GAO

Report to the Ranking Minority Member, Committee on Energy and Natural Resources, U.S. Senate

December 2005

NATURAL GAS AND ELECTRICITY MARKETS

Federal Government Actions to Improve Private Price Indices and Stakeholder Reaction

GAO-06-275
Federal Government Actions to Improve Private Price Indices and Stakeholder Reaction

What GAO Found

Since 2003, the federal government has undertaken a series of regulatory and statutory efforts to improve the availability and accuracy of price information in price indices. First, FERC issued standards on voluntary price reporting and rules of conduct in a July 2003 policy statement. Second, FERC has taken steps to improve its ability to monitor price indices and enforce market rules by (1) reviewing wholesale prices for anomalies that could indicate market problems and (2) collaborating with other entities, such as the Commodity Futures Trading Commission (CFTC), and independent market monitoring units that monitor organized electricity markets to detect market manipulation. Third, the Energy Policy Act—enacted in August 2005—increases the amount and types of civil penalties that FERC may impose on companies that participate in anticompetitive behavior, including knowingly misreporting price information to index developers and gives FERC authority to collect additional transaction information if such information is necessary to ensure price transparency. Fourth, FERC and the CFTC entered into a memorandum of understanding to share and coordinate requests for information, which they say will allow FERC to more readily identify and sanction market manipulation.

Many industry stakeholders reported that they now have greater confidence in most price indices, but some expressed concern about price indices for long-term electricity markets. FERC reported that stakeholders are generally satisfied with current price indices and that the quality of information has improved. For example, in a recent survey FERC found that two-thirds of respondents reported their confidence in price indices, on a scale of 1 to 10 (10 being most confident), as a 7 or greater. Further, FERC reported that since 2002 the quality of information has improved because (1) more companies are reporting data to publishers and (2) major publishers are providing more information about the number of transactions and volume of electricity and natural gas trades. GAO’s own investigations corroborated what FERC found in its survey. Specifically, natural gas and electricity industry stakeholders reported that, in general, they are reasonably confident in the short-term prices now reported by trade publications and the improved quality of overall information. While stakeholders expressed general satisfaction with most price indices, some reported concerns about price indices in long-term electricity markets. Furthermore, stakeholders are now able to see that some of these markets witness fewer transactions and, as a result, are less developed than others. In the absence of a reliable long-term electricity market and information about prices, market participants noted that they rely on long-term natural gas markets and indices that are more developed. Stakeholders told GAO that, because natural gas is widely used to generate electricity, their prices often move together and, therefore, natural gas forward prices can substitute, to some extent, for electricity futures prices. They also said that the use of these natural gas markets only partly mitigates the lack of robust long-term electricity markets, because electricity and natural gas prices sometime move independently.
December 15, 2005

The Honorable Jeff Bingaman
Ranking Minority Member, Committee on
   Energy and Natural Resources
United States Senate

Dear Senator Bingaman:

Since the late 1970s, the natural gas and electricity industries have each undergone a shift toward greater competition, referred to as restructuring. This restructuring has moved these industries from ones in which local monopoly utilities provided services and regulators set prices to ones in which competitors vie for market share, and wholesale prices are largely determined by supply and demand. Amid this restructuring, private companies have routinely published information about these markets, including reports of market prices in various locations—referred to as price indices—developed by surveying market participants who voluntarily supply price information. In some cases, these price indices refer to short-term markets—so called “spot” markets where the electricity or natural gas is sold for delivery in the near term (e.g., the next hour or the next day). In other cases, price indices refer to long-term markets, such as “forward” and other markets—for the purposes of this report, we refer to all of these as occurring in long-term markets—where the delivery of natural gas or electricity is expected to occur in the future (e.g., 30 days, 1 year, or longer). Utility companies and other energy market participants rely on these price indices to help them make informed decisions about buying and selling electricity and natural gas and as a guide for potential new investments. Because price indices play such a pivotal role in the market, it is vital that energy market participants have confidence that these indices are robust, transparent, reliable, and accurate. To help ensure that wholesale market prices are fair and that the information in price indices is reliable and accurate, the Federal Energy Regulatory Commission (FERC) has issued regulatory rules supporting competition, routinely monitored markets for anticompetitive behavior, and enforced and revised market rules as needed.

