

STATE OF THE MARKETS 2000

Measuring Performance In Energy Market Regulation



FEDERAL ENERGY REGULATORY COMMISSION

MARCH 2000

**James J. Hoecker
Chairman**

Executive Summary

This is the first year in which Federal agencies are required to submit an annual performance report to Congress under the Government Performance and Results Act (GPRA). This report, initiated within the Commission, complements the FY 1999 Performance Report, by providing greater detail in the specific area of regulating energy markets. The Commission's market assessment and oversight function will provide the basis for future State of the Markets reports as the Commission develops a "regulation by information" strategy. The FY 1999 Performance Report covers all Commission programs and activities, establishing and measuring specific performance indicators.

The markets portion of the FY 1999 Performance Report and this report are organized into sections on commodity markets, new service availability, price information, and market power. In addition to specific performance indicators in each section, this report also conveys background information and discusses methods and data needs for developing better performance indicators. By providing a broader and more detailed picture of energy markets and the role of the Commission in this context, *State of the Markets 2000* goes beyond performance reporting to give Congress and the public a better picture of these critical parts of the nation's energy system.

This report describes how energy market regulation has contributed to the development of competitive commodity markets for electric power and natural gas, as well as broad changes in the operation of the interstate transportation networks for electricity, natural gas, and petroleum. A series of rulemakings and major cases has provided a road map for these parts of the Nation's energy system to become more competitive. This is intended to maximize consumer and economic benefits while minimizing the need for regulatory intervention.

Commodity Markets

A series of actions by the Congress, successive administrations, and the Commission has contributed to the development of competitive commodity markets in electric power and natural gas. The fundamental change achieved through this series of actions is the separation of previously integrated supply, transportation, and distribution functions. This has been accompanied by the unbundling of rates for services and the introduction of a variety of market-based and more flexible rate options.

Commodity markets for wholesale electric power and natural gas have grown rapidly, as has the number of competing commodity sources available to consumers. These results demonstrate that the initial series of actions taken by the Commission, in conjunction with many other factors, has succeeded in aiding the growth of competitive commodity markets for energy.

New Service Availability

Once commodity markets and competitive prices for energy develop, a wide range of new services becomes available. Many of these new services were not even contemplated under the previous regulatory system, and provide value to consumers would not have been realized without competitive commodity markets. New services include commodity transportation services, delivery or end-use services, and financial services.

The number and types of new services available to consumers has grown dramatically in recent years, showing that competitive markets are providing incentives for creativity and for innovative customer service. Further refinements in the Commission's regulatory strategy were issued this year as Order No. 637 (concerning short term natural gas transportation) and Order No. 2000 (concerning electric power transmission) to address ongoing impediments to the availability of transportation services, and ongoing issues concerning service availability will continue to be identified and addressed by the Commission.

Price Information

Price information plays several critical roles in competitive energy markets:

- conveying information for buyers and sellers to make transactions;
- setting incentives for short-term operating decisions and long-term investment decisions; and
- enabling the Commission and others to understand, identify and remedy ongoing issues.

The most basic function of prices, conveying information about market conditions, is now well established. This can be seen by analyzing market prices and tracing the underlying changes in weather, demand and other factors. Price information appears to be allowing for faster arbitrage and the convergence of prices for similar services in different locations. There is also a rapid growth in the range of services being priced, leading to a great deal of new price information which requires further analysis. Some challenges remain, such as evaluating incentives for long-term investment and system expansion with limited experience. In addition, the Commission faces the challenge of developing more systematic processes for the ongoing analysis and use of price information.

Market Power

Mitigating the potential exercise of market power in the interest of economic and consumer benefits stands at the core of the Commission's mission. Separation of transportation from commodity energy production, along with opening access to the transportation networks, is intended to reduce the incentives and opportunities for the exercise of market power. Improvements to the merger approval process are also directed at this goal.

One indicator relevant to market power in electric power markets is the development over time of open access to the transmission system. Open access tariffs and Independent System Operators (ISOs) have grown rapidly over time, allowing more customers access to competitive commodity markets, although this process will take time to complete through the new Regional Transmission Organizations envisioned in Order No. 2000. Ongoing monitoring and oversight will be required in parts of the energy markets, since the potential for the exercise of market power is not likely to be eliminated entirely.

**Development of
Future Indicators**

Indicators in all four sections of this report will be refined and upgraded over time, reflecting the impact of the transition within the Commission and the experience using indicators and tracking data. For example, e-commerce and other kinds of information access (i.e., market transparency) may become an important class of indicators. By building on the success so far and being responsive to ongoing issues, the Commission can succeed in its mission and help realize the benefits that more competitive energy markets can bring to the American consumer and to the economy as a whole.

