debate. Regulation has been required in the past to prevent the exercise of market power; nothing has materially changed that fact today. Regulation will, and should, continue for T&D service.

B. Storage Service

In many cases, regulated distribution utilities own and operate storage facilities connected to the transport system. According to a report submitted to the American Gas Association (AGA), LDCs own 34% of underground natural gas storage in the United States, though they contractually control a larger portion (estimated at 80%).[4]

Depending upon the design of the transport network and the nature of local market demand, storage facilities can perform several functions. First, storage can substitute for expanded delivery capacity upstream of the storage facility, effectively becoming part of the distribution system's peak-day delivery capacity. For instance, a distributor serving a market area with highly seasonal demand might receive a steady flow of gas year round, putting much of that flow during low-demand months into storage and then using storage withdrawals in combination with upstream supply to meet demand in peak months. By using storage this way, the distributor can purchase less peak-day pipeline delivery capacity to bring gas to the distribution system. In this case, storage serves as part of the distribution system's peak-day delivery capacity.

Second, storage can potentially be used for load balancing. The planning difficulties associated with precisely matching deliveries of supply to the distribution system with deliveries from the system to customers create a market demand for flexibility. Storage allows for imbalances between system deliveries and receipts to be quickly reconciled. Excess demand on the system can be "balanced" with storage withdrawals. Excess supplies are balanced through injections. System users can rely on this balancing capability rather than pursuing the difficult task of pre-arranging and managing system deliveries to match short-term fluctuations in usage.

Third, storage is used for price arbitrage. There are seasonal patterns in market prices for natural gas, higher in peak winter months and lower in the summer. There are also temporary movements in gas prices, both up and down, that occur as a result of facility outages, unusual weather patterns or changing expectations about future gas market conditions. For these short-term price movements, as well as longer seasonal fluctuations, gas buyers and sellers use storage to buy gas at one price level and hold it in hopes of resale or consumption at more favorable prices.

The two different customer classes typically use storage for different purposes. Small customers utilize storage that facilitates peak delivery; they typically buy more gas during peak demand periods. Merchants buying gas on their behalf also use storage for seasonal arbitrage and less frequently for short-term

4. INTERNATIONAL GAS CONSULTING, INC., EXAMINING NATURAL GAS STORAGE FOR LOCAL DISTRIBUTION COMPANIES, report submitted to the American Gas Association (May 3, 1998).

price swings. Large customers use storage for arbitrage and load balancing, not typically as a peak delivery mechanism.

Today, most LDC-owned storage is considered part of the distribution system and regulated along with rates for the transport service. Regulated storage rates may or may not differ by customer class and are usually cost-based. Storage rates for load balancing and peak delivery of gas for customers on the distribution system are usually bundled with the distribution charge. Storage used by customers off the distribution system for arbitrage is often billed as a separate storage service under its own tariff.

Storage service presents an opportunity for structural and/or regulatory change to enhance competition. There are competitive alternatives for at least some types of storage service. That is clearly so for arbitrage. In addition, customers can perform price arbitrage through use of a variety of financial instruments and contractual arrangements with producers that effectively turn them into financial counter-parties. These alternatives may not provide a perfect substitute for every distribution customer turned arbitrageur, but, on the whole, they exert considerable competitive discipline.

To some extent, competitive alternatives also exist for load balancing. Customers can sometimes balance their loads using off-system storage, market hub services, or supply contract flexibility[5] to accommodate short-term discrepancies between supply and demand. The effectiveness of these alternative mechanisms is sometimes limited by differences in the nomination schedules of utilities, their upstream suppliers, and off-system competitors. Transportation bottlenecks between off-system storage locations and those located on the distribution system can also limit competitive substitution.

Storage used to facilitate peak-delivery capacity usually has no effective substitute. By its nature, storage used for this purpose must be located on the distribution system, downstream of the pipeline capacity that it replaces. Because off-system storage located upstream of the distributor typically sits behind peak-day transportation bottlenecks, it does not provide an effective alternative to distributor-owned storage. Therefore, storage used for peak-day delivery presents little opportunity for introduction of competition. Moreover, any effort to force competition by mandated divestiture would likely create operational coordination problems. Market-based pricing would create opportunities for utilities to extract scarcity premiums for the necessary peak-day assistance.

C. Merchant Service

Merchant service is the buying and reselling of commodity gas to end-users and in some instances the selling of gas to another merchant. The merchant service is often combined with other transportation, storage, and even financial services to provide customers with varying degrees of risk, flexibility, and convenience.

Twenty years ago, all gas distributors acted as merchants on behalf of their customers. Service was fully bundled. They bought gas as it was delivered to

5. The producer is paid, in effect, to provide the storage service by varying the timing of delivery to meet customer demand.

their systems, used their storage to accommodate demand fluctuations, and delivered it to customer locations, all priced within a single bundled rate.

Today, that situation has changed for most members of the large customer class. By the early 1990s, interstate pipeline unbundling and gas commodity deregulation had created new unregulated merchants, eager to provide services to large end-users who had enough volume to support their costs. Their efforts, combined with the overhang of old high-priced gas contracts that interstate pipelines were still passing through to distributors (and by extension, the distributor's customers) and the increasing threat of bypass, created strong pressures for distribution companies to unbundle the merchant function and provide transportation-only service for large customers. This is exactly what happened.

Most large customers now buy gas from third-party merchants or from producers directly. Markets for the commodity, as well as related services for transportation and storage upstream of the local distributor, are well developed, have substantial price transparency, and are readily accessible. These markets are for the most part unregulated and highly competitive. Large customers purchase transport service from the LDC to bring merchant gas to their facilities. In some cases, they also purchase storage for load balancing and arbitrage purposes from the LDC, either bundled within a single distribution rate or priced under separate storage tariffs.

In contrast, most small customers still buy merchant service from their LDC as part of a bundled package including transportation and storage services. Rates for this bundled service are typically regulated, either by local utilities' commissions or municipalities.

The introduction of retail choice for small customers is an area that has received much attention so far in the distribution restructuring process. In fact, as is discussed at more length below, a limited degree of retail choice already has been granted in many areas. The early attention given to retail choice is not surprising. The success of merchant competition for gas at the wholesale level and for large customers at retail, combined with initiatives to create retail choice in electricity, has focused attention on the prospect for providing similar options to small retail gas customers.

D. Revenue Cycle Services

Revenue cycle services involve metering and billing for gas deliveries. With few exceptions, LDCs provide these services as part of the delivered product bundle. Regulatory commissions or municipalities that set retail rates also determine the amount that can be included in rates to recover billing and metering.

This is another area where the proper scope of the regulatory franchise is under question. Would-be merchant competitors, as well as sellers and billers for other widely distributed products to households such as electricity, cable, and telephone service have expressed some interest in being able to manage the customer relationship by including gas service in their bills to customers.

