

### III. New Service Availability

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One of the fundamental rationales for deregulation or restructuring of formerly monopolistic industries is the concept that a market-based structure will induce creativity, leading to the creation of services which regulators and monopolistic producers would not have anticipated or provided. This concept, which is related to Schumpeter's insight that competition induces a "gale of creative destruction," implies that many of these products and services will be unanticipated, and the value created by their appearance cannot be duplicated within a cost-of-service regulatory framework. New energy markets, in other words, bring with them the opportunity to provide consumers with choices that go beyond simply a wider range of suppliers of their traditional products and services. Consumers can also gain the benefits of products and services that had not even been imagined before.

#### Background and Regulatory Context

As commodity energy markets become more competitive, the provision of commodity source options transforms the types of services offered to consumers. Once viable commodity source options become available, wholesale energy marketers and wholesale spot markets rapidly appear. A natural consequence of the opportunity to compete for wholesale customers is the creation of marketers. These new entities, whether independent companies or affiliates of regulated utilities, begin to work as intermediaries between suppliers and customers by arranging for the provision of energy through a range of new types of contracts. Spot markets develop, in which short-term commodity energy is available at prices that are set by market forces instead of regulators. Indicators to track the number of commodity source options and the development of spot markets are discussed in Section II, Commodity Markets, while price formation and the role of prices is taken up in Section IV, Price Information.

The creation of new types of contracts and financial services is driven by the development of spot energy markets and related price volatility.

The development of spot markets for wholesale energy, and the resulting price volatility, leads to the creation of entirely new types of contracts and financial services. Transportation of energy, for example, becomes more flexible with the provision of new types of delivery contracts. Consumers and marketers can protect themselves against the riskiness of price volatility through hedging instruments such as forward contracts, and further opportunities for trade arise using derivatives and other sophisticated transactions which allow the price volatility itself to be used as a market opportunity.

Finally, the increasing competitiveness of energy markets has led to an increased awareness of consumer needs. The existence of competitors creates for the first time the risk of gaining or losing customers as a result of the quality of service provision and other types of marketing. A wide range of marketing strategies has developed, offering consumers the chance to find the most appropriate source for their energy needs, while forcing service providers to pay more attention to the quality of their customer service.

At the same time, continuing problems in the area of service availability can block access to commodity energy markets. The Commission's ongoing

activities in this area are directed at addressing these continuing issues in both electric power and natural gas markets.

**Electric power markets.** Even after the implementation of Order No. 888, the Commission's understanding of market developments showed that there were still barriers and impediments to the achievement of fully competitive electric power markets. The Commission identified two broad categories: (1) the engineering and economic inefficiencies inherent in the current operation and expansion of the transmission grid, and (2) continuing opportunities for transmission owners to unduly discriminate in the operation of their transmission systems so as to favor their own or their affiliates' power marketing activities.

The transmission facilities of any one operator in a region are part of a larger, integrated transmission system which, from an electrical engineering perspective, operates as a single network. Each separate operator usually makes independent decisions about the use, limitations and expansion of its piece of the system based on incomplete information, even though their independent actions can have major and instantaneous effects on the transmission facilities of all other transmission operators (these network characteristics of energy markets also play a large role in how market prices behave, as discussed in Section IV, Price Information). The resulting economic and engineering inefficiencies, while in a sense traditional, have been exacerbated in recent years due to increases in bulk power trade, large shifts in power flows, and an increasingly de-integrated and decentralized competitive environment.

Further, when utilities control monopoly transmission facilities and also have power marketing interests, they have poor incentives to provide equal quality transmission service to their power marketing competitors. The functional unbundling mandated by Order No. 888 does not change the incentives of vertically integrated utilities to use their transmission assets to favor their own generation, but instead attempts to reduce the ability of utilities to act on those incentives. However, instances of actual discrimination may be undetectable in a non-transparent market and, in any event, it is often hard to determine, on an after-the-fact basis, whether an action was motivated by an intent to favor affiliates or simply reflected the impartial application of operating or technical requirements.

