

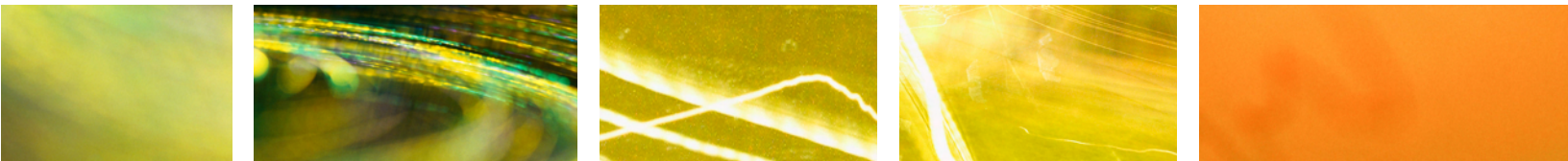
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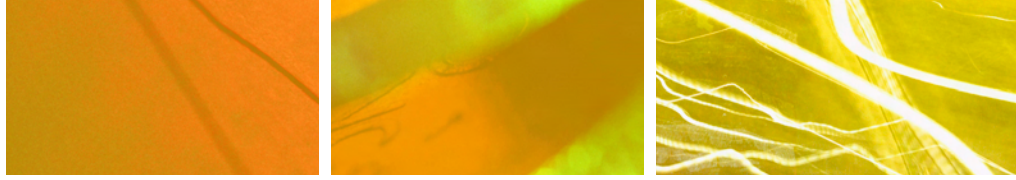
Characteristics of
U.S. Natural Gas Transactions
Insights from FERC Form 552 Submissions

As of September 30, 2009

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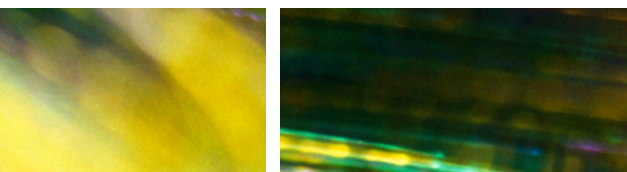


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CHARACTERISTICS OF U.S. NATURAL GAS TRANSACTIONS: INSIGHTS FROM FERC FORM 552 SUBMISSIONS

The increasing regulatory scrutiny of the energy markets that resulted from the Western energy crisis of 2000–02 has led to a variety of attempts to increase the availability of information on trading activity and price formation in the U.S. natural gas markets. The latest of these efforts comes from the Federal Energy Regulatory Commission (FERC), which now requires that natural gas market participants submit transaction volumes and other information for types of transactions that comprise a large portion of the Over-the-Counter (OTC) natural gas market. To date, these submissions comprise the most comprehensive data on the OTC natural gas market. Cornerstone Research has collected and analyzed these submissions to produce an in-depth picture of transaction activity and price formation in the U.S. natural gas markets.

The results of this study show that in 2008:

- On average a molecule of natural gas passes through at least three transactions as it winds its way from production to consumption.
- The U.S. natural gas market is not concentrated; the top twenty companies by volume account for slightly less than 50 percent of the transaction volume covered by the submissions.
- Transactions with prices dependent in some manner on published price indices comprise about two-thirds of the transaction types covered by submissions. Since FERC data submissions include all types of physical index-price transactions, but exclude some types of physical transactions that have prices not dependent on price indices, index-price transactions actually make up less than two-thirds of the entire physical natural gas market.
- While reporting to price index publishers appears to be robust, with more than one hundred companies reporting transaction information, only around 62 percent of the reporting-eligible volume is transacted by companies that report to the price index publishers.
- Price reporting to the price index publishers is not consistent across industry segments. The majority of the reporting-eligible volume transacted by the integrated firms and the traders and marketers is conducted by companies that report to the price index publishers. In contrast to these large participants, other industry segments appear largely to avoid reporting to price index publishers.

BACKGROUND

In 2005, Congress passed the Energy Policy Act of 2005 (EPAct 2005), which authorized FERC to “facilitate price transparency in markets for the sale or transportation of physical natural gas in interstate commerce.”¹ Further, EPAct 2005 allowed FERC to issue rules to “provide for the dissemination, on a timely basis, of information about the availability and prices of natural gas sold at wholesale and in interstate commerce to the Commission, State commissions, buyers and sellers of wholesale natural gas, and the public.”²

In December 2007, FERC issued Order 704 that required participants in the natural gas markets to submit, on an annual basis, aggregate information regarding their physical natural gas transactions.³ This order stated that the rationale for the submission requirement was, at least in part, the fact that a “[b]etter understanding of the role and functioning of wholesale natural gas spot markets can increase confidence that posted market prices of natural gas accurately reflect the interplay of legitimate market forces.”⁴

In 2008, FERC hosted two technical conferences and received comments on the requirement. In September 2008, FERC issued Order 704A that largely affirmed Order 704 with a few significant modifications, such as limiting the types of transactions it requires companies to submit. This reporting is conducted on Form 552.

