

Appendix B

Metric and Thermal Conversion Tables

Metric conversions

Table B1 presents summary statistics for natural gas in the United States for 2019 through 2023 in metric units of measure. We show volumes in cubic meters, instead of cubic feet, and prices in nominal dollars per thousand cubic meters, instead of dollars per thousand cubic feet. We have converted the data in this table from the data that appear in Table 1 of this report. For metric equivalents, 1 cubic foot of natural gas equals approximately 0.0283 cubic meters of natural gas. Volumetric data in thermal units are available in Table B2. The complete historical data in thermal units are available in the [Monthly Energy Review](#).

Thermal conversions

Table B2 presents the thermal (British thermal unit) conversion factors and the converted data for natural gas supply and disposition from 2019 through 2023.

Thermal conversion factors

- **Additions to storage.** We assume additions to both underground and LNG storage have the same heat content as consumption.
- **Balancing item.** We calculate this conversion factor by subtracting the total heat content of all other items of supply from the heat content of total disposition (from Table B2) and dividing the difference by the balancing item quantity.
- **Consumption.** The thermal conversion factor for total consumption (lease fuel, plant fuel, pipeline fuel, and deliveries to consumers) is the average heat content for deliveries to end users as reported on Form EIA-176, *Annual Report of Natural and Supplemental Gas Supply and Disposition*. We obtain the average heat content of consumption in the electric power sector from Form EIA-923, *Power Plant Operations Report*.
- **Dry production.** We assume this conversion factor to be the same as the thermal conversion factors for consumption.
- **Marketed production.** We calculate the conversion factor by adding the total heat content of dry production to the total heat content of natural gas plant liquid (NGPL) production and dividing the resulting sum by the total quantity of dry production and NGPL production.
- **Natural gas plant liquids production.** This conversion factor is in Appendix A of this publication.
- **Supplemental gas supplies.** We assume this conversion factor is the same as that for consumption.
- **Withdrawals from storage.** We assume both underground and LNG storage withdrawals to have the same heat content as consumption.

Table B1. Summary statistics for natural gas in the United States, metric equivalents, 2019-2023

	2019	2020	2021	2022	2023
Production (million cubic meters)					
Gross withdrawals					
Natural gas wells	210,487	188,119	174,003	R168,882	158,661
Oil wells	130,358	123,545	124,839	R128,097	128,073
Coalbed wells	25,557	23,322	21,602	R20,812	20,099
Shale gas wells	788,365	818,358	859,709	R919,682	983,023
Total gross withdrawals	1,154,767	1,153,343	1,180,154	R1,237,472	1,289,856
Non-marketed disposition					
Repressuring	99,730	101,386	105,377	R106,998	106,258
Vented and flared	15,276	9,607	8,149	R7,693	9,161
Nonhydrocarbon gases removed	7,699	8,195	9,338	R9,095	8,077
Total non-marketed disposition	122,705	119,188	122,863	R123,786	123,496
Dry production					
Marketed production	1,032,062	1,034,155	1,057,290	R1,113,686	1,166,360
NGPL production, gaseous equivalent	72,148	76,730	79,530	R87,061	95,891
Total dry production	959,913	957,425	977,760	R1,026,626	1,070,469
Supply (million cubic meters)					
Dry production	959,913	957,425	977,760	R1,026,626	1,070,469
Receipts at U.S. borders					
Imports	77,637	72,241	79,513	R85,634	82,917
Intransit receipts	5,876	10,880	10,549	R6,909	4,437
Withdrawals from storage					
Underground storage	103,436	96,614	106,503	118,212	93,231
LNG storage	1,353	971	1,201	R1,751	1,152
Supplemental gas supplies	1,721	1,788	1,870	R2,072	3,304
Balancing item	-11,339	-16,020	-10,546	R-14,965	-5,073
Total supply	1,138,596	1,123,899	1,166,850	R1,226,239	1,250,437
Disposition (million cubic meters)					
Consumption	881,561	866,568	867,790	R914,405	923,679
Deliveries at U.S. borders					
Exports	131,890	149,645	188,381	R195,568	215,480
Intransit deliveries	6,101	5,014	5,326	R4,241	1,179
Additions to storage					
Underground storage	117,586	101,652	104,147	110,374	108,723
LNG storage	1,458	1,020	1,205	R1,651	1,377
Total disposition	1,138,596	1,123,899	1,166,850	R1,226,239	1,250,437
Consumption (million cubic meters)					
Lease fuel	37,732	37,727	38,796	R39,978	41,479
Pipeline and distribution use	28,829	28,893	32,040	R35,461	35,222
Plant fuel	13,888	14,694	13,611	R13,238	14,199
Delivered to consumers					
Residential	142,109	132,366	133,561	R140,572	128,086
Commercial	99,521	89,557	93,136	R99,410	94,619
Industrial	238,333	232,566	237,144	R241,517	242,171
Vehicle fuel	1,505	1,392	1,543	R1,835	1,758
Electric power	319,643	329,374	317,958	R342,394	366,145
Total delivered to consumers	801,112	785,253	783,343	R825,727	832,779
Total consumption	881,561	866,568	867,790	R914,405	923,679
Delivered for the account of others (million cubic meters)					
Residential	18,597	17,211	16,925	R17,339	15,406
Commercial	45,756	41,861	42,930	R44,898	43,109
Industrial	207,428	202,182	205,496	R209,226	209,909

