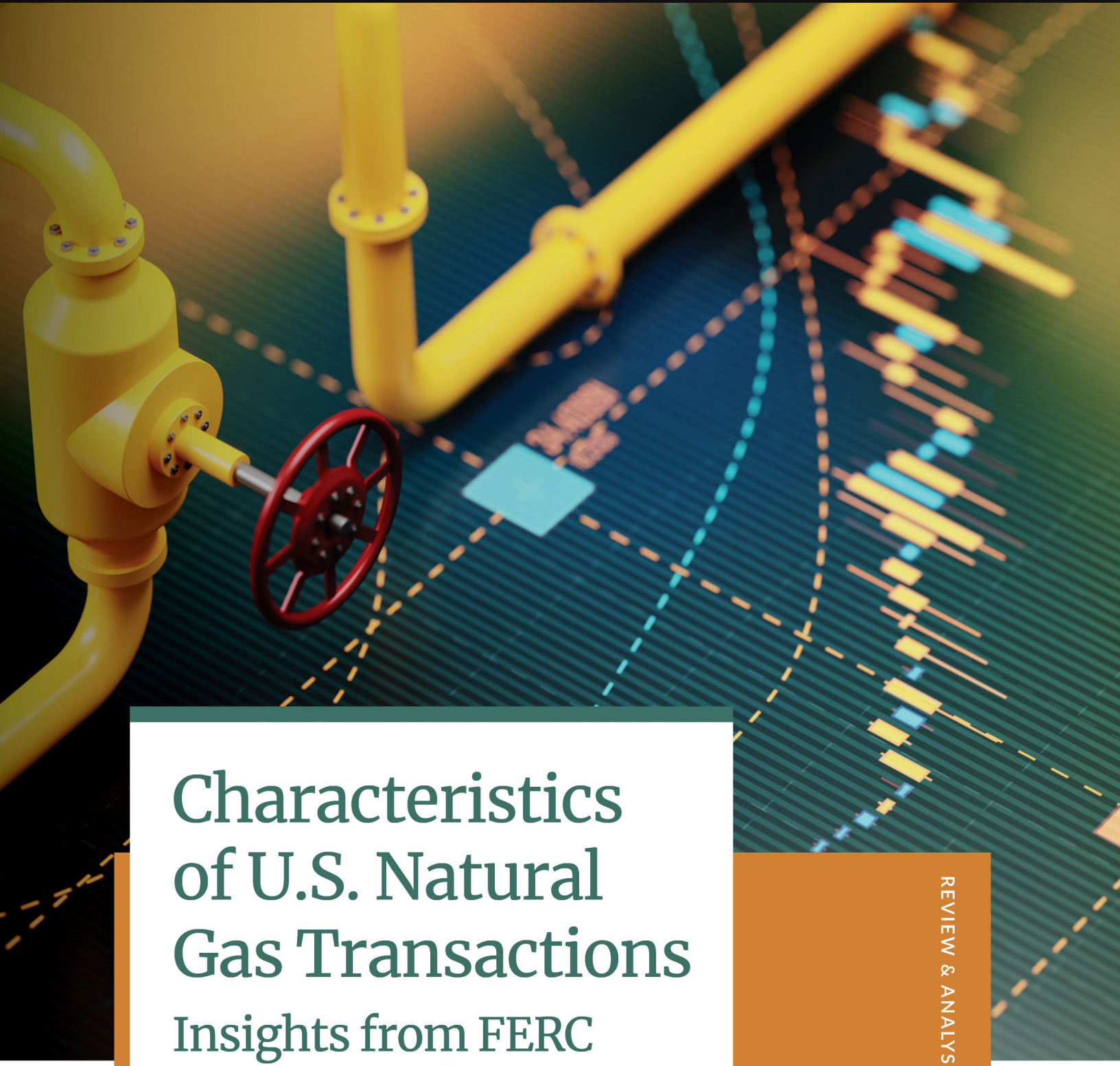

Characteristics of U.S. Natural Gas Transactions

Insights from FERC Form 552 Submissions as of August 12, 2025

REVIEW & ANALYSIS

CORNERSTONE RESEARCH
Economic and Financial Consulting and Expert Testimony

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The Federal Energy Regulatory Commission (FERC) receives and compiles the most comprehensive information on trading activity and pricing methods in U.S. natural gas trading markets. The information, collected from market participants' FERC Form 552 submissions, provides a database of trading activity that spans both physical and financial trading by a range of companies, from producers to end users.

By supplementing the data with proprietary classifications of market participants, Cornerstone Research adds deeper insight into market activities and characteristics across the various types of participants. See Appendix 1 for additional information.

Executive Summary

Total trading volume reported in Form 552 data increased for the 10th consecutive year in 2024. The share of Form 552 index-priced transaction volume, and the breakdown between next-month and next-day transactions, remained stable.

In 2024, the ratio of index-priced volume to volume potentially reported to indices decreased for the first time since 2010. The percentage of volume reported to indices as a share of reportable volume remained similar to that in 2023.

FERC SUBMISSIONS

Trading activity in 2024 totaled 166,990 tBtu, approximately 1% higher than in 2023.[1] (page 11)

In 2024, there were 668 respondents, slightly more than in 2023 (676 respondents).[2] (page 11)

The top 20 companies accounted for approximately 39% of the total volume reported to FERC. (page 15)

"In 2024, the ratio of index-priced volume to volume potentially reported to indices decreased for the first time since 2010."

Greg Leonard, Cornerstone Research

EXCHANGE TRADING ACTIVITY

Exchange trading of North American natural gas contracts increased by 30% on the Intercontinental Exchange (ICE) and by 35% on the Chicago Mercantile Exchange (CME). (page 12)

U.S. NATURAL GAS

U.S. natural gas annual marketed production reached another record high in 2024, up 1% from 2023. (page 7)

In 2024, U.S. liquefied natural gas (LNG) exports continued to increase, with almost half of these exports going to Europe. (page 8)

U.S. underground storage facilities held larger volumes of natural gas than usual throughout 2024. (page 5)

REPORTING TO PRICE INDEX PUBLISHERS

Index-priced transactions comprised approximately 85% of all Form 552 transactions, an increase of 18 percentage points since 2008. (page 16)

The ratio of next-day to next-month transactions slightly shifted toward next-day transactions compared to 2023, with next-day equaling 53% and next-month at 47%, compared to 51% and 49% in 2023, respectively. (page 17)

In 2024, approximately 12% of Form 552 respondents directly reported transaction information to price index publishers for themselves or at least one affiliate. These respondents accounted for 29% of the reporting-eligible, fixed-price volume in 2024, compared to over 62% in 2008. (page 19)

Natural Gas Balance Sheet

In 2024, domestic production of natural gas remained relatively stable while demand increased by 1%.

U.S. exports grew by 1%, reaching almost 9,000 tBtu, with LNG constituting 57% of this volume.

DOMESTIC PRODUCTION AND CONSUMPTION

Annual marketed and dry production of natural gas remained relatively stable between 2023 and 2024.[3] In 2024, natural gas was still the largest source of energy production in the U.S., ahead of crude oil and coal.[4]

Over the same period, U.S. natural gas consumption increased by 1% to reach an all-time high.[5] Total U.S. energy consumption increased slightly but remained 5% below the peak of 2007.[6]

As of December 2025, the U.S. Energy Information Administration (EIA) anticipated U.S. natural gas production to increase by 6% between 2024 and 2026 and expected consumption to remain relatively stable over the same horizon.[7]

> *"Europe has been the largest importer of U.S. LNG since the beginning of the Ukraine War."*
>
> *Nicole Moran, Cornerstone Research*

DOMESTIC STORAGE

Natural gas in storage decreased slightly in 2024, as U.S. production and imports trailed consumption and exports, resulting in relatively small storage withdrawals of 5 tBtu.

However, for 11 of the 12 months in 2024, the volume of natural gas in storage was the largest it had been in the last 4 years.

GLOBAL DEMAND

Global demand for natural gas grew by an estimated 2.8% in 2024, after increasing by 0.5% in 2023.[8] Demand growth in 2024 was primarily driven by China, India, the Middle East, and the Americas.[9]

The International Energy Agency (IEA) expects the global demand for natural gas to increase by nearly 2% in 2026 after increasing by less than 1% in 2025.[10]

U.S. EXPORTS

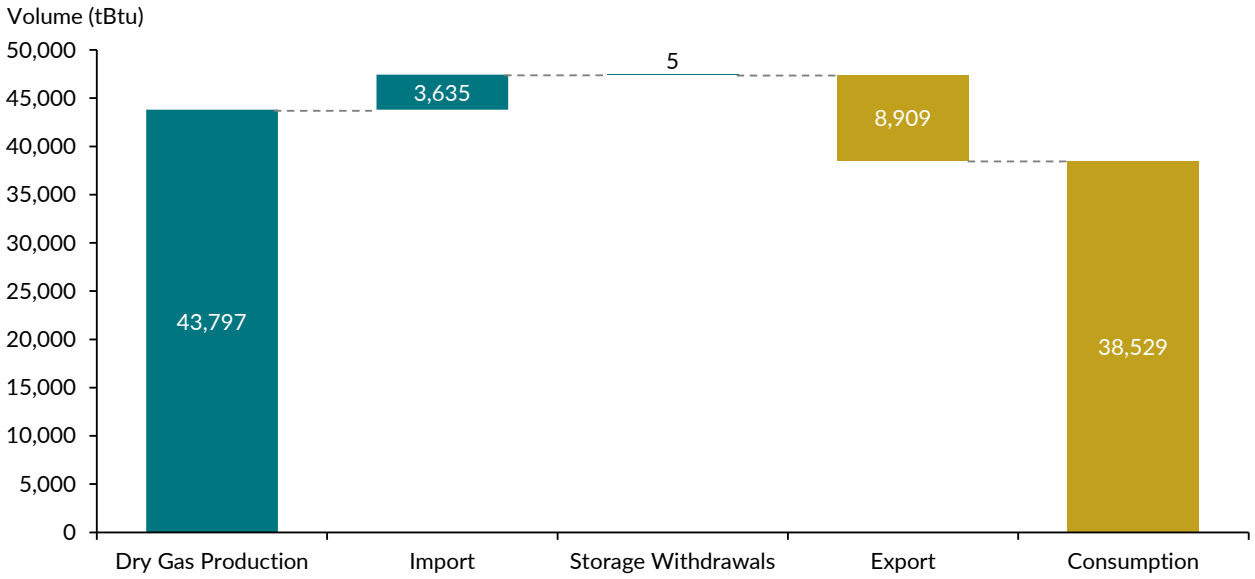
U.S. natural gas total exports increased by 1% between 2023 and 2024 and by more than 330% since 2015, driven primarily by an increase in LNG exports.[11]

LNG's share of total U.S. natural gas exports was relatively stable in 2024, remaining at 57%. This share was only 2% in 2015. The remaining 43% of the volume exported in 2024 was transported to Canada and Mexico via pipeline and trucks.[12]

The share of U.S. LNG exports to Europe decreased from 62% in 2023 to 48% in 2024.[13] Natural gas consumption in Europe increased marginally in 2024.[14]

As of December 2025, the EIA anticipated U.S. LNG gross exports to increase by 37% and pipeline gross exports to increase by 8% between 2024 and 2026.[15]