By July 1, 2009, the deadline for the first round of submissions, 945 companies had filed Form 552. Throughout the remainder of July, 192 additional Form 552s were submitted. Through September 30, 2009, 1,121 respondents had submitted 1,446 copies of Form 552.⁵

DATA SUBMITTED TO FERC

Order 704A requires natural gas market participants with either purchases or sales of physical natural gas of at least 2,200,000 mmBtu in the prior calendar year to report information regarding their natural gas market activities for that prior calendar year on Form 552. Specifically, these market participants must submit volumes of physical natural gas transactions that “utilize next-day or next-month price indices, volumes that are reported to any price index publisher, any volumes that could be reported to an index publisher even if the respondent has chosen not to report to a publisher.”⁶ Order 704A further clarifies that the latter category includes “bilateral, arms-length, fixed price physical natural gas transactions between non-affiliated companies at all trading locations.”⁷

Significantly, Order 704A excludes a number of transaction types from the submission requirements. Order 704A does not cover any transaction that does not depend on a published price index or could not be reported to an index price publisher. The criteria for reporting to an index price publisher specifically excludes transactions for balance of month supply, intra-day trades consummated after the pipeline nomination deadline, monthly fixed-price transactions conducted prior to bidweek, fixed-price transactions for terms longer than one month, and fixed-price transactions that include other services or features (such as volume flexibility) that would render them ineligible for price reporting. Further, Order 704A excludes affiliate transactions from the submission requirements.

While respondents aggregate their reported transaction volumes across locations and for the entire calendar year, they must submit purchase and sale volumes separately for each of the following types of transactions: fixed-price for next-day delivery, index-price referencing next-day indices, fixed-price for next-month delivery, index-price referencing next-month indices, transactions with price triggers,⁸ and physical basis transactions.⁹ In addition to volumes of physical transactions, market participants are required to designate if they report transaction information to price index publishers.



RESULTS

Market Size and Types of Participants

The data contained on the Form 552 submissions (552 submissions) provide a new view into the size and nature of a large portion of the physical natural gas market. First, these forms quantify the number of and volumes of market participants that report to price index publishers. Second, the data give insight into the relative proportion of fixed-price and index-price transactions. Third, while FERC did not request information on all natural gas transactions, the data yield an outline of the size of the physical natural gas markets, especially at the trading and wholesale levels.

Further, to allow investigation of the activities of different types of market participants, Cornerstone Research has combined the Form 552 data with its own proprietary research that classifies the respondent companies by industry segments. These industry segments are Producer, Pipeline or Storage Operator, Electric Generator, Industrial or Commercial Consumer, Chemical Consumer, Trader or Wholesale Marketer, Local Distribution Company (LDC), Integrated-Downstream, and Integrated-Upstream.¹⁰ The latter two categories are designed to capture companies that span multiple industry segments.¹¹

The 552 submissions show physical trading volumes far in excess of annual U.S. natural gas consumption. The types of transactions captured by the 552 submissions total 123,667 million mmBtu transacted by 749 companies.¹² To the extent that both parties to a transaction submit Form 552, the 552 submissions will include double the volume of that transaction. For example, a trade for 10,000 mmBtu between two companies each submitting Form 552s will add 20,000 mmBtu to the total volume. Thus, these 552 volumes represent a minimum of 61,833 million mmBtu of trading volume.¹³

In comparison, the Energy Information Administration reports that 21,872 million mmBtu of gas were delivered to consumers in 2008.¹⁴ This suggests that each molecule of natural gas passes through at least three transactions from production to consumption.



Not surprisingly, as shown in Figure 1, the large integrated companies and the Trader or Wholesale Marketers account for a significant portion of the physical natural gas volume. These companies account for 73 percent of the Form 552 volume. In contrast, Industrial or Commercial Consumers and Chemical Consumers account for only 2 percent of the Form 552 volume.

