

# Natural Gas Industry Restructuring and EIA Data Collection

Most users of the Energy Information Administration's (EIA) natural gas data are aware of the restructuring that has taken place in the natural gas industry in recent years. This restructuring has had a significant impact on EIA's natural gas data collection efforts in that the coverage of some end-use prices has been substantially reduced. As a result, EIA's Reserves and Natural Gas Division has undertaken an in-depth reevaluation of its programs in an effort to improve the focus and quality of the natural gas data that it gathers and reports. This article is to inform natural gas data users of proposed changes and of the opportunity to provide comments and input on the direction that EIA is taking to improve its data.

Readers of this article are encouraged to comment on the proposed changes. Comments are appreciated and are useful input to the process of drafting the proposed package of survey forms that will be sent to the Office of Management and Budget for approval in September 1996. Please direct your comments to:

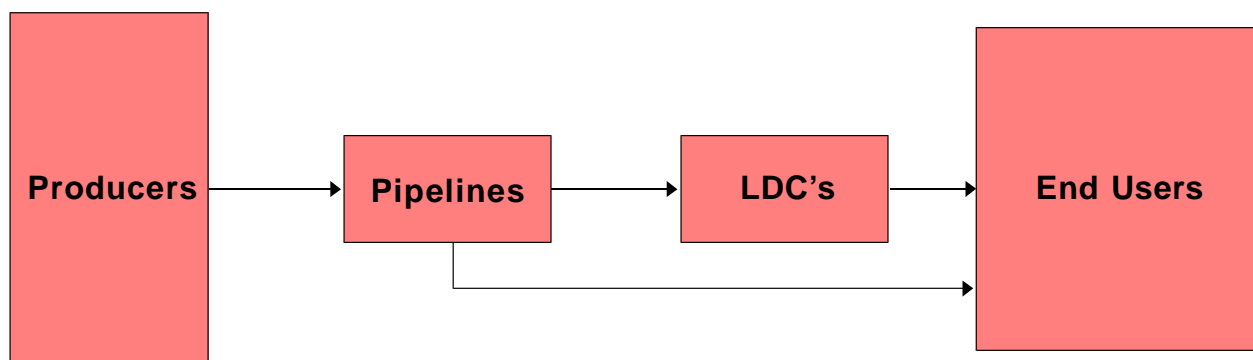
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This article begins with a brief summary of how industry restructuring has expanded the options for the sale and purchase of natural gas and how these changes have affected EIA's collection of end-use prices. The next section outlines the proposals for addressing gaps in price coverage and a proposal for reducing respondent burden. The final section lays out the schedule for clearance of the revised forms, including the opportunities for public comment.

## ***Changing Market Structure And Data Coverage***

The restructuring of the natural gas industry over the past several years has resulted in a split between the physical flows of gas and the pattern of financial transactions. This split has widened in recent years and has directly affected EIA's ability to collect data on natural gas end-use prices. The physical flow of natural gas through gas transmission and distribution systems is a straightforward path, with custody of the gas passing from producers to pipelines to local distribution companies (LDC's) to end users (Figure F1). In cases where end users have a direct pipeline connection, the LDC may be bypassed.

