

# **Appendix B**

## **Metric and Thermal Conversion Tables**

## Appendix B

# Metric and Thermal Conversion Tables

### **Metric Conversions**

Table B1 presents Summary Statistics for Natural Gas in the United States for 2000 through 2004 in metric units of measure. Volumes are shown in cubic meters instead of cubic feet. Prices are shown in dollars per thousand cubic meters instead of dollars per thousand cubic feet. The data in this table have been converted from the data that appear in Table 1 of this report.

### **Thermal Conversions**

Table B2 presents the thermal (Btu) conversion factors and the converted data for natural gas supply and disposition from 2000 through 2004. A brief documentation for the thermal conversion factors follows:

- *Marketed Production.* The conversion factor is calculated by adding the total heat content of dry production to the total heat content of extraction loss and dividing the resulting sum by the total quantity of dry production and extraction loss (see below).
- *Extraction Loss.* The conversion factor is obtained from Appendix A of this publication.
- *Dry Production.* The conversion factor is assumed to be the same as the thermal conversion factors for consumption (see below).
- *Receipts at U.S. Borders.* The 2000 conversion factor has been applied to volumes reported through 2004. Intransit receipts are assumed to have the same average heat content as imports.
- *Withdrawals from Storage.* Both underground and LNG storage withdrawals are assumed to have the same heat content as consumption (see below).
- *Supplemental Gas Supplies.* This conversion factor is assumed to be the same as that for consumption (see below).
- *Balancing Item.* This conversion factor is calculated 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." Average heat content of electric utility consumption is obtained from EIA's Electric Power Annual. The factor for nonutility consumption is calculated by subtracting the total heat content of electric utility consumption from the heat content of total consumption and dividing the difference by the quantity of nonutility consumption (total consumption less electric utility consumption).
- *Deliveries at U.S. Borders.* The 2000 conversion factor has been applied to volumes reported through 2004. Intransit deliveries are assumed to have the same average heat content as exports.
- *Additions to Storage.* Additions to both underground and LNG storage are assumed to have the same heat content as consumption (see above).

Table B1. Summary Statistics for Natural Gas in the United States, Metric Equivalents, 2000-2004

	2000	2001	2002	2003	2004
<b>Number of Gas and Gas Condensate Wells</b>					
Producing at End of Year .....	341,678	373,304	387,772	393,327	405,048
<b>Production (million cubic meters)</b>					
Gross Withdrawals					
From Gas Wells.....	501,946	513,368	503,894	<sup>R</sup> 506,356	509,520
From Oil Wells.....	182,582	180,417	174,047	176,617	171,654
<b>Total.....</b>	<b>684,528</b>	<b>693,785</b>	<b>677,942</b>	<b><sup>R</sup>682,973</b>	<b>681,174</b>
Repressuring.....	95,701	95,451	97,839	100,462	104,819
Vented and Flared.....	2,583	2,744	2,808	2,778	2,764
Wet After Lease Separation.....	586,243	595,589	577,294	<sup>R</sup> 579,733	573,591
Nonhydrocarbon Gases Removed .....	14,313	13,103	14,220	14,122	16,200
Marketed Production .....	571,930	582,486	563,074	<sup>R</sup> 565,611	557,391
Extraction Loss.....	28,757	27,014	27,099	24,800	26,238
<b>Total Dry Production .....</b>	<b>543,173</b>	<b>555,472</b>	<b>535,975</b>	<b><sup>R</sup>540,811</b>	<b>531,153</b>
<b>Supply (million cubic meters)</b>					
Dry Production.....	543,173	555,472	535,975	<sup>R</sup> 540,811	531,153
Receipts at U.S. Borders					
Imports .....	107,083	112,614	113,705	<sup>R</sup> 111,675	120,589
Intransit Receipts.....	12,781	15,267	16,670	<sup>R</sup> 20,682	16,693
Withdrawals from Storage					
Underground Storage.....	99,058	65,375	88,849	87,746	85,986
LNG Storage .....	1,459	1,004	1,212	<sup>R</sup> 1,754	1,448
Supplemental Gas Supplies .....	2,555	2,444	1,925	<sup>R</sup> 1,917	1,921
Balancing Item.....	-6,806	3,804	-378	<sup>R</sup> -1,090	6,346
<b>Total Supply.....</b>	<b>759,304</b>	<b>755,981</b>	<b>757,959</b>	<b><sup>R</sup>763,495</b>	<b>764,135</b>
<b>Disposition (million cubic meters)</b>					
Consumption .....	660,720	629,728	651,486	<sup>R</sup> 630,800	635,153
Deliveries at U.S. Borders					
Exports.....	6,901	10,570	14,618	<sup>R</sup> 19,253	24,186
Intransit Deliveries.....	14,628	16,279	15,021	<sup>R</sup> 18,357	14,127
Additions to Storage					
Underground Storage.....	76,010	98,125	75,602	93,211	89,198
LNG Storage .....	1,044	1,280	1,232	<sup>R</sup> 1,874	1,470
<b>Total Disposition .....</b>	<b>759,304</b>	<b>755,981</b>	<b>757,959</b>	<b><sup>R</sup>763,495</b>	<b>764,135</b>
<b>Consumption (million cubic meters)</b>					
Lease Fuel .....	21,150	21,164	20,688	<sup>R</sup> 21,475	20,716
Pipeline and Distribution Use.....	18,185	17,697	18,885	<sup>R</sup> 16,749	16,193
Plant Fuel.....	11,442	10,510	10,831	10,305	10,374
Delivered to Consumers					
Residential .....	141,476	135,109	138,436	<sup>R</sup> 143,831	138,314
Commercial.....	90,117	85,594	89,033	<sup>R</sup> 90,033	88,962
Industrial.....	230,563	207,965	212,580	<sup>R</sup> 202,477	205,315
Vehicle Fuel.....	361	412	423	<sup>R</sup> 517	581
Electric Power .....	147,427	151,277	160,610	145,413	154,699
<b>Total Delivered to Consumers .....</b>	<b>609,944</b>	<b>580,357</b>	<b>601,082</b>	<b><sup>R</sup>582,272</b>	<b>587,871</b>
<b>Total Consumption.....</b>	<b>660,720</b>	<b>629,728</b>	<b>651,486</b>	<b><sup>R</sup>630,800</b>	<b>635,153</b>
<b>Delivered for the Account of Others (million cubic meters)</b>					
Residential .....	10,533	10,248	11,999	<sup>R</sup> 13,374	12,800
Commercial.....	32,495	29,069	32,407	<sup>R</sup> 31,422	31,913
Industrial.....	184,887	164,626	164,316	<sup>R</sup> 157,689	156,852