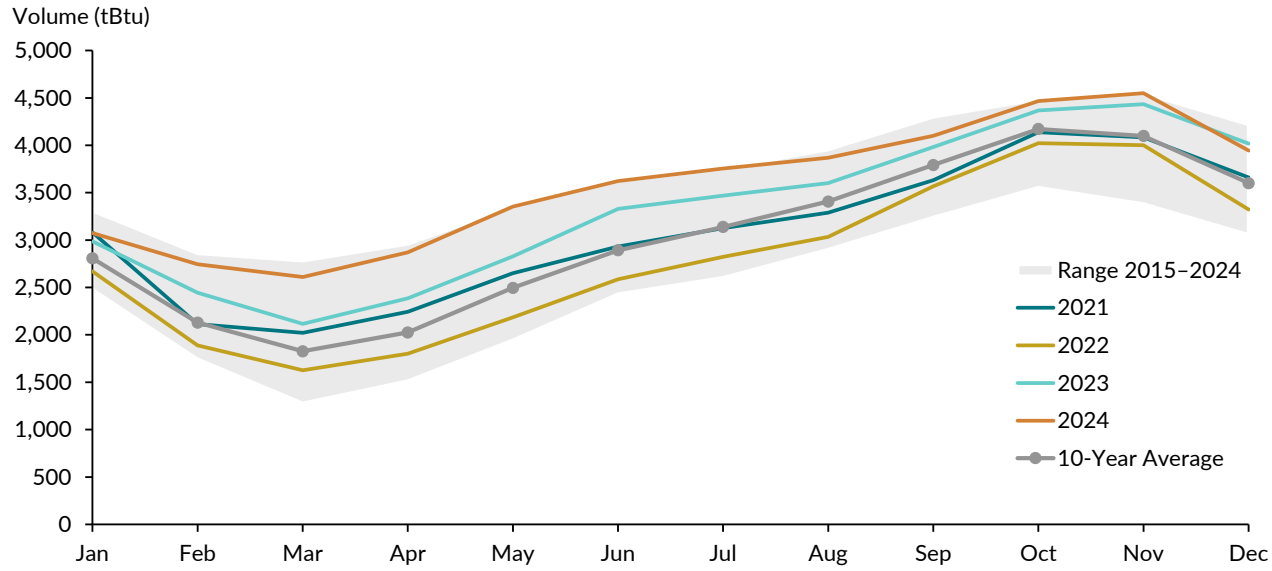
Figure 1: U.S. Natural Gas Balance Sheet
2024



Source: U.S. Energy Information Administration (EIA)

Note: Numbers may not add up to indicated values due to rounding. Values are converted using the 2024 Marketed Production conversion rate of 1,156 Btu per cubic foot of natural gas. Dry Gas Production is Marketed Production (48,026 tBtu) less NGPL Production (4,229 tBtu). The Dry Gas Production value also includes "Supplemental Gaseous Fuels." Consumption value also includes the "Balancing Item" used by the EIA to reconcile volume measurements.

Figure 2: U.S. Natural Gas in Underground Storage
2015–2024



Source: U.S. Energy Information Administration (EIA)

Note: Volumes are converted from billions of cubic feet to tBtu using the Marketed Heat Content reported by the EIA. The 10-year average is calculated between the years 2015 and 2024. The 2015–2024 range is based on the weekly working gas inventory values and is converted to tBtu using the 2024 Marketed Heat Content.

Natural Gas Production and Consumption

The U.S. annual marketed production of natural gas increased by approximately 1% in 2024 to 48,026 tBtu, setting a new record high for the eighth consecutive year.

Marketed production growth was driven by production growth in the Permian region but was offset by production declines in Haynesville and relatively flat production in Appalachia.[16] Production growth in Appalachia was again hindered by recurring pipeline capacity constraints and historically low Henry Hub prices, although the region still accounted for over 30% of marketed natural gas production.[17]

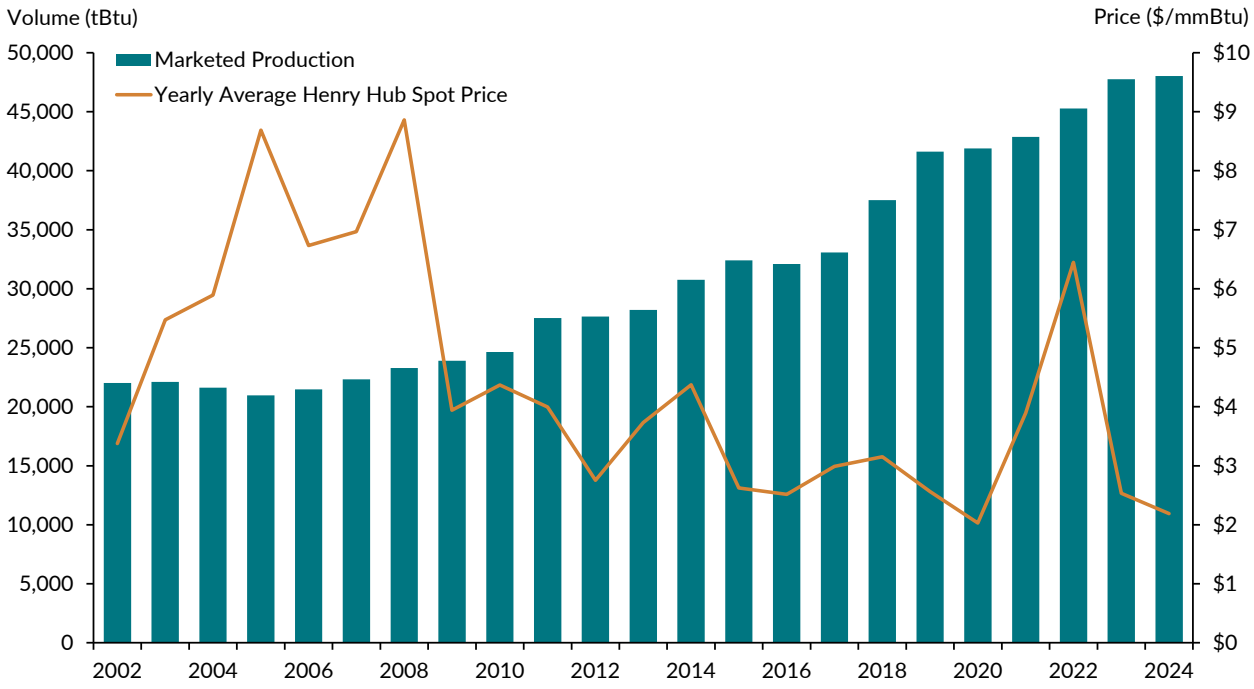
In 2024, 76% of gross withdrawals came from shale gas wells, 12% from natural gas wells, and 12% from crude oil and coalbed wells.[18]

U.S. natural gas consumption reached a record 90.3 billion cubic feet per day in 2024 and set new monthly records in January and July. Low natural gas prices contributed to this growth by making natural gas more competitive in the electric power sector.[19]

Natural gas consumption by the electric power sector increased by 4% in 2024 while consumption in the residential sector decreased by 3%.[20] The sectors consuming the most natural gas were electric power (41%), industrial (32%), and residential (13%).[21]

After reaching more than $6.00 per mmBtu in 2022 amid geopolitical unrest, the annual average Henry Hub price was $2.19 per mmBtu in 2024, below the 10-year historical average.[22]

Figure 3: U.S. Natural Gas Marketed Production and Average Henry Hub Natural Gas Spot Price
2002–2024



Source: U.S. Energy Information Administration (EIA)
Note: One tBtu equals one million mmBtu.

Natural Gas Exports

U.S. natural gas exports by pipeline increased by 2% in 2024, while LNG exports increased by less than 1%. Compressed natural gas exports remained a marginal fraction of U.S. exports in 2024, with less than 0.01% of the total export volume.

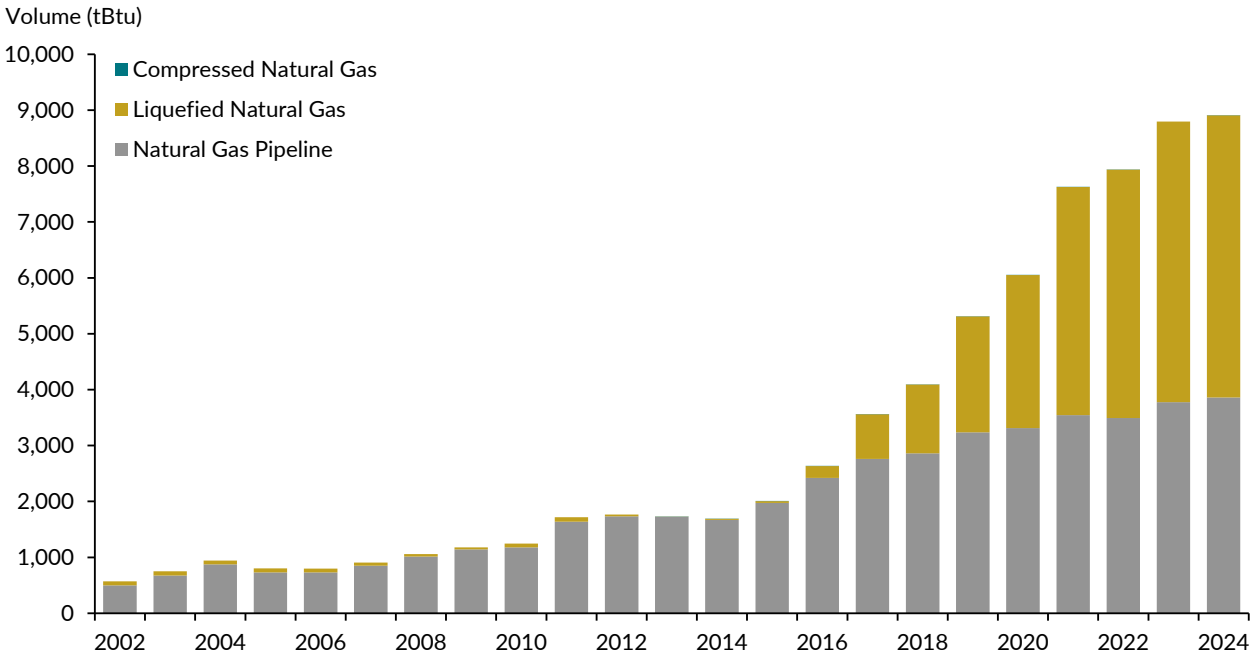
Natural gas pipeline exports as a share of total U.S. natural gas exports remained flat in 2024, accounting for 43% of total exports. In North America, increased demand from Mexico due to weak domestic production was offset by a decrease in exports to Canada.[23]

As in the recent past, U.S. LNG exports were driven by attractive price differentials between the U.S. and international markets and a growing domestic net surplus.

LNG as a share of total U.S. natural gas exports remained flat in 2024, accounting for 57% of total exports. This follows the first cargo shipment of the eighth U.S. LNG export terminal, Plaquemines LNG.[24] An expansion of the Corpus Christi LNG export terminal additionally began LNG production in December 2024.[25]

> *"Liquefaction capacity was the principal bottleneck for U.S. LNG exports in 2024. Golden Pass should enter in service in the near future and alleviate this constraint."*
>
> *Laurent Samuel, Cornerstone Research*

Figure 4: U.S. Natural Gas Exports
2002–2024



Source: U.S. Energy Information Administration (EIA)

Note: tBtu conversion uses annual Btu per cubic foot for Natural Gas Exports Heat Content. Volumes are converted from millions of cubic feet to tBtu using the Natural Gas Export Heat content reported by the EIA. Compressed natural gas (CNG) exports primarily consist of small-volume shipments by truck exclusively to Canada. CNG exports have averaged less than 0.01% of U.S. natural gas export volume per year since first having non-zero volume in 2013.

The U.S. exported more than 4,367 billion cubic feet of LNG in 2024, up 1% from 2023, and remained the world's largest LNG exporter.[26]

The U.S. now has seven facilities and 44 liquefaction units (referred to as "trains") in service.[27] Liquefaction capacity investments in the U.S. are continuing with seven projects currently under construction and 11 projects awaiting a final investment decision.[28]

About 48% of U.S. LNG exports went to Europe in 2024, the majority of which were shipped to terminals located in the Netherlands, France, and the UK.[29] Europe remained the largest destination for U.S. LNG exports after overtaking Asia in 2022.

