THE NEXT GORDIAN KNOT FOR STATE REGULATORS AND ELECTRIC UTILITIES: THE UNBUNDLING OF RETAIL SERVICES

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I. Introduction

This paper focuses on the topic retail unbundling in the electric power industry. Specifically, it addresses four major questions:

1. What is retail unbundling?
2. What role would retail unbundling play in the future electric power industry?
3. What lessons can we learn from retail unbundling in other public utility industries, specifically the natural gas industry?
4. What are the major issues associated with retail unbundling for both electric utilities and state public utility commissions (PUCs)?

This paper points out that unbundling of retail electric services will accelerate competitive forces in the electric power industry. Although simple in concept, retail unbundling will entail addressing a broad range of complex issues, some of which lie at the core of state public utility regulation and utility operation, planning and pricing activities. Overall, retail unbundling will radically change the future course of the electric power industry.

II. Definition of Retail Unbundling

Historically, retail customers have paid for electric services on a bundled basis. Under this arrangement, all of the components of electric services are offered and priced together as one total service. In other words, bundling involves charging a single price for a combination of two or more

DEFINITION OF RETAIL UNBUNDLING

The offering and pricing of retail electric services on a component-by-component basis (e.g., energy, transmission, distribution, voltage reduction, back-up service).

services. One example of bundled service in the telecommunications industry is flat-rate local service. This service includes a single price that encompasses both access and unlimited local calling.

Throughout the world, the trend in the electric power industry is for customers to pay separate charges for generation, transmission, and distribution.[1] According to many analysts, the future U.S. electric power industry will likely follow the same path.[2]

As defined in this paper, unbundling refers to the offering of separate prices to retail customers for individual components of electric service. For retail customers, these components may include energy, capacity, reliability, transmission, distribution, and ancillary services. Retail wheeling, or what some observers call direct customer access, is a form of retail service unbundling where commodity electricity is sold and priced separately from the other components of electric services required by retail customers.[3]

Unbundled electric services are complementary in that one service component helps to enhance the value of other components. Electric energy, for example, has value to retail customers only if they have access to the delivery system that transports the electricity from the producer. Ancillary unbundled services, such as local reactive support and power system voltage generation and

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[1] As pointed out later, the actual services received by retail customers may consist of several subcomponents of the three major functions of an electric power system.

[2] See, for example, Pierce Richard J., Jr., "The Advantages of De-Integrating the Electricity Industry," *The Electricity Journal* 7, no. 9 (November 1994): 16-21.

[3] See Costello, Kenneth W., Robert E. Burns, and Youssef Hegazy, "How State Regulators Should Handle Retail Wheeling," *Public Utilities Fortnightly* (February 15, 1995): 26-29.

The recent trend has been for utilities to offer large customers more services and tariffs in response to competition and for other reasons. Yet, for the most part, the new services and prices remain bundled.

control, may also be essential services in maintaining the stability and reliability of the local electric power system.[4]

At any given time, a utility may offer customers both bundled and unbundled services. Customers would typically benefit if offered the choice between bundled services and unbundled services. Some customers, for example, may opt for purchasing individual components of electric service if they are less costly than purchasing bundled service.[5] For other customers with higher transaction costs, purchasing the bundled service could be the preferred action.[6]

As discussed later, unbundling can benefit customers by increasing the range of options available to them. It allows customers to choose different services from a menu of prices that accounts for the costs and value of those services.[7]

III. Why the Current Interest in Retail Unbundling?

The current interest in unbundling of retail services originates from the competitive forces reshaping the electric power industry. Both electricity generators and consumers would like the opportunity to more actively participate in

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[4] A detailed discussion of these services is contained in the testimony of parties in the Michigan retail wheeling dockets (Case Nos. U-10143 and U-10176).

[5] As discussed later, for commercial viability utilities should know the cost of each unbundled service. Otherwise, a customer may exploit to its advantage and at the expense of the utility those services priced below cost.

[6] "Transaction costs" refer to the costs for customers to search out and negotiate with suppliers of different electric services.

[7] Mandatory bundling of electric service can be a means for a firm to exercise market power. In the economics literature, tie-in sales and bundling of services constitute possible sources of monopolistic price discrimination. A major issue is the incentive given to monopolists to use tie-in sales and bundling to achieve price discrimination that otherwise would not be possible. Tie-in sales and bundling also preclude potential rivals from offering individual services at a lower cost. As another problem, tie-in sales are usually construed as an antitrust issue. See Carlton, Dennis W. and Jeffrey M. Perloff, *Modern Industrial Organization* (New York: Harper Collins College Publishers), 841-43.

the new competitive environment. Generators want to expand their market by having the ability to sell their electricity directly to retail customers. Retail customers, especially industrial customers, want the opportunity to shop around for lower-priced electricity. In most parts of the country, the market-based price of new generation is below the embedded cost of existing generation.