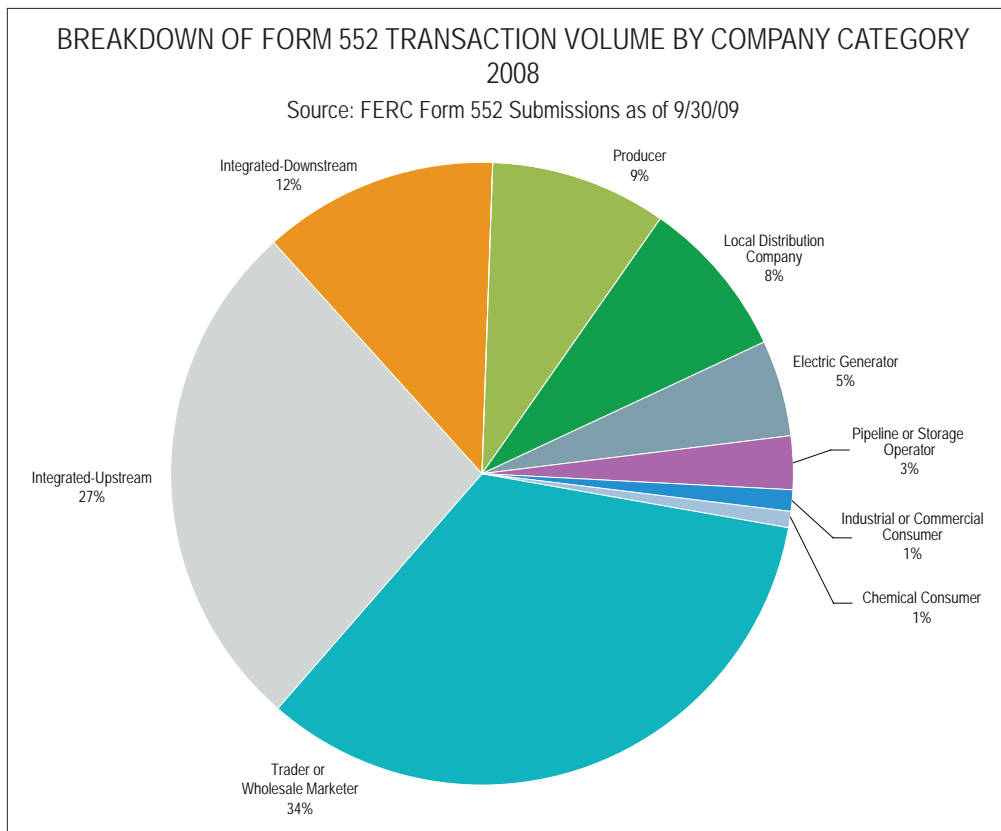


Figure 1

Figure 2 shows, by company category, the breakdown of 552 transaction purchases and sales. Not surprisingly, the Integrated-Upstream companies and the Producers sell more than they purchase. At the other end of the industry, LDCs, Electric Generators, Industrial or Commercial Consumers, and Chemical Consumers consume significantly more than they sell. Consistent with their business model, Trader or Wholesale Marketers purchase and sell approximately equal amounts.

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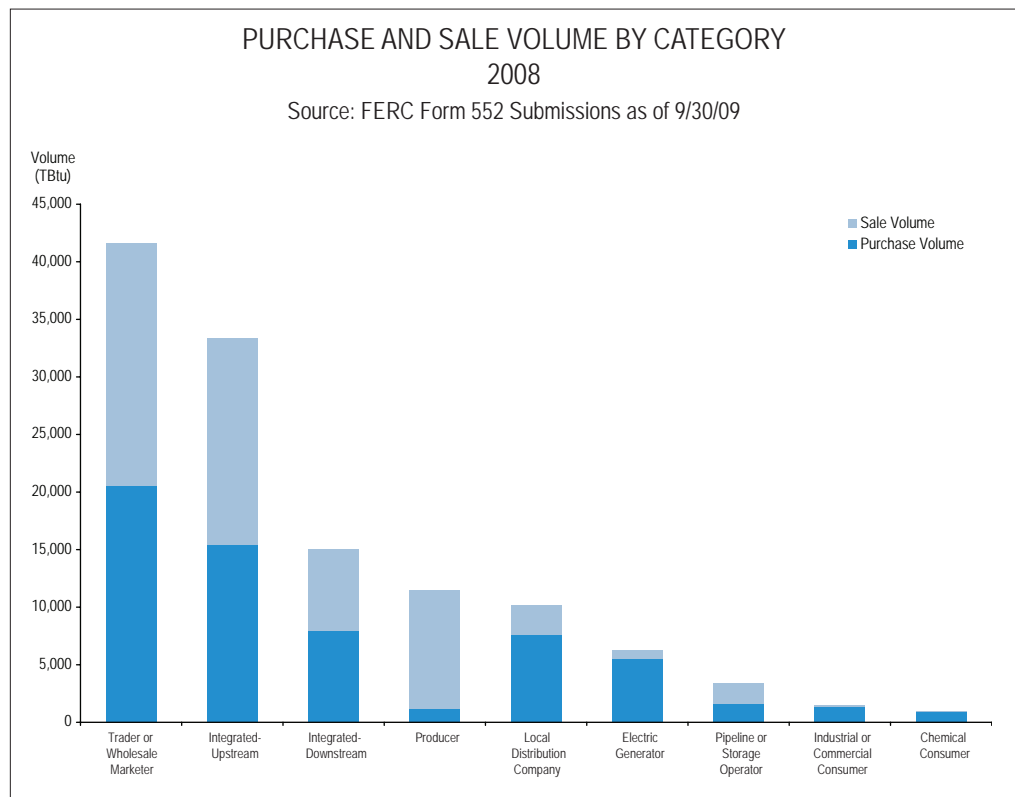
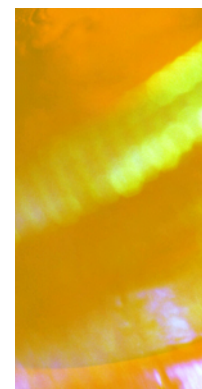


Figure 2

As shown in Table 1, the top twenty companies, ranked by total volume, account for transactions totaling 59,817 million mmBtu out of 123,667 million mmBtu contained on all 552 submissions. Thus, the top twenty companies account for 48 percent of the physical natural gas volumes of the 552 submissions. BP Energy Company (10,262 million mmBtu) had the largest physical volumes by a significant margin over the second largest company, ConocoPhillips Company (6,357 million mmBtu). Thus, the 552 data show that the U.S. natural gas market is an unconcentrated industry, with a large number of diverse participants.