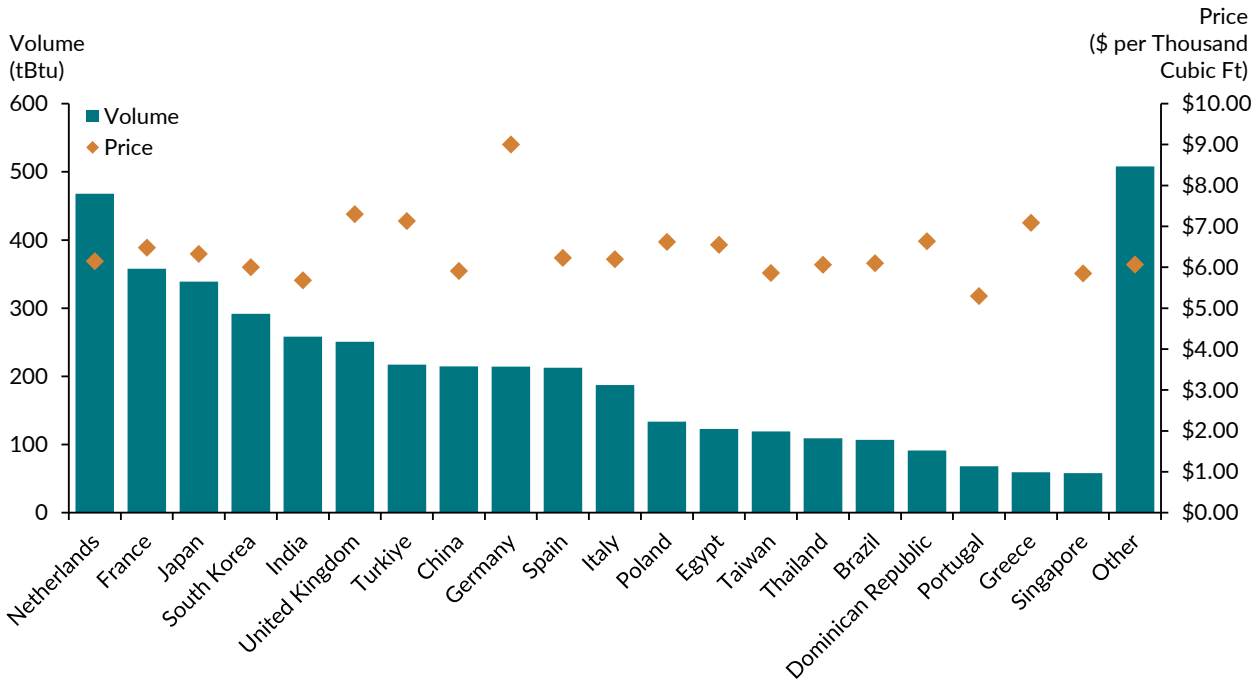
For the first time, the U.S. exported LNG to terminals located in Mauritania and Senegal in 2024.[30]

U.S. LNG exports to Asia increased by 26% in 2024. Exports to China increased by 23% to 213 billion cubic feet, but did not recover to 2021 levels (453 billion cubic feet). Overall, the share of U.S. LNG exports to Asia increased from 26% to 33% between 2023 and 2024.[31]

U.S. LNG exports to the Caribbean and to Central and South America increased by 38% in 2024. U.S. combined exports of natural gas to Mexico by vessel, truck, and pipeline increased by 4% in 2024.[32]

The average export price of U.S. LNG decreased by 15% between 2023 and 2024, reaching the lowest level since 2020.[33]

Figure 5: U.S. Liquefied Natural Gas Exports and LNG Prices by Country
2024



Source: U.S. Energy Information Administration (EIA)

Note: tBtu conversion uses 2024 Btu per cubic foot for Natural Gas Exports Heat Content. Volumes are converted from millions of cubic feet to tBtu using the Natural Gas Export Heat content reported by the EIA. LNG prices are export-location specific. "Other" includes Truck Exports to Mexico and Canada and Vessel Exports to Chile, Croatia, Argentina, Colombia, Lithuania, Jordan, Belgium, Bangladesh, Kuwait, Panama, Malaysia, Finland, Jamaica, Mexico, Indonesia, Malta, Philippines, United Arab Emirates, El Salvador, Senegal, Mauritania, Bahamas, Barbados, Canada, Haiti, and Antigua and Barbuda.

Natural Gas Prices

Driven by increased demand from LNG exporters and the Ukraine War, Henry Hub spot prices averaged $6.45 per mmBtu in 2022, before decreasing to $2.53 per mmBtu in 2023.[34]

In 2024, Henry Hub spot prices averaged $2.19 per mmBtu, a level similar to that during the first year of the COVID-19 pandemic ($2.03 per mmBtu on average in 2020). The benchmark reached $1.49 per mmBtu in March 2024, a historic monthly low on an inflation-adjusted basis.[35]

The decrease in natural gas prices also contributed to lower wholesale electricity prices in 2024.[36]

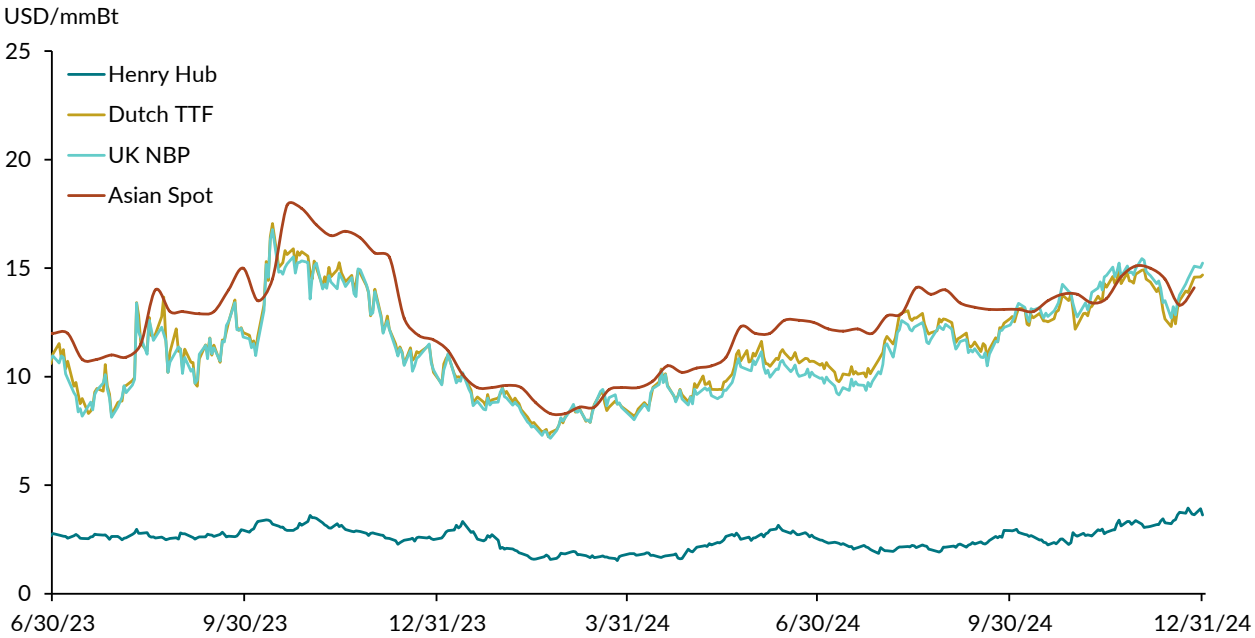
As of December 2025, the EIA expected U.S. natural gas prices to rise and average approximately $4.00 per mmBtu in 2026 due to an increase in LNG exports.[37]

"International natural gas benchmarks saw a moderate price increase and relatively low volatility in 2024, highlighting the resilience of the global natural gas market after the upheaval from the Ukraine War."

Sylvain Delalay, Cornerstone Research

European and Asian price benchmarks saw a moderate increase in 2024 after a decrease of almost 40% between the beginning of the last quarter of 2023 and the middle of the first quarter of 2024. The decrease was due to mild weather and improving supply fundamentals.[38]

Figure 6: Evolution of Spot Gas Prices
June 2023–December 2024



Source: Refinitiv

Note: The TTF front month price is converted from USD/MWh to USD/mmBtu using a conversion rate of 3.412 mmBtu per MWh. See www.aqua-calc.com/convert/energy/megawatt-hour-to-british-thermal-unit.

Market Volume

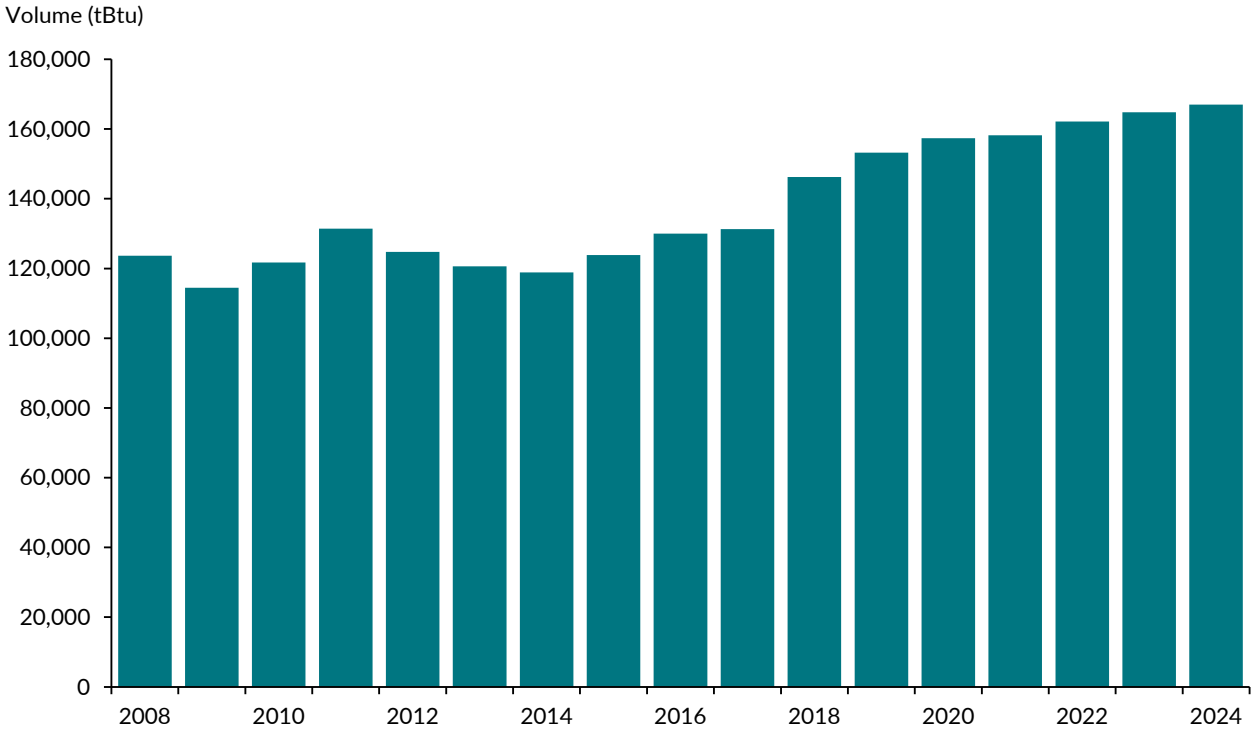
Form 552 volumes increased for the 10th consecutive year in 2024, at a similar rate as in 2023. Total reported volume grew about 1.3% between 2023 and 2024, compared to 1.7% between 2022 and 2023 and 2.5% between 2021 and 2022.

Trading activity reported in Form 552 submissions for 2024 totaled 166,990 tBtu, transacted by 668 respondents. There were 676 respondents for volume transacted in 2023.

Form 552 volumes in 2024 represented a minimum of 83,499 tBtu of trading volume, which is 124 tBtu more than the 2023 minimum trading volume of 83,375.[39]

Total volumes reported to FERC increased by 1.3% in 2024, reaching an all-time high of almost 167,000 tBtu. Total volumes have increased by 40% since 2014.

Figure 7: Total Reported Volume
2008–2024



Source: FERC Form 552 submissions as of August 12, 2025
Note: One tBtu equals one million mmBtu.

Exchange Trading

Aggregate exchange trading of North American natural gas futures and options contracts continued to rise in 2024, following a trend that started in 2022, with both CME and ICE trading activity increasing over that period.

ICE North American natural gas contract volume increased by 30% in 2024 to reach 300 million after increasing by 7% in 2023.

