

Revisions to Monthly Natural Gas Data

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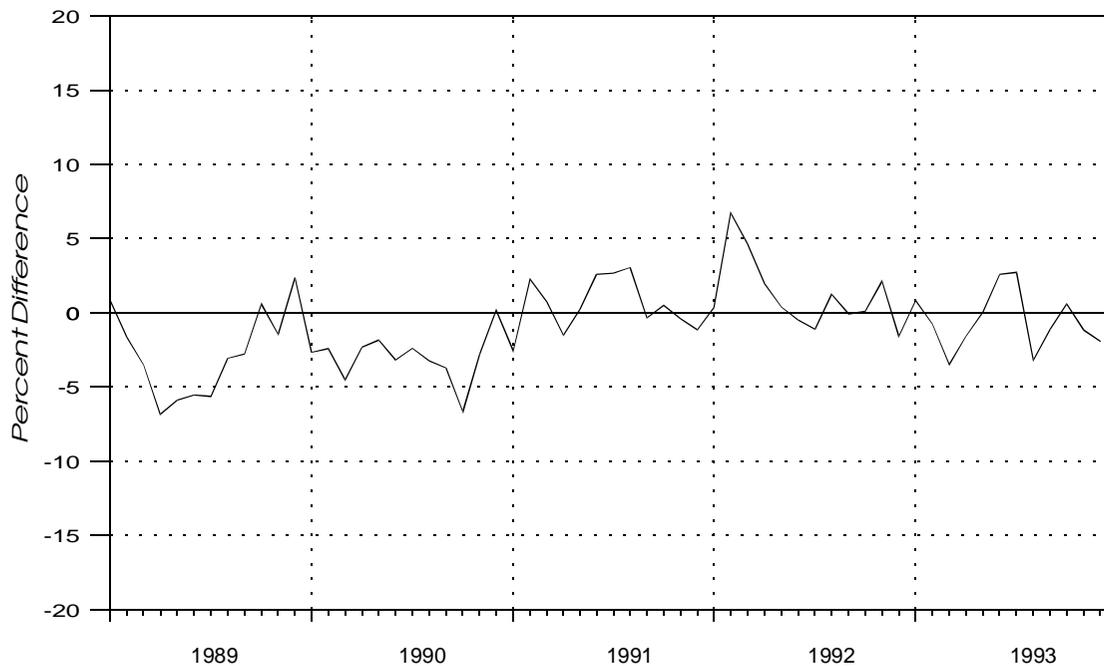
The Energy Information Administration (EIA) publishes monthly data for the supply and disposition of natural gas in the United States in the *Natural Gas Monthly*. These data are preliminary when initially published. Some of the monthly volumes and prices

are estimates developed by EIA staff. Others are estimated or taken from submitted reports. Table FE1 lists the methodologies for deriving the monthly data to be published initially for the components of natural gas supply and disposition.

Table FE1. Methodology for Reporting Initial Monthly Natural Gas Supply and Disposition Data

Components	Reporting Methodology
Supply and Disposition	
Marketed Production	Estimated from Historical Data
Extraction Loss	Derived from Marketed Production
Dry Production	Marketed Production minus Extraction Loss
Withdrawals from Storage	Reported on Form EIA-191
Supplemental Gaseous Fuels	Derived from Supply Estimates and Coal Gasification Information
Imports	Estimated from National Energy Board of Canada Information and Liquefied Natural Gas Information
Additions to Storage	Reported on Form EIA-191
Exports	Estimated from Industry Trends and Liquefied Natural Gas Information
Current-Month Consumption	Estimated from Historical Month-to-Month Percent Changes
Prior-Month Consumption	
Lease and Plant Fuel	Derived from Marketed Production
Pipeline Fuel	Derived from Estimates for Lease and Plant Fuel and Deliveries to Consumers
Deliveries to Consumers	
Residential	Estimated from Reports to the Sample Survey Form EIA-857
Commercial	Estimated from Reports to the Sample Survey Form EIA-857
Industrial	Estimated from Reports to the Sample Survey Form EIA-857
Electric Utilities	Reported on Form EIA-759
Average Prices	
Wellhead Price	Estimated from Historical Data
City Gate Price	Reported to the Sample Survey Form EIA-857
Deliveries to Consumers	
Residential	Reported to the Sample Survey Form EIA-857
Commercial	Reported to the Sample Survey Form EIA-857
Industrial	Reported to the Sample Survey Form EIA-857
Electric Utilities	Reported on FERC Form 423