E. Overview

Today the natural gas distribution business consists of a regulated natural monopoly service (pipeline transportation along with storage-based peak-day delivery service), bundled with storage services (for most customers), merchant service (for most small customers), and revenue cycle services. As long as these bundles remain the only way that customers (or important customer segments) can buy the "non-monopoly" services, competition for these services will be forestalled by the natural monopoly in transportation. The debate in restructuring gas distribution is then the extent to which competition might operate for some of the bundled services and the changes needed to bring that about.

There are well-developed competitive wholesale markets for natural gas with largely transparent prices. Arguably, unregulated merchants who create competition in wholesale markets could do so for small customers as well. Whether that is so and what changes are needed to make it happen, will be one focal point of the restructuring debate for gas distribution.

There also are some well-developed unregulated markets for storage service, particularly at locations in producing areas, upstream market hubs, and on interstate pipelines. These markets, in combination with contractual and financial instruments used widely throughout the gas industry, already provide competitive alternatives, primarily to large customers, for some storage services currently bundled with transportation by the LDC. They too provide a focal point for the restructuring debate. What changes will foster more competition in storage service but still preserve the operating integrity of the distribution system? What storage choices should retail customers—or merchants providing gas on their behalf—have with respect to the purchase of storage services currently bundled with T&D?

The likely debate over revenue-cycle services is far less clear today. Theoretically, firms other than the LDC could offer metering and billing services for gas; many already do for electricity, telephones, and cable service. Also theoretically, LDCs could use control over revenue-cycle services to frustrate competitive efforts by other merchants who depended on the LDC to provide that service on their behalf. However, putting aside the possible use of functions that remain exclusively with the LDC to interfere vertically with competition in other deregulated activities—an issue discussed at more length below—it is unclear whether there is truly any interest in competing directly with the LDC in providing revenue-cycle services. For that reason, the attention that will be devoted to these services in the restructuring debate is harder to gauge.

III. THE IMPETUS FOR CHANGE

The forces driving change play an important role in the restructuring outcome. In that regard, the impetus for restructuring and deregulation in gas distribution is both more complex and less compelling than it was for similar changes in electricity and interstate natural gas pipelines. To a significant extent, deregulation and restructuring of gas pipelines and electric utilities resulted from current rates—reflecting past supply decisions—being out of line with current market prices. The ensuing efforts to change were driven largely by customers,

regulatory staffs acting on their behalf, and their political representatives.

That is not the case with gas distribution. There is no clear discrepancy between the merchant service components of regulated LDC rates on the one hand and costs for that same service in the open market on the other. Indeed, regulators often use market information about commodity costs to determine the allowable pass-through of gas purchase costs to customers. Consequently, the commodity portion of the bundled distribution rate is in most cases consistent with, or even below, contemporaneous market prices. Customers and their traditional advocates are not inspired by any obvious existing hardship to champion a wide-ranging reform agenda. Reduced to its essence, the small customer posture is defensive, typically making the argument: "Don't interfere with the quality and reliability of the service; and don't let large customers shift costs to us."

One lesson did come through loud and clear from the process of change in gas pipelines and the electric industry. There is much potential for new entrants to gain from change. Obviously, new entrants will gain if they are better positioned than incumbent utilities to exploit opportunities for providing new products and services to existing customers. Indeed many companies—both progressive-minded utilities as well as non-utility service companies—are convinced that tremendous opportunities exist for leveraging customer relationships to provide a wide assortment of services extending beyond the scope of the traditional utility and energy industries. These services include financial, energy management, and home security.

Formerly regulated utilities in telecommunications and electricity, as well as the established post-restructuring competitors in these industries, are the primary supporters of change in the gas distribution business. Prospects for energy convergence and point-of-contact leveraging[6] are motivating these companies to look for ways to establish commercial relationships with the franchise customers of LDCs. Any change that weakens the LDC's relationship with its customers opens the way for an aggressive and innovative company to cross-sell a larger package of products.

That highlights another impetus for change. New entrants also have much to gain if they can handcuff incumbent suppliers with rules, ostensibly framed to limit LDCs' "exploitation" of their monopoly position, that do little more than tilt the competitive playing field in favor of new entrants.[7] This is clearly one important impetus for the restructuring initiatives by at least some would-be competitors.

Some additional support for reform comes from large customers. They have become increasingly able—and, in the case of newly-deregulated electric generators, also motivated—to manage their own needs for supply flexibility and tolerance for price risk. The regulated distribution services of the LDC contain pre-set bundles of transportation rights, balancing service and storage access that

6. Point-of-contact leveraging refers here to the ability to use customer relationships in one utility business to generate sales in other utility—and perhaps also non-utility—business.

7. For a more detailed discussion of this issue, and a general commentary on the inappropriateness of regulators and legislators introducing codes of conduct whose primary effect is to hinder the ability of incumbents to compete effectively against new entrants, see Andrew J. Sonderman, *Behavioral or Structural Solutions: Prospects for a Deregulated Natural Gas Industry*, 20 ENERGY L.J. 23 (1999).

often do not conform to large customers' desired mix. These increasingly sophisticated customers want unbundled services and well-functioning transparent markets where they construct and purchase a tailored package of services and resell those they have contracted for but cannot use.

It is more difficult to draw generalizations about the likely positions of incumbent utilities and regulators. On the one hand, because regulators are not faced with any obvious and compelling problem, such as above-market rates, they too have no obvious motivation for change. On the other hand, in their role as industry watchdogs and caretakers, some regulators may well find the potential for innovation and introduction of new customer services compelling. It should be expected that the positions and actions of regulators will vary across states, depending on financial and economic issues that affect local industries and the local political climate within both the commissions and local governments.

Incumbent utilities may also react in widely differing ways. While most will surely agree that there are no competitive problems warranting extensive restructuring, some utilities seem to have a genuine interest in vertically disaggregating. For instance, some utilities are getting out of the merchant function entirely and focusing resources on the core transport and perhaps also storage functions. Others have issued impassioned public statements about the importance of ensuring service integrity by protecting customers from untested, and potentially unreliable, alternative suppliers. Some of those favoring the status quo will no doubt say so with little equivocation. Others, having observed the futile, and often counter-productive, efforts of utilities in other industries to stall the process, likely will be proactive in proposing measures for reform.

IV. THE ECONOMIC ISSUES

A. Retail Choice

There is no serious opposition to the theoretical notion that expanded retail choice is a good thing. The main issues arise in choosing the form which retail choice will take. First on the list is whether the LDC can continue to offer merchant service and, if so, whether it can still do so through a bundle of merchant services and other services. The debate here centers on the prospect for a combined merchant and T&D business to utilize market power in the T&D system.

This could happen two ways. First, the LDC might tie (perhaps subtly) the availability of its T&D service to the purchase of its merchant supply at uncompetitively high prices. In effect, the LDC shifts market power that it has in T&D service—but cannot reflect in regulated rates—into prices for merchant supply. Second, the LDC might change its accounting practices to shift costs from its merchant service to its regulated T&D service, thereby increasing its regulated T&D rates, keeping its merchant rate at competitive market levels, and increasing total profits. Viewed from a different perspective, this accounting manipulation forces captive T&D customers to finance expansion of the LDC's merchant business.