Unbundling of utility services in the telecommunications and natural gas industries was initially driven by the economic pressures from consumers who wanted the opportunity to purchase the lowest-priced products and services. In the natural gas industry, unbundled gas transportation was in large part a response to bypass threats by large retail customers and the associated problems of cost shifting and stranded investments.[8] From the perspective of local gas distribution companies (LDCs), unbundling was a way to avoid lost profits from customers leaving the distribution system. LDCs have generally been agreeable to assuming the role of transporters, since their profits are generally not tied to the amount of purchased gas they procure for their customers.[9]

The Energy Policy Act of 1992 (EPAct) provided further impetus to unbundled electric service. At the wholesale level, it provides for greater transmission access. Although it is uncertain at this time what legal authority state PUCs and legislatures have in mandating the unbundling of retail services, in the eyes of some experts and interest groups the Act has reduced the legal uncertainty.[10] They argue that the Act and other federal laws do not prohibit a state from ordering retail unbundling of services in the form of retail wheeling. Proponents of this view point to the Act's so-called "savings clause," which they

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[8] Inefficient rate designs and the unavailability of certain unbundled services, mainly local transportation, were the major sources of bypass threats in the natural gas industry.

[9] The reason for this is that LDCs typically recover their purchased gas costs from customers on a dollar-for-dollar basis.

[10] A discussion of the legal issues surrounding retail unbundling is contained in Costello, Kenneth W., Robert E. Burns, and Youssef Hegazy, *Overview of Issues Relating to the Retail Wheeling of Electricity* (Columbus, OH: The National Regulatory Research Institute, 1994), 35-54.

argue prevents the Federal Energy Regulatory Commission (FERC) from preempting any state law regulating the unbundling of retail services.

On the other side, experts argue that EPAct neither grants state legislatures or state PUCs any authority to require a utility to unbundle its retail services nor removes existing federal legislation over transmission activities in interstate commerce. Their interpretation of the "savings clause" is that it does not change the authority of the states from what they had previously. In any event, it seems likely that a resolution of this legal issue will rest with the courts.

To sum, the economic pressures for unbundling of retail services are robust whenever competitive pressures prevail. As long as utility embedded generation costs are in excess of prices offered for unbundled generation services by independent power producers and utility affiliates, those economic pressures will likely only grow. One lesson learned from the experiences of other public utility industries is that when existing regulatory and utility practices deviate from market realities, reform becomes inevitable. Reform, in the context of this paper, entails the unbundling of retail services. Simply put, competition creates the stimulus for the unbundling of electric services.

IV. General Arguments over Retail Unbundling

Most experts argue that unbundling of retail services is an integral part of any fully competitive industry.[11] Unbundling can improve market efficiency by allowing certain functions to be handled by different entities in a competitive environment. As discussed below, unbundling has the potential to eliminate major sources of inefficiency in the electric power industry. Specifically, unbundling tends to place market pressures to (1) end existing cross-subsidies and

[11] See, for example, Kahn, Alfred E., "Deregulation: Looking Backward and Looking Forward," *Yale Journal on Regulation* 7:2 (Summer 1990): 325-54.

inappropriate rate designs, (2) encourage entry of efficient electric-service providers, and (3) allow customers more choices of electric service. The FERC recognized the potential benefits of gas-service unbundling in its 636 series of General Orders. It stated that the existing bundled citygate gas sales service may be anticompetitive and, consequently, stifle the efficient operation of the gas wellhead market.[12]

To justify any reform, including retail service unbundling, the positive should outweigh the negatives. The optimum degree of unbundling requires knowing the costs of unbundling relative to the benefits. One way to decide this is to require a utility to provide unbundled services at cost-determined prices.[13]

The potential problems from retail unbundling can arise from several sources:[14]

1. incorrect pricing of unbundled services (e.g., embedded-cost pricing of competitive services);
2. inappropriate obligation-to-serve requirements in relation to market realities;
3. lost economies of scope or coordination;[15]
4. high transaction costs for customers, which could be problematic if customers are required to purchase unbundled services;[16] and

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[12] Order 636 was issued on April 8, 1992, Order 636-A on August 3, 1992, and Order 636-B on November 27, 1992.

[13] This requirement would allow the marketplace to determine the value that retail customers place on different levels of unbundled services. In contrast, the offering of unbundled services at subsidized prices will result in excess demand for these services.

[14] More detailed discussion follows in the next section, "Specific Issues for State Regulators and Electric Utilities."

[15] For example, lost economies of scope refer to the additional costs from producing and providing service components separately rather than jointly by one entity, such as the local electric utility, or to the decline in electric power system reliability. Lost economies of scope can also derive from a reduction in diversity of load.