Figure FE1. Percent Difference Between Initial and Final Monthly Values for Marketed Production, 1989-1993



Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

This article discusses the methodologies for reporting monthly data and the differences that occurred between the initial (first) monthly supply and disposition data for the United States published during 1989, 1990, 1991, 1992, and 1993 and the final monthly data published for those years. Although the utility of future estimates cannot be judged solely on the basis of the quality of past estimates, the EIA is providing information about these differences to assist users in evaluating the usefulness of preliminary National data for 1994 and subsequent years.

The EIA also continuously conducts programs of quality assurance for data reporting. Greater accuracy in data reporting improves the quality of estimates.

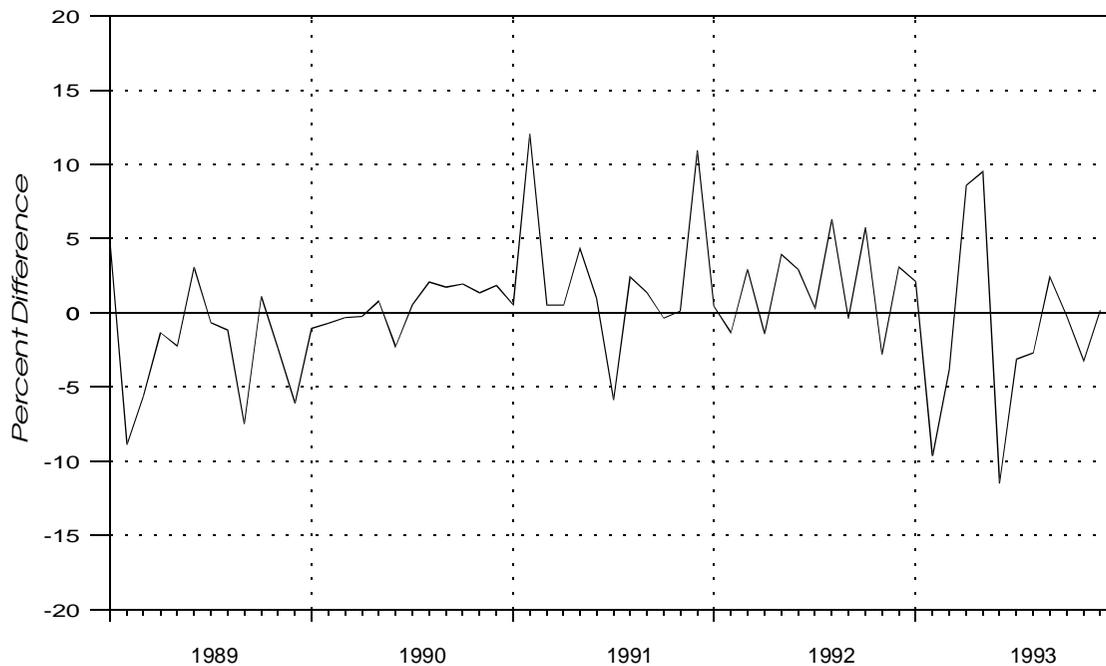
Initial and Final Monthly Values

The monthly numbers discussed in this article are published in Tables 1, 2, 3, and 4 of the *Natural Gas Monthly*. Each issue shows an initial number for the most current month and monthly data back through the 2 previous

years. The initial estimate generally appears 2 months after the publication issue month. If reporting or estimation errors are discovered, revisions to previous months of the current year are made only if they are significant. However, the current-month consumption estimate is routinely revised in the following month. (See discussion below.) Data for months in prior years become final after publication of the *Natural Gas Annual*. Initial and final monthly volumes are shown in Tables FE2 and FE3, and initial and final monthly prices in Table FE4.

Monthly numbers are revised each year so that their totals for the 12 months will agree with the annual totals in the *Natural Gas Annual*, and the revised monthly numbers are published in the following issue of the *Natural Gas Monthly*. In some instances, monthly data are reported on an annual survey, and the monthly estimates are revised to reflect the reported data. When monthly data are not reported, the percentage distribution across months for the monthly estimates is applied to the final annual number to derive final monthly estimates. The most current monthly natural gas data, including any revisions, are also published in the EIA report *Monthly Energy Review*.