Contents

- I. Introduction 1**

- II. Commodity Markets**
 - II. A Background and Regulatory Context 6*
 - II. B Developing Performance Indicators: Methods and Data 9*
 - II. C Performance Indicators: Examples 13*

- III. New Service Availability**
 - III. A Background and Regulatory Context 16*
 - III. B Developing Performance Indicators: Methods and Data 20*
 - III. C Performance Indicators: Examples 22*

- IV. Price Information**
 - IV. A Background and Regulatory Context 25*
 - IV. B Developing Performance Indicators: Methods and Data 26*
 - IV. C Performance Indicators: Examples 29*

- V. Market Power**
 - V. A Background and Regulatory Context 33*
 - V. B Developing Performance Indicators: Methods and Data 36*
 - V. C Performance Indicators: Examples 41*

- Appendix: Electric and Natural Gas Price Graphs 43**

I. Introduction

Federal agencies are in the process of establishing performance indicators to measure the success of their work. This will allow Congress and the public to more fully understand and evaluate agencies' effectiveness at carrying out their missions. This report presents an initial set of performance indicators in the area of energy market regulation. Success in energy market regulation can maximize economic and consumer benefits through structural reform and incentives favoring competition, minimizing the need for regulatory intervention.

FERC Mission Statement

The Commission regulates key interstate aspects of the electric power, natural gas, oil pipeline and hydroelectric industries. The Commission chooses regulatory approaches that foster competitive markets whenever possible, assures access to reliable service at a reasonable price, and gives full and fair consideration to environmental and community impacts in assessing the public interest of energy projects.

The Federal Energy Regulatory Commission (the Commission) is a regulatory body charged with protection of the public interest in the oversight and development of interstate commodity markets and transportation networks in wholesale electric power and natural gas, in addition to petroleum pipeline and hydroelectric projects. Since its inception as the successor to the original Federal Power Commission (FPC) in 1978, the Commission has been working to protect the public interest through the establishment of just and reasonable rates for jurisdictional services, and through the fostering and development of more competitive energy markets wherever appropriate.

Implementing the 1993 Governmental Performance and Results Act (GPRA) is part of the Commission's increasing emphasis on mission-based customer service. GPRA is aimed at increasing the accountability and transparency of governmental operations through the development of strategic plans, performance plans which include concrete indicators of agency performance, and annual performance reports to Congress and the public. This is the first year in which agencies must submit performance reports.

The current challenge for the Commission is to meet the immediate requirements of GPRA while accommodating vast industry changes and completing a major organizational transition. The nation's energy markets, like much of the economy, are subject to increasing forces of competition and change. These pressures have created a context in which all of the parties affected by energy markets – and energy markets in the end affect virtually everyone – must reevaluate themselves. The Commission is no exception.

FERC Vision

- ▶ Promoting Competitive Markets
- ▶ Protecting Customers
- ▶ Respecting the Environment
- ▶ Serving and Safeguarding the Public

The Commission's response to GPRA is to meet the requirements in ways that complement and enhance the transition now taking place within the Commission. Bringing performance reporting into alignment with strategic planning, resource allocation, and program activities can lead to valuable results for all parts of the Commission and its customers. Along with the annual performance report, the State of the Markets reports will provide a full picture of energy markets in relation to the Commission's activities.

The report is organized around major sections based on goals established by the Commission's first strategic plan (FY1997-2002), completed in 1997. These main sections are:

- commodity markets;
- new service availability;
- price information; and
- market power.

Subsections for each major section give background and regulatory context, methods and data for developing performance indicators, and examples of performance indicators.

The Commission in Transition

In response to the rapid pace of change in the energy markets and the economy as a whole, the Commission has recently taken major actions that affect not only its approach to serving its customers and the public, but also its own internal systems and activities. These actions include:

- rulemakings including Order Nos. 637, 888 and 2000 and major cases which provide a blueprint for more competitive energy markets;
- process-centered agency restructuring through the FERC First initiative; and
- strategic planning, manage-to-budget and other budgetary innovations, and new approaches to demonstrate accountability to Congress and the public.

Rulemakings and major cases. Energy markets were subject to some form of cost-based regulation for most of the 20th century. Electric power markets were based upon vertically integrated, monopoly franchise utility companies in most of the nation, while natural gas and petroleum markets were regulated from the wellhead to final customer delivery. While there were valid reasons for the establishment of this regulatory regime, over time changes in the technological, economic and political factors underlying that regime created the conditions for change in these industries.

Unbundling of services has been one of the keys to development of commodity markets for electricity and natural gas.

Beginning in the late 1970s, a series of actions by the Congress, successive administrations, and the Commission dramatically altered the landscape of federal policy towards the nation's energy markets. In brief, the Commission assisted in the creation of competitive commodity markets for electric power and natural gas by restructuring the functional ties and ownership interests between the production of energy commodities and the transportation and distribution networks. This vertical separation was accompanied by the breaking apart or unbundling of services which had previously been rolled together as a single combined service. In mandating open access for the transportation systems, the Commission set a standard under which any user

of the system should have the same level of services at the same cost as the system's owner.