TOP TWENTY COMPANIES BY TOTAL VOLUME				
Source: FERC Form 552 Submissions as of 9/30/09				
Company Name	Indicate Reports to Index Publishers	Total Buy Volume (Trillions of Btu)	Total Sale Volume (Trillions of Btu)	Total Volume
1. BP Energy Company	✓	4,844	5,418	10,262
2. ConocoPhillips Company	✓	2,840	3,517	6,357
3. Shell Energy North America (US), L.P.	✓	2,395	2,506	4,901
4. Constellation Energy Commodities Group, Inc.	✓	2,389	2,322	4,711
5. Chevron U.S.A. Inc.	✓	2,055	2,155	4,210
6. Total Gas & Power North America, Inc.	✓	1,587	1,524	3,112
7. Louis Dreyfus Energy Services L.P.		1,387	1,549	2,936
8. Tenaska Marketing Ventures	✓	1,312	1,201	2,513
9. BG Energy Merchants, LLC	✓	1,146	1,255	2,401
10. Occidental Energy Marketing, Inc.		1,033	1,108	2,141
11. Sempra Energy Trading LLC	✓	1,095	988	2,082
12. ONEOK Energy Services Company, L.P.		1,052	955	2,006
13. Eagle Energy Partners I, L.P.		965	1,004	1,968
14. Macquarie Cook Energy, LLC	✓	932	897	1,829
15. J.P. Morgan Ventures Energy Corporation		885	753	1,638
16. CenterPoint Energy, Inc.		865	540	1,405
17. Fortis Energy Marketing and Trading, GP	✓	709	666	1,375
18. Anadarko Petroleum Corporation	✓	237	1,106	1,343
19. Iberdrola Renewables, Inc.	✓	590	744	1,334
20. Merrill Lynch Commodities, Inc.	✓	705	590	1,295
All Other Companies		33,095	30,755	63,850
Total for All Respondents		62,115	61,552	123,667

Table 1

Transaction Types

The 552 data show that the volume of next-month gas (53 percent) is significantly larger than the volume of next-day gas (34.5 percent), among the types of transactions covered by Form 552.

Index-price transactions comprise the majority of transactions covered by Form 552. As shown in Figure 3, 67 percent of the 552 transaction prices depend on an index.¹⁵ The monthly index plays a role in determining the price in almost half (46 percent) of the 552 transactions. Fixed-price next-month transactions and physical basis transactions each account for only around 7 to 8 percent of the transactions covered by Form 552. Since they are primarily targeted at Industrial or Commercial Consumers, transactions with price triggers comprise less than 3 percent of the 552 transaction volume.

While on the surface these results suggest that the index-price transactions account for the majority of natural gas transactions, it is important to reiterate that the 552 data do not cover all of the transactions in the OTC market. Since Form 552 excludes certain types of non-index-price transactions, the proportion of the entire market made up of index transactions is lower than 67 percent. Without that additional data, however, it is impossible to quantify how much lower.

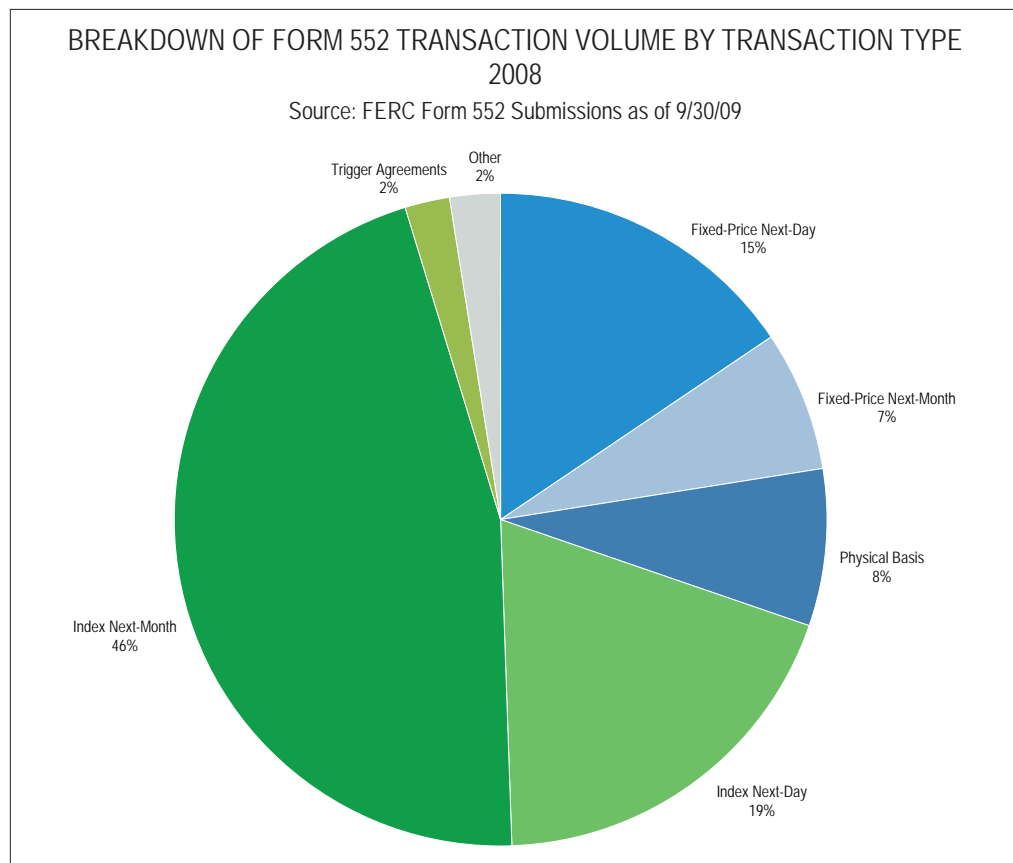


Figure 3

Volume and Depth of Reporting to Price Index Publishers

In Order 704, FERC commented that understanding the relative size of the volume of index-price transactions and reporting-eligible fixed-price transactions was a core purpose of the Form 552 submissions:

...to determine important volumetric relationships between (a) the fixed price, day-ahead or month-ahead transactions that form price indices; and (b) transactions that use price indices. Without the most basic information about these volumetric relationships, the Commission has been hampered in its oversight and its ability to assess the adequacy of price-forming transactions.¹⁶

This “volumetric relationship” is now clear. The volume of reporting-eligible fixed-price transactions at companies that report transaction information to the price index publishers is approximately one-fourth the size of the transactions in the 552 data that depend on index prices. These volumes shown in Figure 4 are influenced not only by the volume of index-price transactions, but also by the number of companies that report transaction information to the index publishers.

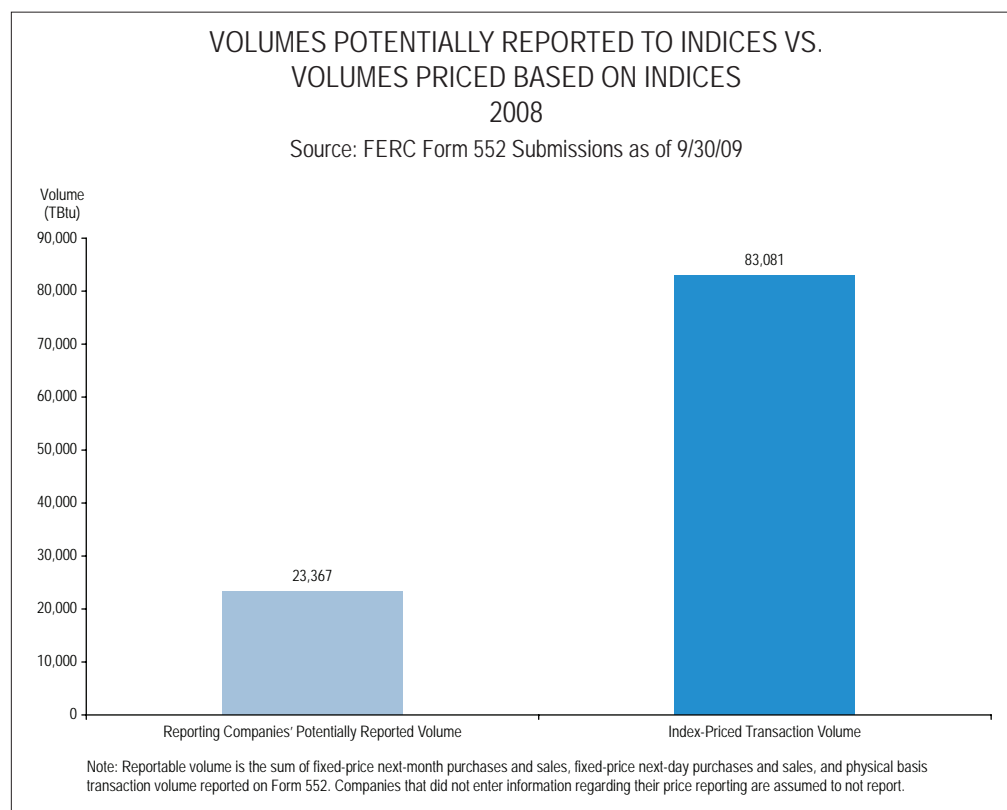
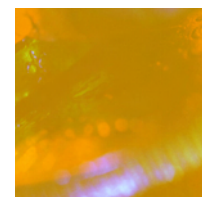


Figure 4



The majority of the companies that submitted Form 552 did not report to the index publishers at all. Of the 748 Form 552 respondents that submitted transaction volumes, only 108 indicated that they report transaction information to the price index publishers.¹⁷ Figure 5 shows that these reporting companies, however, account for the majority (62 percent) of the reporting-eligible fixed-price volume. The remaining 38 percent of the fixed-price transaction volume is conducted by companies that do not report to the price index publishers.