Transmission pricing reform was also identified as an issue which should be addressed by the Commission. Some of these continuing inefficiencies included:

- *pancaked rates*, which require transactions to incur multiple charges as they pass across a fragmented transportation grid;
- *loop flow*, or the difference between a contract path and the actual flows of power, which leads to uncompensated costs and reliability problems; and
- *poor congestion management*, which can also lead to unnecessary costs and reliability problems.

Through Order No. 2000, the Commission is encouraging transmission owners to join regional transmission organizations (RTOs).

To address these concerns, the Commission issued Order No. 2000 late last year. Order No. 2000 calls on all transmission owners to join regional transmission organizations (RTOs). The Commission's goal is encourage the operation of high-voltage transmission on a regional basis, with few economic or operational impediments to trade (including elimination of opportunities for discriminatory transmission), a high level of transparency, and ease of entry or exit for commodity source options. RTOs should also be adaptable to changing conditions and institutional learning over time, through the use of open architecture design principles.

**Natural gas markets.** The Commission also came to the conclusion that the reforms of Order No. 636 had to be revisited. In the unbundled environment, it became increasingly clear that the value of gas transportation, particularly during peak periods, was not related to the maximum tariff rates for the transportation. This largely resulted from the fact that gas *commodity* markets now largely determine the economic value of gas transportation in many areas of the country. Because pipelines legally can discount below their maximum transportation rates, pipelines and shippers can adjust transportation rates to the off-peak demand in the market. However, during peak periods, the Commission's maximum rate cap did not allow unbundled transportation prices to equilibrate with demand. Particularly during peak constraint periods on pipelines, preventing transportation prices from exceeding the pipeline's maximum rate can reduce the options of shippers purchasing in the short-term market, and a shipper may not obtain the capacity or the amount of capacity it needs regardless of whether it places the highest value on the capacity.

Such a shipper then must either purchase gas in a bundled transaction in the downstream market at a price reflecting the market-determined value of transportation, or simply take the gas out of the pipeline and pay the pipeline's scheduling or overrun penalties. The shipper generally will not be able to obtain released capacity at the capped price, because holders of that capacity are unlikely to release capacity at a price less than the amount they can receive by making a bundled sales transaction.

Thus, during a peak day, capping the price of released capacity does not effectively limit the price a purchaser has to pay to obtain transportation service. It only serves to limit the purchasing shipper's capacity options. However, to use its own gas supplies to meet its peak day needs, the shipper would have to pay substantial penalties for overrunning its transportation contract. Shippers accumulating overruns also compromise the operational integrity of the pipeline's system, leading to a degradation of service for all shippers, including the possibility of service curtailment through operational flow orders, during peak periods when shippers most need the system to run efficiently.

Restrictions on capacity release transactions can adversely affect the efficiency of natural gas markets.

The Commission found that these restrictions on capacity release transactions limit the development of an efficient and viable capacity market and can skew customer capacity choices. Capping capacity release transactions during peak periods at the current maximum rate system also harms captive customers

holding long-term contracts on the pipeline. These customers have to pay maximum pipeline rates for both peak and off-peak periods. During off-peak periods, when prices are generally low, they cannot recover the cost of their service through capacity release. But, when demand increases the value of capacity, captive customers cannot reap the benefits of the higher value through a straight-forward release of capacity. Instead, their only alternative in selling capacity is to seek to make bundled sales transactions, regardless of whether this is the most efficient economic alternative. The answer to this problem may lie in the creation of robust secondary markets for short-term capacity, where the market value of the released capacity can be recovered through unregulated transactions.