[16] See the definition of "transaction costs" in footnote 6.

5. tight regulatory rules that are incompatible with existing competitive conditions.

One general issue surrounding unbundling relates to a "chicken and egg" dilemma: *an argument can be made that unbundling should wait until competition is sufficiently developed; but, on the other hand, competition may not develop in the absence of unbundling or, to put it differently, service components with competitive features may not actually become competitive.* One risk of unbundling is that markets for component services may not be competitive enough to benefit customers. In fact, customers may be worse off if providers are granted wide pricing discretion in an environment where they possess market power.

One risk of the "delayed" posture is that retail customers would be deprived of the benefits that competition could offer them. These benefits include lower-priced and more widely varied electric services.[17]

From a business-strategy perspective, retail unbundling can increase market opportunities for utilities. By creating profit centers for individual services, utilities can realize significant economic gains from unbundling their services.

From an economic-efficiency perspective, the case for unbundling is strongest when (1) bundling hides large cost differences among the service components that are bundled, (2) customers can vary their electrical usage in response to differentiated pricing, (3) unbundling significantly strengthens competitive forces, (4) transaction costs are small, and (5) lost economies of scope or coordination are minimal.

The major argument in favor of unbundling is that it would benefit customers by offering them an assortment of price and quality options that reflect the respective costs to society. While perhaps acknowledging some lost economies of scope or coordination, proponents of unbundling argue that the potentially large

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[17] One argument consistent with this view is that unbundling would allow competitive forces to determine which service components competitors may be able to provide as efficiently as the local utility.

gains from the resultant increase in competitive forces would justify unbundling. One kind of gain would be the pressure placed on eliminating cross-subsidies and driving all prices to long-run marginal costs. Overall, proponents argue that unbundling of electric services is an essential component of any procompetitive policy.

POSSIBLE SOURCES OF INEFFICIENCY FROM RETAIL UNBUNDLING

- Inefficient pricing
- Inappropriate obligation-to-serve requirements
- Lost economies of scope or coordination
- High transaction costs
- Tight regulatory rules

Those on the other side who are more cautious about unbundling contend that the "pieces have to be in place" before unbundling should pass. For example, they argue that, at the minimum, appropriate regulatory rules, certain market conditions, and explicit accountability of unbundled-service costs would need to occur first. In their view, the sum of the economic costs for unbundled services could exceed the economic cost of an individual utility providing an equivalent bundled service. Yet, customers may choose to purchase the unbundled services because of regulatory pricing distortions.[18]

Some economists argue that unbundling may be incompatible with promoting economic efficiency because of incorrect pricing of unbundled services or large diseconomies of scope or coordination. One recommendation is that these losses can be reduced by either (1) lifting burdens on utilities that their competitors do not

[18] Prices for the bundled service, for example, may be subsidizing other services or certain classes of customers or, for other reasons, do not reflect costs.

bear, (2) imposing costs equally on all competitors, or (3) requiring utility investors to absorb sunk or historical costs, or a combination of the three.[19]

As its major effect, the unbundling of retail electric services would accelerate competition in the electric power industry. Proponents argue that unbundling will advance customer choice, stimulate cost-based or market-based pricing, pressure electric utilities to be customer-responsive, and, overall, promote competitive forces in the electric power industry. For unbundling to achieve these benefits and certain social objectives in a manner that minimizes short-run economic distortions, regulatory resolution of various issues and new utility practices and policies would first be required.

V. Specific Issues for State Regulators and Electric Utilities

Retail service unbundling entails addressing a host of issues that touch on fundamental regulatory and utility activities. It is safe to say that the competitive forces accelerated by retail unbundling will demand a serious reassessment of existing regulatory and utility actions. The major issues associated with retail unbundling include:

1. the appropriate pricing rules and methodologies for individual unbundled service;
2. the degree of regulatory oversight and requirements for various unbundled services;
3. the achievement of comparability for essential transportation service;
4. the eligibility of customers to purchase unbundled services;
5. the effect on electric power reliability;
6. the need for a new "regulatory compact;"

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[19] See, for example, Kahn, Alfred E., "Can Regulation and Competition Coexist? Solutions to the Stranded Cost Problem and Other Conundra," *The Electricity Journal* 7:8 (October 1994): 23-35.

7. the consequences for planning rules and activities by electric utilities;

8. the effect on core customers (i.e., those customers who continue to purchase bundled service);

9. the treatment of stranded costs or assets; and

10. the implication for the advancement of utility-funded social activities.