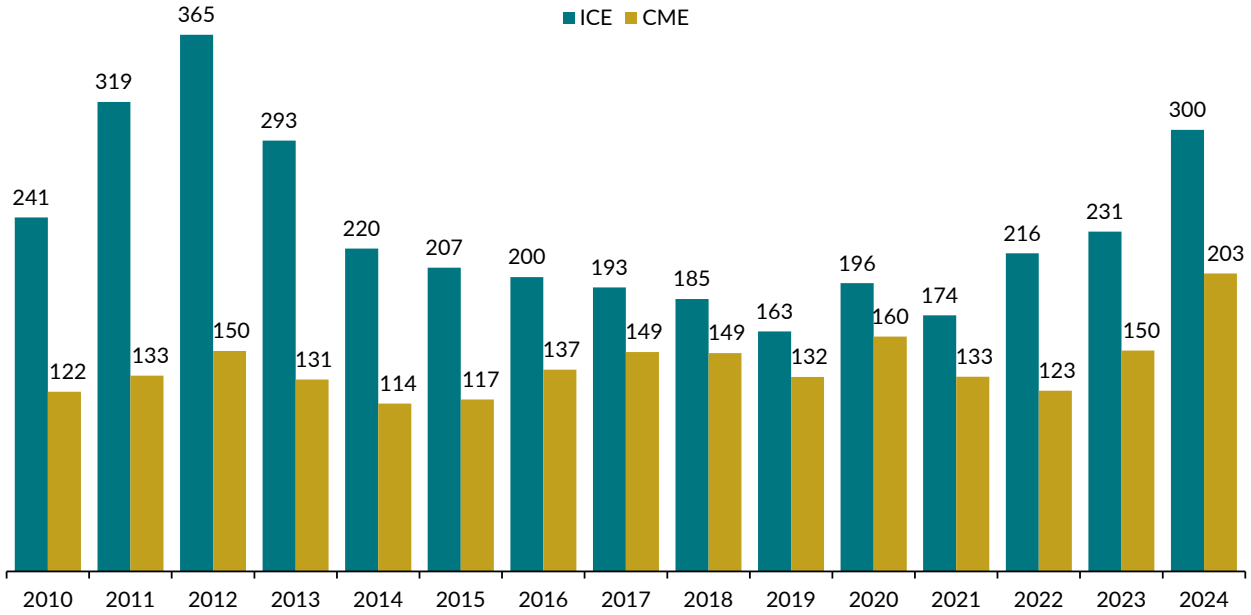
Trading of North American natural gas products on CME increased by 35% in 2024 after a 22% increase in 2023.[40]

Global natural gas contracts are also traded on other platforms. For instance, UK NBP Natural Gas Futures and Dutch TTF Natural Gas Futures are listed on ICE's European platform.[41]

ICE and CME mentioned that uncertain weather conditions impacted growth in natural gas markets. CME also noted that growth in global energy markets was "caused by multiple geopolitical conflicts in the Middle East and Eastern Europe."[42] ICE mentioned that government interventions related to the energy crisis resulting from these conflicts have had "a negative impact on [its] business."[43]

CME noted that the growth in natural gas contract trading has been driven primarily by the increased need to hedge against new market forces, emergence of new arbitrage opportunities, and an expanding pool of market participants.[44] Record daily trading volume in global energy markets has been additionally driven by economic and geopolitical uncertainty.[45]

Figure 8: ICE and CME Natural Gas Contracts Traded
2010–2024
(Millions)



Source: ICE Form 10-Ks; ICE Market Data Report Center; CME Form 10-Ks

Note: Due to ICE's conversion of swaps to futures in October 2012, the ICE 10-K reports an aggregated total of natural gas futures, options, and cleared over-the-counter (OTC) contracts. In its 2012 10-K, ICE provides comparable totals for 2011 and 2010 to reflect the 2012 reclassification. The figures reflect only North America contract volume for all years except 2012, which reflects worldwide contract volume. In 2012, the Non–North America contract volume accounts for less than 3% of total contracts traded. Values from 2013 onward are sourced from the Historical Monthly Volumes Section of the Market Data available from ICE. The figures reported by CME represent the average daily volume of its natural gas products, and they have been multiplied by 250 to convert them to annual values.

Transaction Volume

Cornerstone Research supplements FERC Form 552 data with proprietary research that classifies the respondent companies by industry segments. Companies are classified by their primary natural gas business activity, yielding unique insights into the natural gas market.

The shares of trading volume attributed to each industry segment of market participants have remained relatively stable over recent years.

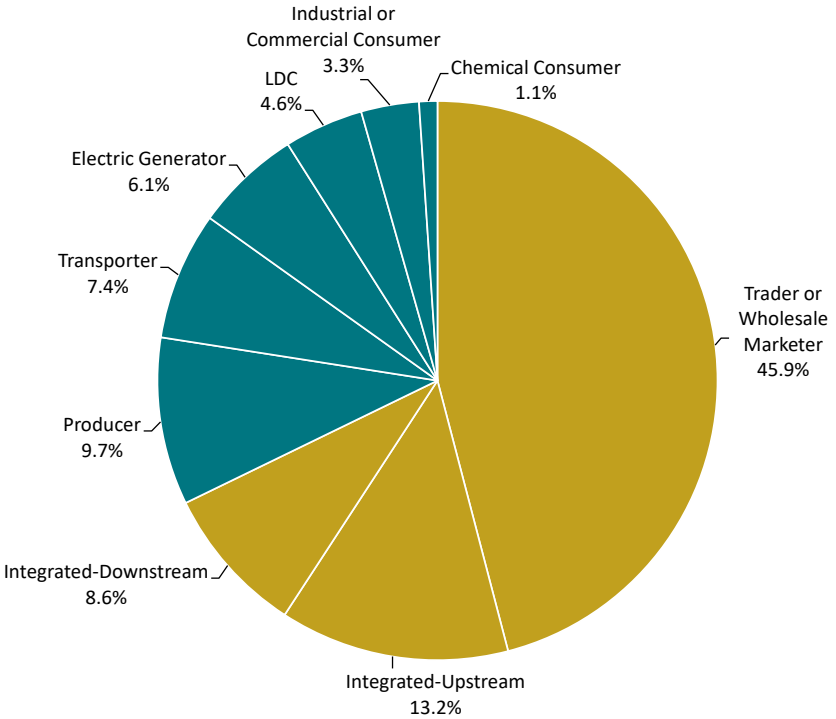
Generally, the shares of trading volume attributed to each industry segment of market participant have remained relatively stable over recent years.

The share of Form 552 natural gas volume attributed to integrated-upstream and integrated-downstream companies and traders or wholesale marketers (shown in gold in the figure below) remained stable in 2024 compared to 2023 at around 68% of all transaction volume.

Industrial or commercial consumers and chemical consumers accounted for about 4% of total 2024 Form 552 trading volume.

Despite being the source of the commodity, producers accounted for a relatively small footprint, less than 10%, of the total Form 552 trading volume.

Figure 9: Transaction Volume by Industry Segment
2024



Source: FERC Form 552 submissions as of August 12, 2025
Note: Percentages may not add up to 100% due to rounding.

Purchase and Sale Volume

As would be expected, companies primarily engaging in "upstream" or "downstream" activities are net sellers or buyers of natural gas, respectively, while "midstream" companies buy and sell in approximately equal amounts.[46]

Producers and integrated-upstream companies sold substantially more natural gas than they purchased in 2024.

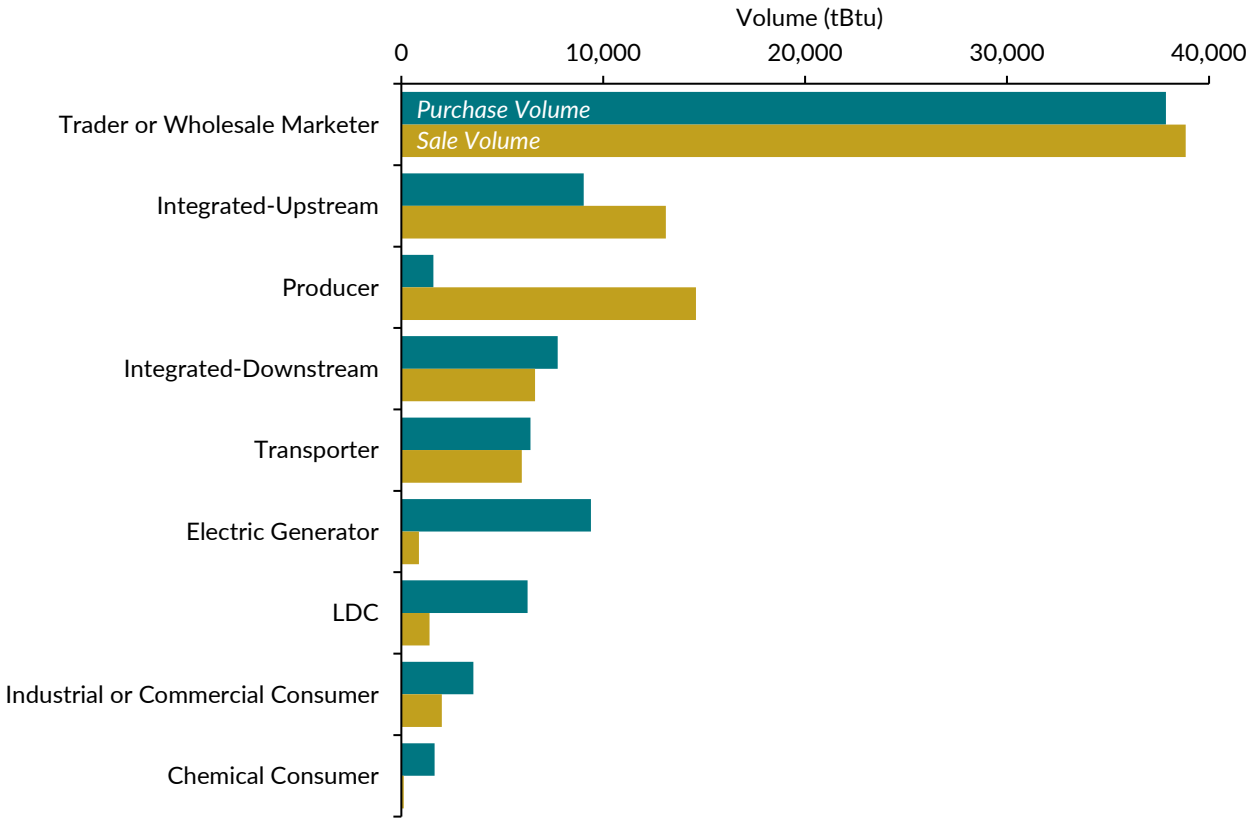
The number of times a molecule of natural gas was traded from production to consumption was slightly lower in 2024 compared to 2023 (2.70 vs. 2.74).[47]

Electric generators and local distribution companies remained the largest net purchasers of natural gas in 2024.

As in the past, integrated-downstream companies, local distribution companies (LDCs), electric generators, industrial or commercial consumers, and chemical consumers purchased significantly more than they sold in 2024.

Consistent with their business model, traders or wholesale marketers and transporters purchased and sold approximately equal amounts in 2024.

Figure 10: Purchase and Sale Volume by Industry Segment
2024



Source: FERC Form 552 submissions as of August 12, 2025
Note: One tBtu equals one million mmBtu.

Top 20 Companies

The list of 20 companies with the largest total transaction volumes indicates that the U.S. natural gas market continues to have a number of diverse participants. Eighteen of the top 20 companies in 2024 were among the leading 20 companies in 2023.

The top 20 companies accounted for 65,660 tBtu of 166,990 tBtu, or approximately 39% of volume reported on Form 552 submissions in 2024. This share of volume is consistent with that of recent years.

Tenaska had the highest physical volumes at 5,889 tBtu, approximately the same as in 2023.

Two companies fell from the top 20 in 2024: EDF Trading North America and Morgan Stanley Capital Group. In both 2023 and 2024, neither company had affiliates that reported directly to price index publishers.