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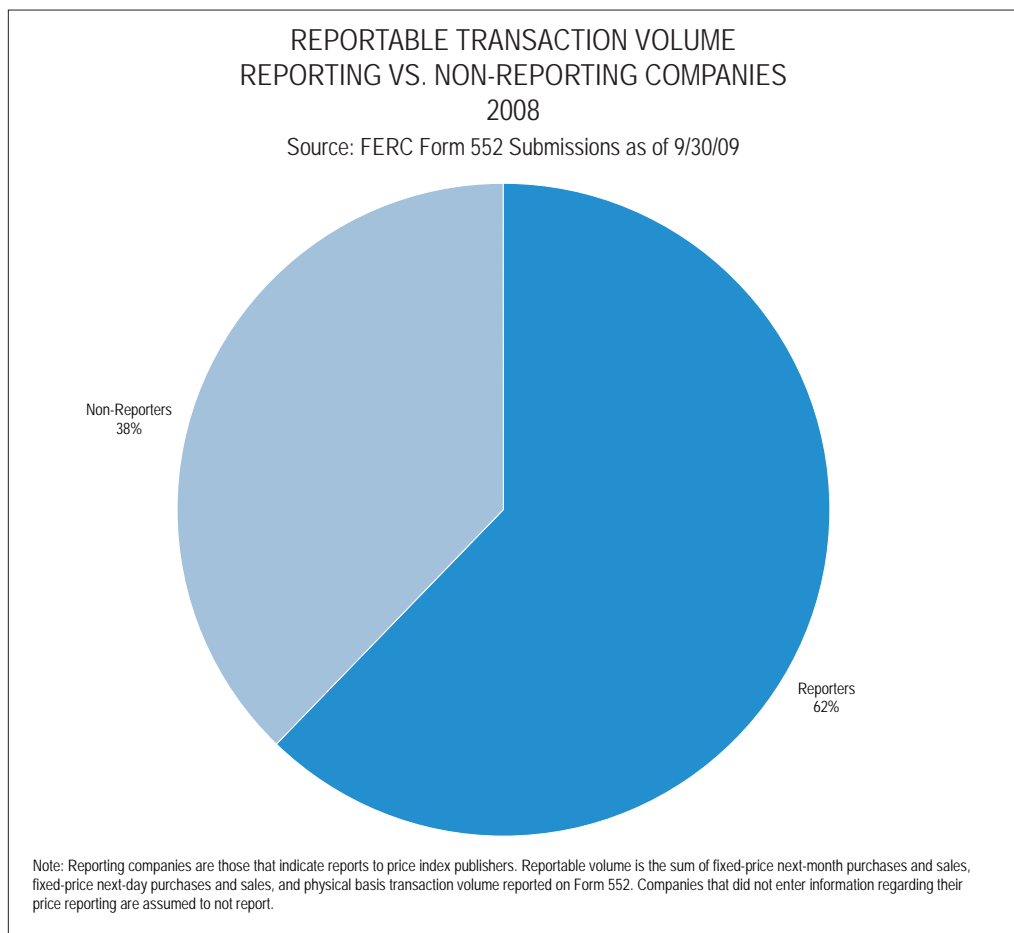


Figure 5

The large integrated companies and the traders and marketers account for the vast majority of the potential reporting to price index publishers. As shown in Figure 6, among the companies that report transaction information to the price index publishers, approximately 90 percent of the reportable volume occurs at the large integrated companies or at the Trader or Wholesale Marketers. Further, the top twenty reporting companies make up 77 percent of the reporting-eligible volume at reporting companies.

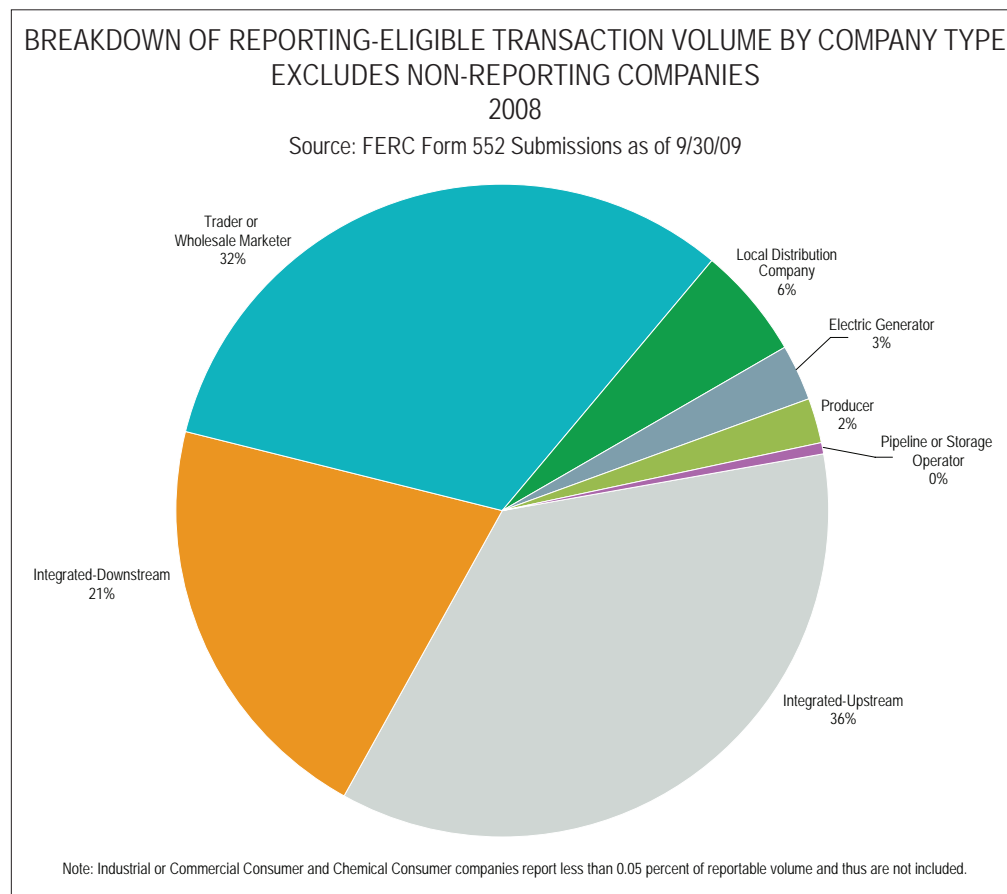
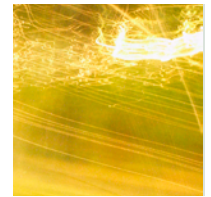