The issue in the end is whether the loss of efficiencies associated with coordination between merchant and T&D functions, and the one-time transition costs

that arise in taking the LDC out of the merchant business, are less than the costs of leaving it in (the added regulatory enforcement costs and the abuses that go undetected). This issue was debated in the restructuring efforts involving natural gas pipelines and electricity. In the interstate pipeline industry, this question was answered in FERC Order 636, which took pipelines out of the bundled merchant/transport service business.[8] In the electric industry, the initial restructuring efforts also have segregated control of transmission from generation and marketing of power.

Pilot programs for retail choice in gas now in place around the country allow the LDC to remain in the bundled gas service business. Eligible customers can choose between receiving gas from an unregulated merchant (and transportation service from the LDC) or receiving a bundled delivered gas service from the LDC. These programs have generally seen low participation rates. In California, for instance, participation in the pilot program was capped at 10% of total small customers (referred to in California as "core" customers). Yet, actual participation rates have been approximately 1% for residential customers and 3.5% for small commercial customers.[9]

Proponents of mandated separation of distribution and merchant service use these low participation rates to argue that merchant suppliers are competitively disadvantaged by the LDC's bundled service. Opponents of this view argue that low participation rates mean, simply, that the merchant service provided by LDCs is already highly efficient; there is no benefit in rates or terms of service to participating in such programs.

Assuming the LDC remains in the merchant business, there are several alternatives for providing retail choices. One alternative is to continue cost-of-service regulation of the LDC's bundled service (as well as its responsibility to be the supplier of last resort) but allow customers to affirmatively choose an alternative merchant supplier. This type of program is sometimes referred to as an "opt-in" program. Customers opt to participate in the choice program by electing to accept merchant service from a competitor. As discussed above, pilot programs already in existence do that. If this model were to form the basis for more extensive implementation, all that might be required is to relax participation limits associated with many of the current pilot programs.

Opposition to customer opt-in programs also focuses on the low participation rates in pilot programs. Even where it is acknowledged that unregulated merchants could, in theory, compete with the LDC's bundled service, there is a concern that existing reputation and inertia make it costly to induce customers to switch.

A second type of choice program, the "opt-out" program, has been advocated as a solution to this inertia problem. Under this program, customers are assigned to qualified merchants. They can then opt-out of those assignments. Georgia has embarked on a program that has this type of feature. A benchmark

8. However, pipeline affiliates, subject to codes of conduct designed to maintain arms-length dealings were permitted to offer merchant service.

9. United States General Accounting Office, *Energy Deregulation Status of Natural Gas Customer Choice Programs* (Dec. 1998).

(opt-in) period is being used to determine customer preferences among competing merchants—reflected in their shares of opt-in customers. Those shares will then be used to assign remaining customers that did not opt in.

This approach directly addresses the low participation rate issue by forcing broader change. To the extent there truly is a chicken and egg problem in starting retail competition—customers are reluctant to choose unproven merchants, who then cannot become proven because customers will not choose them—this approach might fix it.

The obvious problem with assignments of customers goes back to the underlying cause of low pilot-program participation rates in the first place. While assignments clearly force higher shares to merchant competitors, are consumers better off as a result? If participation rates in pilot programs are low because LDC service is as good or better than the market alternative, customers are not made better off by being forced to switch. More fundamentally, mandatory assignment is an odd way to implement a program rooted in the notion of customer choice. The bad experience associated with "slamming" customers in long-distance telephone markets is an example of the problems that may develop.

An alternative method for dealing with the potential vertical exercise of market power by the LDC that does not force the LDC out of the merchant business is to remove its control over the T&D (and probably also the storage) function. One could force the incumbent LDC to become a merchant company, relinquishing ownership and operational control of its T&D (and storage) assets to an independent company (Transco). Alternatively, one could allow the LDC to maintain asset ownership, but relinquish operational control to an independent operator (ISO). Either way, the LDC could not then use control of its T&D system to interfere with merchant competition.

A second broad issue with retail choice that goes beyond the question of LDC participation is who becomes the supplier of last resort? Who steps in to provide service on a cold peak day when (or if) unregulated merchants default on their supply contracts? While the LDC could retain that function—as long as it remains in the merchant business—that raises other problems in a world of retail choice. Clearly, the potential for customers and alternative suppliers to "free-ride" on LDC-provided backup service presents problems with rate design, cost allocation and moral hazard.[10]

Alternatively, one could take the LDC out of the backstop role— something that would likely be necessary in a restructured world in which the LDC was not a merchant competitor. However, to take that step, regulators would likely require some assurance about the competitive market's ability to deliver high reliability. And, while one can certainly argue that markets are well enough devel-

10. Moral hazard refers to the tendency of economic agents to take on an excessive amount of risk when they are insured against unpleasant outcomes. In this instance, it is possible (perhaps even likely) that, if utilities are understood to provide an effective backup for merchant failures, customers and companies will not be as careful in assuring the reliability of the service they contract for. (This is very similar to the classic problems associated with federal deposit insurance in the banking, thrift, and savings and loan industries.) Free riding refers to the tendency of economic agents to utilize resources provided as public goods (i.e. goods available to the market without effective mechanisms for monitoring use and imposing charges) without providing compensation.

oped today to do that, it seems likely that some demonstration of that ability over time would likely be required before regulators could prudently eliminate the supplier of last resort. Even then, one wonders about the social acceptability of customers without heat on a cold day, even if that situation arises as a result of customers' own economic choices.

B. Unbundling Transportation and Storage Services

Large customers generally use the T&D system for transportation and storage under tariffs that often do not provide for separate storage and transportation services. The emergence of competing options for various types of storage service gives rise to a set of restructuring issues similar in many ways to the ones discussed above. In particular, the critical question is how current service packages including T&D and storage should be unbundled. While many of the considerations are similar to those discussed above, storage service provides additional complications.

As in the case of merchant service, the fundamental issue is how to design an industry structure that will allow markets to operate for competitive storage services side-by-side with continued provision of T&D service under regulation. Some LDC-owned storage is used for price arbitrage, either by large customers who obtain storage rights[11] along with their T&D service or bundled in the LDC's small customer merchant service. As described above, there are clearly competitive alternatives for LDC-owned storage as an arbitrage mechanism.

As a result, one objective in the restructuring process is to shift the provision of this storage service from regulatory control to market discipline. The concern, once again, is that if the LDC continues to provide storage as a competitive product, it will be able to use the market power in its transport service to shift storage-related costs to captive T&D customers, or block storage competition (through tying or similar arrangements) and extract uncompetitively high prices for storage service.

There are a number of restructuring alternatives. At one end of the spectrum, the LDC could be allowed to continue owning storage as an unregulated business, competing to sell service at market-based rates and at shareholder risk. As a safeguard against affiliate abuse, codes of conduct could be established banning preferential use of transport service in favor of the LDC's storage customers. At the other end of the spectrum, the LDC could be required to divest its storage capacity, contracting for it as needed in its (post-restructuring) merchant function at market-based rates.