Like in 2023, the top 20 companies accounted for approximately 40% of total volume reported to FERC in 2024.

Seven of the top 20 companies reported to price index publishers in 2024, compared to six in 2023. Fourteen of the top 20 companies reported to price index publishers in 2008 according to Form 552 submissions. However, the number of top 20 companies with transactions in the index assessments is likely higher than seven, since price index publisher S&P Global Platts began incorporating anonymized transactions from ICE's trading platform in its daily and monthly assessments in 2017.[48]

Figure 11: Top 20 Companies by Total Reported Volume
2024 (Sorted by Total Transaction Volume, in tBtu)

		Any Affiliates Report to Index Publishers	Total Buy Volume	Total Sale Volume	Net Volume	Total Transaction Volume	Volume Reportable to Indices
1	Tenaska Marketing Ventures	Y	3,048	2,841	207	5,889	1,263
2	BP Energy Company	Y	2,532	2,654	-122	5,186	820
3	Koch Energy Services, LLC	N	2,428	1,950	478	4,378	712
4	ConocoPhillips Company	Y	1,913	2,117	-203	4,030	507
5	Sequent Energy Management LLC	N	1,846	1,917	-72	3,763	473
6	Citadel Energy Marketing LLC	N	1,885	1,803	81	3,688	998
7	Vitol Inc.	N	1,682	1,764	-83	3,446	631
8	Shell Energy North America (US), L.P.	Y	1,795	1,624	171	3,419	327
9	EQT Energy, LLC	N	596	2,796	-2,200	3,392	278
10	Macquarie Energy LLC	Y	1,752	1,639	113	3,391	613
11	NextEra Energy Marketing, LLC	Y	1,487	1,820	-332	3,307	207
12	Twin Eagle Resource Management, LLC	N	1,526	1,420	106	2,947	467
13	DTE Energy Trading, Inc.	N	1,444	1,369	75	2,813	133
14	Castleton Commodities Merchant Trading L.P.	N	1,359	1,369	-10	2,728	369
15	ICE NGX Canada Inc.	N	1,186	1,186	0	2,372	560
16	Cima Energy, LP	N	1,266	1,077	189	2,343	176
17	Chevron U.S.A. Inc.	N	1,008	1,327	-320	2,335	233
18	Energy Transfer LP	Y	558	1,574	-1,016	2,131	253
19	WWM Logistics, LLC	N	1,028	1,031	-3	2,058	54
20	Direct Energy Marketing Inc.	N	1,390	656	734	2,045	188
	Top 20 Companies by Total Volume		31,727	33,933	-2,206	65,660	9,260
	All Other Companies		51,772	49,558	2,214	101,330	13,906
	Total for All Companies		83,499	83,491	8	166,990	23,167

Source: FERC Form 552 submissions as of July 12, 2025
Note: Numbers may not add up to totals due to rounding. [49]

Transaction Types

Between 2023 and 2024, index-priced next-day transactions increased slightly from 41% to 42%, and index-priced next-month transactions decreased slightly from 45% to 43%.[50]

Over the same period, index-priced next-day transaction volume remained stable at 84% of total next-day volume.

Index-priced next-month transaction volume comprised 96% of total next-month transaction volume in 2024.

Since 2008, transactions that reference the monthly index have been the most prevalent among index-priced transactions.

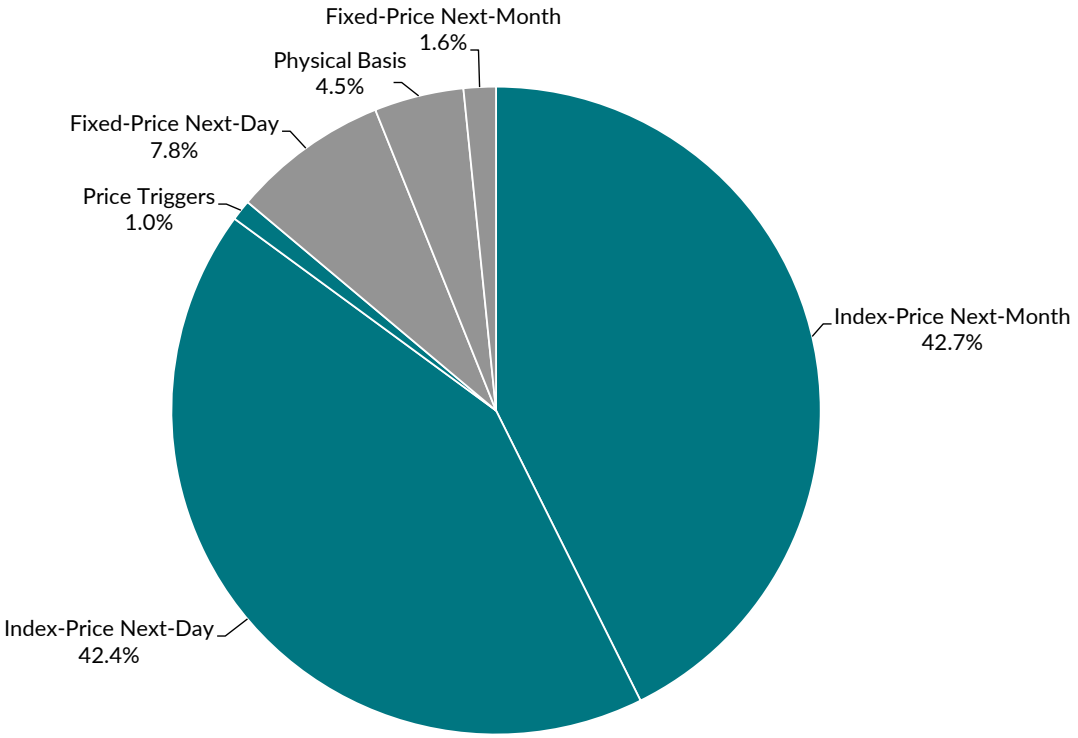
The share of index-priced transactions increased from 67% to 85% between 2008 and 2024.

Between 2023 and 2024, the share of next-day transactions increased by one percentage point to reach 50%. The share of next-month transactions decreased slightly, from 46% in 2023 to 44% in 2024.

Like in 2023, price triggers were the least prevalent transaction type in 2024, comprising approximately 1% of Form 552–reported transactions.

Since 2008, index-priced transactions have comprised an increasing share of Form 552–reported transactions, while the percentage of fixed-price transactions has steadily declined.

Figure 12: Transaction Volume by Transaction Type
2024



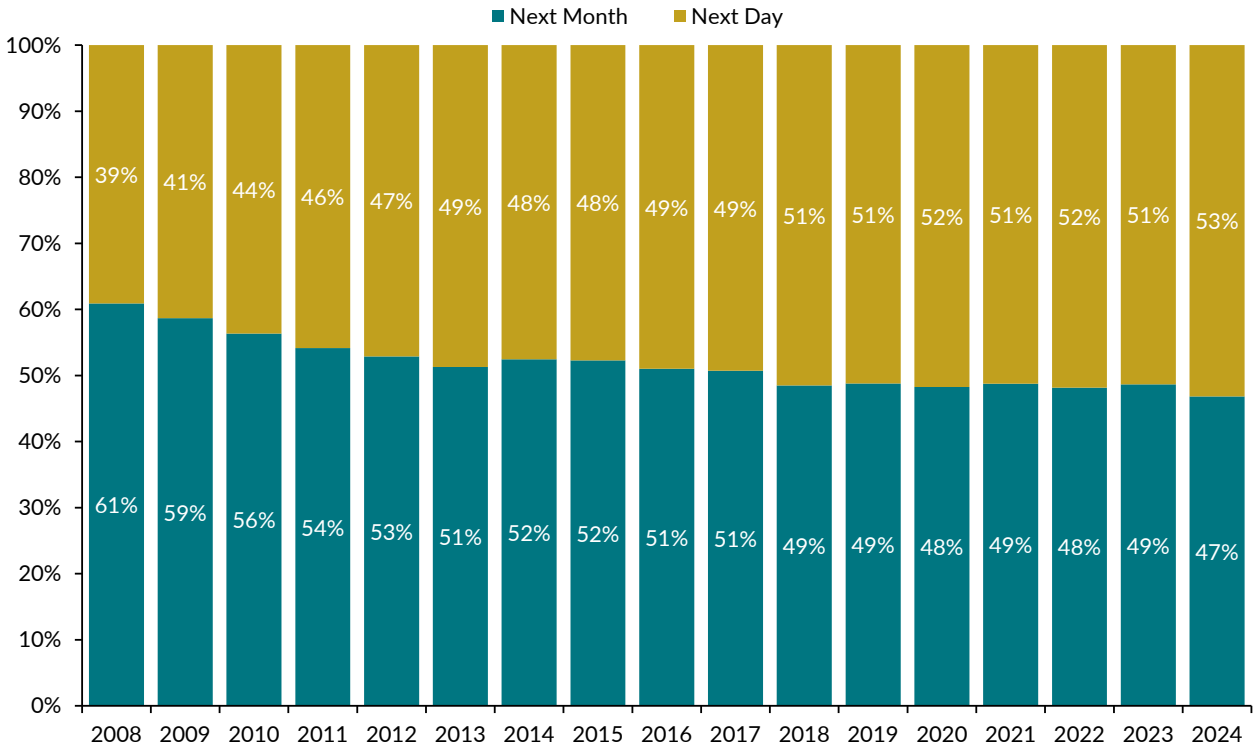
Source: FERC Form 552 submissions as of August 12, 2025
Note: Percentages may not add up to 100% due to rounding.

Next-day transactions have increased relative to next-month transactions since 2008. Additionally, the volume of fixed-price transactions as a percentage of total transaction volume declined.[51]

The percentage of volume based on next-month transactions compared to next-day transactions decreased by 14 percentage points between 2008 and 2024 (from 61% to 47%). This percentage has remained below 50% since 2018.

The ratio of next-day to next-month index transaction volume has increased in 2024, with next-day transactions totaling 53% of the fixed-price and index-priced volume.

Figure 13: Next-Month and Next-Day Transaction Volume Across Both Fixed-Price and Index-Priced Transactions
2008–2024



Source: FERC Form 552 submissions as of August 12, 2025
Note: Percentages may not add up to 100% due to rounding.

Reporting to Price Index Publishers

In Order 704, FERC commented that understanding the relative sizes of the volume of index-priced transactions and reporting-eligible, fixed-price transactions was a core objective of mandating Form 552 submissions.[52]

Since calendar year 2023, Form 552 has required companies to disclose whether they report daily and monthly transactions to price index publishers separately.[53]

Continuing a 10-year trend, 2024 saw the largest volume of transactions based on indices since the inception of Form 552 reporting in 2008.

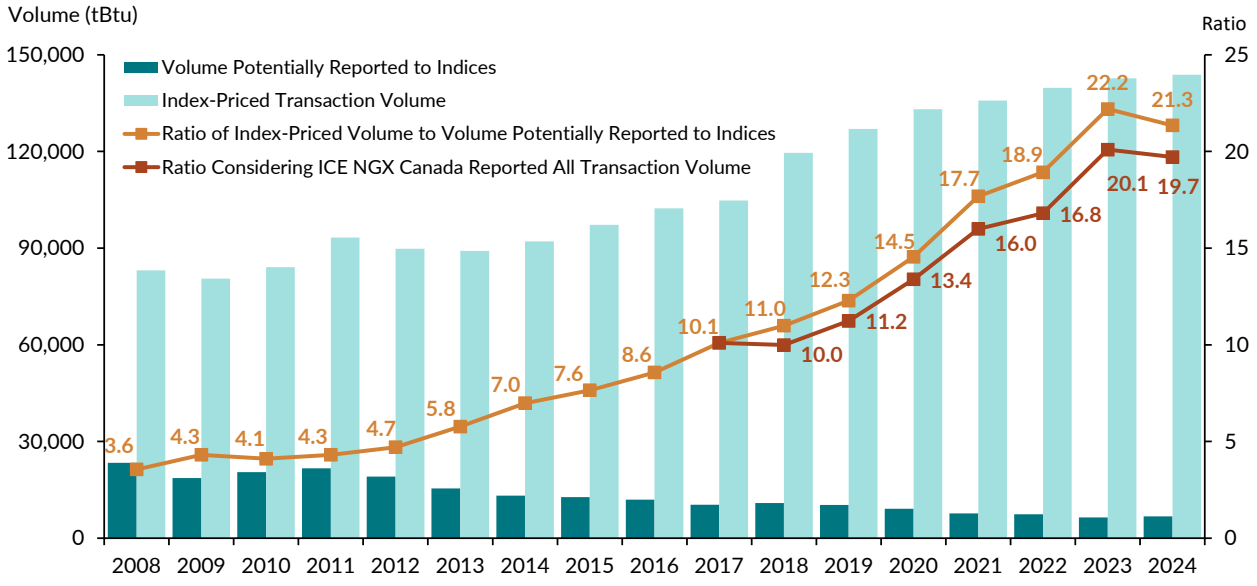
For the first time since 2010, the Form 552 data in 2024 showed a decrease in the ratio of index-priced volume to volume potentially reported to indices by the transaction counterparties.