This fundamental break with past practice has had far-reaching impacts on how business is conducted in energy markets. The Commission also took action to allow market-based rates and other innovative rate designs, and to remove rate regulation where appropriate. The resulting commodity prices, free from regulated cost-based rates, change in response to underlying market conditions. This price responsiveness has in turn spurred a rapid expansion in new value-enhancing services such as risk hedging via futures and other financial instruments, innovative transportation service offerings, and a wide range of customer-focused delivery options including full energy service portfolio management and e-commerce for a growing number of customers.

The Commission is also transforming its relationships with its customers. For its own part, the Commission is delivering services in more rapid and responsive ways, including faster case processing, more collaborative and consensual dispute resolution, and updated filing procedures and public information provision. Information flows in the markets must also become more open and responsive, and to this end the Commission has introduced a number of innovations such as new real-time transmission availability information (through the Open Access Same-Time Information System or OASIS), sponsorship of collaborative processes in several areas, and the development of markets where new types of interactions such as trading exchanges, auctions, and secondary trading are possible.

One result of the Commission's reinvention effort was the creation of a new organization structure that is more responsive to today's changing energy industries.

Process-centered agency restructuring. The Commission, recognizing the need to become a more flexible and responsive organization, is in the process of completing a far-reaching process reengineering effort. Two years of work, led by the FERC First initiative, has culminated this year in a major reorganization, along with a set of processes designed to support an ongoing culture of change. The new Commission organizational structure is based on its major processes: energy markets and energy projects. Internal support services including information technology and human resources are also being retooled to meet the needs of the new organization. These steps and the ongoing process of program development should enable the Commission to fulfill its mission in the context of fast-paced and continuously evolving energy markets.

Strategic planning, budgeting and accountability. The Commission is committed to bringing its relationships with Congress, other agencies, and the public into coordination with its program activities and its strategic resource planning. This involves a number of initiatives. The role of strategic planning and budgeting is crucial to the Commission's ability to bring resources to bear on the right priorities over time, and to secure the confidence and support of others. To this end, key activities in these areas have also been reworked to reflect the new focus on energy markets, energy projects, and support

activities. The new FY 2001 budget is among the first products of this effort. Manage-to-budget and other new budgetary innovations will allow the Commission to fulfill its mission while maintaining efficient resource allocations and reducing its overall budget. Human resource management assumes an ever-increasing importance in this effort, as energy markets require more rapid and flexible Commission services to be provided with fewer resources over time. Recruitment and training are thus a high priority to ensure that the Commission has the necessary skill mix to meet these challenges.

As the Commission coordinates its organizational structure with strategic planning and resource allocation, the new performance reporting requirements set by GPRA are changing the Commission's approach to accountability. By aligning performance reporting with strategic planning and resource allocation, the Commission can use the GPRA process to assist in its programmatic development. This is especially important in the context of the agency restructuring promoted by FERC First.

The State of the Markets Reports

The primary document the Commission is required to submit to Congress under GPRA is the annual performance report. The Commission has submitted its FY 1999 Performance Report, but because of the unique nature of the Commission's responsibilities in the energy markets, this report is being produced to complement the FY 1999 Performance Report. *State of the Markets 2000* represents a major contribution to its performance reporting approach, which seeks to show how the Commission's energy markets activities affect its customers and the economy as a whole. The Commission is accountable to Congress and the public; to be protective and responsive, to show initiative in understanding, identifying and responding to customer needs in the energy markets, and to remove unneeded regulations and requirements wherever appropriate. *State of the Markets 2000* demonstrates how the Commission can use performance indicators to inform and improve its customer service.

Beyond providing more detail on context and methodological issues, *State of the Markets 2000* also serves to inform Congress and the public of important developments in commodity markets for electric power and natural gas, and ongoing reforms in the interstate transportation networks for electricity, natural gas and petroleum. By giving a coherent picture of what is developing in these crucial sectors of the nation's energy system, *State of the Markets 2000* can serve a valuable purpose beyond performance reporting.

Going forward, there are also more fundamental issues involved in applying performance reporting in the regulation of energy markets. Because performance indicators can be quantified, they are intended to enable evaluation of whether performance goals are being met. Performance indicators should also be based on external outcomes, so actual events in

energy markets should be the basis of performance indicators for the Commission's energy market activities.

This could be taken to imply that the Commission should develop a set of static or simple performance indicators, in the form of real market trends or events, and then attempt to influence them through its ongoing market activities. But such an approach could lead to policy interventions that inhibit efficient markets, as opposed to aiding the Commission in its mandate to further the public interest through encouraging efficient market institutions. There is thus a special burden in the energy markets area to develop an approach to performance reporting which reflects both accountability and sensitivity to the dynamic nature of energy markets. This report is the Commission's response to that challenge.

Much of the Commission's information about the markets is non-quantitative (comments, filings, complaints, etc.), and this kind of information needs to be included in performance indicators. In addition, within the past year the Commission has updated its external information requirements in an effort to minimize filing burdens while obtaining the most relevant information. The impact of such steps should be reflected in future reports.