The choice of potential industry structure is complicated by the fact that storage capacity provides several different services, some of which (like price arbitrage) are potentially competitive and others (like peak-day delivery capacity) are not. As a result, divestiture of all LDC-owned storage capacity would subject the LDC and its ratepayers to monopoly prices for those storage services that have no competing alternatives.

That leaves partial unbundling and deregulation of LDC storage capacity as

11. These rights can either be conferred explicitly based on T&D contract quantities or implicitly in significant balancing tolerances.

the only workable answer. That is a daunting challenge. Storage capacity is not easily divisible. Often differing types of service are provided at the same time. In a partially unbundled storage world, a LDC could well be providing regulated peak-delivery service at the same time an unregulated co-owner in the same facility was selling unregulated storage service for seasonal arbitrage. Cost allocation and operational rules would be difficult to develop.

Leaving the LDC as owner of all the storage, however, creates its own difficult cost allocation and monitoring problems. How does one prevent the LDC from using or selling capacity for its shareholders' benefit in the unregulated market that its regulated customers have already paid for as peak delivery capacity?

The same issues arise with the third type of storage service, balancing service. Customers with unpredictable daily load fluctuations value a balancing service that allows supply arrangements to flow on a relatively constant basis. Depending upon customer-demand profiles, nomination rules on upstream delivery systems, and the proximity of storage alternatives, balancing may or may not be a service with competing alternatives. As to some customers at certain times of the year, deregulation or divestiture of storage service used for balancing can promote competition by increasing the number of competing suppliers; for other customers at other times it may serve only to free the owner of those facilities—the LDC or otherwise—to set rates which reflect the underlying market power. Worse yet, there is no easy way to determine when viable alternatives exist or how to tailor deregulation to fit just those circumstances.

C. Hub Services

Hub services allow customers temporarily to borrow or lend gas, as well as to swap it across locations. LDCs providing these services raises unique issues about the allocation, cost reimbursement, and usage of certain assets. One asset often used by LDCs to provide hub services is storage. In that regard, hub service is just another type of storage service. The basic economic and regulatory issues associated with restructuring are those discussed above.

However, hub services (particularly those involving locational displacements of gas) are sometimes provided jointly with storage facilities, transportation facilities, and system gas flows. It is precisely this sort of operational synergy between a monopoly service (transport) and potentially competitive services (storage and merchant) that makes the question of unbundling so difficult. Are the benefits of improved coordination through integrated (albeit regulated) operations greater than the benefits associated with the imposition of market discipline on some of the component services?

Viewed differently, if the LDC uses transportation capacity and flowing gas that merchant customers have paid for to provide hub service, is that an inappropriate cross-subsidy that gives the LDC an anticompetitive advantage over independent hub operators? After all, can they look only to their hub rates to recover the costs of the necessary assets? Or, is the LDC's advantage properly viewed as a joint product of the LDC's merchant function that should be preserved as a means of reducing the costs of small customers' services?

D. Information and Capacity Release

To the extent formerly regulated services are unbundled, the process leads directly to questions concerning information publication and the institution of release markets. Indeed, these issues already have been hotly contested with respect to transportation service, irrespective of any further unbundling. Proponents of bulletin boards and other mandatory publications of transaction information point to the quality of available information as a key to efficient market performance. However, the actual proposals are often limited to publication of affiliate deals. While helpful, perhaps, in policing affiliate self-dealing, these proposals place LDC affiliates at a competitive disadvantage against other service customers whose transactions with the LDC are not published. On balance, it is difficult to judge the effect on competition of these sorts of unilateral posting requirements.

Information posting is sometimes discussed together with capacity release as a means for creating competition between the LDC and its firm contract holders as potential suppliers of service (through a secondary market). Once again, the effects are far from clear. Capacity release opportunities and transaction billboards certainly make it more valuable to hold firm contract rights (because of the potential for resale) and thereby increase the demand for such services. In addition, capacity release does increase the number of sellers of off-peak service, potentially putting downward pressure on interruptible rates. Perhaps most importantly, billboards and release rights do enhance welfare by increasing the frequency with which scarce resources are provided to those valuing them the most.

However, capacity release and billboards take some ability to price discriminate away from the LDC. Given the scale economies associated with transport facilities, price discrimination is an efficient way to pay for them.[12] The traditional regulatory prohibition against only "undue" discrimination, and not against discrimination based on value of service or competing alternatives, recognizes the benefits of this type of pricing. Capacity release and billboards may also create a stranded cost problem by reducing the revenue contribution on the part of higher-value users.

E. Gas/Electric Issues

One other vertical issue has received much attention.[13] That issue is the possibility that an LDC could use its distribution market power to influence electricity prices by manipulating gas costs incurred by local electric generators. Under this theory, the LDC could then profit from the manipulation by taking contrary positions in electric commodity markets or by investing in generation capacity itself.

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12. A natural monopoly service, such as gas transport, is defined as one where marginal cost is below average cost throughout the entire range of demand. The implication is that marginal cost-based pricing–the economist's usual prescription for market efficiency–will not provide for the financial self-sustainability of the utility. Some form of price discrimination, with some rates above average costs, is generally required to ensure utility solvency.

13. For more information, consult details on the Enova/Sempra merger and the FERC's vertical merger guidelines.

This raises restructuring issues similar to those previously discussed with respect to merchant and storage services. Can existing regulation effectively detect and police manipulation of transport service and access terms, thereby preventing interference with related competitive markets? Can codes of conduct, combined with regulatory audits and a complaint process, sufficiently strengthen that ability so as to make such vertical behavior unlikely? Or, is divestiture or independent system operation necessary to adequately protect against abuse?

The debate over this particular type of vertical abuse also has some unique features. How tight is the market relationship between gas and electricity—tight enough to make short-term manipulation of gas costs a profitable insider's guide for electricity trading? Are geographic markets for gas and electricity similar enough that local prices will move together? Or, will contrived local gas cost increases simply be met by increased power imports?

F. Stranded Costs

Concern over stranded costs was an extremely important motivating force throughout the restructurings in gas pipelines and electricity. In the electricity industry, where potential stranded costs were extremely high, this issue affected the general structure and tone of the debate, as well as practically every detailed policy development. The process of deregulation and the issue of stranded costs have become so intertwined that it is difficult to imagine the former without the latter.

Most LDCs today have market-based supply arrangements. Expanded competition, to the retail level for small customers, will not make it difficult to perform those contracts. A few may own storage facilities that exceed their own system needs and have embedded costs that make them uncompetitive. For these LDCs, unbundling and access to market-based storage may strand some costs. This problem, however, is far less important, both in dollar size and frequency, than the stranded cost problems faced by interstate pipelines and electric utilities. Hence, one very important driver of previous restructuring efforts is absent here.