The decrease in this ratio resulted from a 4.8% increase in the fixed-price volume potentially reported to indices relative to the 0.8% increase in the volume of index-priced transactions.

Since 2017, S&P Global Platts has incorporated anonymized natural gas transactions from the ICE platform in its daily natural gas assessments. While these additional transactions enter into the index-formation process, these data are not necessarily included in the Form 552 reporting requirements or directly reported to price index publishers by the counterparties. Including fixed-price transactions from ICE NGX's Form 552 to the volume potentially reported shows a similar trend in the ratio of index-priced to potentially reported transactions, although these transactions may already be reported directly by the counterparties.

> *"The continued shift to index-priced natural gas relative to fixed-price is a vote of confidence by entities with money at stake."*
>
> *Greg Leonard, Cornerstone Research*

Figure 14: Total Volumes Potentially Reported to Indices Versus Transaction Volumes Priced Based on Indices
2008–2024



Source: FERC Form 552 submissions as of August 12, 2025
Note: One tBtu equals one million mmBtu.[54]

Form 552 submissions also provide information on which companies had volume eligible to be reported (i.e., fixed-price transactions) and whether they reported that volume to the indices.[55]

The percentage of fixed-price volume transacted by non-reporting companies remained stable at 71% between 2023 and 2024.

Of the 668 respondents for volume transacted in 2024, 83 (about 12%) reported transaction information to the price index publishers for themselves or at least one affiliate. Of these 83 respondents, 63 reported information about both daily and monthly transactions, 13 reported information about daily transactions only, and 7 reported information about monthly transactions only.

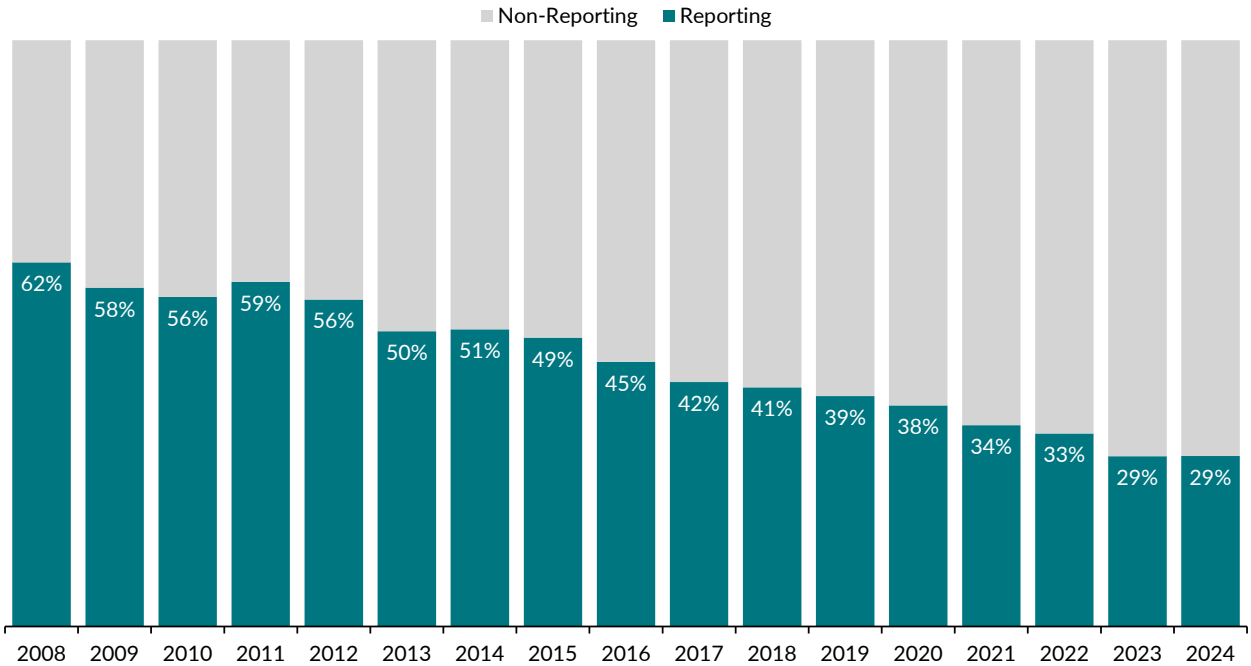
The reporting companies accounted for 29% of the reporting-eligible, fixed-price volume in 2024, compared to more than 62% in 2008.

The companies directly reporting daily transactions to price index publishers accounted for 28% of the reporting-eligible daily fixed-price volume in 2024. This figure was 30% for monthly transactions.

Analysts have offered multiple hypotheses explaining why companies did not report to indices, including (1) the FERC safe harbor provision was not safe enough to protect against inadvertent errors, and (2) costs associated with internal systems and regulatory risk were too high.[56]

For the 10th consecutive year, companies that chose not to directly report fixed-price volume to the indices comprised a larger share of fixed-price volume than reporting companies.

Figure 15: Fixed-Price Volume by Reporting Versus Non-Reporting Companies
2008–2024



Source: FERC Form 552 submissions as of August 12, 2025

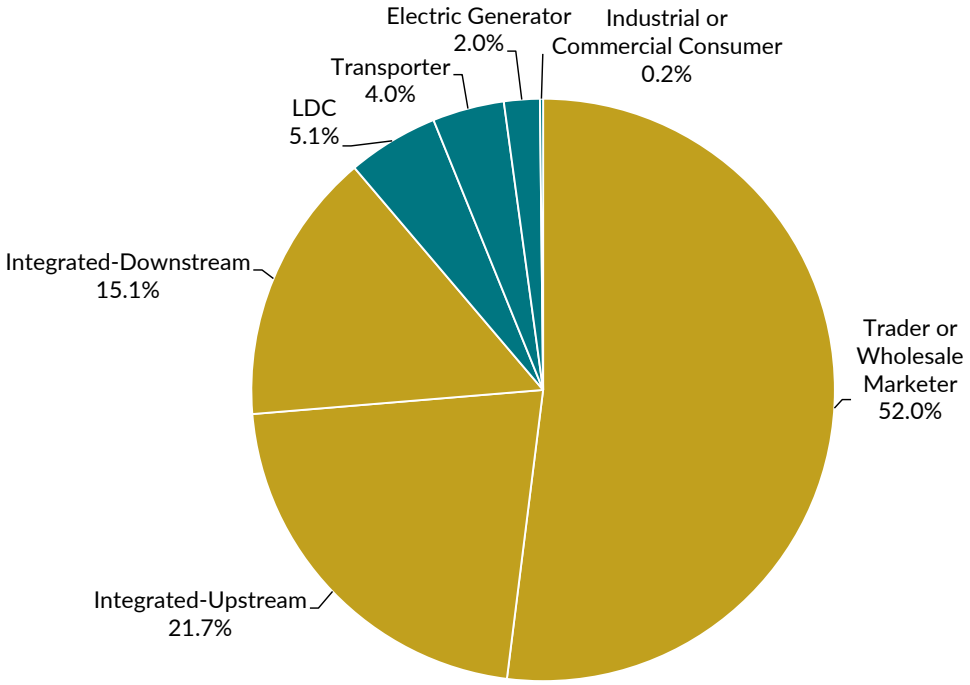
Fixed-Price Volume by Industry Segments

In 2024, integrated-upstream companies, integrated-downstream companies, traders, and wholesale marketers (shown in gold in the figure below) accounted for approximately 89% of the fixed-price volume potentially reported to the price index publishers aside from the transactions captured by S&P Global Platts through its data-sharing agreement with ICE.

Seven of the top 20 companies by total transaction volume reported to index publishers in 2024. These seven companies accounted for 59% of the fixed-price volume potentially reported to price index publishers.

As in previous years, traders and wholesale marketers traded the majority of the potentially reported fixed-price volume companies.

Figure 16: Fixed-Price Volume for Entities Reporting to Price Index Publishers by Company Type
2024



Source: FERC Form 552 submissions as of August 12, 2025

Note: Producers and chemical consumer companies reported less than 0.1% of volume potentially reported and are not included. Percentages may not add up to 100% due to rounding.

In 2024, the share of fixed-price volume potentially reported by producers was approximately 1%, similar to 2023.[57] Integrated-downstream companies potentially reported approximately 39% of fixed-price transaction volume to indices in 2024, an increase of about 11 percentage points compared to 2023.

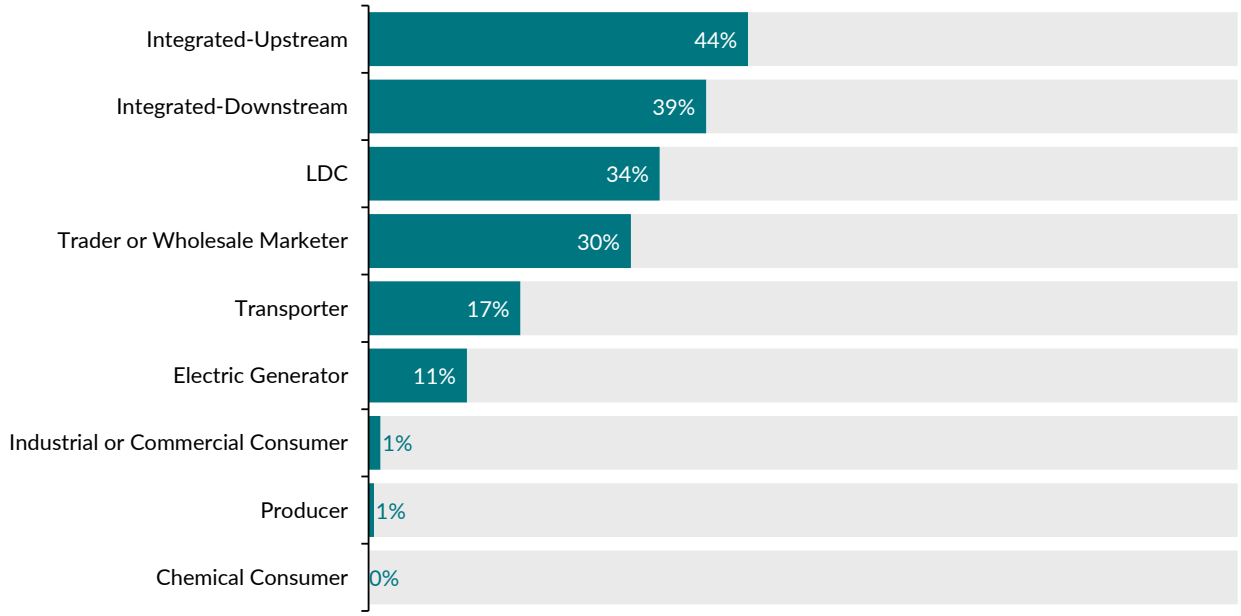
Less than half of the volume (44%) transacted by integrated-upstream companies took place at companies that directly report their transactions to price index publishers. In 2023, these companies' potentially reported share of fixed-price volume was 46%.