LIKELY OUTCOMES OF RETAIL SERVICE UNBUNDLING

- Classification of customers into core and noncore groupings
- New pricing methodologies and rules
- Costing of service components
- New obligation-to-serve rules
- Lost economies of scope or coordination
- More emphasis on utilities offering value-added services
- Pressure for performance-based (e.g., price caps) regulation

The following discussion represents a brief overview of these issues. No attempt is made to resolve them. In the years ahead, they will be debated and decided by state PUCs, the courts, the FERC, and the various participants in the regulatory arena. The objective here is to provide a nascent discussion focusing on the issues surrounding retail unbundling that will likely ensue throughout the country.[20]

[20] One state, Michigan, has already addressed several of these issues.

A. Pricing Methodologies and Rules

One safe prediction is that unbundling, by accelerating competition, will move prices toward marginal cost or market-based levels. One plausible outcome is a fixed-variable rate design that efficiently signals to customers energy commodity (kWh) rates corresponding to marginal cost.[21] A fixed fee or reservation charge would recover those fixed costs not recovered through the energy commodity rates. The logic behind this prediction centers on the presumption that the competitive forces accelerated by retail unbundling will tend to force prices to marginal cost.[22]

Real-time pricing is one example of a fixed-variable rate design. Under this methodology, prices are comprised of an hourly energy charge and an access charge. The access charge attempts to allow the utility to recover its revenue requirements and, at the same time, enables energy prices to be set at short-run marginal cost.[23] Compatible with real-time pricing is the differentiation of utility services by quality and time of use.

For unbundled services subject to natural-monopoly features, such as some ancillary and distribution services, either cost-of-service pricing or some form of

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[21] The marginal energy commodity rate may account for marginal energy costs and outage costs. The rate should be adjusted for transmission losses.

[22] It can be shown that a two-part tariff enables a utility facing market contestability to remain sustainable and to deter inefficient entry.

[23] A discussion of real-time pricing is contained in Chapman, Bruce and Tom Tramutola, "Real-Time Pricing; DSM at Its Best," *The Electricity Journal* 3:7 (August/September 1990): 40-49; and Burkhart, Lori A., "Real-Time Pricing--Allowing Customers to Respond," *Public Utilities Fortnightly* (October 15, 1992): 31-33.

Benefits of real-time pricing include the lowering of operating costs and prices and the inducement of investment decisions that reflect consumer value of reliable electric service. Recent advances in communications, metering, and computer-simulation technology have made real-time pricing more practical and, increasingly, cost-beneficial.

performance-based rates will likely emerge. Here, one comment is that not all unbundled services will, or should, be priced using the same methodology. PUCs will face the task of determining which unbundled services are competitive and which will still have natural-monopoly features. As a general rule, those which have competitive characteristics should either be deregulated or subject to loose regulation.[24] For such services, contracting between parties may become commonplace. Bilateral negotiations can produce the greatest benefits by allowing the parties to specifically tailor services to the unique demands of individual customers.[25]

For those services still subject to cost-of-service regulation, setting a revenue requirement will be required.[26] A big challenge for utilities will be, first, to identify the various services that will be provided to different customers and, second, to measure the costs of these services.[27]

From an economic perspective, prices for unbundled services should achieve a "level playing field" whereby the provider of any service should be the entity with the lowest marginal cost.[28] On grounds of both equity and economic efficiency, the benefits achieved by customers choosing unbundled services should not originate from subsidies funded by other customers.

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[24] For an example of how price caps can be applied to the electric power industry, see Olson, Wayne P. and Kenneth W. Costello, "Electricity Matters: A New Incentives Approach for a Changing Electric Industry," *The Electricity Journal* 8:1 (January/February 1995): 28-40.

[25] Contracting, while shown to be economically efficient, may violate long-standing regulatory fairness standards. These standards limit the degree to which utilities can engage in price discrimination.

[26] Rate-setting may include other information, such as market studies.

[27] As discussed later in this paper, Detroit Edison is currently undertaking these tasks.

[28] Otherwise, it can be argued the competition induced by unbundling would not be economically efficient (i.e., aggregate benefits are less than aggregate costs).

B. Comparability

One general definition of "comparability" is that it refers to the situation where retail customers or their agents are provided transmission service and complementary ancillary services (e.g., scheduling and dispatch) that will allow them to buy and sell unbundled commodity electricity. For unbundling to work efficiently, it becomes necessary for customers to have access to the complementary services that are essential for dependable electric service.

Comparability requires the setting of nondiscriminatory conditions for essential services, such as transportation. These rules should contain both pricing and access rules that allow customers reasonable opportunities to purchase unbundled services. As a more specific definition, comparability requires that the price and terms and conditions for unbundled transmission service and ancillary services are the same or comparable to these same services the utility provides to itself.[29]

C. Eligibility for Unbundled Services

Opportunities to purchase unbundled services may initially be offered only to larger customers. These customers, in most cases, would probably be the most willing and able to shop around for different electric-service components. Small customers may not benefit much from unbundled service unless they are able to minimize their transaction costs, say, by contracting with a broker. Over time, however, unbundled services may be in demand by all customers. Brokers, for example, can be expected to enter the marketplace and begin to directly compete with the local utility for the business of today's core customers.