Figure 6

Only three Industrial or Commercial Consumers, two Pipeline or Storage Operators, and no Chemical Consumers indicated that they report to the price index publishers. As shown in Figure 7, there is significant disparity in the proportion of transaction volume reported by the various industry segments.

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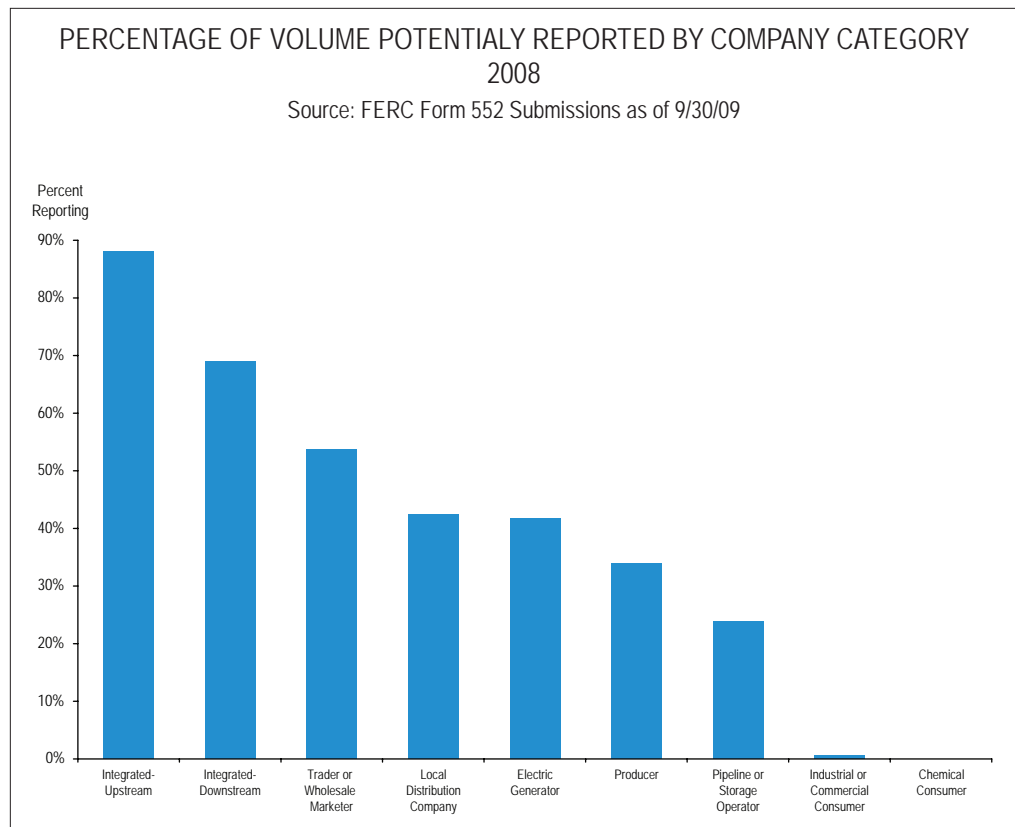


Figure 7

The disparity across industry segments of reporting transaction information to the price index publishers might cause concern that the basis for the price indices might arise predominantly from segments that have either long or short exposure to the published indices. These data, however, suggest that this is not the case, at least on an aggregate level. Rather, as shown in Figure 8, the companies that report transaction information to the price index publishers buy and sell index-price natural gas in roughly similar amounts: 56 percent of the price reporters are net buyers of index-price gas; 44 percent are net sellers of index-price gas.