In recent years, confidence in price indices had been shaken due to misreporting and other abuses. Most notably, during the energy crisis in California and the West in 2000-2001, several market participants were found to have purposefully misreported prices in order to manipulate these indices for financial gain. As part of FERC’s efforts to remedy price
manipulation and consumer overcharges that occurred during that electricity crisis, it has ordered more than $4 billion in refunds. In addition to concerns about misreporting, some market participants have noted that the entities that publish price indices often failed to convey information necessary for them to assess the quality and validity of the indices, such as information about the volume of transactions represented and the number of participants trading at various locations. As a result, some stakeholders raised concerns about the federal government’s ability to adequately regulate and oversee natural gas and electricity markets and the reliability and accuracy of prices reported in indices.

In this context, we agreed to answer the following questions: (1) What federal regulatory and statutory efforts have been taken to improve price indices in electricity and natural gas markets? (2) Have federal efforts improved industry stakeholders’ confidence in these price indices? To answer these questions, we reviewed federal reports documenting efforts to improve price transparency and examined literature on price transparency in the natural gas and electricity markets. In addition, we interviewed officials at FERC, representatives of relevant trade associations, and experts. We examined FERC survey data and assessed its reliability by reviewing existing information about the data, interviewing agency officials knowledgeable about the data, and examining comments by the entities surveyed. We conducted our work from June 2005 to November 2005 in accordance with generally accepted government auditing standards.

Results in Brief

Since 2003, the federal government has undertaken a series of regulatory and statutory efforts to improve the availability and accuracy of price information in price indices. First, FERC issued standards on voluntary price reporting and rules of conduct in a July 2003 policy statement. Second, FERC has also taken steps to improve its ability to monitor price indices and enforce market rules by reviewing wholesale prices for anomalies that could indicate market problems. In this regard, FERC has also collaborated with other entities, such as the Commodities Futures Trading Commission (CFTC) that oversees futures markets, some of which are tied to long-term markets for electricity and natural gas and independent market monitoring units that monitor organized electricity markets to detect market manipulation. Third, the Energy Policy Act—enacted in August 2005—increases the amount and types of civil penalties that FERC may impose on companies that engage in anticompetitive behavior, including knowingly misreporting price information to index
developers, and gives FERC authority to collect additional transaction information if such information is deemed necessary to ensure price transparency. Fourth, in response to requirements in the Energy Policy Act, FERC and the CFTC entered into a memorandum of understanding to share and coordinate requests for information, which they say will allow FERC to more readily identify and sanction market manipulation.

Many industry stakeholders report that they now have greater confidence in most price indices, but some expressed concerns about price indices for long-term electricity markets, such as price indices reported for forward energy trades. For example, in a recent survey, FERC found that two-thirds of respondents reported their confidence in price indices, on a scale of 1 to 10, as a 7 or greater (10 being most confident). Further, FERC reported that since 2002, the quality of information has improved because more companies are reporting transaction data to publishers of price indices and because major price index publishers are providing greater information about the number of transactions and volume of electricity and natural gas bought or sold at specific trading locations. Our own investigations corroborated what FERC found in its survey. Specifically, in our meetings with natural gas and electricity industry stakeholders, they reported that, in general, they are reasonably confident in the prices now reported by trade publications. They also noted that the quality of overall information has improved, which has increased their confidence that these indices can be used to evaluate potential new investments. While stakeholders expressed general satisfaction with most price indices, some reported concerns about price indices for long-term electricity markets. Specifically, they now recognize that some of these long-term markets witness fewer transactions and, as a result, are less developed and less reliable than their short-term counterparts. Consistent with this, stakeholders told us that it is sometimes difficult to find a willing trading partner in some long-term electricity markets. In the absence of reliable information on long-term electricity prices, electricity market participants noted that they instead trade in more developed long-term natural gas markets as a substitute. These stakeholders explained that, because natural gas is used extensively to generate electricity, natural gas and electricity prices often move together and, therefore, natural gas forward prices can substitute, to some extent, for electricity futures prices. However, they also said that the availability and use of these long-term natural gas markets only partly mitigate the lack of robust long-term electricity markets, because electricity and natural gas prices can and do sometimes move independently.
Background