**Figure F1. Physical Flow of Natural Gas**



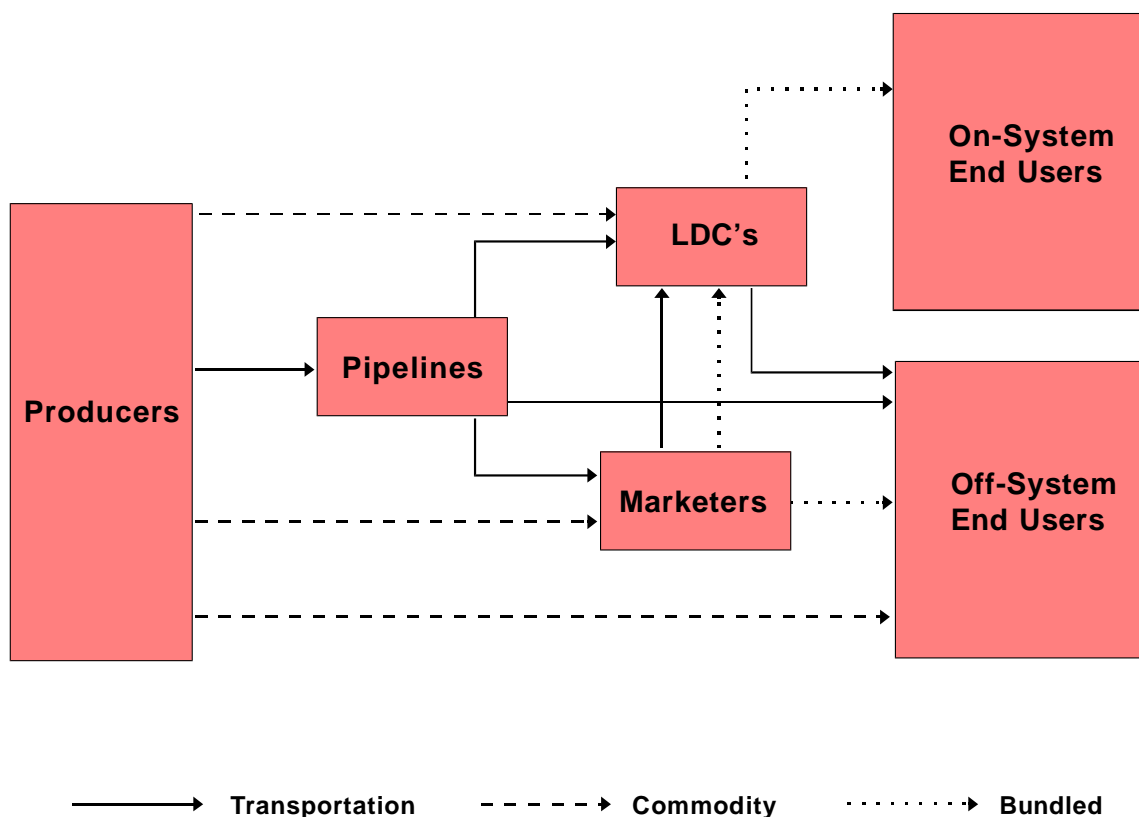
For many years, the flows described in Figure 1 represented gas trading relationships as well, with pipelines purchasing the gas for their systems from producers and reselling it to LDC's or end users. At each stage, the owner of the gas had physical custody of the gas. This has changed with industry restructuring. While physical flows remain the same, ownership patterns have become much more complex.

Figure F2 describes the relationships between the players in financial transactions in the restructured natural gas industry. Today, gas is purchased from producers by LDC's, marketers, and end users who must arrange separately for its transportation. The LDC's and marketers then resell the gas to their customers. LDC's sell gas to end users on a bundled basis—charging a single price for the gas commodity and for

the local distribution service. LDC's also provide distribution service to many customers (primarily industrial users or electric utilities and, in recent years, an increasing number of commercial users) who have purchased gas as a commodity from marketers or producers.

Marketers sell gas to LDC's and end users. Marketer sales to end users may occur at many locations including at the pipeline (with the customer arranging for and paying separately for transportation and distribution services), at the citygate (with distribution services provided and billed separately by the LDC), or at the burnertip (with the marketer providing and charging for the gas commodity, transportation, and distribution). Transportation and distribution services may also include gas storage service.

**Figure F2. Natural Gas Transactions**



Note: Transportation may include storage services.

One result of the separation of gas commodity transactions from transportation arrangements is that while pipeline companies and LDC's can report on the total volumes of gas being delivered through their systems (i.e., the physical flows depicted in Figure 1 are unchanged), they have no information on the sales price for unbundled commodity transactions. As a result, the cost of many commodity sales is not reported to EIA.