Figure FE2. Percent Difference Between Initial and Final Monthly Values for Current-Month Consumption, 1989-1993



Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

Throughout this discussion, many sources of data and methods of estimation are referenced. Appendices A (Explanatory Notes), B (Data Sources), and C (Statistical Considerations) of the *Natural Gas Monthly* provide further information about data sources, estimation procedures, annual adjustments, and sample design. These sources may also be helpful in evaluating the monthly data.

Table FE2 shows the initial and final values for natural gas supply and disposition in the United States in 1989, 1990, 1991, 1992, and 1993. The percentage difference is calculated by taking the difference between the initial value and the final value, dividing it by the final value, and multiplying by 100. Positive percentage differences indicate that the initial value is larger than the final value; negative ones mean the initial value is smaller than the final value.

Supply and Disposition

Natural gas supply consists of dry gas production, withdrawals from storage, supplemental gaseous fuels, and imports. Natural gas disposition consists of additions to storage, exports, and current-month consumption. Marketed production and consumption are the best indicators of market activity in the natural gas industry. Figure FE1 is a graph of the percentage differences between final and initial marketed production values, and Figure FE2 is a graph for consumption percentage differences.

Marketed Production

Marketed production for the current month is estimated by the EIA from historical data. The monthly marketed production data are revised based on the data reported on Form EIA-895, "Monthly Quantity of Natural Gas Report." This is a voluntary form, and data from this form become available about 2 months after the initial values are published. State offices provide production data on the Form EIA-895.

The EIA began using the Form EIA-895 for the collection of 1995 monthly production data. Prior to 1995, voluntary reports showing monthly production data were filed with the Interstate Oil and Gas Compact Commission (IOGCC) by most of the gas-producing States, and these reports were used to adjust initial production data 2 months later.

State offices also provide the natural gas production reports filed annually with the EIA on the Form EIA-627, "Annual Quantity and Value of Natural Gas Report." Data reported on this Form become the final production information. In some States, these reports are not available at the time that the EIA must close its data files for publication of the *Natural Gas Annual*, so production data are taken from the EIA annual publication *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves*. When the data reported on Form EIA-627 are subsequently received, any necessary revisions are made, and the revised data are published in the *Natural Gas Monthly*.

For 1989, respondents to the Form EIA-627 reported only annual production data. The percentage distribution of the initial estimates across the 12 months was applied to this annual number to give final monthly estimates. Generally, there was little change in 1989 in comparing the final numbers to the initial estimates for monthly marketed production (Table FE2), and the final values were larger than the initial values in nearly every month.

Beginning with the collection of annual production data for 1990, Form EIA-627 respondents provide production numbers by month and a total for the year. Thus, the revisions in 1990, 1991, 1992, and 1993 show the difference between the initial monthly estimates and Form EIA-627 final monthly reports. All of the percentage differences in 1990 (except in December) were negative, indicating a pattern similar to other years. In December, the initial and final numbers were virtually the same.

As shown in Table FE2, the differences between initial estimates and final marketed production volumes in 1991, 1992, and 1993 were generally smaller than in previous years. Most differences were less than plus or minus 3 percent.

Current-Month Consumption

Consumption for the most current month is a component of the disposition of natural gas and is an estimate based on percentage changes. An average percentage change over the previous 3 years is applied to the previous month's data to estimate a value for the cur-

rent month's consumption. Consumption of natural gas fluctuates across the months of the year due to the seasonal variation in the weather, with the greatest fluctuations occurring in the winter months because of heating requirements. Since the estimate for current-month consumption is based on an average activity over the past 3 years, the current-month consumption estimate may show large revisions if the weather for the current year is markedly colder or warmer than that of the previous 3 years.

To make the estimate, an average percentage change is calculated by averaging the percentage changes from the previous to current months for the corresponding time period during the previous 3 years. For example, to estimate consumption for May 1995, the percentage changes in consumption from April 1994 to May 1994, from April 1993 to May 1993, and from April 1992 to May 1992 are calculated. These three figures are then averaged, and this average change is applied to the April 1995 consumption volume to estimate May 1995 consumption. The April 1995 consumption volume in this issue is the prior month's consumption volume, which is based primarily on deliveries to consumers reported on a sample survey.

The current month's consumption volumes are always replaced in the following month with an estimate based primarily on reported volumes. (See the discussion on consumption in prior months.) The percent differences between initial and final current-month consumption estimates are shown in Figure FE2.