The share of fixed-price volume potentially reported to index publishers by LDCs and traders or wholesale marketers fell in 2024, to 34% and 30%, compared to 37% and 33% in 2023, respectively.

Companies with a primary business outside the natural gas markets—such as industrial or commercial consumers and chemical consumers—potentially reported about 1% of their combined fixed-price transaction volume to indices.

Fixed-price transactions potentially reported by integrated-downstream companies increased by 11 percentage points between 2023 and 2024.

Figure 17: Percentage of Fixed-Price Volume Reported to Price Index Publishers by Industry Segment
2024



Source: FERC Form 552 submissions as of August 12, 2025

Note: Of the 668 respondents in 2024, 83 indicated they reported transaction information to price index publishers for themselves or at least one affiliate.

Glossary

Btu: A British thermal unit (Btu) is the amount of heat energy needed to raise the temperature of one pound of water by one degree Fahrenheit. Millions of this unit are written as mmBtu, and trillions as tBtu.

CME Group Inc. (CME): A "leading derivatives marketplace" that offers "global benchmark products across all major asset classes" so that businesses can "manage risk and capture opportunities." www.cmegroup.com/company/about-us.html

Downstream: "A term used in the petroleum industry referring to the refining, transportation, and marketing side of the business." www.energy.ca.gov/resources/energy-glossary

Dutch Title Transfer Facility (TTF): A principal natural gas trading hub in Europe. It is the virtual trading hub for the natural gas market in the Netherlands. www.cmegroup.com/rulebook/NYMEX/11/1159.pdf

EIA: U.S. Energy Information Administration. "EIA provides a wide range of information and data products covering energy production, stocks, demand, imports, exports, and prices and prepares analyses and special reports on topics of current interest." www.eia.gov/about/

FERC Form 552: Annual Report of Natural Gas Transactions. "FERC Form No. 552 collects transactional information from natural gas market participants. The filing of this information is necessary to provide information regarding physical natural gas transactions that use an index and transactions that contribute to, or may contribute to gas price indices. This form is considered to be a non-confidential public use form." www.ferc.gov/media/form-552-cy-2024

Fixed price: "A 'Physical Natural Gas Transaction' price determined by agreement between buyer and seller and not benchmarked to any other source of information." www.ferc.gov/media/form-552-cy-2024

Fixed-price, next-day delivery: "[D]elivery of natural gas pursuant to a transaction executed prior to NAESB [North American Energy Standards Board] nomination deadline (1:00 pm Central Prevailing Time) on one day for uniform physical delivery over the next pipeline day." www.ferc.gov/media/form-552-cy-2024

Fixed-price, next-month delivery: "[D]elivery of natural gas pursuant to a transaction executed during the last five (5) business days of one month (bidweek) for uniform physical delivery over the next month." www.ferc.gov/media/form-552-cy-2024

Gross withdrawals: "Full well stream volume from both oil and gas wells, including all natural gas plant liquids and nonhydrocarbon gases after oil, lease condensate, and water have been removed. Also includes production delivered as royalty payments and production used as fuel on the lease." www.eia.gov/tools/glossary/?id=gross_withdrawals

Henry Hub: A "principal natural gas trading hub in North America," with connections to "nine interstate and four intrastate pipelines." Henry Hub serves as the delivery point for the U.S. natural gas futures contract traded on the New York Mercantile Exchange (NYMEX). www.theice.com/publicdocs/ICE_NatGas_Brochure.pdf; www.cmegroup.com/trading/energy/natural-gas/natural-gas_contract_specifications.html

Intercontinental Exchange Inc. (ICE): An electronic marketplace that connects participants in major markets and offers the ability to manage risk and make informed decisions. www.ice.com/index

International Energy Agency (IEA): An autonomous intergovernmental organization that "recommends policies that enhance the reliability, affordability and sustainability of energy." www.iea.org/about/mission

Index price: A price obtained from an industry publication, which is intended to represent an average price of gas delivered to a specific point on the pipeline at or during a specified period of time.

Liquefied natural gas (LNG): "Natural gas (primarily methane) that has been liquefied by reducing its temperature to [negative] 260

degrees Fahrenheit at atmospheric pressure." www.eia.gov/tools/glossary/index.cfm?id=L

Local distribution company (LDC): "A legal entity engaged primarily in the retail sale and/or delivery of natural gas through a distribution system that includes main lines (that is, pipelines designed to carry large volumes of gas, usually located under roads or other major right-of-ways) and laterals (that is, pipelines of smaller diameter that connect the end user to the mainline). Since [the] structuring of the gas industry, the sale of gas and/or delivery arrangements may be handled by other agents, such as producers, brokers, and marketers that are referred to as 'non-LDC.'" www.eia.gov/tools/glossary/index.cfm?id=L

Marketed production: "Gross withdrawals less gas used for repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating or processing operations. Includes all quantities of gas used in field and processing plant operations." www.eia.gov/tools/glossary/index.php?id=M

Midstream: Activity involving "transportation on intrastate and interstate pipeline systems that move natural gas through large-diameter pipelines to storage facilities and a variety of consumers." www.ferc.gov/sites/default/files/2020-06/energy-primer-2020_Final.pdf

Natural gas plant liquids (NGPL): "Those hydrocarbons in natural gas that are separated as liquids at natural gas processing, fractionating, and cycling plants. Products obtained include ethane, liquefied petroleum gases (propane, normal butane, and isobutane), and natural gasoline." www.eia.gov/tools/glossary/index.php?id=N

Physical basis transactions: "[T]ransactions in which the basis value is negotiated on one of the first three days of bidweek and the price is set by the final closing value of the near-month NYMEX Natural Gas Futures contract plus or minus the negotiated basis. These transactions are for uniform physical delivery over the next month." www.ferc.gov/media/form-552-cy-2024

Price trigger: According to FERC Form 552, a trigger agreement is "a NYMEX trigger transaction that is contingent upon a futures contract that trades on an exchange, resulting in an automatic physical trade at an agreed upon price." www.ferc.gov/media/form-552-cy-2024

Shale gas: "Natural gas produced from wells that are open to shale formations. Shale is a fine-grained, sedimentary rock composed of mud from flakes of clay minerals and tiny fragments (silt-sized particles) of other materials. The shale acts as both the source and the reservoir for the natural gas." www.eia.gov/tools/glossary/index.php?id=S

Upstream: "A term used in the petroleum industry referring to the exploration and production side of the business." www.energy.ca.gov/resources/energy-glossary

Appendices

Appendix 1: Energy Policy Act of 2005, Form 552 Submissions, and Cornerstone Research's Proprietary Analysis

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" (§ 316). The 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" (§ 316). After an extensive rule-making process, FERC issued Order 704-A, which established reporting requirements.

In the summer of 2009, FERC received the first round of Form 552 submissions covering 2008 natural gas transactions from more than 1,100 respondents. On June 17, 2010, FERC issued Order 704-C, which provided for slightly revised reporting rules that eased some reporting requirements.[58] For 2024 natural gas transactions, Form 552 submissions covered 668 respondents.

The data contained on the Form 552 submissions, described more fully in Appendix 2, provide a unique view into the size and nature of the physical natural gas market. First, these forms quantify the number of trade participants and trade volumes of firms that report to the price index publishers. Second, the data provide insight into the relative proportion of fixed-price and index-priced 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 market, especially at the trading and wholesale levels.

Cornerstone Research supplements the FERC Form 552 data with proprietary research that classifies the respondent companies by industry segments. These industry segments are producer, transporter, electric generator, industrial or commercial consumer, chemical consumer, trader or wholesale marketer, LDC, integrated-downstream, and integrated-upstream.[59] The latter two categories capture companies that span multiple industry segments.[60]

Appendix 2: Data Submitted to FERC

Order 704-C requires natural gas market participants with purchases or sales of physical "reportable" natural gas of at least 2.2 tBtu in the prior calendar year to report these activities on Form 552. Specifically, these market participants must submit volumes of physical natural gas transactions that "are only those transactions that refer to an index, or that contribute to, or could contribute to the formation of a gas index during the calendar year."[61] FERC Form 552 (p. iv) further defines the transactions that could be reported to an index publisher as any "bilateral, arms-length, fixed[-]price physical natural gas transactions between non-affiliated companies at all trading locations."

Order 704-C excludes any transaction that does not depend on a published price index or that could not be reported to a price index publisher. The criteria for reporting to a price index publisher specifically exclude transactions for balance-of-month supply, intraday 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 including other services or features (such as volume flexibility) that would render them ineligible for price reporting. Further, Order 704-C excludes transactions by affiliates 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; and index-price referencing next-month indices, transactions with price triggers,[62] and physical-basis transactions.[63] In addition to volumes of physical transactions, market participants are required to state whether they report transaction information to price index publishers.

Endnotes

[1] Data as of August 12, 2025, were used for all respondents.

[2] A respondent is defined as a unique reporting company–respondent combination as reported on FERC Form 552.

[3] "Primary Energy Production by Source," EIA, *Monthly Energy Review*, July 28, 2025, Table 1.2, www.eia.gov/totalenergy/data/monthly/archive/00352507.pdf; "U.S. Natural Gas Production Remained Flat in 2024," EIA, April 17, 2025, www.eia.gov/todayinenergy/detail.php?id=65025; "In 2024, The United States Produced More Energy Than Ever Before," EIA, June 9, 2024, www.eia.gov/todayinenergy/detail.php?id=65445.

[4] "Primary Energy Production by Source," EIA, *Monthly Energy Review*, July 28, 2025, Table 1.2, www.eia.gov/totalenergy/data/monthly/archive/00352507.pdf; "In 2024, The United States Produced More Energy Than Ever Before," EIA, June 9, 2024, www.eia.gov/todayinenergy/detail.php?id=65445.

[5] "Natural Gas Consumption by End Use," EIA, www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm; "U.S. Natural Gas Consumption Set New Winter and Summer Monthly Records in 2024," EIA, March 31, 2025, /www.eia.gov/todayinenergy/detail.php?id=64845.

[6] "U.S. Primary Energy Production, Consumption, and Exports Increased in 2024," EIA, June 20, 2025, www.eia.gov/todayinenergy/detail.php?id=65524.

[7] "Short-Term Energy Outlook (STEO)," EIA, December 9, 2025, www.eia.gov/outlooks/steo/archives/dec25.pdf ("December 2025 EIA STEO Report"), Table 5a.

[8] "Gas Market Report, Q1-2025," IEA, p. 28, iea.blob.core.windows.net/assets/23968aa1-73c7-4f29-86e8-38d9818fadfc/GasMarketReport%2CQ1-2025.pdf ("IEA Gas Market Report Q1 2025"); "Gas Market Report, Q1-2024," IEA, p. 25, iea.blob.core.windows.net/assets/601bff14-5d9b-4fef-8ecc-d7b2e8e7449a/GasMarketReportQ12024.pdf.

[9] IEA Gas Market Report Q1 2025, p. 28.

[10] "Gas Market Report, Q1-2026," IEA, p. 30, iea.blob.core.windows.net/assets/f746c0aa-03f3-47ba-a0d9-b45c3c758150/GasMarketReport%2CQ1-2026.pdf.

[11] "U.S. Natural Gas Exports and Re-Exports by Country," EIA, www.eia.gov/dnav/ng/NG_MOVE_EXPC_S1_A.htm ("EIA U.S. Natural Gas Exports Data").

[12] EIA U.S. Natural Gas Exports Data.

[13] EIA U.S. Natural Gas Exports Data.

[14] IEA Gas Market Report Q1 2025, p. 28.

[15] December 2025 EIA STEO Report, Table 5a.

[16] "U.S. Natural Gas Production Remained Flat in 2024," EIA, April 17, 2025, www.eia.gov/todayinenergy/detail.php?id=65025.

[17] "U.S. Natural Gas Production Remained Flat in 2024," EIA, April 17, 2025, www.eia.gov/todayinenergy/detail.php?id=65025.

[18] "U.S. Natural Gas Flows, 2024," EIA, www.eia.gov/totalenergy/data/flow-graphs/natural-gas.php ("EIA U.S. Natural Gas Flows").