EIA's published natural gas prices reflect only those gas volumes purchased from LDC's (and a few pipeline companies)—the "bundled" LDC sales. As more purchasers have taken advantage of the opportunities to buy gas from parties other than LDC's, the coverage of prices in some sectors has steadily declined. For example, EIA's published industrial gas price is currently based on less than 25 percent of all volumes, down from 52 percent in 1987 (Figure F3). Coverage of the commercial sector, while still at 75 percent, has declined from 97 percent in 1987. The exception is the price paid by electric utilities for their natural gas purchases. Data on gas consumed by electric utilities are now reported by the utilities themselves. However, the proposed restructuring of the electric utility industry could reduce the price coverage

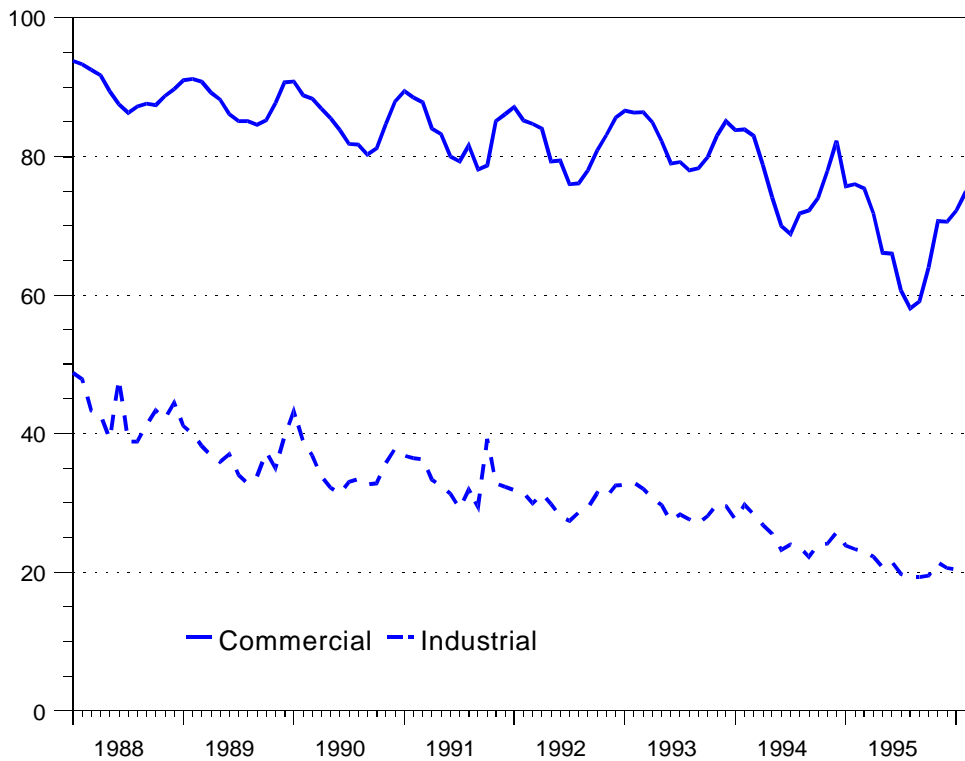
in this sector as well. In addition, if ongoing experiments with the restructuring of the residential market prove successful, EIA's coverage of residential gas prices may also begin to decrease.

EIA believes that it must develop new methods to collect end user price data if it is to continue to publish reliable data. With the complexity of the new market arrangements, a variety of transactions need to be addressed to improve the coverage of prices.

### Collecting Data On Natural Gas Prices

The EIA collects price data on three basic transactions: (1) the price for natural gas purchased at the wellhead; (2) the price for natural gas at the citygate where the LDC takes custody for distribution to local customers; and (3) the prices paid by the end users or consumers. Table F1 provides a comparison of the types of transactions in today's market at the three measurement points with the types of transactions measured before the restructuring of the industry.