V. CURRENT RESTRUCTURING INITIATIVES AROUND THE COUNTRY

The one area for restructuring that has shown the most interest around the country to-date is retail choice. Still, a national consensus on the best approach has not even begun to emerge. Indeed, the defining characteristic of the existing pilot programs is their wide diversity.

A number of LDCs have introduced pilot programs allowing limited numbers of small customers to choose an alternative commodity supplier. There are twenty-one states where programs introducing customer choice have been introduced. Within these states, forty-six pilot programs have been implemented. A listing of these states, and the programs within these states, is provided in Appendix B.[14]

14. Appendix B focuses on those areas throughout the country where programs have been implemented. There are several other areas throughout the country where, although no programs have yet been introduced, significant discussions have taken place within the legislative and/or regulatory arena.

The pilot programs presented in Appendix B share several characteristics. First, they have often been developed and implemented through the initiative of the LDC, with the approval of the state's regulatory agency.[15] Second, these programs are temporary, and participation is limited to relatively small portions of the LDC's customer base. Third, the programs are designed to provide data that can inform both the refinement of existing programs and the development of a broader policy framework for the LDC's entire franchise area or perhaps for the entire state. It is still true today, however, that these programs remain little more than the exceptions to the rule that small customers buy gas as a bundled product from their LDC.

One of the criteria for judging the effectiveness of these pilot programs is the extent to which eligible customers have chosen to participate.[16] A survey of participation rates in a select sample of programs was provided in a recent report by the U.S. General Accounting Office.[17] The data included in that report are presented in Appendix A.

As is apparent from Appendix A, there is as much diversity in program participation rates as there is in program characteristics. However, despite the wide range of results, half of the programs have participation rates of less than 10%. This is consistent with results reported from other sources. It is also consistent with the general consensus among industry observers that the LDC has a tremendous advantage in maintaining customers. This advantage is driven by several factors, including reputation effects, the importance of reliability, switching costs, and consumer aversion to assuming perceived risk.

However, it is also worth noting that one quarter of the programs presented in Appendix A (nine of thirty-six) display participation rates greater than 20%, and three of the programs have participation rates greater than 50%.[18] This pro-

15. There is a fairly wide variety of ways in which utilities can be understood to "initiate" a pilot program. These run the gamut from a utility responding to a regulator's request to prepare a program, to a utility proposing and designing a program within an almost complete policy vacuum. A program designed and administered by KN Energy in Nebraska provides perhaps the best example of utility initiative. Because there exists no state regulatory commission in Nebraska (resulting in the relevant regulations being administered at the municipal level) and, because municipal laws included stipulations requiring bundled service, implementation of the Nebraska pilot program required that KN solicit the approval of the 180 independent municipalities within its service territory.

16. There has already been enough experimentation with, and commentary on, retail choice programs that a bit of standard terminology has been defined. An "eligible" customer is one who is provided the opportunity (within the context of a pilot program) to choose a supplier other than the host utility. A customer is understood to "participate" in a program if he selects an alternative supplier. The only potential point of confusion is that participation, according to the accepted definition, is not equivalent to exercising the right to choose. In particular, an eligible customer who chooses to remain with the utility for retail service is not a participant in the program.

17. U.S. General Accounting Office, *Energy Deregulation: Status of Natural Gas Customer Choice Programs* (Dec. 1998).

18. These figures are difficult to interpret in one important way. "Participation," as defined for the purposes of Appendix A, includes customer selection of a utility's affiliated marketer. It is not clear that this is the best measure of customers that have availed themselves to competitive choice. It might be argued that a better measure counts only those customers choosing a truly competing (i.e. non-affiliated) supplier. This would decrease some of the high participation rates observed in the figure. The exact effect is unknown, because the data was not available to work through the figures.

vides strong evidence that customers can, under the right circumstances, be made to take advantage of competing alternatives. Two factors appear to be important. First, the LDC itself can have a tremendous impact on the attitudes and actions of customers. For example, Bay State Gas Company in Massachusetts undertook a comprehensive communication program to provide information (including historical cost and usage data) to customers, marketers, and other stakeholders. The result was a high level of participation.

Second, merchants can overcome consumer reluctance through creative and aggressive marketing. For example, Scana, a company that began with practically no name recognition in Georgia, attracted a large portion of eligible customers from Atlanta Gas Light over a six-month period by offering cash rebates and constructing an entire retail infrastructure of kiosks and storefronts.[19] Similarly, Equitable Gas Company was able to entice a large portion of the customer base of MidAmerican Energy in Iowa with an extremely aggressive campaign of advertising, marketing, and promotions.

The basic lesson seems to be that, while utilities do seem to maintain a clear first-mover advantage, great progress can be made through the right kind of promotion. Additionally, thus far, would-be merchant competitors have had more success in winning the battle for retail customers in the marketplace than they have in local commission hearing rooms.

In that regard, Appendix C presents the responses of thirty utilities to a survey conducted in 1998 by the AGA. The purpose of the survey was to identify the characteristics of different programs introduced throughout the country. One issue discussed above was the likely role of the LDC as a merchant competitor in a retail choice environment. There were three questions in the AG survey related to this issue.

(1) Did regulation force the LDC from its merchant function?

No regulatory agency has yet forced an LDC to entirely abandon the merchant business.[20] Interestingly, nearly half of the respondents indicate that a decision on this issue has yet to be reached.

(2) Does the LDC have an unregulated marketing affiliate?

Almost all LDCs have established some form of affiliated marketing company designed to buy and sell gas in an unregulated environment. Clearly, merchant activity is a business for which LDCs have strong core competencies. The efficiency cost of keeping them out of the business could be significant.

(3) Does the LDC plan to stay in the retail merchant function?

The interesting observation here is that, notwithstanding the fact that most LDCs have marketing affiliates, a third of those who had arrived at a plan intend to exit the retail merchant function. It is unclear whether this reflects an expectation that regulators will force them to do so—despite the fact that they have not

19. Scana eventually expects to sell many additional services from its retail outlets, including home security systems, appliance warranties, phone service, and Internet access.

20. Since the survey was conducted, the New York Public Service Commission has decreed that all gas utilities should exit the merchant function within the upcoming three to seven years. Atlanta Gas Light Company will eventually stop selling gas directly when areas are determined to be competitive by the Georgia Public Service Commission.

done so to date—or a belief that the post-restructuring retail merchant business will be unattractive (even to companies with merchant expertise).

One question asked in the survey related to the billing options offered by the LDC: Were billing options available to customers, marketers, or both?

There are two important points to note. First, for a clear majority of respondents (twenty-two of twenty-seven, approximately 81%), marketers were provided the right (or, in some cases, the obligation) to bill customers directly. This is something they have tended to try to persuade the utilities and the regulatory agencies to provide. Second, utilities have generally not chosen to relinquish this function entirely. An even larger majority of utilities (twenty-four of twenty-seven, almost 90%) are still involved with billing. On balance, it is most often the case that billing rights and responsibilities are shared in some manner.[21]

Interestingly, while most marketers retain the right to bill separately for services they provide, there is evidence that customers do not like receiving two separate bills. This proposition is supported by the comments of industry commentators[22] and customers.[23] It also explains why marketers of many different direct-to-household products and services are interested in the billing function. The ability to provide a single multi-product bill can be a springboard for selling a wide array of other products and services.