See footnotes at end of table.

**Table B1. Summary Statistics for Natural Gas in the United States, Metric Equivalents, 2000-2004 —**  
Continued

	2000	2001	2002	2003	2004
<b>Number of Consumers</b>					
Residential.....	59,252,728	60,286,364	61,107,254	<sup>R</sup> 61,871,450	62,469,142
Commercial .....	5,010,817	4,996,446	5,064,384	<sup>R</sup> 5,152,177	5,135,985
Industrial.....	220,251	217,026	205,915	<sup>R</sup> 205,514	212,191
<b>Average Annual Consumption per Consumer (thousand cubic meters)</b>					
Commercial .....	18	17	18	<sup>R</sup> 17	17
Industrial.....	1,047	958	1,032	<sup>R</sup> 985	968
<b>Average Prices for Natural Gas (dollars per thousand cubic meters)</b>					
Wellhead (Marketed Production).....	129.98	141.12	104.07	172.48	192.74
Imports .....	139.49	156.44	111.06	<sup>K</sup> 182.64	205.02
Exports .....	144.79	147.97	120.48	<sup>K</sup> 195.62	215.13
Pipeline and Distribution Use.....	104.88	125.48	--	--	--
City Gate.....	163.23	202.02	146.51	206.67	234.76
<b>Delivered to Consumers</b>					
Residential.....	274.02	340.23	278.75	<sup>R</sup> 340.21	379.55
Commercial .....	232.74	297.58	234.11	<sup>R</sup> 296.75	332.40
Industrial.....	157.32	185.06	141.96	<sup>R</sup> 208.11	231.71
Vehicle Fuel.....	195.64	233.08	180.03	<sup>R</sup> 218.45	246.45
Electric Power.....	154.68	162.80	129.96	<sup>R</sup> 196.70	215.77

-- Not applicable.

<sup>R</sup> Revised data.

**Notes:** The United States equals the 50 States and District of Columbia. Totals may not add due to independent rounding.

**Sources:** Energy Information Administration (EIA), Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition"; Form EIA-895, "Monthly and Annual Quantity and Value of Natural Gas Production Report"; Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers"; 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 FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Plants"; Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report"; Form EIA-191, "Monthly and Annual Underground Gas Storage Report"; Office of Fossil Energy, U.S. Department of Energy, *Natural Gas Imports and Exports*; the U.S. Minerals Management Service; Form EIA-906, "Power Plant Report"; Form EIA-886, "Annual Survey of Alternative Fueled Vehicle Suppliers and Users"; and EIA estimates.