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[29] One major issue before the FERC is whether comparability of transmission service requires both "point-to-point" and network service.

D. Reliability Effects

Unbundling involves the coordination of different entities in delivering reliable electric service to individual customers. The control area of the local utility becomes a critical focal point. It performs several functions: controlling the loading of generators, monitoring and controlling voltages and frequency, coordinating with other control areas, performing economic dispatching, scheduling maintenance, and handling emergencies.

In maintaining the technical integrity and reliability of the local control area, unbundling may require utilities to make additional investments in equipment and other items. Although one can argue that the technical and engineering implications of unbundling present no long-term problem, unbundling will probably confront utilities with new challenges and additional costs.

E. "Regulatory Compact"

FEATURES OF A
NEW REGULATORY COMPACT

- More pricing flexibility for competitive unbundled services
- New definition of "fair and reasonable prices"
- Obligation to deliver electricity to noncore customers
- New rate-making paradigm

Retail service unbundling would place pressure on modifying the "regulatory compact." The long-standing compact requires utilities to provide highly reliable service at "fair and reasonable prices," in return for an exclusive franchise in a designated area and the opportunity to earn an adequate rate of return.

In a world of retail service unbundling, it is questionable

whether the local utility should have an obligation to provide primary or back-up service to those customers who, at certain times, decide to purchase service components from competitor suppliers. The local utility should clearly have an obligation to deliver the power requested by those customers. The reason for this is that the utility would retain monopoly power over the transmission and distribution systems. The obligation of the local utility to provide energy and capacity (for example, back-up service) when a third-party generator fails to produce the required amounts is, however, another matter.

For any service component that is transacted in a non-monopolistic market one can argue that the local utility should not have a strict obligation to serve. If, on the other hand, the local utility is properly compensated, the utility may rightly continue to have the same service obligations as before. In any event, with unbundling the utility's obligation to serve would need to be reassessed.

As discussed above, unbundling would probably result in market-based or marginal-cost pricing of certain service components. New pricing rules and methodologies replacing traditional cost-of-service principles will likely emerge. This implies that the concept of "fair and reasonable" prices may have to be re-interpreted in a retail-unbundling world.

F. Planning

Competitive pressures along with retail unbundling will place a greater emphasis on pricing for planning purposes. Prices and market incentives will increasingly be used to determine new capacity needs.[30] Reliability levels will depend less on the reserve-margin concept and more on what value customers place on different levels of electricity quality.

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[30] See, for example, Stalon, Charles and Eric Hirst, "Effects of Electric-Utility Integrated Resource Planning," paper prepared for the U.S. Department of Energy, June 1994.

At first glance, retail unbundling will make it more difficult for electric utilities to forecast demand—forecasts will have to be made for the different service components. This task will be especially difficult in the absence of specific obligation-to-serve rules.

The integrated resource planning (IRP), as currently practiced in many states, may need to be modified as unbundling and competition simultaneously unfold. IRP may have to incorporate flexible market-based rules that accommodate competitive forces and the demands of individual customers. This implies that planning should focus more on (1) customers' needs and the price that these customers will be willing to pay for different services, (2) an environment that provides a utility with a balanced risk-reward incentive, and (3) flexible power procurement and other rules that allow utilities to take advantage of changed market conditions.

Overall, planning costs together with operating costs will be more constrained by customers' demand. For utility planning, retail unbundling will enhance the role of market forces and diminish the role of political/regulatory forces. Consequently, utility planning will be primarily driven by economic-efficiency considerations.

G. Core Customers

Not all customers will initially avail themselves of unbundled services. Over this period, customers will be classified into the categories of core and noncore. Core customers, by definition, will continue to purchase bundled service. An important question is: How would the formation of a noncore class of customers that is able and willing to purchase unbundled services affect core customers?

One way for utilities and regulators to protect core customers is to assure that the prices paid by noncore customers for unbundled services are compensatory; that is, the incremental costs incurred by a utility for providing

unbundled services are fully recovered from noncore customers. This outcome is also compatible with advancing economic efficiency.

Accurate costing of unbundled services would also be in the best interest of the utility. If the utility is unable to measure the costs of individual services, noncore customers may tend to purchase only those services that are underpriced and avoid those services that are overpriced.[31] Such a scenario could be financially disastrous for the utility.