See footnotes at end of table.

	2019	2020	2021	2022	2023
Number of consumers					
Residential	70,431,299	71,540,659	71,951,957	R72,525,043	73,226,403
Commercial	5,551,599	5,627,762	5,613,615	R5,621,186	5,649,137
Industrial	183,507	184,466	182,207	R181,002	178,884
Average annual consumption per consumer (thousand cubic meters)					
Commercial	18	16	17	18	17
Industrial	1,299	1,261	1,302	R1,334	1,354
Average price for natural gas (dollars per thousand cubic meters)					
Imports	90.16	72.99	133.41	223.68	117.19
Exports	128.72	130.76	225.31	R340.54	191.01
Citygate	134.71	121.18	212.64	R242.59	196.42
Delivered to consumers					
Residential	370.98	380.57	430.22	R520.95	543.62
Commercial	268.72	264.32	310.56	R399.82	390.76
Industrial	137.67	117.42	192.27	R271.57	159.86
Electric power	105.59	87.93	191.76	265.21	123.60

^R Revised data.

^a Pipeline and distribution use volumes include line loss, defined as known volumes of lost natural gas that were the result of leaks, damage, accidents, migration, and/or blow down.

Source: U.S. Energy Information Administration (EIA), Form EIA-176, *Annual Report of Natural and Supplemental Gas Supply and Disposition*; Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-910, *Monthly Natural Gas Marketer Survey*; Form EIA-816, *Monthly Natural Gas Liquids Report*; Form EIA-64A, *Annual Report of the Origin of Natural Gas Liquids Production*; Form EIA-191, *Monthly Underground Gas Storage Report*; Office of Fossil Energy and Carbon Management, U.S. Department of Energy, *Natural Gas Imports and Exports*; Form EIA-923, *Power Plant Operations Report*; the Bureau of Safety and Environmental Enforcement (BSEE); state and federal agencies; state-sponsored public record databases; Form EIA-23, *Annual Survey of Domestic Oil and Gas Reserves*; PointLogic Energy; Enverus; and EIA estimates based on historical data.

Note: The United States equals the 50 states and District of Columbia. Totals may not equal sum of components because of independent rounding. Prices are in nominal dollars. U.S. prices represent the weighted average of the states in each sector.