VI. THE GEORGIA EXPERIENCE

One of the first efforts at broad restructuring in gas distribution occurred in Georgia. In 1997 the state legislature passed a bill setting forth a broad program to create retail choice. There was little or no attention devoted to unbundling of other services packaged with T&D such as storage. Indeed, the LDC was authorized to continue contracting for upstream interstate pipeline service, the costs of which would be bundled in the distribution rate.

Unregulated gas marketers were invited to begin selling gas to small retail customers. Those marketers were required to provide their own billing services and were given access to T&D service by the LDC with regulated rates at which to deliver gas to their customers. They were also allowed to sell unused off-peak service associated with their customers' peak day capacity, thus keeping the revenue as an added inducement to bid aggressively for retail business. Rates offered by these marketers were not regulated.

One of the most important features of the Georgia plan, publicly described to retail customers, was that after a 100-day trial period, all remaining LDC customers would be assigned randomly to unregulated marketers based upon their relative shares of non-LDC customers during the trial period. The LDC

21. Usually, the utility and the independent marketers bill separately for the distinct services they provide. However, other arrangements do exist. In some instances, marketers are provided the option to submit a consolidated bill. Other times, the customer is allowed to decide on billing arrangements. As is generally the case with most aspects of these programs, a wide assortment of alternative arrangements have been developed.

22. *See, e.g.*, U.S. General Accounting Office, *Energy Deregulation: Status of Natural Gas Customer Choice Programs* (Dec. 1998).

23. For example, MidAmerican Energy conducted a pilot program in Iowa that allowed marketers to bill directly. All marketers accepted this option. In its survey of customer satisfaction with the program, MidAmerican found that customers expressed a strong desire to receive only one bill.

was permitted to remain in the merchant business through an unregulated marketing affiliate who could use the LDC logo and compete for future customer assignments, along with other marketers, during the trial period.

After the 100-day trial period and ensuing customer assignments, LDCs' merchant role was ended. A separate program, financed by a tax on all merchant revenues, was commenced to create a fund for backstop service in the event of delivery failures by any of the new merchants. Using a certification procedure to identify properly qualified and financed suppliers, the state regulatory commission controls entry of marketers into the retail business.

During the trial period, SCANA, a marketing affiliate of a South Carolina utility, captured 30% of the opt-in customers, leading all other marketers. The marketing affiliate of the incumbent LDC obtained 10% of the opt-in group.

The Georgia experience stands alone in many respects. No state has subsequently instituted a program to remove the existing LDC from the retail merchant business. Service unbundling has received much more attention elsewhere than it did in Georgia. SCANA showed much more interest, marketing activity, and success than gas marketers have shown elsewhere in connection with retail choice pilot programs.[24] It is still too early to tell whether this program has created any real savings for customers. Whatever the reason, the Georgia experience has not attained recognition as the blueprint for restructuring elsewhere.

VII. THE CALIFORNIA EXPERIENCE

In January 1998, the California Public Utilities Commission (CPUC) began the process of exploring restructuring for gas distribution with the issuance of the Green Book. The Green Book was a restructuring "think-piece" prepared by the CPUC staff. After discussing many of the issues contained above, it offered some preliminary recommendations including unbundling to "establish competitive gas retail markets" and four market structure options to "address the LDC's incentives and ability to engage in anti-competitive behavior."

The four options were: (1) to establish open access rules and policies; (2) to allow the LDC to continue to provide gas procurement but to also create an ISO, or to divest the transmission system; (3) to provide open-access coupled with eliminating the LDC procurement function once the CPUC determined that competition was working; and (4) to utilize all aspects of the previous option, while also prohibiting LDC affiliates to own electric generation or to provide gas marketing.

Shortly thereafter, the CPUC commenced a hearing process that began with submissions and hearings on market conditions. The purpose of these hearings was to identify competitive problems or abuses found in the existing system, along with proposals for fixing them. From the outset, this process was more about adjusting the existing system than developing a comprehensive blueprint for a new industry structure or creating new competitive markets. Not surprisingly, the results of the process appear so far to be less dramatic than the preceding electric experience.

24. It is hard to know what role the mandated customer assignment following the test period played in getting customers to opt into the program during the test period.

A large portion of the debate focused on allegations of past abuses. Intervenors—who were, for the most part, would-be competitors with the LDC in one or more of its services—brought forth anecdotal episodes of competitive problems which they described as the observed tip of a much larger iceberg of abuse. They maintained that the high cost of detection associated with regulatory oversight warranted structural changes that would reduce the opportunity and incentive for competitive abuse. For their part, the state's LDCs described the alleged anti-competitive episodes as isolated (and in many cases outdated) examples of legitimate differences in interpretation over regulatory rules that, in any event, had nothing to do with competition or with anti-competitive behavior.

The proposals for change offered by the participants in the hearing process were mostly modest in scope. Large customers want more clearly defined rights for delivery and receipt points, unbundling of some storage from transport, and capacity release rights and bulletin boards for posting storage and hub transactions. Taking a position contrary to the general thrust of most restructuring efforts, they proposed that LDCs should increase the amount of balancing service that is bundled within T&D service.

Unregulated storage and merchant competitors also argued for storage unbundling, more clearly defined transportation rights, and bulletin boards. They differed from large customers in two respects. First, they wanted to reduce the amount of balancing service that is bundled with transportation. Second, they wanted divestiture of storage that is not used for peak-day delivery. They also raised concerns about the LDCs' use of merchant assets—paid for by small customers—to provide hub services. From their perspective, the use of those merchant assets represented "unfair" competition subsidized by the ratepayer.

Not surprisingly, the proposals for change aligned closely with their proponents' commercial positions. Both large customers and potential competitors wanted more disclosure about LDC transactions for storage and transportation services and more extensive rights in the services they obtain. More extensive rights improve their bargain—as long as rates do not rise—and increased disclosure improves their bargaining position in negotiating with the LDC for those services. In addition, while customers want more bundled balancing service out of a belief that they will pay less through regulatory cost allocation, potential competitors want the LDC to provide less balancing service in the T&D bundle so that they can sell more balancing services to T&D customers. No group of stakeholders pushed for large-scale reform, such as mandated divestiture of storage or for some form of ISO or Transco to operate the distribution system.

As was noted by the CPUC Staff in the Green Book, the strongest case for structural change lies with the introduction of choice to small customers for merchant supply. There clearly are well-developed, competitive gas markets. The interstate pipeline experience proved that this service could—at least at the wholesale level—be freed from regulation. Nonetheless, the possibility of some deregulation and potential restructuring of merchant service was scarcely debated.