A second way to protect core customers is to continue holding noncore customers responsible for their share of the utility's fixed costs. This may require the utility to impose a "surcharge" on unbundled services (more on this topic in the next section).[32]

The fact that certain customers may be regarded as core customers today and in the near future should not preclude the possibility that, sometime later, they will prefer the opportunity to purchase unbundled services. Consideration, for example, is now being given to allowing residential and other small gas customers in the United States the opportunity to purchase unbundled gas services. For the last few years, Ontario residential gas customers have had the right to contract with brokers and marketers to supply natural gas owned by a third party.[33]

To the extent that cross-subsidies currently exist, service unbundling could cause core customers to pay higher prices. Service unbundling would tend to eliminate any cross-subsidies that currently benefit core customers. Cross-subsidies funded by customers with competitive choices are largely unsustainable in the long term. Market-based pricing would drive prices for competitive services

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[31] The customer, for example, may avoid the overpriced services to the extent she can purchase an equivalent service from another provider at a lower price.

[32] Regulators may favor a policy that gives utilities the incentive to maximize profits from unbundled services. This could lessen the level of fixed costs that the utility would need to recover from bundled services or core customers.

[33] See Centra Gas Ontario, Consumer Gas, and Union Gas, "Natural Gas Supply Security," paper presented to the Ontario Ministry of Energy, August 1991.

to long-run marginal cost. This outcome, by and in itself, may require utilities to increase bundled rates to core customers.

H. Stranded Costs and Assets

The utility may not be able to simply shift the costs of bundled services to unbundled services. This could place the utility in an uncompetitive position. It also may not be compatible with promoting economic efficiency. Of course, if an unbundled service (e.g., transmission service) is not provided in competitive markets, the utility could more easily shift costs to that service. Here, stranded costs and assets refer to those unrecovered, utility-specific costs arising from unbundling and the associated increase in retail competition. How stranded costs are treated, whatever that may be, should probably be resolved before unbundling takes place.

At one end of the spectrum is the view that all of the stranded costs should be borne by those who directly benefit from unbundling, namely noncore customers. Some economists have argued that such an allocation would protect core customers and, at the same time, minimize economic distortions.[34] Constraints would have to be placed on stranded-cost surcharges to competitive unbundled services. Otherwise, the utility would lose the sale of those services to other providers.

Another option to allocate stranded costs is to "spread the pain" by distributing those costs jointly to core customers, noncore customers, and utility shareholders. Although perhaps not the best economic choice, it could politically

[34] Such economic distortions stem from a retail customer purchasing an unbundled service from a nonutility with lower prices but higher economic costs than the local utility.

be the most acceptable one.[35] How tolerant noncore customers would be in shouldering these costs, of course, depends on their ability to choose other supply options.

A last point on stranded costs is that utilities could fund a portion of these costs by offering new and different unbundled services and by achieving efficiency gains that competitive pressures would impel.[36] This would require regulators to allocate a larger share of the benefits from efficiency gains to utility shareholders. Performance-based regulation would be one way to achieve this.[37]

I. Advancement of Social Objectives

Unbundling could cause utility-funded social activities, such as promoting economic development, assisting low-income customers, deploying renewable resources, and improving environmental quality, to be subject to greater scrutiny. In a more competitive environment utilities will be under greater pressure to control their prices for competitive services. Utilities may therefore be induced to allocate social-activities costs either to noncompetitive unbundled services (e.g.,

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[35] This approach, for example, has been taken by the FERC in its Order 500 decision. The Order and its companion, Order 500-H, established a transition-cost-recovery (TCR) methodology allowing pipelines to recover between 50 percent and 75 percent of their prudently incurred take-or-pay costs from customers. Most pipelines settled with their customers, largely LDCs, that called for a 50/50 split of these costs. LDCs, after litigation by some PUCs and consumer groups, were able to recover almost all of their allotted share of the take-or-pay costs.

[36] In the natural gas industry, a large portion of take-or-pay liabilities were simply absorbed by the efficiency gains that arose from wellhead gas deregulation and open access of the pipeline network. These gains benefitted all market participants, including gas producers, pipelines, and retail customers.

[37] Performance-based regulation may include profit-sharing, price caps, or yardstick regulation. A discussion of these mechanisms is contained in Harunuzzaman, Mohammad et al., *Regulatory Practices and Innovative Generation Technologies: Problems and New Rate-Making Approaches* (Columbus, OH: The National Regulatory Research Institute, 1994).

transmission) or to the bundled services of core customers, or to reduce their funding of social activities.[38]

Funding for social activities also may come from utility profits earned from the introduction of new services. Overall, service unbundling and retail competition will not necessarily terminate utility-funded social activities.

VI. Lessons Learned from the Natural Gas Industry

The natural gas industry has had years of experience in the unbundling of services at both the wholesale and retail levels. Although the natural gas industry and the electric power industry differ in terms of features and structures, common unbundling issues will likely ensue.