Thus, this year, in Order No. 637, the Commission waived the price ceiling for short-term released capacity (less than one year) until September 30, 2002. The effectiveness of this unregulated secondary market for short-term capacity will be assessed after the trial period. The Commission also permitted pipelines to propose contracts for capacity with peak/off-peak and term differentiated rate structures. Order No. 637 also sought to improve competitiveness, efficiency and access to transportation by making changes in regulations relating to scheduling procedures, capacity segmentation and pipeline penalties and narrowing the right of first refusal by parties to expiring transportation contracts. Finally, Order No. 637 improves reporting requirements to provide more transparent pricing information and to permit more effective monitoring for the exercise of market power and undue discrimination.

**Petroleum markets.** The effort to reduce the regulatory burden on oil pipelines resulted in the issuance of Order No. 561, *et al.* This series of orders established various ratemaking procedures to be used by common carrier oil pipelines designed to permit the industry to respond more quickly and easily to changes in market conditions.

The Commission has established a generally applicable indexing methodology that allows for greater efficiency and ease in filing rate changes while protecting users of the pipelines' services. It has also delineated three alternatives to that methodology: traditional cost-of-service rates; market-based rates; and negotiated or settlement rates. Most pipelines have taken advantage of the new lighter-handed regulations when filing rate changes under the simplified indexing program.

The pipelines are also using the other modified procedures, such as waiver requests for short-notice filings to streamline filing procedures. As an integral part of the generally applicable indexing methodology, the Commission will conduct a review of the selected index after 5 years of experience. This first review, beginning in July, 2001, will examine the relationship of the annual change in the index to the actual cost changes experienced by the industry.

The number of oil pipelines requesting market-based rates rose by nearly 70 percent in FY 1999.

As part of its efforts to establish a more market-driven regulation for the oil pipeline industry, the Commission has also adopted regulations for filing requests for market-based rates by oil pipelines. This methodology is an

alternative to traditional cost-of-service based regulation. While still relatively more burdensome than the light-handed indexing methodology, several oil pipelines have chosen this alternative. In this past year, the number of oil pipelines requesting market-based determinations has increased by nearly 70 percent over the entire previous ten-year period. In a recent case involving the Explorer Pipeline Company, the Commission's order resolved a number of ambiguities involved in its prior orders on market based rates for the oil pipeline industry and developed a clear template for future applications for market determinations.

Thus, as the industry attempts to structure new proposals to compete more effectively in the market, the Commission has become a working partner in resolving problems, while continuing to provide mandated protection for the pipelines' users. For example, the Commission is exploring means of segmenting oil pipeline operations and costs to allocate costs between markets that are competitive and those that are not. This will allow pipelines to apply for partial exemptions for their competitive markets while retaining shipper protections for the markets in which a pipeline may still have market power. While the Commission does not have jurisdiction over oil pipeline mergers, it is monitoring these transactions to determine their possible impact on the competitive structure of the oil pipeline industry and how this might impact the use of market based rates.

### Developing Performance Indicators: Methods and Data

Service availability, then, is one way to describe the broad range of new opportunities for consumers to receive energy. As a type of performance measure for the Commission's performance in the area of market development, service availability indicators (along with supply option indicators) present the clearest picture of what consumers actually receive as a result of more competitive energy markets. In a sense these are indicators of the physical results of market development, as opposed to prices or other indicators of the economic results of market development.

Service availability and supply options present the best indication of what consumers perceive as a result of competition.

Defining service availability in contrast to supplier options, where suppliers are defined as being the providers of the energy commodity, services are defined as the means of delivering the commodity to consumers and any related offerings which allow the commodity to be more valuable to consumers. In this context services include the transportation of the commodity, service delivery, and financial instruments such as those based on price volatility.

**Transportation services.** Increasing commodity source options, along with the development of spot markets and the resulting opportunities for cost savings, have led to the creation of numerous innovative options for transportation service over the electric power transmission and interstate pipeline networks. Customers seeking to access the commodity markets are now being offered more options for moving the energy commodity once it is purchased.

**Delivery services.** Similarly, the ability of wholesale customers to shop around for their energy services has led to a greatly increased focus on

customer service on the part of market participants. The range of delivery and service choices is growing extremely rapidly. The types of delivery services now available to customers includes, for example, customized pricing and billing, sophisticated real-time metering, integrated energy portfolio management, and a full range of energy audit and strategic energy service planning services.