The natural gas and electricity industries perform three primary functions in delivering energy to consumers: (1) producing the basic energy commodity, (2) transporting the commodity through pipelines or over power lines, and (3) distributing the commodity to the final consumer. Historically, many local utilities in the electricity sector built their own systems of power plants and electricity transmission and distribution lines to serve the needs of all consumers in their local areas. Similarly, natural gas companies built networks of pipelines to deliver natural gas from areas where it was produced to the markets where local distribution companies served all local customers. These local monopolies were overseen by regulators, who restricted the entry of new companies and also approved investments, approved prices paid by customers, and determined profits of these utilities. However, due to rising electricity prices and technological, economic, and policy developments beginning in the 1970s, the electricity and natural gas industries have restructured from a regulated environment to one that places greater reliance on competition to determine entry, investment, prices, and profits. The passage of the Natural Gas Policy Act of 1978, the Natural Gas Wellhead Decontrol Act of 1989, and subsequent FERC orders in 1985 and 1992 opened access to pipelines and required pipeline companies to completely separate transportation, storage, and sales services, all of which facilitated the shift of natural gas to more competitive markets. Similarly, the 1978 passage of the Public Utility Regulatory Policies Act of 1978 and the 1992 passage of the Energy Policy Act facilitated restructuring in the electricity industry. FERC built upon these efforts through major regulatory actions in 1996 and 1999 that required utilities under its jurisdiction to, among other things, provide nonutility companies that generated electricity with access to the utility’s interstate transmission lines and encouraged utilities to join in the creation of independent organizations to operate the transmission system, such as Independent System Operators (ISO) and Regional Transmission Organizations (RTO).
Under federal statutes, FERC is the principal federal agency that regulates the natural gas and electricity industries to ensure that wholesale electricity and natural gas prices are fair.¹ FERC is responsible for developing and maintaining the regulatory framework that approves or otherwise influences the utilities’ terms, conditions, and rates for the sale or resale and transmission of natural gas and electricity in interstate commerce. Historically, to ensure that the prices these utilities charged were just and reasonable, FERC regulated rates by basing the prices on the utilities’ costs to provide service plus a fair return on investment. Now, FERC seeks to ensure that wholesale natural gas and electricity prices are just and reasonable by promoting competitive markets, issuing market related rules that encourage efficient competition, and enforcing and correcting market rules as needed.

In the newly restructured markets, many energy market participants rely on price information obtained from various sources, including price indices published in trade press because some companies can be reluctant to freely provide data on purchases and sales. Private companies develop these price indices by collecting information about market prices from market participants in a variety of ways, including phone calls to individuals within energy trading companies. Market participants use these indices to, among other things, help them make informed decisions about buying and selling natural gas and electricity. For example, energy market participants use price indices as a benchmark in reviewing the prudence of gas and electricity purchases and often reference price indices in the contracts they develop for gas and electricity purchases. As part of its market oversight efforts, FERC also monitors these price indices to detect anticompetitive behavior.

Other federal agencies have roles affecting the electricity and natural gas markets. The Commodity Futures Trading Commission (CFTC) oversees markets and transactions related to the sale of commodity and financial futures and options, while the Federal Trade Commission (FTC) and Department of Justice police deceptive selling practices. In addition to

¹Established in 1977 as the successor to the Federal Power Commission, FERC is an independent agency that is the principal agency that regulates the electricity industry. Some entities, including the Tennessee Valley Authority and the Department of Energy’s four Power Marketing Administrations, as well as publicly owned utilities, public power districts, and irrigation districts, as well as most cooperatively owned utilities, are outside of FERC’s jurisdiction.
these federal agencies, states also oversee aspects of natural gas and electricity delivery, often through public utility commissions.