Figure F3. Percentage Onsystem Sales By Month: 1988-1996



Source: Form EIA-857.

**Wellhead Prices:** The average wellhead price is the average price received by producers from all sales exclusive of other charges added during processing, storage, transportation, and delivery. Before industry restructuring, producers sold mainly to pipeline companies. Now producers sell significant amounts to marketers or directly to end users, and very little to pipeline companies. Aggregate data on wellhead sales are reported by State agencies in the 33 producing States on Form EIA-627, "Annual Quantity and Value of Natural Gas Report," and monthly on Form EIA-895, "Monthly Quantity of Natural Gas Report."

**Citygate Prices:** The components of gas transactions that are included in the citygate price include producer sales to LDC's and marketers, marketer sales at the citygate to LDC's, and sales at the citygate by producers and marketers to end users. Citygate prices include the wellhead price for the gas and pipeline transportation costs. Pipeline transportation costs may include reservation fees, system charges, all types of taxes, storage costs, balancing fees, and other costs associated with pipeline transportation. A sample of LDC's report their citygate gas costs monthly on Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers." No data are currently reported on the cost of end-user purchases at the citygate.

**Table F1. Natural Gas Pricing Concepts**

BEFORE RESTRUCTURING	AFTER RESTRUCTURING
<b>Wellhead Price</b>	
Producer sales to pipelines, LDC's, and end users	Producer sales to marketers, LDC's, and end users
<b>Citygate Price</b>	
LDC purchases delivered at the citygate  <i>Implicit Components: Wellhead price + pipeline transportation cost to citygate</i>	LDC purchases delivered at the citygate End user purchases delivered at the citygate  <i>Implicit Components: Wellhead price + pipeline transportation cost to citygate + marketer fees</i>
<b>End-Use Price</b>	
LDC price to on-system customers Pipeline price to mainline sales customers  <i>Implicit Components: Citygate price + distribution costs</i>  <i>or</i> pipeline gas acquisition cost + transportation cost	LDC price to on-system customers Marketer price + transportation and distribution costs to off-system customers  <i>Implicit Components: Citygate price + distribution costs</i>  <i>or</i> marketer price + transportation and distribution costs

**End-use Prices:** End-use price data for companies that make physical deliveries of the gas they sell (onsystem sales) are reported annually on Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." Monthly data are provided by a sample of EIA-176 respondents on Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers." Prices for deliveries of gas to end users sold by others (offsystem sales) are not currently tracked. The only data for offsystem end-use prices that are presently collected by EIA are implicit in the data on delivered cost of gas to electric utilities for steam-electric and combined cycle powerplants with a total nameplate capacity of 50 megawatts or more. These data are reported monthly by the utilities to EIA on the Federal Energy Regulatory Commission (FERC) Form 423, "Monthly Report of Cost and Quality of Fuel for Electric Plants." Similar data are reported annually by major investor-owned electric utilities on FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and by major publicly-owned electric utilities on Form EIA-412, "Annual Report of Public Electric Utilities."

For all other end-use sectors, end-use prices are calculated from the sales volumes and revenues reported and do not include third party commodity transactions or the price of associated transportation and distribution services. This has resulted in the declining coverage of end-use sales prices.

### **Approaches to Improving Coverage of End-use Price Data**

Other methods are required to collect more representative data on end-use gas prices in sectors with a significant proportion of offsystem transactions. Two options for doing this have been considered: (1) collecting the information from the buyers, that is surveying end users directly, or (2) from the sellers by instituting a gas marketers' report to supplement data collected on the Forms EIA-176 and EIA-857.

An end-user survey would require that end users be identified and then required to make regular reports. There are an estimated 200,000 industrial gas consumers, 4.5 million commercial customers, and 53.4 million residential gas users. The large number of industrial and commercial offsystem sales consumers and the time and expense involved in conducting a sample survey of those end-users are major drawbacks to this approach and would severely affect the timeliness of the reporting of this information.