The current pace of transition in energy markets, and the pace of transition in the Commission itself, makes creation of this first State of the Markets report by necessity a formative exercise. New activities and capabilities coming out of the FERC First process and the resulting reorganization will be brought into the State of the Markets reports as they develop. Reporting on the competitive evolution of energy markets as a measure of the Commission's success has not been done before, and the Commission improve it over time. The GPRA process is forcing the Commission to think strategically within the metes and bounds of Congressional statute, which will lead to changes in the Commission's multi-year Strategic Plan, annual Performance Plan, and the resulting Performance Report and State of the Markets reports. And finally, improvements in the operations and information flow of the Commission's market activities will be reflected in improvements in future reports. The process of change, in the context of understanding and helping to shape developing energy markets, will continue.

II. Commodity Markets

The core of competitive markets lies in the ability of consumers to choose among a sufficient number of competing suppliers for any given product or service.

Beginning with the enactment in 1978 of the Natural Gas Policy Act and the Public Utility Regulatory Policies Act, successive Congresses, administrations, and Commissions have pursued policies leading to more competitive energy markets. The key structural changes during the development of these new energy markets involved granting or requiring access to multiple sources of the energy commodity, through the mechanism of mandated open access to the transportation systems.

Background and Regulatory Context

In both the natural gas and electric industries, the Commission has fostered the mitigation of market power in transportation services and the promotion of competition in the relevant wholesale commodity markets.

Energy markets have three functions in terms of the physical delivery of energy:

- supply of the basic energy commodity;
- transportation of that commodity through pipeline or electric transmission networks; and
- final distribution of the energy to consumers.

These three functions are now being further separated through institutional restructuring as well as changes in the operational practices of existing institutions. The concept of unbundling traditional, vertically integrated monopoly utility functions is the first fundamental step toward competitive energy markets. Unbundling, in other words, is the action which promotes effective competition among commodity sources. The histories of evolving regulation in the electric power and natural gas industries are different, but reflect some common themes.

Electric power markets. The Federal Power Act (FPA) was enacted in 1935 during an age of vertically integrated electric utilities, in which generation, transmission, and distribution facilities were owned by a single entity and sold as part of a bundled service (delivered electric energy) to wholesale and retail customers. Most electric utilities built their own power plants and transmission systems, entering into interconnection and coordination arrangements with neighboring utilities.

Until some parts of the nation faced rapidly increasing electric rates in the 1970s, there was little pressure to restructure the electric industry.

Through much of the 1960s, electric utilities were able to avoid price increases to consumers and still achieve increased profits because of substantial increases in scale economies, technological improvements, and moderate increases in input prices. Thus, there was little pressure on regulatory commissions or market participants to change the structure of the industry. However, this began to change in the 1970s, as a variety of factors led to rapidly increasing electric rates in some parts of the Nation. At the

same time, significant technological changes in power generation (such as smaller, less costly power plants and improved power transmission systems) also suggested the need to reevaluate the nature of wholesale electric regulation. These technological changes highlighted the existence of rate disparities between neighboring regions, and suggested that some sort of open access regime could give consumers in one region the benefit of generation efficiencies in neighboring regions.

In response to these changes, Congress passed the Public Utility Regulatory Policies Act (PURPA) in 1978. PURPA sanctioned the development of alternative generation sources designated as qualifying facilities (QFs) as a means of reducing the demand for traditional fossil fuels. PURPA required utilities to purchase power from QFs at a price not to exceed the utility's avoided costs, and to sell them backup power.

The Commission began authorizing market-based wholesale electric rates as a way to encourage the emergence of independent and affiliated power producers.

While QFs were limited to cogenerators and small power producers, other non-traditional power producers (see text box) also began to compete in commodity electricity markets. The Commission encouraged these new entities by authorizing market-based rates for their power sales on a case-by-case basis. In addition, in order to mitigate utility market power over transmission, the Commission began to require utilities to file open access transmission tariffs for as a condition of approving utility mergers, or requests for market-based generation rates.

These events helped to support emerging competitive commodity markets for electricity by the early 1990s. In addition, through the Energy Policy Act of 1992, Congress sought to promote greater competition in bulk power markets by encouraging new suppliers to develop projects free from many regulatory impediments. Congress also expanded the Commission's FPA authority to approve applications for transmission access.

Types of New Power Suppliers

- Qualifying Facilities (QFs)
- Independent Power Producers (IPPs)
- Affiliated Power Producers (APPs)
- Exempt Wholesale Generators (EWGs)
- Power Marketers

In response, the Commission began to mandate network open-access transmission service on a case-by-case basis, and to hold that *voluntarily* offered, new open-access transmission tariffs must provide for services comparable to those that the transmission owner provided itself. Following this logic, in 1996 the Commission issued Order Nos. 888 and 889, which required functional separation or unbundling of wholesale power service from transmission, while mandating open access to transmission. Finally, in late 1999, in Order No. 2000, the Commission issued regulations encouraging regional transmission organizations (RTOs) to enhance transmission reliability and further safeguard open access for consumers, through structural unbundling of transmission operations (Order No. 2000 and RTOs are discussed in more detail in Section III, New Service Availability).