**Financial instruments.** The development of competitive pricing in spot markets, and the resulting price volatility, has spurred new financial markets, instruments and services. The basic motivation for these financial instruments is hedging against commodity price volatility. This has led to the development of active futures contract markets such as those operated by the New York Mercantile Exchange (NYMEX). In addition, new types of financial arbitrage instruments such as derivatives allow market participants to translate underlying market conditions and the resulting changes in commodity prices into value in the marketplace.

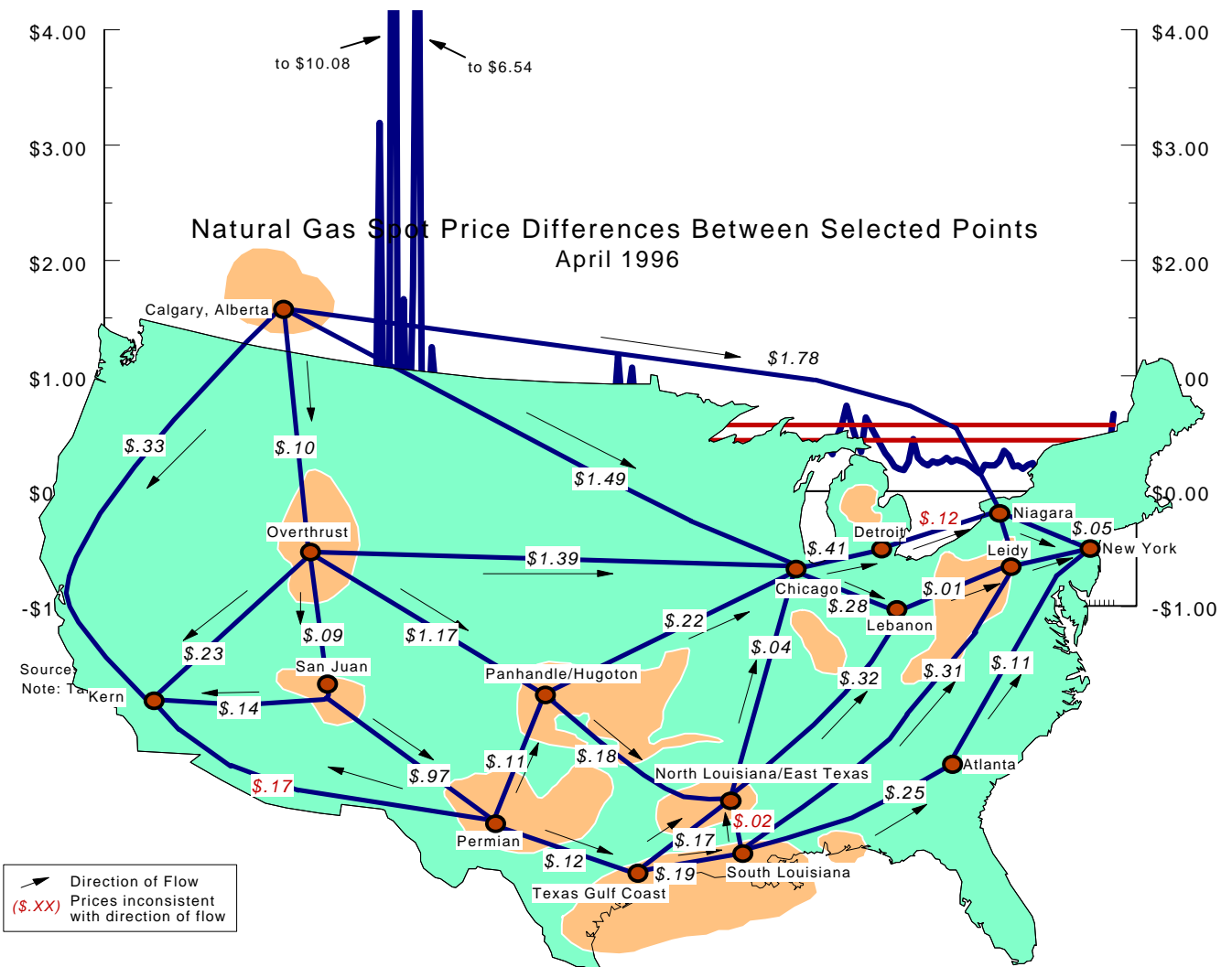
Performance indicators in the area of service availability should be able to trace the development of innovative service options, and to show how developments in competitive energy commodity markets (or other changes in the way energy markets are structured) are related to the development of service options over time. Traditionally, the Commission has not been tracking service availability indicators. Data on service availability is by nature difficult to interpret because of the great variation in the types of services being developed, and because many transactions in the energy markets are private and therefore not necessarily revealed in a public information context.