Because of the drawbacks to the first option, EIA considers a marketer survey, along with adjustments to forms collecting data from LDC's, to be the most cost-effective way of constructing reliable estimates of end-user gas prices. Those end users who do not buy their gas from LDC's generally purchase it from gas marketers, the largest of which are typically subsidiaries of gas producers, pipeline companies, or LDC's. The 1995 *Directory of Natural Gas Marketing Service Companies*, published by Benjamin Schlesinger and

Associates, Inc., lists 265 gas marketing companies in the United States and Canada. Only 82 of these companies (63 in the U.S. and 19 in Canada) reported more than 100 billion cubic feet (Bcf) of gas sales in 1994. Those 82 companies reported total sales of more than 30 trillion cubic feet (Tcf) in 1994. While data on sales to non-LDC customers was not universally reported, 65 companies did report a total of 10.6 Tcf in non-LDC sales in the U.S. and Canada.

A large portion of marketer sales are believed to be delivered to the citygate, where the LDC provides distribution services to end users. If marketers were to report the volume and cost of citygate deliveries in each State, by sector, then data on the distribution markup reported by LDC's in those States could be used to construct estimated end-use prices for those gas volumes. For transactions at the burnertip, the reported cost of marketer sales at the burnertip would represent end-use prices for those volumes. Finally, the cost of marketer deliveries to the citygate could be combined with the reported LDC gas purchase cost to yield more representative citygate prices.

A key piece of information needed to construct end user prices from marketer reports of commodity sales to end users at the citygate is the cost of distribution from the citygate to the end user. EIA proposes to collect these data on Form EIA-857 and EIA-176 by asking respondents to report the revenues associated with deliveries to end users under third-party transportation arrangements.

The implementation of these proposals will allow the end-use price for each sector in each State to be estimated as a weighted average of:

- onsystem sales prices
- marketer sales prices at the burnertip
- marketer sales prices at the citygate plus the average LDC charge for third-party distribution to that sector in the State.

The only transactions missed under this approach would be marketer sales to end users at points other than the citygate or burnertip. For such sales, an end-use price could not be constructed without surveying the end users themselves. It is not presently known how much coverage will be missed on this account, but volumes are presumed to be small.

EIA has drafted revisions to Forms EIA-176, EIA-857, and EIA-895 and developed a proposed new marketer survey form, EIA-901, "Monthly Report of Natural Gas Marketers." The major changes proposed for the first three forms are:

- Requiring that revenues from third-party transportation and distribution to end users be reported along with the volumes that are already reported on Forms EIA-176 (annual) and EIA-857 (monthly). Costs and revenues associated with other specific volume categories will also be reported.

- Adding a monthly report of value of production to Form EIA-895. These monthly data are now reported annually on Form EIA-627, which is proposed to be discontinued.

The marketer survey will request data reported by State of delivery, on volumes and revenues associated with sales to end users. Deliveries to each end-user sector will be reported separately for sales at the citygate and at the burnertip.

If approved, the revisions to Form EIA-176 will cause the form to be classified confidential, as it had been prior to 1990.<sup>1</sup> This means that the data would be reported only after aggregating individual company reports and implementing statistical procedures to assure that no individual data could be deduced from published aggregate data. In most statistical publications, EIA has requested and received permission to publish data for States like Hawaii, Vermont, and the District of Columbia where one or two companies operate. EIA will examine what the impact of publication of data would be for those and similar areas with any new or revised data collections.

### ***The Forms Clearance Process***

Any revisions to forms or initiation of new data collection must be approved by the Office of Management and Budget (OMB) and include an opportunity for public comment. The schedule for the clearance process is:

- Publication of a *Federal Register* Notice including draft forms for comments. The *Federal Register* Notice was published May 20, 1996. Comments are due to EIA on or before July 19, 1996. EIA will then respond to comments during July and August.