These Commission actions have been instrumental in the creation of competitive wholesale electric power markets. New regional markets are now in operation or under discussion across the Nation, and the ability of

customers to shop around for power on the wholesale level has been assured. The implications of these new competitive power markets for service delivery are discussed in Section III, New Service Availability, while the implications for electric power prices are discussed in Section IV, Price Information.

Natural gas markets. The Natural Gas Act (NGA) and related legal developments originally established a public utility commission regime for the old FPC and, later, this Commission to regulate the wholesale natural gas industry. Producers sold their natural gas in the production area to the interstate pipelines at regulated rates. The pipelines in turn transported gas to the city gate for sale to local distribution companies (LDCs) at regulated rates which recovered both the pipelines' cost of gas and the cost of transmission. In addition, the pipelines sold gas to end-users in nonjurisdictional sales.

Under this system, natural gas prices were regulated and interstate pipeline sales of gas for resale to LDCs at the city gate took place through transactions that combined, or bundled into one package, the pipelines' gas supply and transmission costs. Thus, bundling of services into one package under cost-based rates was the central feature of this regulatory approach.

However, interstate natural gas shortages in the 1970s demonstrated that this approach to commodity price regulation was proving inadequate to the task of ensuring adequate supply. Intrastate markets were functioning and showed that competitive pricing was an attractive option for market participants. Congress responded by enacting the Natural Gas Policy Act of 1978 (NGPA). Basically, the NGPA commenced decontrol of producer prices (completed by the Natural Gas Wellhead Deregulation Act of 1989) and broke down existing barriers between the intrastate and interstate markets. This accelerated a fundamental change in the gas industry: the establishment of gas as a commodity distinct from gas transportation.

Competitive natural gas markets emerged as a result of a combination of Congressional action and Commission orders between 1978 and 1992.

To further enhance competition in the gas commodity market, the Commission in 1985 adopted Order No. 436, which instituted open-access, nondiscriminatory transportation. This allowed downstream gas users to buy gas directly from gas merchants in the production area and ship that gas via the interstate pipelines, while still allowing the latter to make bundled sales at the LDC's city gate. In 1992 the Commission issued Order No. 636, which required the pipelines to completely unbundle their transportation, storage, and sales services; interstate pipelines basically exited their prior merchant function. In other words, gas as a commodity was decoupled from gas transportation, and pipelines were required to treat third-party shippers of now unbundled gas the same as the pipelines' own affiliated merchant functions (if any).

As a corollary to unbundling, Order No. 636 allowed shippers to release unneeded firm pipeline transportation capacity, on either a temporary or

permanent basis, leading to the creation of a secondary capacity market designed to compete with the primary pipeline market. In February, 2000, in Order No. 637, the Commission took further steps to improve the efficiency of the market, further encourage capacity release, and provide captive customers with the opportunity to reduce their cost of holding long-term pipeline capacity while continuing to protect against the exercise of market power. Order No. 637 is discussed in Section III, New Service Availability.

Petroleum markets. In contrast to electric power and natural gas, the commodity oil and oil pipeline industries, while involving many affiliate relationships, have been functionally unbundled for many years. This, together with the fact that oil pipelines are subject to competition from other forms of commodity transportation and a different statutory scheme, resulted in a different regulatory system that has long separated oil production and oil pipeline transportation.

The Commission's regulation of oil pipelines is governed by the oil provisions of the Interstate Commerce Act and the amendments to that Act by the Energy Policy Act of 1992. The Act directed the Commission to pursue a simplified program of oil pipeline regulation based in part on a recognition that oil pipeline transportation markets may be more competitive than was the case at the time with either gas transportation or electric transmission markets. While recognizing that there are markets in which individual oil pipelines may possess significant market power (these issues are discussed in Section V, Market Power), the Commission has made significant strides toward streamlining its regulation over common carrier interstate oil pipelines.

**Developing
Performance
Indicators: Methods
and Data**

One of the major accomplishments of the Commission's efforts over the past 20 years has been the encouragement of commodity markets, allowing consumers to shop around for competing sources of energy commodities. As an indicator of the Commission's performance in the area of market development, commodity source options are among the most relevant measures of energy consumers' basic freedom to choose in the markets.

The measurement of commodity source options must begin with a definition that allows for meaningful evaluation. The concept of a commodity source option is not simply any entity which offers some type of energy-related product or service. Rather, the more relevant concept is that of a supplier of the basic commodity, bulk energy in the form of natural gas, petroleum, or electric power.

A commodity source is the upstream or wholesale energy provider. It is the existence of multiple commodity sources which in turn allows for the development of services such as risk hedging, and specialized delivery contracts using multiple supply sources (see Section III, New Service

Availability). Commodity source options also begin to create more meaningful price information through competitive bidding, arbitrage, and other forms of buyer-seller interactions (see Section IV, Price).