Small customers do not want it. These small customers, or at least their advocacy groups, are content with current rates, terms, and regulatory discipline. While they support the elimination of caps on current opt-in choice programs,

they do not advocate more aggressive deregulation or any change that might replace the LDC as the supplier of last resort. Indeed, there was little sentiment even for unbundling of services. Their main concern was that unbundling proposals offered by large customers would shift costs to them.

The only push for significant change in current merchant service came from potential merchant competitors. Even there, however, proposals were modest. After noting the poor success of opt-in pilot programs for retail choice, competitors observed that relaxed participation caps or other modifications to the opt-in programs would not change things. Indeed, they acknowledged that customers would have little reason to change. That was not attributed, however, to any anti-competitive advantage that the restructuring inquiry might address. The clear bottom line was simply that retail rates for the gas commodity were already sufficiently competitive to make competition with the LDC on that front unattractive.

So, instead of any structural or rule changes designed to promote retail choice, potential competitors proposed that the utility should be forced to contract with independent merchants for supply needed to serve its small retail customers. Of course, this would do little more than add an additional step in the supply chain and an additional source of cost. The principal justification—especially given that it would not increase choice or lower rates for customers—seemed to be that it was "unfair" to allow the LDC to continue to supply 100% of the gas for this customer group.

A few themes came out of this process. First, competition in gas markets upstream of the distribution system has, by and large, been reflected in retail prices for gas resold by the LDC. No one asserted that a change in regulation or industry structure would lower small customers' gas costs. With the lack of any obviously compelling interest, there was no strong pressure to radically restructure the merchant role distributors have with small customers.

Second, regulation of the natural monopoly distribution system has not given rise—except perhaps for isolated incidents—to anti-competitive efforts by the LDC to use its monopoly power in other unregulated markets. Existing competitive markets have been able to operate side-by-side with the LDC's regulated natural monopoly service. The strongest case to be made was that utilities could, in theory, act anti-competitively and regulators would have trouble detecting it. Few (compelling) practical examples were provided. As a result, there was no pressure for a radical change in industry structure through introduction of new institutions such as an ISO or a Transco for gas distribution.

Third, the most difficult issues arise in connection with LDC ownership, operation, and bundling of storage service. All seemed to agree that the LDC should continue to own and operate storage for system delivery needs. But should it also continue to do so for balancing and price arbitrage purposes? If so, storage service should probably be unbundled from the distribution service. Should it be unregulated? If so, what organizational rules or ownership structure will allow simultaneous provision of regulated and unregulated services from the same facility? Finally, what information about transactions involving storage should LDCs be required to publish?

In May 1999, the CPUC issued a preliminary set of proposals based upon

the market conditions hearings and related submissions. These proposals reflected the modest tone of most participants' positions.

- There should be no ISO, Transco, or GasX.
- The LDC will continue to provide merchant service to small customers who would have unrestricted ability to choose another merchant supplier—e.g., participation caps on the pilot programs would be eliminated.
- Rates for transport and storage service provided by the LDC should be unbundled.
- Customers of pipeline storage and distribution services should be given capacity release rights.
- The utilities should create bulletin boards to facilitate the creation and operation of release markets. (What that means in terms of the nature of information that would be published was not spelled out.)
- The LDC should continue to own and operate storage for system operational (and small customer merchant) needs.
- The LDC should also continue providing balancing service. (It is not clear whether or not this is meant to be on an unbundled basis).
- Continued LDC ownership and operation of storage capacity for arbitrage services was a question left open for further study.
- The LDC should no longer use assets dedicated to its small customer merchant service to provide hub services.

VIII. WHAT CAN BE EXPECTED ELSEWHERE FROM RESTRUCTURING IN GAS DISTRIBUTION

A. Changes Will Be Modest

Competition in gas commodity markets, existing pilot programs, and gas cost pass-through standards geared to market indices have already combined to push the benefits of upstream commodity competition through to the distribution customer. There is no overhang of past supply commitments that are out of step with current market conditions. There are no big savings to be gained by undoing current supply arrangements. And, there is no stranded cost problem. When all is said and done, there is little commodity-related benefit to be gained by some new structure designed to manufacture multiple retail gas sellers.

For all of these reasons, there is no stakeholder in the process that has both the incentive and the consumer justification needed to push through some broad restructuring of the small customer merchant business. In all likelihood, this means there will be no ISO, Transco, or GasX. There will also likely be no big restructuring bill for customers to pay.

One might suppose that regulators, having staked out the position that broad reforms such as ISOs and PXs were needed for competition in electricity, would be compelled to follow the same course for natural gas distribution. The California experience so far suggests they are not. The approach from the outset has been first to figure out what competitive problems or opportunities exist in this industry and then, to consider proposals to address them. There has been no indication that the approach followed in electric restructuring is viewed as a one-size-fits-all prescription for restructuring generally.

B. Changes Will Not Go Far Enough

There is likely some true competitive benefit to be gained in the pricing and design of gas storage and delivery services. There are numerous competitive alternatives to the current regulated services. Some combination of unbundling, deregulation, and regulatory restructuring could further limit the scope of regulation—without unleashing market power—and expand competition, bringing all of the benefits that go with it.

The problem with making this happen is the absence of a clear force for pro-competitive changes. It is not a small customer issue. Nor does it hold the near-term promise of any material reduction in retail rates. Hence, it is not likely to be advanced vigorously by regulators or ratepayer advocacy groups.

The parties who stand to gain from more competitive storage and delivery options are large customers, who can benefit from more flexibility in storage/delivery options, and unregulated storage/pipeline competitors. The problem here is with incentives. Large customers do have an interest in creating more competition. But they also have an interest in maintaining the status quo for services that are provided under regulation at bargain rates and in changing those rules in their favor. Hence, their restructuring agendas reflect a combination of steps genuinely designed to promote competition and other efforts to protect or, even better, favorably modify the good deals regulation already provides.