Dry Gas Production and Extraction Loss

Extraction loss is estimated by applying the annual ratio of extraction loss to marketed production to each month's marketed production volume. The ratio is calculated using the most recently available annual data. Dry production of natural gas is then derived by subtracting the extraction loss estimate from the marketed production estimate. Final monthly production numbers are adjusted to conform to data from the Form EIA-627, which is filed by the appropriate State agencies of the 33 gas-producing States.

Monthly estimates for dry production show a pattern similar to that for marketed production since dry production estimates are primarily driven by the marketed production estimates.

Extraction loss monthly revisions generally were larger in 1989 and 1990 than they were in subsequent years. The decrease in adjustment size after 1990 occurred because the ratio of annually reported extraction loss

Table FE2. Initial Estimates and Revisions for Monthly Natural Gas Supply and Disposition in the United States, 1989-1993
(Volumes in Billion Cubic Feet)

Month	1989			1990			1991		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Marketed Production									
January	1,620	1,607	0.8	1,644	1,689	-2.7	1,643	1,686	-2.6
February	1,460	1,484	-1.6	1,467	1,503	-2.4	1,517	1,483	2.3
March	1,518	1,573	-3.5	1,523	1,595	-4.5	1,619	1,607	0.7
April	1,396	1,499	-6.9	1,478	1,513	-2.3	1,508	1,531	-1.5
May	1,429	1,519	-5.9	1,501	1,529	-1.8	1,526	1,522	0.3
June	1,375	1,456	-5.6	1,440	1,487	-3.2	1,489	1,451	2.6
July	1,400	1,484	-5.7	1,477	1,513	-2.4	1,504	1,465	2.7
August	1,428	1,473	-3.1	1,469	1,518	-3.2	1,516	1,471	3.1
September	1,363	1,402	-2.8	1,403	1,457	-3.7	1,459	1,464	-0.3
October	1,481	1,472	0.6	1,477	1,583	-6.7	1,588	1,580	0.5
November	1,511	1,533	-1.4	1,536	1,580	-2.8	1,594	1,600	-0.4
December	1,630	1,592	2.4	1,630	1,627	0.2	1,654	1,673	-1.1
Extraction Loss									
January	76	70	8.6	76	69	10.1	71	76	-6.6
February	68	64	6.3	69	62	11.3	66	67	-1.5
March	71	68	4.4	71	66	7.6	70	72	-2.8
April	65	65	0.0	69	62	11.3	66	69	-4.3
May	67	66	1.5	70	63	11.1	66	69	-4.3
June	64	63	1.6	67	61	9.8	65	65	0.0
July	66	64	3.1	69	62	11.3	65	66	-1.5
August	67	63	6.3	69	62	11.3	66	66	0.0
September	64	60	6.7	66	60	10.0	64	66	-3.0
October	69	64	7.8	69	65	6.2	70	71	-1.4
November	71	66	7.6	72	65	10.8	70	72	-2.8
December	76	72	5.6	76	67	13.4	73	75	-2.7
Dry Production									
January	1,544	1,537	0.5	1,568	1,620	-3.2	1,572	1,610	-2.4
February	1,392	1,420	-2.0	1,398	1,441	-3.0	1,451	1,417	2.4
March	1,447	1,505	-3.9	1,453	1,529	-5.0	1,549	1,535	0.9
April	1,331	1,434	-7.2	1,409	1,451	-2.9	1,442	1,462	-1.4
May	1,362	1,453	-6.3	1,431	1,466	-2.4	1,460	1,453	0.5
June	1,311	1,393	-5.9	1,373	1,426	-3.7	1,424	1,385	2.8
July	1,334	1,420	-6.1	1,408	1,451	-3.0	1,439	1,399	2.9
August	1,361	1,410	-3.5	1,400	1,456	-3.8	1,450	1,405	3.2
September	1,299	1,342	-3.2	1,337	1,397	-4.3	1,395	1,398	-0.2
October	1,412	1,408	0.3	1,408	1,518	-7.2	1,518	1,509	0.6
November	1,440	1,467	-1.8	1,464	1,515	-3.4	1,524	1,528	-0.3
December	1,554	1,520	2.2	1,554	1,560	-0.4	1,581	1,597	-1.0
Withdrawals from Storage									
January	397	427	-7.0	329	356	-7.6	530	682	-22.3
February	548	614	-10.7	340	345	-1.4	260	409	-36.4
March	319	369	-13.6	250	267	-6.4	218	297	-26.6
April	121	138	-12.3	109	141	-22.7	240	104	130.8
May	41	44	-6.8	75	44	70.5	30	58	-48.3
June	23	20	15.0	40	41	-2.4	20	42	-52.4
July	47	29	62.1	27	26	3.8	46	75	-38.7
August	27	29	-6.9	37	40	-7.5	54	82	-34.1
September	34	39	-12.8	36	36	0.0	48	78	-38.5
October	85	96	-11.5	61	66	-7.6	69	103	-33.0
November	198	228	-13.2	144	151	-4.6	327	360	-9.2
December	729	822	-11.3	467	490	-4.7	424	461	-8.0
Supplemental Fuels									
January	16	11	45.5	16	11	45.5	10	12	-16.7
February	15	10	50.0	14	9	55.6	9	10	-10.0
March	14	10	40.0	14	10	40.0	10	11	-9.1
April	12	8	50.0	13	9	44.4	9	9	0.0
May	12	8	50.0	11	8	37.5	9	9	0.0
June	11	7	57.1	11	8	37.5	8	8	0.0
July	11	8	37.5	12	9	33.3	9	9	0.0
August	11	8	37.5	11	8	37.5	9	9	0.0
September	10	7	42.9	11	8	37.5	8	8	0.0
October	13	9	44.4	11	8	37.5	10	10	0.0
November	13	9	44.4	13	9	44.4	9	9	0.0
December	17	12	41.7	11	11	0.0	10	11	-9.1