Table B2. Thermal Conversion Factors and Data, 2000-2004

	2000	2001	2002	2003	2004
<b>Conversion Factor (Btu per cubic foot)</b>					
<b>Production</b>					
Marketed.....	1,107	1,105	1,106	1,106	1,104
Extraction Loss .....	2,662	2,687	2,671	2,747	2,666
<b>Total Dry Production .....</b>	<b>1,025</b>	<b>1,028</b>	<b>1,027</b>	<b>1,031</b>	<b>1,027</b>
<b>Supply</b>					
Dry Production.....	1,025	1,028	1,027	1,031	1,027
Receipts at U.S. Borders					
Imports.....	1,023	1,023	1,022	1,025	1,025
Intransit Receipts.....	1,023	1,023	1,022	1,025	1,025
Withdrawals from Storage					
Underground Storage .....	1,025	1,028	1,027	1,031	1,027
LNG Storage.....	1,025	1,028	1,027	1,031	1,027
Supplemental Gas Supplies.....	1,025	1,028	1,027	1,031	1,027
Balancing Item.....	1,102	1,050	792	<sup>R</sup> 1,062	962
<b>Total Supply .....</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Disposition</b>					
Consumption .....	1,025	1,028	1,027	1,031	1,027
(Electric Power) .....	1,021	1,020	1,021	1,025	1,027
(Other Sectors) .....	1,026	1,031	1,029	1,033	1,027
Deliveries at U.S. Borders.....					
Exports .....	1,006	1,010	1,008	1,009	1,009
Intransit Deliveries .....	1,006	1,010	1,008	1,009	1,009
Additions to Storage					
Underground Storage .....	1,025	1,028	1,027	1,031	1,027
LNG Storage.....	1,025	1,028	1,027	1,031	1,027
<b>Total Disposition.....</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Summary Data (billion Btu)</b>					
<b>Production</b>					
Marketed.....	22,364,843	22,728,539	21,994,760	<sup>R</sup> 22,096,437	21,734,336
Extraction Loss .....	2,703,325	2,562,971	2,555,921	2,405,837	2,470,407
<b>Total Dry Production .....</b>	<b>19,661,518</b>	<b>20,165,568</b>	<b>19,438,839</b>	<b><sup>R</sup>19,690,599</b>	<b>19,263,929</b>
<b>Supply</b>					
Dry Production.....	19,661,518	20,165,568	19,438,839	<sup>R</sup> 19,690,599	19,263,929
Receipts at U.S. Borders					
Imports.....	3,868,580	4,068,409	4,103,803	<sup>R</sup> 4,042,343	4,365,022
Intransit Receipts.....	461,755	551,557	601,654	<sup>R</sup> 748,637	604,255
Withdrawals from Storage					
Underground Storage .....	3,585,660	2,373,330	3,222,383	3,194,794	3,118,553
LNG Storage.....	52,801	36,463	43,953	<sup>R</sup> 63,870	52,503
Supplemental Gas Supplies.....	92,491	88,729	69,815	<sup>R</sup> 69,805	69,655
Balancing Item.....	-252,330	143,621	-10,566	<sup>R</sup> -40,864	215,511
<b>Total Supply .....</b>	<b>27,470,475</b>	<b>27,427,677</b>	<b>27,469,881</b>	<b><sup>R</sup>27,769,185</b>	<b>27,689,429</b>
<b>Disposition</b>					
Consumption .....	23,916,449	22,861,305	23,628,203	<sup>R</sup> 22,967,073	23,035,841
(Electric Power) .....	5,315,657	5,449,147	5,791,007	5,263,596	5,610,653
(Other Sectors) .....	18,600,792	17,412,159	17,837,196	<sup>R</sup> 17,703,478	17,425,188
Deliveries at U.S. Borders.....					
Exports .....	245,178	377,011	520,363	<sup>R</sup> 686,042	861,825
Intransit Deliveries .....	519,665	580,619	534,706	<sup>R</sup> 654,099	503,394
Additions to Storage					
Underground Storage .....	2,751,392	3,562,265	2,741,930	3,393,758	3,235,053
LNG Storage.....	37,791	46,476	44,679	<sup>R</sup> 68,213	53,316
<b>Total Disposition.....</b>	<b>27,470,475</b>	<b>27,427,677</b>	<b>27,469,881</b>	<b><sup>R</sup>27,769,185</b>	<b>27,689,429</b>

<sup>NA</sup> Not available.

<sup>R</sup> Revised data.

**Notes:** 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 due to independent rounding.

**Sources:** Energy Information Administration (EIA), Form EIA-895, "Monthly and

Annual Quantity and Value of Natural Gas Production Report"; Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition"; Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production"; Office of Fossil Energy, U.S. Department of Energy, Natural Gas Imports and Exports; Form EIA-191, "Monthly and Annual Underground Gas Storage Report"; Form EIA-906, "Power Plant Report"; Form EIA-886, "Annual Survey of Alternative Fueled Vehicle Suppliers and Users"; and EIA estimates.