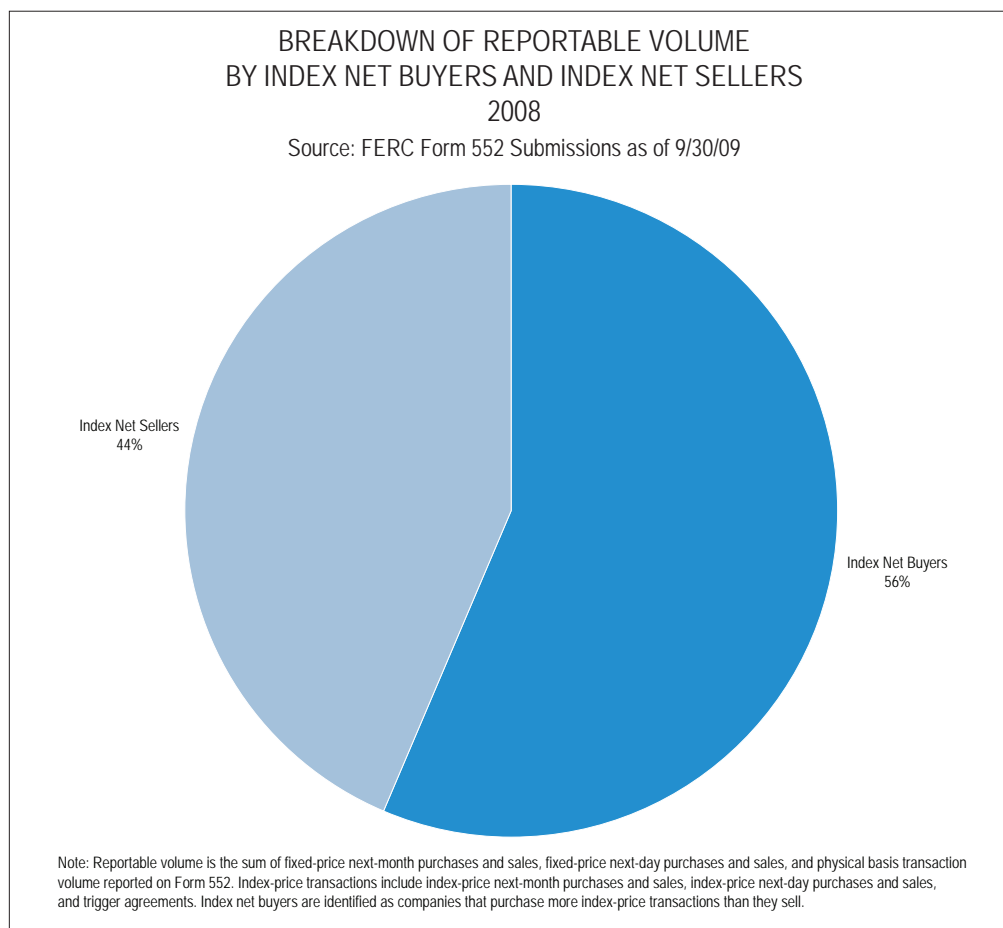


Figure 8



LOOKING FORWARD

As is evident from the results discussed above, the Form 552 data yield an unprecedented view into the size and nature of a large portion of the U.S. natural gas markets. These 2008 data provide a unique but static snapshot. The annual comparisons that will become possible in the future will shed even more light on the industry as they will yield insight into the trends and evolution of the industry.

ENDNOTES

- 1 Energy Policy Act of 2005, Section 316.
- 2 Ibid.
- 3 Order 704 set the first reporting deadline as May 1, 2009. This deadline was later delayed until July 1, 2009.
- 4 Order No. 704, p. 45.
- 5 Many companies resubmitted Form 552 to correct errors in the original submissions.
- 6 Ibid., pp 8–9. Note that Form 552 covers only physical natural gas transactions. Financial transactions such as swaps and options are excluded, as are futures contracts whether or not they are taken to physical delivery.
- 7 Ibid., p. 9.
- 8 FERC also refers to trigger contracts as NYMEX-plus contracts. In these contracts, the price is typically set at a specified index value as a default. The buyer, however, has the option to fix (or “trigger”) the price at any given point in time based on the prevailing market prices. Typically, the buyer can fix the price at the prevailing NYMEX price for the delivery month plus a predetermined premium. When they are triggered, these contracts become fixed-price trades. Thus, while trigger contracts are initially dependant on an index price, they often shed this dependence and give the buyer price the price certainty of a fixed-price transaction.
- 9 Physical basis transactions are physical transactions that have prices set as a predetermined amount plus the NYMEX settlement price. The price index publishers state that they incorporate physical basis transactions into their price assessments.
- 10 The categorization process is necessarily judgmental. Based on company websites and financial filings, companies were categorized as closely as possible to their most significant natural gas market activity.
- 11 Since these integrated companies typically have a focus at either the upstream (such as production, gathering, or processing) or downstream (such as electric generation, marketing to wholesale users, or industrial consumption) segments of the industry, two categories were created to allow for investigation of any differences between these types of companies.
- 12 748 companies submitted Form 552 with non-zero volumes. 371 companies submitted Form 552 with no volumes reported. It is likely that these companies held a blanket marketing certificate and thus had to submit the non-volume portions of Form 552.
- 13 Since some transactions involve market participants that do not submit Form 552, the actual volume of transactions represented by the 552 data is higher.
- 14 Energy Information Administration, http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcu_nus_m.htm, “Natural Gas Consumption by End Use.”
- 15 For purposes of this discussion, trigger transactions are considered to be dependent on an index since they are, at inception, often priced based on an index. Since they often convert to fixed prices, however, the buyer can ultimately end up paying a price that is no longer dependent on an index price. Further, the set of other index-price transactions likely includes purchases by industrial consumers with embedded price caps or associated hedges so that the buyer ultimately does not end up paying a price determined by an index price. Thus, the percentage of transactions with prices at settlement determined by an index price may be significantly lower than these statistics suggest.
- 16 Order No. 704, p. 4.
- 17 Rahr Malting Co., an Industrial or Commercial Consumer, indicated that it reported transactions to index publishers, but did not report volume on FERC Form 552. It is not included in the count of companies reporting to publishers.

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