The challenge for the Commission in developing and evaluating performance indicators for commodity source options is defining such commodity sources and related changes in energy markets, and then locating suitable data.

The promotion of commodity source options through Commission actions should have effects on the structure and characteristics of commodity markets for natural gas and electricity. Performance indicators in this area should be able to clearly track these developments. The challenge in developing and evaluating these indicators is twofold: defining commodity sources and related changes in commodity markets, and locating publicly available performance data that conforms to such a definition.

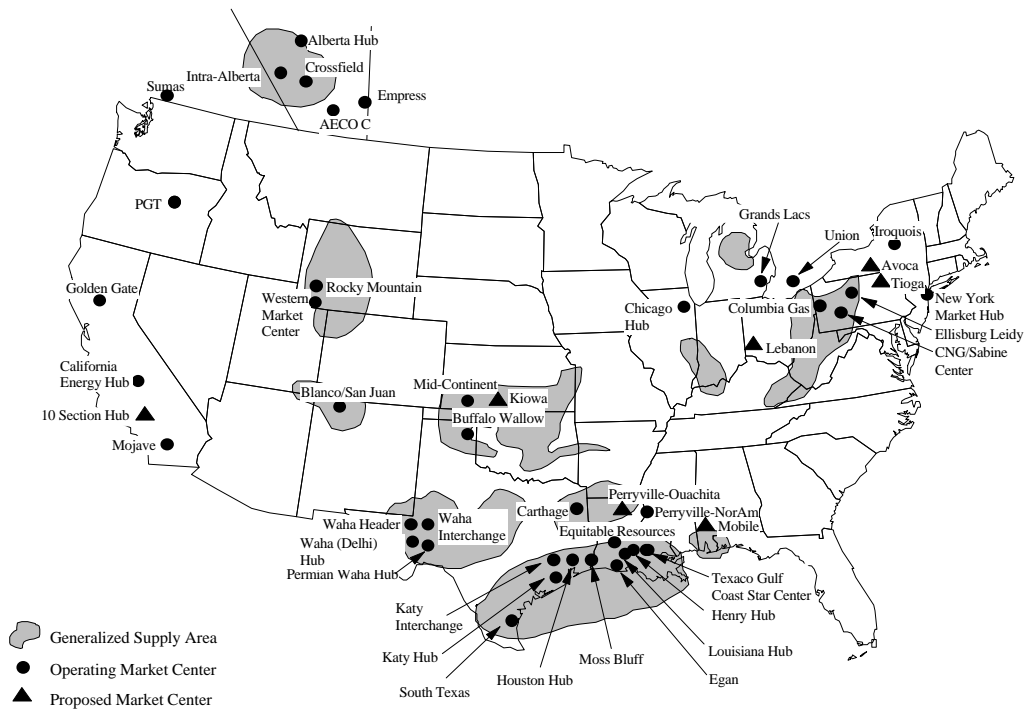
Natural gas and electric power markets have different structures and histories, and the status of publicly available data (whether reported directly to the Commission or developed through other means) is not consistent. Therefore the most useful approach to measuring commodity source options at this time will be to consider electric and natural gas markets in turn.

Electric Power Markets. In the electric power markets, a commodity source is a supplier of the bulk electric power commodity. The importance of commodity source options can be seen, for example, in the evolution of choices for traditional wholesale requirements customers. Under the cost-of-service regulatory structure, a vertically integrated utility was required to provide service to municipal utilities and other captive customers located within the utility's exclusive service franchise territory. These wholesale requirements customers received service under terms and conditions which did not even contemplate transmission grid access for the captive customer to seek out alternative sources of supply. Even if there were independent generators located in the utility's franchise territory, they were usually unable to enter into contracts with captive customers because of their lack of grid access.

When the electric power industry underwent functional unbundling as a result of statutory and regulatory actions, this situation changed. Commodity source options became available to captive wholesale customers through open access to the transmission grid, based on the principle of comparable access. If an independent generator or another franchise utility had generating capability available, wholesale customers could now negotiate power supply contracts which bypassed the local utility even though the local utility's transmission grid was needed to provide the power to the customer.

Natural Gas Markets. Natural gas commodity markets have undergone major changes since pipeline unbundling. Prior to unbundling, the vast majority of customers bought natural gas at the city gate under pipeline sales services. After unbundling, downstream customers purchased gas in the production area directly from producers as well as from natural gas marketers. Moving the point of purchase to the production area greatly expanded the

number of commodity source options available to gas users. The number of commodity options expanded from one or two pipeline sales suppliers to dozens of upstream suppliers operating in each supply area. Production area market centers also developed which enabled producers and marketers to aggregate and trade supply from numerous wellhead sources, simplifying purchasing by downstream customers, and making possible a gas futures market keyed to a common point for physical delivery (e.g. Henry Hub). Market centers have also developed at downstream points. One measure of the variety of commodity source options is the number of market trading centers. The number of market centers has grown from 5 in 1992 to 38 today. The figure below shows the number and location of current and proposed market centers.