The Federal Government Has Undertaken Multiple Efforts to Improve Price Indices

Since 2003, FERC has undertaken a series of efforts to improve the availability and accuracy of price information, including specifically addressing price indices. In 2000 and 2001 during the energy crisis in the West, some market participants knowingly misreported data to index providers in order to influence these indices for financial gain. Following that, FERC convened a series of conferences and workshops that included regulators, energy market participants, price index publishers, and industry experts. One of these events included participation by the CFTC and another included participation by the National Association of Regulatory Utility Commissioners (NARUC). As a result of these efforts, FERC staff developed a better understanding of market participants’ desired characteristics of the price indices and behavior of other market participants. These conferences and workshops also revealed some practical short- and long-term solutions to problems such as how market price indices are developed and why reduced energy trading activity was occurring.

Using the information that it developed through its conferences and workshops, FERC developed new standards and rules of conduct for both market participants submitting trade data and for price index publishers, to help ensure that price indices were more accurate and reliable and to strengthen market participants’ confidence in price indices. FERC outlined the standards that energy market participants and index developers should follow in a 2003 policy statement. According to FERC, these standards were designed to encourage standardization in the voluntary reporting of price and other market information, among other things, and to assure companies that they will not be subject to administrative penalties for inadvertent errors in reporting. These standards also encourage energy

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2NARUC is a membership association of regulatory commissioners that, among other things, is designed to study subjects concerning the operation of public utilities.

3To encourage a greater volume of price reporting by these companies, FERC presumes that companies that report trade data in accordance with the standards of the Policy Statement are doing so in good faith and, thus, these companies will not be subject to administrative penalties for inadvertent errors in reporting—commonly referred to as “safe harbor.” FERC’s guidance also stipulates that companies should verify the accuracy and completeness of the transaction data before submitting them.
market participants to report not only prices but also the volume of the traded commodity and the date and time of the transaction, and encourage the entities that publish price indices (e.g., Platts, Natural Gas Intelligence, and Dow Jones) to also publish this relevant market information. In addition, FERC standards encourage index publishers to verify the price data obtained from companies that provide price data, to indicate when a published price is an estimate made by the publisher rather than data reflecting only the results of actual trades, and to monitor the data to identify attempts to manipulate energy price indices. Finally, FERC standards encourage price index publishers to explain to users how the index is developed and include the formulas used to calculate the index.

With regard to rules of conduct, FERC issued two orders in November 2003 designed to establish clear guidelines for sellers of wholesale electricity and natural gas subject to its jurisdiction. These guidelines prohibit actions that do not have a legitimate business purpose and are capable of manipulating prices. For example, they prohibit submitting false or misleading information to FERC or price index publishers.

FERC has also taken steps to improve its ability to monitor price indices and enforce related market rules. Recently, we reported that FERC had made significant efforts to revise its oversight approach to better align with its new role in overseeing restructured markets. In particular, we have reported that through the establishment of its Office of Market Oversight and Investigations in 2002, FERC had taken a more proactive approach to monitoring by reviewing large amounts of data, including wholesale prices, for anomalies that could lead to potential market problems. In addition, FERC, which oversees the operators of electricity grids, including ISOs and RTOs, has worked with these organizations' market monitoring units—many of which collect substantial amounts of information on prices and other data to determine, among other things, whether prices are the result of fair competition or appear to be a result of market manipulation.

1As previously discussed in this report, some entities, including the Tennessee Valley Authority and the Department of Energy's four power marketing administrations, as well as publicly owned utilities, public power districts, and irrigation districts, as well as most cooperatively owned utilities, are outside of FERC's jurisdiction.