[19] "U.S. Natural Gas Consumption Set New Winter and Summer Monthly Records in 2024," EIA, March 31, 2025, www.eia.gov/todayinenergy/detail.php?id=64845.

[20] "U.S. Natural Gas Consumption Set New Winter and Summer Monthly Records in 2024," EIA, March 31, 2025, www.eia.gov/todayinenergy/detail.php?id=64845.

[21] EIA U.S. Natural Gas Flows.

[22] The average annual Henry Hub Natural Gas Spot Price (dollars per million btu) was $3.31 from 2014 through 2023. *See* "Henry Hub Natural Gas Spot Price," EIA, www.eia.gov/dnav/ng/hist/rngwhhdA.htm.

[23] IEA Gas Market Report Q1 2025, p. 31.

[24] "The Eighth U.S. Liquefied Natural Gas Export Terminal, Plaquemines LNG, Ships First Cargo," EIA, January 13, 2025, www.eia.gov/todayinenergy/detail.php?id=64224.

[25] "Cheniere Achieves First LNG at the Corpus Christi Stage 3 Project," Cheniere, December 30, 2024, lngir.cheniere.com/news-events/press-releases/detail/310/cheniere-achieves-first-lng-at-the-corpus-christi-stage-3.

[26] EIA U.S. Natural Gas Exports Data; "The United States Remained the World's Largest Liquefied Natural Gas Exporter in 2024," EIA, March 27, 2025, www.eia.gov/todayinenergy/detail.php?id=64844.

[27] "U.S. Liquefaction Capacity," EIA, December 30, 2025, www.eia.gov/naturalgas/importsexports/liquefactioncapacity/U.S.liquefactioncapacity_2025_Q4.xlsx.

[28] "U.S. Liquefaction Capacity," EIA, December 30, 2025, www.eia.gov/naturalgas/importsexports/liquefactioncapacity/U.S.liquefactioncapacity_2025_Q4.xlsx.

[29] EIA U.S. Natural Gas Exports Data.

[30] EIA U.S. Natural Gas Exports Data.

[31] Figures for Asia exclude Middle Eastern countries. *See* EIA U.S. Natural Gas Exports Data.

[32] EIA U.S. Natural Gas Exports Data.

[33] EIA U.S. Natural Gas Exports Data.

[34] "Henry Hub Natural Gas Spot Price," EIA, www.eia.gov/dnav/ng/hist/rngwhhdA.htm.

[35] "Henry Hub Natural Gas Spot Price," EIA, www.eia.gov/dnav/ng/hist/rngwhhdA.htm; "Spot Henry Hub Natural Gas Prices Hit a Historic Low in 2024," EIA, January 8, 2025, www.eia.gov/todayinenergy/detail.php?id=64184.

[36] "U.S. Wholesale Electricity Prices were Lower and Less Volatile in 2024," EIA, January 16, 2025, www.eia.gov/todayinenergy/detail.php?id=64284.

[37] December 2025 EIA STEO Report, p. 2.

[38] "Gas Market Report, Q2-2024," EIA, p. 35, iea.blob.core.windows.net/assets/6bc34660-dd8e-4018-bb21-973023846b4c/GasMarketReport%2CQ2-2024.pdf.

[39] If both parties to a transaction submit a Form 552, the total volume submitted to FERC will be double the volume of that transaction. For example, a trade for 10,000 mmBtu between two companies, each submitting a Form 552, will add 20,000 mmBtu to the total submitted volume. The minimum volume that could be represented by Form 552 is the maximum of the buy and sale totals shown in Figure 11. Adding the buy and sale volume can double-count transactions if both the buyer and seller file a Form 552. A potential limitation of this is that estimating volume with only sales or only purchases may underrepresent the volume of transactions represented by Form 552, since some transactions involve market participants that do not submit a Form 552.

[40] The figures reported by CME represent the average daily volume of its natural gas products and have been multiplied by 250 to convert them to annual values. CME reports the total number of contracts, and the volume represented by each contract may vary in size. *See* CME Form 10-Ks.

[41] "Products – Futures & Options," ICE, www.ice.com/products/Futures-Options.

[42] CME 2024 10-K, p. 41, www.sec.gov/Archives/edgar/data/1156375/000115637525000021/cme-20241231.htm.

[43] ICE 2024 10-K, pp. 20, 52, www.sec.gov/Archives/edgar/data/1571949/000157194925000003/ice-20241231.htm.

[44] "U.S. LNG Exports Usher New Era in Gas Trading," CME Group, January 6, 2025, www.cmegroup.com/articles/2024/us-lng-exports-usher-new-era-in-gas-trading.html.

[45] "CME Group International Average Daily Volume Reaches Record 7.8 Million Contracts in 2024, Up 14% from 2023," CME Group, January 13, 2025, www.cmegroup.com/media-room/press-releases/2025/1/13/cme_group_internationalaveragedailyvolumereachesrecord78millionc.html.

[46] Midstream refers to integrated-upstream, integrated-downstream, and transporters. Traders and wholesale marketers also have nearly equal levels of buying and selling through their role in market-making.

[47] The number of times one molecule of natural gas is traded through from production to consumption in 2024 is calculated as the minimum trading volume of 83,499 tBtu from Figure 11 divided by 30,930 tBtu of natural gas delivered to consumers reported by the EIA. *See* "U.S. Natural Gas Consumption by End Use," EIA, www.eia.gov/dnav/ng/NG_CONS_SUM_DCU_NUS_A.htm. Converted to trillion Btu (tBtu) from million cubic feet (mmcf). In 2024, one cubic foot = 1,037 Btu, the annual Total Consumption conversion factor in the EIA time series. *See* "Heat Content of Natural Gas Consumed (Btu per Cubic Foot)," EIA, www.eia.gov/dnav/ng/ng_cons_heat_dcu_nus_a.htm.

[48] "S&P Global Platts Announces North America Natural Gas Assessment Methodology Details Following Its Agreement with Intercontinental Exchange to Improve Price Transparency and Bolster Benchmarks," S&P Global Platts, February 9, 2017, www.prnewswire.com/news-releases/sp-global-platts-announces-north-america-natural-gas-assessment-methodology-details-following-its-agreement-with-intercontinental-exchange-to-improve-price-transparency-and-bolster-benchmarks-300405153.html; "S&P Global Energy Platts," S&P Global, www.spglobal.com/energy/en/products-solutions/platts#market-reflective-pricing; "Natural Gas Trade Activity Numbers Leap After ICE Agreement," S&P Global Platts, June 7, 2018, www.spglobal.com/commodityinsights/en/market-insights/blogs/natural-gas/060718-natural-gas-trade-activity-numbers-leap-after-ice-agreement.

[49] One tBtu equals one million mmBtu. "Volume Reportable to Indices" includes the sum of fixed-price next-month purchases and sales, fixed-price next-day purchases and sales, and physical-basis-transaction volume reported on Form 552.

[50] Data do not cover all transactions in the OTC market, since Form 552 excludes certain types of non-index-priced transactions. *See* Appendix 2.

[51] Physical basis and price trigger trades are not included in this analysis.

[52] Order 704 states that Form 552 submissions should be used "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." Order 704, p. 4. *See also* Appendix 1.

[53] Prior to calendar year 2023, companies only had to disclose whether they report transactions to price index publishers, without distinction between daily and monthly transactions.

[54] Reportable volume is the sum of fixed-price next-month purchases and sales, fixed-price next-day purchases and sales, and physical-basis-transaction volume reported on Form 552. For years before 2023, volume potentially reported to indices is the sum of reportable volume for companies that disclosed reporting their transactions to price index publishers on Form 552. Starting in 2023, volume potentially reported to indices is the sum of (1) fixed-price next-month and physical basis transaction volume for companies that disclosed reporting monthly transactions to price index publishers, and (2) fixed-price next-day transaction volume for companies that disclosed reporting daily transactions to price index publishers. Companies that did not enter information regarding their price reporting are assumed to not report.

[55] For the purposes of this analysis, physical-basis transactions are also included in the category of fixed-priced volume.

[56] FERC Technical Conference, Developments in Natural Gas Index Liquidity and Transparency, June 29, 2017, Docket No. AD17-12-000, 25:19–25, 151:9–23.

[57] In 2024, ExxonMobil's FERC Form 552 stated that its subsidiary XTO Energy did not report volume to price index publishers. In 2022, XTO Energy filed its own FERC Form 552 in which it disclosed reporting to price index publishers.

[58] Among other minor revisions, Order 704-C exempts transactions involving unprocessed natural gas as well as cash-out and imbalance transactions. Further, for 2009, companies that hold blanket marketing certificates but do not meet the minimum transaction volume threshold are no longer required to file a Form 552. For 2008, more than 300 companies filed a Form 552 and did not report any transaction volume. For 2009, only 16 companies filed a Form 552 without reporting transaction volumes.

[59] The categorization process was necessarily judgmental and based on company websites and financial filings. Companies were categorized as closely as possible to their most significant natural gas market activity.

[60] Since these integrated companies typically have a focus at either the industry segment that is upstream (such as production, gathering, or processing) or downstream (such as electric generation, marketing to wholesale users, or industrial consumption), two categories were created to allow for investigation of any differences between these types of companies.

[61] FERC Form 552 (2024 version). Note that Form 552 covers only physical natural gas transactions. Financial transactions, such as swaps and options, are excluded, as are futures contracts, regardless of whether they are taken to physical delivery.

[62] FERC includes NYMEX plus contracts among trigger 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 dependent on an index price, they often shed this dependence and give the buyer the price certainty of a fixed-price transaction.

[63] 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.

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Greg Leonard has more than 20 years of experience consulting to clients in complex commercial litigation and regulatory proceedings. In the energy and commodity markets, Dr. Leonard has extensive experience in analyzing market manipulation claims, analyzing trading patterns and strategies, valuing trading businesses and portfolios, valuing alleged breaches of contract, evaluating risk management practices, and analyzing the price impacts of alleged wrongful conduct. Dr. Leonard has led consulting projects involving the trading of natural gas, natural gas liquids, liquefied natural gas, crude oil, refined products, agricultural products, electric power, and electric generation capacity on futures exchanges as well as in the OTC market. He has appeared before the enforcement staffs of the U.S. Commodity Futures Trading Commission, the Federal Energy Regulatory Commission, the Federal Bureau of Investigation, and the U.S. Department of Justice.

Nicole M. Moran
Vice President, Washington, D.C.

Nicole Moran's experience spans several industries, including energy, agriculture, foreign exchange, consumer lending, and electronics; her case experience includes arbitration, regulatory investigations, market manipulation, antitrust, consumer finance, and financial institutions. Dr. Moran's emphasis has been on derivative markets for both exchange-traded and OTC products that involve trading activity, order book data, and evaluation of market design intricacies that affect market participant behavior. Previously, Dr. Moran was a research economist at the U.S. Commodity Futures Trading Commission, where she conducted statistical and econometric analyses on derivative markets and agricultural futures.

Laurent Samuel
Principal, Washington, D.C.

Laurent Samuel casework has focused on derivative markets for both exchange-traded and OTC products in commodities (energy, metals, and agriculture), fixed income (U.S. Treasury futures, interest rate swaps, foreign exchange), and equity markets, with issues covering market manipulation allegations, alleged antitrust behavior, and order executions linked to high-frequency trading. Prior to joining Cornerstone Research, Mr. Samuel was a grains trader at Louis Dreyfus Company, a leading merchant and processor of agricultural goods. He also worked as an internal consultant ("Inspection Générale") at Société Générale, a French financial services group.

Sylvain Delalay
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Sylvain Delalay is a manager in the energy and commodities practice in Cornerstone Research's Washington D.C. office. Dr. Delalay has worked on cases related to government enforcement, venture capital, and mergers and acquisitions, as well as allegations of manipulation and contractual disputes in the energy, grains, softs, fixed income, equity, and cryptocurrency markets. Prior to joining Cornerstone Research, Dr. Delalay was the Head of Trading at Four Elements Capital, a fundamental/systematic hedge fund active in the space of commodities and currencies derivatives.

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