Table B2. Thermal conversion factors and data, 2019-2023

	2019	2020	2021	2022	2023
Conversion factor (Btu per cubic foot)					
Production					
Marketed	1,140	1,145	1,146	1,149	1,156
NGPL production	2,493	2,499	2,489	R2,488	2,500
Total dry production	1,038	1,037	1,037	1,036	1,036
Supply					
Dry production	1,038	1,037	1,037	1,036	1,036
Receipts at U.S. borders					
Imports	1,025	1,025	1,025	1,025	1,025
Intransit receipts	1,025	1,025	1,025	1,025	1,025
Withdrawals from storage					
Underground storage	1,038	1,037	1,037	1,036	1,036
LNG storage	1,038	1,037	1,037	1,036	1,036
Supplemental gas supplies	1,038	1,037	1,037	1,036	1,036
Balancing item	1,038	1,037	1,037	1,036	1,036
Total supply	NA	NA	NA	NA	NA
Disposition					
Consumption	1,038	1,037	1,037	1,036	1,036
(Electric power)	1,034	1,033	1,034	1,033	1,033
(Other sectors)	1,040	1,039	1,039	R1,038	1,036
Deliveries at U.S. borders					
Exports	1,009	1,009	1,009	1,009	1,009
Intransit deliveries	1,009	1,009	1,009	1,009	1,009
Additions to storage					
Underground storage	1,038	1,037	1,037	1,036	1,036
LNG storage	1,038	1,037	1,037	1,036	1,036
Total disposition	NA	NA	NA	NA	NA
Summary data (billion Btu)					
Production					
Marketed	41,538,075	41,832,331	42,796,036	R45,208,416	47,629,614
NGPL production	6,350,892	6,770,191	6,989,177	R7,648,296	8,465,428
Total dry production	35,187,183	35,062,141	35,806,859	R37,560,120	39,164,186
Supply					
Dry production	35,187,183	35,062,141	35,806,859	R37,560,120	39,164,186
Receipts at U.S. borders					
Imports	2,810,259	2,614,955	2,878,160	R3,097,585	2,998,922
Intransit receipts	212,702	393,815	381,851	R250,094	160,606
Withdrawals from storage					
Underground storage	3,791,609	3,538,146	3,900,280	4,324,921	3,410,952
LNG storage	49,584	35,554	43,977	R64,066	42,143
Supplemental gas supplies	63,075	65,482	68,487	R75,804	120,896
Balancing item	-518,642	-705,885	R-539,589	R-699,925	-355,800
Total supply	41,595,770	41,004,208	R42,540,026	R44,672,665	45,541,904
Disposition					
Consumption	32,315,058	31,734,860	31,779,598	R33,454,423	33,793,716
(Electric power)	11,671,891	12,015,570	11,610,358	R12,490,567	13,356,977
(Other sectors)	20,643,167	19,719,290	20,169,240	R20,963,855	20,436,738
Deliveries at U.S. borders					
Exports	4,699,576	5,332,240	6,712,482	R6,968,590	7,678,083
Intransit deliveries	217,379	177,158	R189,789	R151,103	42,010
Additions to storage					
Underground storage	4,310,317	3,722,613	3,814,017	4,038,138	3,977,735
LNG storage	53,440	37,335	44,140	R60,411	50,361
Total disposition	41,595,770	41,004,208	R42,540,026	R44,672,665	45,541,904

NA Not available.

R Revised data.

^a Pipeline and distribution use volumes include line loss, defined as known volumes of lost natural gas that were the result of leaks, damage, accidents, migration, and/or blow down.

Source: U.S. Energy Information Administration (EIA), Form EIA-176, *Annual Report of Natural and Supplemental Gas Supply and Disposition*; Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-816, *Monthly Natural Gas Liquids Report*; Form EIA-64A, *Annual Report of the Origin of Natural Gas Liquids Production*; Form EIA-191, *Monthly Underground Gas Storage Report*; Office of Fossil Energy and Carbon Management, U.S. Department of Energy, *Natural Gas Imports and Exports*; Form EIA-923, *Power Plant Operations Report*; the Bureau of Safety and Environmental Enforcement (BSEE); state and federal agencies; state-sponsored public record databases; Form EIA-23, *Annual Survey of Domestic Oil and Gas Reserves*; PointLogic Energy; Enverus; and EIA estimates based on historical data.

Note: See accompanying text for conversion factor documentation. Items appearing in parentheses are subsets of other items for which data are shown in this table and are not involved in the summing of supply and disposition. Totals may not equal sum of components because of independent rounding.