The major experiences in the natural gas industry include:

- By accelerating competition, unbundling caused a major price shift from "equity" (subsidy) pricing to cost-based pricing. Once unbundling offered price-elastic customers the ability to shop around for different services, cross-subsidies started to dissipate. Subsidies in the natural gas industries, as well as other regulated industries, are sustainable only when regulated firms face little competitive pressure to rebalance their prices in line with cost-of-service or market conditions.
- Many industrial customers preferred cost-based prices for unbundled services and greater specification of obligation-to-serve rules than discount or flexible pricing for bundled service.

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[38] In the context of real-time pricing, funding of social activities could come exclusively from access or reservation charges. The economic argument in support of this action is that by not inflating the energy charges above short-run marginal cost, economic inefficiencies would be minimized.

- The financial problems of LDCs could be lessened by LDCs offering an array of unbundled services priced at the cost of service. LDCs are currently in the process of further unbundling their services.[39] These services will include sales, transportation, storage, balancing, standby sales, and brokering of upstream supplies.
- LDC unbundling requires addressing several issues. An important one is the availability of unbundled services that certain customers desire (e.g., firm and interruptible transportation service). A development in LDC unbundling has been a movement toward pricing based on actual market conditions.[40] For example, interruptible transportation rates are being offered in part to avoid the need for special discounted rates to industrial customers threatening to bypass.
- LDCs largely prevented bypass by offering unbundled transportation service at a cost-based price. Originally LDCs recommended to their PUCs that transportation rates should be based on their non-gas margin.[41] This was found to be unacceptable to industrial customers,

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[39] See Suydan, Miriam, "Significant State Commission Actions Regarding Unbundling and Deregulation of Local Distribution Company Services," *Gas Energy Review* (March 1995): 21-23. As a general rule, the degree of unbundling would tend to coincide with the intensity of competition in an industry.

[40] Peter Drucker, in a recent article, refers to market-based pricing as inducing "price-led costing." This concept places a limit on a firm's costs at the price level that consumers are willing to pay for a service. (Note how contrary this is to cost-of-service regulation, where the firm's actual or reported costs determine the price.) (See Drucker, Peter F., "The Information Executives Truly Need," *Harvard Business Review* [January-February 1995]: 54-62.)

The emergence of a competitive market in the electric power industry, according to Drucker's general discussion of pricing, would change the principle of pricing from cost-based pricing to price-based costing. Consequently, customers' willingness to pay would drive both prices and costs. Drucker also argues that the pertinent cost information for a competitive firm comes from what is called activity-based, not traditional cost, accounting. A detailed discussion of activity-based costing is contained in Electric Power Research Institute, *Activity-Based Costing for Electric Utilities* (Palo Alto, CA: Electric Power Research Institute, 1992).

[41] The non-gas margin can be measured as the bundled price previously charged by the LDC to a customer, minus the purchased gas cost.

who successfully argued that the non-gas margin was considerably above the cost of service.

- Industrial customers have complained that unbundled transportation service contained nonprice obstacles. These obstacles include onerous balancing penalties, the refusal of LDCs to offer complementary unbundled services, and the refusal of LDCs to offer interruptible service to a customer who did not have a 100 percent back-up fuel capability.
- The offering of transportation services has raised the question of what complementary services should also be made available to a customer. This relates to the definition of the LDC's obligation to serve. A determination had to be made regarding which unbundled services must be offered to a customer and taken by the customer, and which are optional. The right answer to these questions depends importantly on the characteristics of a customer.
- An emerging issue in the natural gas industry is whether an LDC should be prohibited from offering bundled service to certain customers. Instead of offering bundled service, an LDC may be allowed to repackage unbundled services to achieve the equivalence of the previously offered bundled service. As of today, no state PUC has required mandatory unbundling of retail sales service.
- Competitive forces will pressure both regulated firms and their regulators to make unbundled services available to a larger number of customers. As competitive pressures accelerate, the offering of additional unbundled services is inevitable.[42] As the functions of LDCs are redefined and their

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[42] The staff of the Maryland Public Service Commission discusses the role of, and the issues associated with, retail gas unbundling in the report *A Framework for Future Regulation of Gas Services in Maryland*, Recommendations of Staff of the Maryland Public Service Commission (Baltimore, MD: The Maryland Public Service Commission, December 20, 1994). One staff recommendation is the unbundling of traditional retail sales service into separate citygate supply and delivery services for all customers.

monopolistic status challenged, LDCs will likely make significant adjustments in their business strategies. One strategy will be to provide customers with more services priced on the basis of costs or market conditions.