- The draft forms with any revisions incorporated as a result of the first public comment period will be sent to OMB for approval in September 1996. This review consists of an additional *Federal Register* Notice and 30-day period for public comments to OMB.

- The OMB review and decision are completed within 90 days from date of request for approval.

With OMB approval, the proposed forms would be effective for use in 1997 for the collection of annual data for 1996 and monthly data beginning with January 1997.

### ***Summary***

The prices paid by end users for natural gas are important indicators of the overall market structure and functioning. The information collected by EIA provides an understanding of the movements and fluctuation of average prices. It is essential to the Federal government in responding to requests for information from Congress. In addition, it is used by Federal, State, and local governments for analyzing the impact of various changes in legislative and regulatory policy on the consumers of natural gas and in responding to requests for information from their constituents. Additionally, these prices are needed and used by the business community for strategic planning purposes and establishment of benchmark and baseline information.

As discussed in the article, EIA has examined ways to improve the data reported on pricing to provide better coverage and more representative prices. This article is intended to alert the users of natural gas data to potential changes in the information collected by EIA and to provide ample opportunity for review and comment. While there will be two official review periods as outlined above, informal discussions and comments are welcomed as well.

<sup>1</sup>The confidentiality restriction on EIA-176 data was lifted in 1990 after several requests for the data or parts of the data were filed under the Freedom of Information Act. These requests were not opposed by companies filing Form EIA-176, and after several such requests, EIA, with the approval of OMB, removed the confidentiality restriction. OMB approved the action having also received no protest from respondents.

## EIA Natural Gas Program Package Data Collection Forms

Form	Description	Proposed Changes
EIA-176	<i>Annual Report of Natural and Supplemental Gas Supply and Disposition.</i> Mandatory report filed by all companies that deliver natural gas to consumers or across State lines and by all storage operators. State data on gas volumes purchased, transported, stored, delivered, sold, and transported to end users by sector; cost of gas purchased; and revenues from sales to end users by sector.	Collect additional data on revenues for transport of gas to end users for the account of others. Seeking comments on usefulness of firm/interruptible data and reliability of data on deliveries to nonutility power producers as well as other data issues
EIA-191	<i>Monthly Underground Gas Storage Report.</i> Mandatory report by storage operators. Data on injections, withdrawals, peak day send out, location and capacity of storage facilities.	No form changes requested. Asking comments on change of confidentiality status.
EIA-627	<i>Annual Quantity and Value of Natural Gas Report.</i> Filed voluntarily by State agencies in producing States. Data on monthly volume and value of marketed production, gross withdrawals, lease use of gas, number of producing wells.	Discontinue.
EIA-857	<i>Monthly Report of Natural Gas Purchases and Deliveries to Consumers.</i> Mandatory sample survey of companies delivering to end users. Data on volumes and revenues for gas purchased by LDCs and delivered to consumers. Also volumes transported to consumers.	Collect additional data on revenues for transport of gas to end users for the account of others.
EIA-895	<i>Monthly Quantity of Natural Gas Report.</i> Voluntary report of State agencies used to estimate monthly gas production volumes.	Collect revenue data and change form title to <i>Monthly Quantity and Value of Natural Gas Report.</i>
EIA-901	<i>Monthly Report of Natural Gas Marketers.</i> Mandatory report of a sample of natural gas marketers. Data needed to expand coverage of commercial and industrial consumer prices.	New monthly data collection proposed to begin January 1997.
EIA-191S	<i>Weekly Underground Gas Storage Report.</i> Standby report to be used only under emergency conditions. Would collect data on weekly storage activities for limited areas.	No changes.
EIA-857S	<i>Weekly Report of Natural Gas Supplies and Deliveries to Consumers.</i> Standby report to be used only under emergency conditions. Would collect data on supplies, deliveries, and curtailments.	No changes.