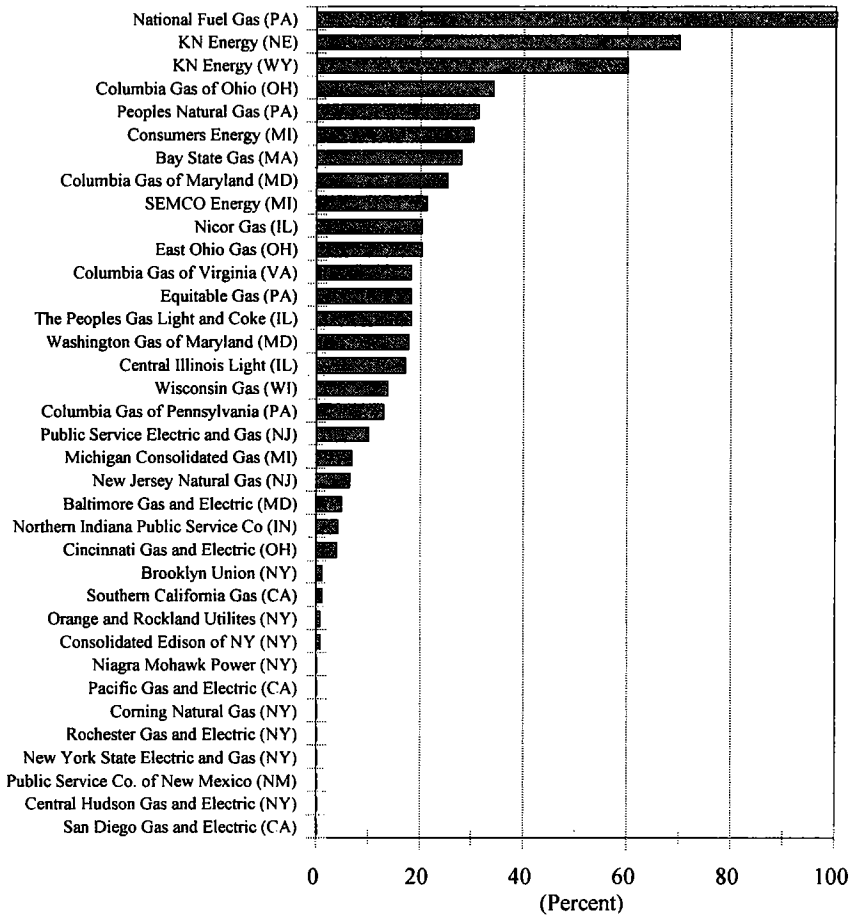
Similarly, storage and transportation competitors have an interest in promoting unbundling and competition. But, they also have an interest in new rules that tilt the competitive playing field in their favor. Hence their proposals contain a combination of initiatives to open the market for competition while limiting the incumbents' ability to participate in it.

For their part, the LDCs have more complicated incentives, but like their large customers and would-be competitors, they cannot be expected to be a clear voice for enhanced competition. First, of course, LDCs have traditionally been against restructuring. That may be changing. Many LDCs are aggressively embracing new competitive opportunities. And, some may well believe that continued regulation—and the exclusion of competitors that goes with it—is not in their interest. But even in those cases, LDCs can be expected, like their newly emerging competitors, to support changes that steer competition in their favor.

The end result will likely be movement toward unbundling and competition that falls well short of capturing the full potential for competitive change. Utilities and their large customers will fight to maintain vestiges of regulation that promote their interests. Would-be competitors will—perhaps inadvertently—encourage that outcome by making arguments about unfair advantage and incumbent market power. Even assuming the goals for the process are clearly stated, confusion about the means for accomplishing those goals and the lack of a strong advocate for competition in its own right will likely yield compromise answers. In particular, global settlement packages among LDCs, their customers, and their competitors will likely develop with give-and-take, which is designed to make all involved winners in at least some respect. The only sure loser in this process will be competition.

APPENDIX A

Customer Participation in Selected Gas Choice Programs by Percentage



Source: U.S. GAO, *Energy Deregulation: Status of Natural Gas Customer Choice Programs* (Dec. 15, 1998)

APPENDIX B
States and Utilities Offering Choice of Suppliers to Small Consumers

California	Pacific Gas & Electric Gas (Gas Accord)
	San Diego Gas & Electric
	Southern California Gas
Delaware	Connectiv Power
District of Columbia	Washington Gas
Georgia	Atlanta Gas Light
Illinois	Central Illinois Light (Therm Quest)
	Nicor Gas (Customer Select)
	Peoples Gas Light and Coke
Indiana	Northern Indiana Public Service Company
Iowa	MidAmerican
Maine	Northern Utilities
Maryland	Baltimore Gas & Electric
	Columbia Gas of Maryland (CHOICE)
	Washington Gas (Residential Delivery Service)
Massachusetts	Bay State Gas (Pioneer Valle Customer Choice)
	Boston Gas
Michigan	Consumers Energy Company
	Michigan Consolidated Gas Company
	SEMCO Energy Gas (Option Plus)
Montana	Energy West
	Montana Power
Nebraska	KN Energy (Choice Gas)
New Jersey	New Jersey Natural Gas (Natural Solutions)
	Public Service Electric & Gas (SelectGas)
	South Jersey Gas
New Mexico	Public Service Company of New Mexico
New York	Brooklyn Union Gas
	National Fuel Gas Distribution
	New York State Electric & Gas Corporation
	Niagra Mohawk Power Corporation
	Consolidated Edison of New York
	Long Island Lighting Company (Natural Choice Program)
Ohio	Cincinnati Gas & Electric
	Columbia Gas of Ohio (Customer CHOICE)
	Dayton Power & Light
	East Ohio Gas (Energy Choice)
Pennsylvania	Columbia Gas of Pennsylvania (Columbia CHOICE)
	Equitable Gas Company
	Peoples Natural Gas Company (Energy Choice)
	National Fuel (Energy Select)
Virginia	Columbia Gas of Virginia
	Washington Gas
Wisconsin	Wisconsin Gas Company (GasAdvantage)
Wyoming	KN Energy
	Questar

APPENDIX C
AGA Survey Responses

Is the program mandated?	No-12	By PSC-12	
Utility position on customer choice	For-25	Against-0	Indifferent-4

MERCHANT/MARKETING ACTIVITIES

Utility plans to stay in merchant function	Yes-15	No-8	Not sure-4
Regulation forces utility from merchant function	Yes-0	No-17	Maybe-13
Future retail customer marketing will	Increase-7	Decrease-2	Stay as is-18
Utility jointly markets with marketers	Yes-17	No-11	
Certification of marketers	Yes-17	No-11	
Marketers must prove creditworthiness	Yes-29	No-0	
Utility has unregulated marketing affiliate	Yes-26	No-4	
PSC reviews utility & affiliate transactions	Yes-26	No-1	

PIPELINE CAPACITY

Utility offers pipeline capacity	Must-15	May-11	Does not-1
If yes, is it recallable	Yes-14	No-9	
Utility offers storage capacity	Must-8	May-8	Does not-10
If yes, is it recallable	Yes-8	No-5	
Marketer must take pipeline capacity	Yes-11	Not-14	
Marketer must take storage capacity	Yes-8	No-8	
Capacity rates charged	Maximum-17		Market*-1

BALANCING

Marketer must balance	Monthly-11	Annually-5	Mix**-8	Other-4
Imbalance made up through	Cash out-11	Trade-2	Both-11	
Utility imposes balancing fee	Yes-19	No-3		

OTHER

Program offers specific low-income customer protection			Yes-3	No-24
Customer billing options		Utility-5	Marketer-3	Both-19
How often can customer switch suppliers		Anytime-1	Monthly-11	
Annually-11	Other-3			
Customer educated by		All parties-8	Utility only-11	
Util & Mktr-7Util & Govt.-2				
Formal mechanism to recover stranded costs			Yes-15	No-14
Do you recover program administrative costs			Yes-9	No-14
Performance-based rates (have been/will be) proposed			Yes-13	No-17
Utility has standby charge			Yes-12	No-16
Utilities subject to more taxes than marketers			Yes-21	No-9

NOTES: * With price cap ** Mix of annually, monthly, daily, and/or other