Finally, the passage of the 2005 Energy Policy Act included FERC’s proposed statutory changes to address misconduct of market participants by increasing civil penalties imposed on companies that participate in anticompetitive behavior or manipulate the market. These changes increase FERC’s ability to levy civil penalties under existing laws, raising potential fines to as much as $1 million per day per violation for as long as the violation continues. A FERC official said that increasing civil penalties would allow it to more effectively deter market manipulation and misconduct that is damaging to competitive markets. Moreover, FERC officials said that it would lead to greater certainty for market participants, thereby increasing participation in markets. The Energy Policy Act also gives FERC authority to collect transaction information if necessary to ensure price transparency. A FERC official said that this authority would give FERC additional tools if the current voluntary system of reporting prices to price index publishers proves inadequate. In addition, in response to requirements in the Energy Policy Act, FERC and the CFTC entered into a memorandum of understanding to share and coordinate requests for information, which they say will allow FERC to more readily identify and sanction market manipulation.

Industry Stakeholders Are Reasonably Confident in Most Price Indices

Many industry stakeholders report that they are now reasonably confident in short-term price indices, although some concerns about the transparency of long-term electricity markets remain. As part of its effort to assess its efforts to improve price indices, FERC surveyed industry participants in March 2004, asking them to rate their confidence in price indices—with 1 representing no confidence and 10 representing total confidence that price indices accurately represent market pricing. Confidence in price indices ranged from an average of 7.5 for gas utilities to 6.7 for marketers, with nearly half reporting a confidence of 8 or greater. In addition, in 2004, FERC reported that price index publishers have submitted information showing that the volume and number of transactions have increased significantly since 2002 and is influenced by at least two factors. First, companies that had been reporting transactions began reporting more transactions to publishers of price indices. Second, companies that had not been reporting had begun reporting transactions to

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7A limitation of the 2004 survey is that it is not a random, statistically representative sample of industry participants.
publishers of price indices. Furthermore, many of the companies reporting in 2004 are among the industry’s larger and more active participants.

Figure 1: Customer Satisfaction with Price Indices in 2004

Consistent with what FERC found, industry trade and research organizations and others that we interviewed reported to us that their members have few significant concerns about the short-term, also called spot, price indices or long-term natural gas indices. They report that, overall, FERC’s efforts to improve the transparency of spot price indices achieve sufficient oversight without being heavy-handed. In addition, industry participants told us that the quality of data being provided to publishers of price indices has improved since 2002. For example, according to a major price index publisher, the reporting of price information has significantly improved in the last 2 years, and, further, the quality of analysis and reliability of the prices that they report has improved. Finally, publishers are providing more information about the market, such as the number of transactions and the amounts of energy bought and sold at specific trading locations. For example, a major publisher reported to us that, as of August 2004, it includes volume and transaction data for each pricing point in the spot market.
Despite their general satisfaction with most price indices, some stakeholders reported concerns about price indices for long-term electricity markets. In particular, representatives of one trade organization told us that while data regarding spot prices and long-term natural gas prices have improved, they still have concerns about electricity prices involving long-term purchase arrangements and similar long-term contracts (e.g., forward and futures markets, where long-term contracts for electricity and related financial instruments are bought and sold).\(^8\) Stakeholders are now able to see that these markets witness fewer transactions and, as a result, are less developed than others. One factor affecting price transparency in these long-term markets is that the use of these markets collapsed in 2002 over concerns that prices were manipulated. This collapse, in turn, has resulted in fewer market participants and a market that is less developed, making it difficult for those still wanting to participate in these markets to find a willing trading partner. In addition, two stakeholders told us that there are not many options for obtaining data regarding longer term energy market transactions. Complicating this concern, FERC does not have jurisdiction for overseeing futures markets and has only a limited direct role in long-term markets. As a result, FERC does not formally collect extensive data on futures or long-term markets.\(^9\) As a result, one energy market participant reported that it relies on limited data when developing or valuing long-term electricity contracts. In the absence of a mature and reliable long-term electricity market and information about prices, market participants noted that for now they rely on long-term natural gas markets and indices, which are more developed. These market participants told us that because natural gas is used extensively to generate electricity, the prices often change together. They also said that the availability and use of these natural gas markets only partly mitigates the lack of robust electricity markets, because electricity and natural gas prices can, and do, sometimes move independently.