In parallel with the development of market center commodity trading, an active financial market has developed on the NYMEX to enable wholesale shippers to hedge against future price risks in gas. The NYMEX futures contract has been the fastest growing instrument in its history, and in October

New electronic trading companies are entering the market and e-commerce for gas is expected to grow, reaching 20% of total gas business within two years.

Thus, a measure of the ability of wholesale customers to contract with multiple sources for commodity electricity would be an appropriate performance indicator. Developing such an indicator, or several related indicators, is the challenge now facing the Commission. There are two broad ways to approach the problem: broader macro-scale indicators which count the overall number of commodity source options on a national or regional basis, and narrower, perhaps firm-level, micro-scale indicators which count the number of commodity source options available to a specific wholesale customer, whether an actual customer or an idealized representative customer. The proper specification of such indicators depends on a useful definition of a market, since it is not appropriate to count commodity sources which cannot make delivery to the wholesale customer.

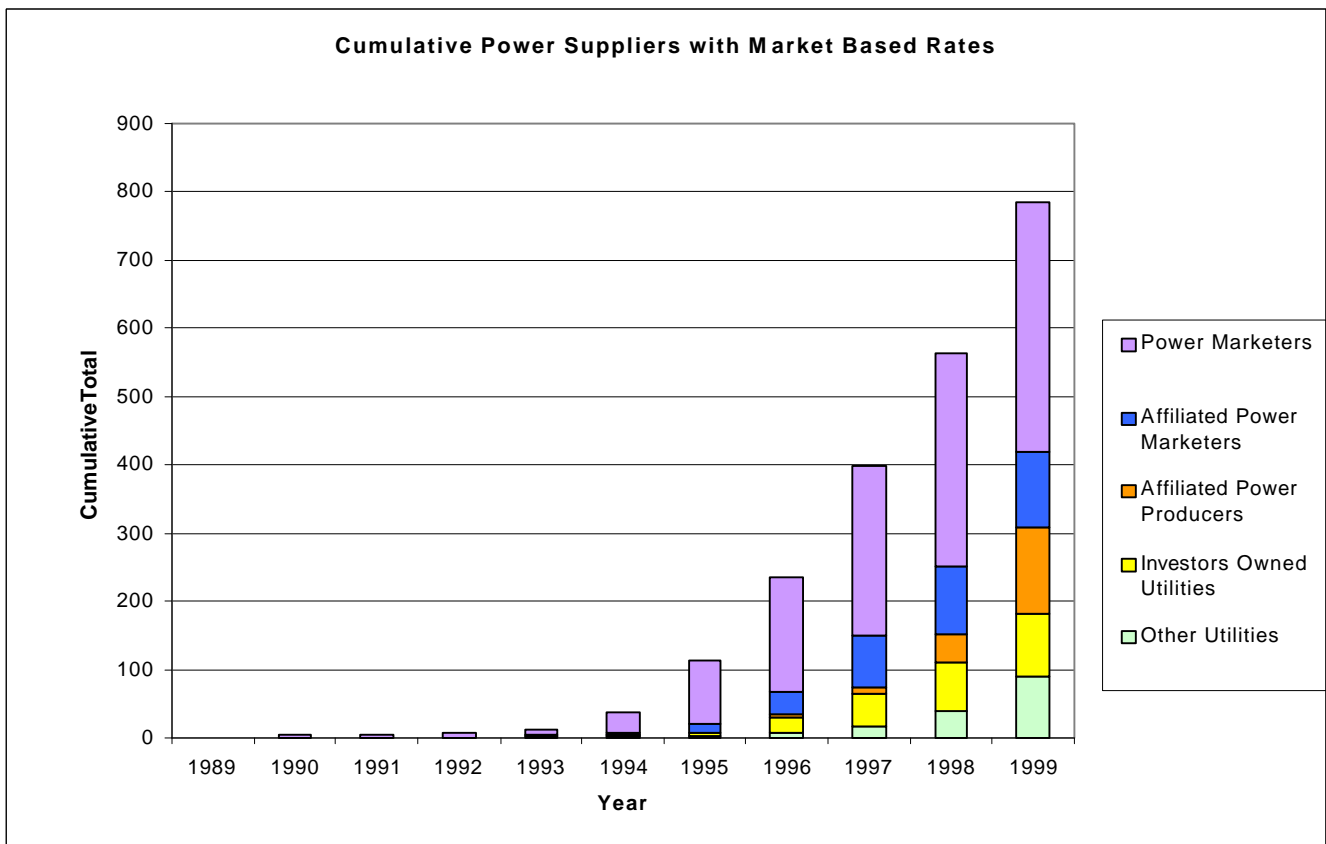
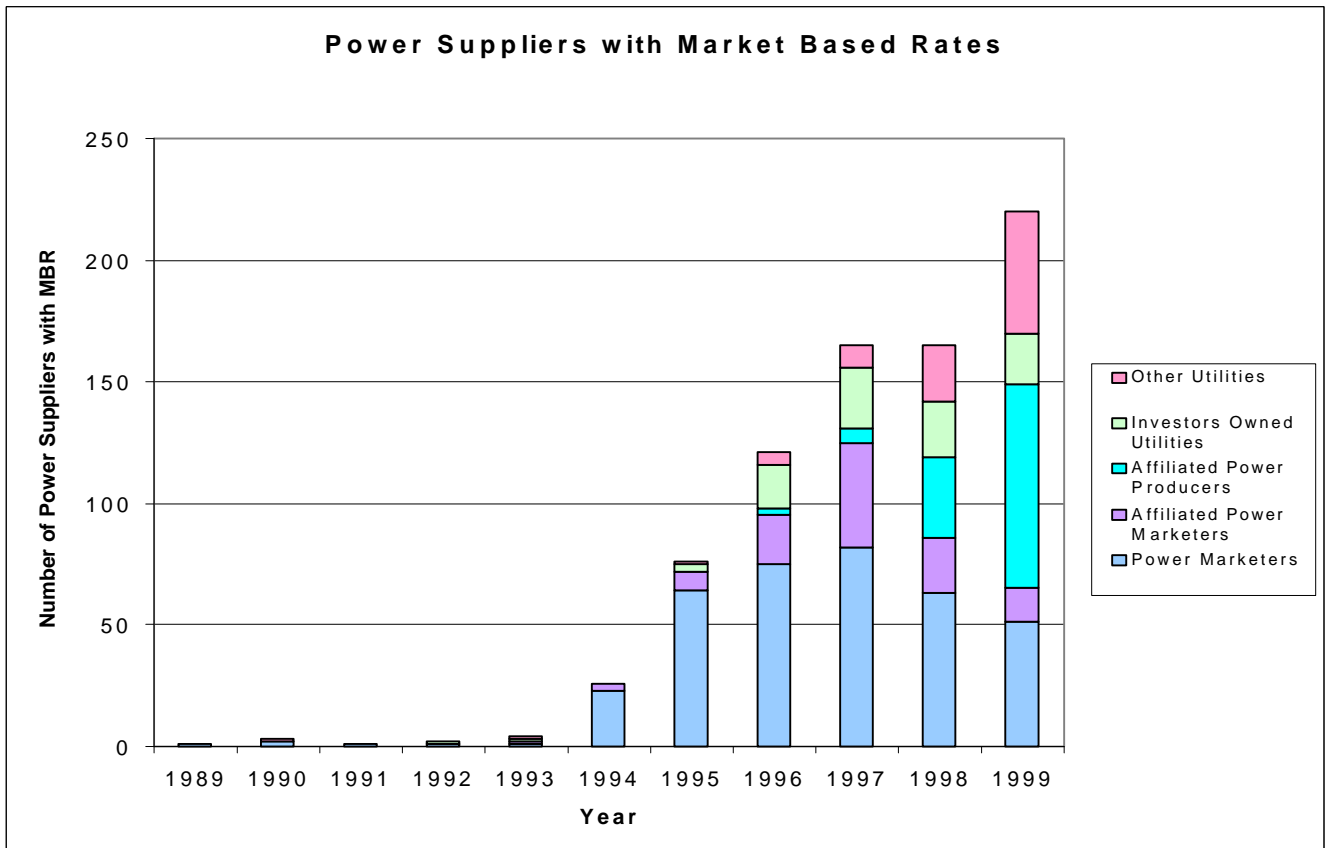
For the purposes of this report, preliminary examples of performance indicators in the area of commodity source options have been based on existing information; the broader questions of market definition and data availability remain to be addressed in future Commission activities.