VII. Service Unbundling Activities in Michigan

A. Detroit Edison's Initiative

One electric utility, Detroit Edison Company, has started to investigate the unbundling of electric services.[43] Its Service Pricing Initiative is being guided by an Advisory Panel consisting of staff personnel from the Michigan Public Service Commission, the FERC, large industrial customers, other utilities, and university personnel. The objective of the Initiative is to gather information that would identify the various kinds of unbundled services and to develop a costing methodology for these

PRELIMINARY FINDINGS OF SERVICE PRICING INITIATIVE

- Unbundling of electric retail service requires the provision of different service components for individual customers
- Micro-cost study (containing information beyond what is currently available) is required for each ancillary service
- Unbundled service is not comparable to bundled service
- Unbundling causes a decline in economies of scope
- Identifying unbundled retail services and measuring their costs are difficult tasks

[43] See Welsh, Joseph L., "Ancillary/Unbundled Electric Services," presentation before the NARUC Committee on Electricity, Washington, D.C., February 27, 1995.

services.[44] This objective recognizes that proper unbundling of services and pricing of those services is a requisite for economically efficient outcomes.

The Initiative represents a technical analysis of electric service components and their costs. An underlying premise of the Initiative is that the specification and costing issues surrounding ancillary services need to be addressed if retail competition and the unbundling of retail services are to be efficient. Detroit Edison defines ancillary services as those services in addition to transmission services that a retail customer would need when purchasing electric capacity and energy from a third party.

Until now, the Initiative has identified several services that the local utility, or someone else for that matter, would have to provide in order to maintain the technical integrity of the local control area and to achieve bundled-equivalent service to a noncore customer. By identifying the necessary unbundled services and their costs, the sum of the cost of unbundled services, taxes and the costs of advancing existing social goals will be compared with the price that a customer currently pays for Detroit Edison's bundled service.

B. Retail Wheeling Dockets

The stimulus behind the Detroit Edison Initiative was the Michigan Public Service Commission's order in the retail wheeling dockets (Cases U-10143 and U-10176). In those dockets the Commission ruled against the pricing proposals made by industrial customers and the two involved utilities, Detroit Edison and Consumers Power. The industrial customers proposed that retail-wheeling service prices should be based on the embedded costs associated with the transmission

[44] With regard to transmission services, the same objective was applied in a recent study conducted for the Electric Power Research Institute, *Transmission Services Costing Framework* (Palo Alto, CA: Electric Power Research Institute, 1995).

and subtransmission function. The Commission found this approach to be inadequate in compensating the utility.

The utilities' proposal, called "top down" pricing, was found by the Commission to result in excessive rates for retail-wheeling services. This approach involves the utility subtracting its avoided costs, when a customer purchases third-party power, from the price that the customer would otherwise be paying for bundled electric service. The approach, in effect, would establish retail-wheeling service prices in terms of opportunity costs. Proponents of "top down" pricing argue that it would achieve a "no losers" outcome (that is, customers receiving bundled service would not be worse off) and would prevent uneconomical retail wheeling.[45]

While rejecting both proposals, the Commission ordered the Administrative Law Judge to reopen the docket to address the cost recovery of ancillary services. In a recent (February 21, 1995) decision, the Administrative Law Judge in a draft order ruled that transmission rates and charges should be based on embedded cost and that retail-wheeling customers should be charged for stranded costs, societal obligations, and deferred charges. These charges would recover expenses associated with energy conservation programs, nuclear decommissioning, generating plant amortization, and FAS No. 106 costs ("Employer's Accounting for Postretirement Benefits Other Than Pensions").

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[45] For a discussion of the "top down" approach, see Landon, John H., *Direct Testimony Before the Michigan Public Service Commission*, Cases U-10143 and U-101176, March 1, 1993.

Earlier this year, an approach with results similar to the "top down" methodology was proposed by Pacific Gas and Electric Company (PG&E). Under its buy/sell tariff, a customer could negotiate for power from any third party. The utility would buy the power on the customer's behalf at the price negotiated by the customer. The utility would then resell the power to the customer and deliver it at a single bundled rate. The customer would be given a bill credit corresponding to the short-run avoided cost. PG&E has since withdrawn its proposal in response to the FERC's mega-NOPR on transmission access, stranded costs, and other "competition" issues (Docket Nos. RM95-8-000, RM94-7-001, RM95-9-000, ER93-540-000, and et al.). The FERC stated that it has jurisdiction over the tariffs pertaining to the interstate transmission component of a buy-sell arrangement.

VIII. Summary

The interest in retail unbundling of electric services coincides with the movement of the electric power industry toward more competition. The pressure for unbundling comes from both independent power generators and large retail customers. This pressure will likely grow in the future.

Retail unbundling can improve the efficiency of the electric power industry by strengthening competitive forces. For these forces to be in the public interest, as well as consistent with improving the economic performance of the electric power industry, requires the execution of new practices and policies by both state regulators and utilities. These actions should be compatible with the market conditions created by retail service unbundling.

A serious consideration of retail unbundling demands addressing a wide range of questions. In addressing them, both regulators and utilities will face major challenges. How these questions are ultimately resolved will affect the economic outcomes of retail unbundling.