\(^8\)Futures contracts are financial arrangements, such as contracts tied to prices of electricity or natural gas to be delivered in the future, and are used to protect companies from price changes.

\(^9\)CFTC has jurisdiction over certain futures markets where financial instruments are sold. However, some forward physical and financial markets, including electronic trading systems such as the Intercontinental Exchange, are exempt from much, but not all, of the CFTC's jurisdiction.
Concluding Observations

The move away from regulators setting prices and toward markets where prices are increasingly a function of competition has raised the importance of price indices as a mechanism to communicate information to the market. In recent years, market participants have used these indices in structuring their transactions and regulators have used them to judge how the market is performing. As a result, it is important that they accurately and reliably reflect actual prices.

The federal government has taken a number of steps to encourage improved availability and accuracy of price indices, which has increased industry confidence in price and other market information provided in spot price indices. Although federal efforts appear to have had a positive impact on short-term (spot) price indices, some concerns remain about price indices for long-term electricity markets. It does not appear that there is an easy way to improve reporting on these long-term electricity markets until the markets themselves mature. Because of the importance of price indices, it will be important for FERC, Congress, and others to remain vigilant in their monitoring of existing price indices and attentive for alternatives to address the remaining issues in longer term markets.

Agency Comments

We provided a copy of our draft report to FERC for comment. FERC provided written comments, which are presented in appendix I. In its comments, FERC generally agreed with our findings and conclusions. In addition, FERC provided a variety of technical and other comments, which we incorporated as appropriate.

Scope and Methodology

To obtain information about efforts FERC has taken to improve natural gas and electricity price indices, we reviewed reports and other documents describing federal efforts to improve price transparency and examined literature on price transparency in the natural gas and electricity markets. In addition, we interviewed government officials at FERC, representatives of trade associations, and industry and academic experts in the field. We assessed the reliability of FERC confidence survey data by reviewing the survey instrument and methodology used to tabulate results, interviewing relevant agency officials knowledgeable about the data to understand any limitations of the data, and corroborating results by interviewing some of the entities surveyed.
We conducted our work from June 2005 to November 2005 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Chairman of FERC as well as other appropriate congressional committees. We also will make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or Wellsj@gao.gov. Contact points for our Office of Congressional Relations and Office of Public Affairs may be found on the last page of this report. GAO staff who contributed to this report are listed in appendix II.

Sincerely yours,

Jim Wells
Director, Natural Resources and Environment
FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426

OFFICE OF THE CHAIRMAN

December 2, 2005

Mr. Jim Wells
Director, Natural Resources and Environment
United States Government Accountability Office
441 G Street, Room 2962
Washington, D.C. 20548

Dear Mr. Wells:

Thank you for the opportunity to comment on your report entitled Federal Government Actions to Improve Private Price Indices and Stakeholder Reaction. As you discuss, the Commission has taken many steps over the past three years to improve the accuracy, reliability, and transparency of price formation in wholesale natural gas and electricity markets. These efforts have contributed to increased confidence in price indices published by private companies.

Price formation in wholesale natural gas and electricity markets is a voluntary process, and abuses in 2000-2001 undermined market participants' confidence in reported natural gas prices. The Commission worked with industry and many private publishers of price indices to improve the way prices are reported to index publishers and to make more information available about the volume of trading and the number of trades and parties trading in spot energy markets. Several process improvements initiated by the Commission have been adopted by companies reporting transaction data and by publishers of price indices. These process improvements have contributed to greater overall confidence in price indices.

The Commission continues to observe wholesale energy markets and the price information available to market participants, including the contributions to price formation of published indices. Recently, with the enactment of the Energy Policy Act of 2005, the Commission has been given new authority to facilitate price transparency in wholesale energy markets and interstate transportation and transmission markets. The Commission will utilize this authority as needed so that market participants have adequate price information available to them.

Sincerely,

Joseph T. Kelliher
Chairman
Appendix II

GAO Contact and Staff Acknowledgments

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