Performance Indicators: Examples

While the Commission has not normally collected systematic data on the number of commodity source options available to customers, some information is available which demonstrates the rapid growth of energy providers in the marketplace as a whole. For example, the Commission accepts filings from entities seeking approval to transact business under market-based rates, which are subject to lighter-handed review by the Commission.

The number of power suppliers authorized to charge market rates has increased dramatically since 1994.

By taking the list of such marketers and sorting them by type and year of market-based rate approval, a trend of rapid growth during the period of competitive commodity market development in the electric power markets can be seen, although more work needs to be done to develop and interpret this data. Specifically, more information on the current status and size of various commodity suppliers would be useful, since some entities which received market-based rate approvals may have since left the business or do not actively participate in the market. Information about other sources which may not have market-based rate filings would help to fill in the picture of how many commodity sources are available to consumer, and this larger picture should probably be developed at a regional level (which in turn ties in with problems of market definition and market concentration as discussed in Section V, Market Power).



A further measure of commodity source availability is the ongoing success of gas end-users in obtaining supply independent of their local gas distributor (i.e. retail unbundling). In 1998 the level of commodity supply from third-party sources was 84.5% for industrial customers, 66.1% for electric utilities, 33% for commercial loads, and 2.3% for residential customers. Gas supply for the much of this unbundled load is obtained from natural gas marketers. The figure below shows the increasing share of interstate capacity rights held by natural gas marketers.