However, major innovations in service are often advertised and marketed, and there has been a rapid growth in the role of the trade press in reporting on some types of services. And information directly from the Commission's customers about what kinds of services they want and what kinds they can actually get forms an important part of the Commission's overall understanding of markets and customer needs. Performance indicators in the area of service availability will continue to develop as the Commission rethinks its information needs and how to achieve goals regarding the use of external information (as opposed to information which is reported directly to the Commission).

### **Performance Indicators: Examples**

Performance indicators in the area of service availability should demonstrate how the Commission uses information about the markets to make informed policy and further its mission. The development of information about the natural gas transportation market leading into the rulemaking for Order No. 637 is a timely example. The map below shows the national natural gas wholesale spot prices and the direction of flows on interstate natural gas pipelines in April of 1996.

Implicit Price of Transportation from South Louisiana to New York  
 Average Weekly New York Spot Price minus Average Weekly South Louisiana Spot Price



What is important about this information is the fact that the developing natural gas market produced a situation where the differences in prices *between* distant regions created powerful market forces which dramatically changed the implicit price of gas transportation. This is shown in the following graph, which presents the implicit price of transportation service between New York and South Louisiana, compared to the regulated rate caps placed on that service.

The inter-regional spot price disparity created a value for transportation which was at times far in excess of what pipeline companies could charge for the

service. This implicit value of pipeline transportation, which could not be recovered through flat rates, led to efforts by market participants to recover this value through other means. Through the use of informed analysis such as this, the Commission determined the need for a major rulemaking on short-term natural gas transportation services, culminating in the issuance of Order No. 637.

Performance indicators in the area of service availability should also be able to trace the pace of development of new services as the impact of commodity market competition leads to more market opportunities and innovation. This is again an area where the Commission has not typically collected information in a systematized way. However, an inventory and chronology of innovative service offerings, categorized in a sensible fashion, should be an attainable goal for preliminary performance indicators. The following is a preliminary example of such a categorized set of new services in the electric power and natural gas industries:



General Category	Specific Service	Date First Offered	Current Status	Comments
Transportation Services	Open-Access Pipeline Transportation Tariffs			
Transportation Services	Open-Access Electric Transmission Tariffs			
Transportation Services	Gas Pipeline Electronic Bulletin Boards (EBBs)/Internet Systems			
Transportation Services	Electric Transmission OASIS Sites			
Transportation Services	Gas Market Centers			
Transportation Services	Electric Power Exchanges			
Transportation Services	Secondary Markets for Pipeline Capacity			
Delivery Services	Development of Asset and Portfolio Managers			
Delivery Services	Development of Independent Gas Marketers			
Delivery Services	Development of Independent Power Marketers			
Delivery Services	Development of "Gray" Market for Gas Deliveries			
Delivery Services	Development of Independent Service Operators for Electric Transmission			
Delivery Services	Development of Independent Service Operators for Electric Transmission			
Financial Instruments	Futures Contracts			
Financial Instruments	Arbitrage instruments			