See footnotes at end of table.

Table FE2. Initial Estimates and Revisions for Monthly Natural Gas Supply and Disposition in the United States, 1989-1993
(Volumes in Billion Cubic Feet) -- Continued

Month	1992			1993		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Marketed Production						
January	1,669	1,663	0.4	1,672	1,658	0.8
February	1,566	1,467	6.7	1,479	1,490	-0.7
March	1,619	1,547	4.7	1,580	1,637	-3.5
April	1,548	1,518	2.0	1,529	1,553	-1.5
May	1,563	1,557	0.4	1,585	1,584	0.1
June	1,508	1,515	-0.5	1,567	1,527	2.6
July	1,547	1,564	-1.1	1,616	1,573	2.7
August	1,541	1,522	1.2	1,525	1,575	-3.2
September	1,507	1,508	-0.1	1,531	1,548	-1.1
October	1,610	1,608	0.1	1,638	1,628	0.6
November	1,622	1,588	2.1	1,618	1,637	-1.2
December	1,630	1,656	-1.6	1,686	1,719	-1.9
Extraction Loss						
January	69	77	-10.4	75	77	-2.6
February	64	68	-5.9	67	69	-2.9
March	67	72	-6.9	71	76	-6.6
April	64	71	-9.9	69	72	-4.2
May	64	73	-12.3	71	73	-2.7
June	62	71	-12.7	71	71	0.0
July	64	73	-12.3	73	73	0.0
August	63	71	-11.3	71	73	-2.7
September	68	70	-2.9	71	72	-1.4
October	73	75	-2.7	76	75	1.3
November	73	74	-1.4	75	76	-1.3
December	74	77	-3.9	79	80	-1.3
Dry Production						
January	1,600	1,586	0.9	1,597	1,581	1.0
February	1,502	1,398	7.4	1,412	1,421	-0.6
March	1,552	1,475	5.2	1,509	1,561	-3.3
April	1,484	1,447	2.6	1,460	1,481	-1.4
May	1,499	1,485	0.9	1,514	1,511	0.2
June	1,446	1,444	0.1	1,496	1,457	2.7
July	1,483	1,491	-0.5	1,543	1,501	2.8
August	1,478	1,451	1.9	1,454	1,502	-3.2
September	1,439	1,437	0.1	1,460	1,476	-1.1
October	1,537	1,533	0.3	1,562	1,552	0.6
November	1,549	1,514	2.3	1,543	1,561	-1.2
December	1,556	1,579	-1.5	1,607	1,639	-2.0
Withdrawals from Storage						
January	571	624	-8.5	599	614	-2.4
February	436	463	-5.8	581	591	-1.7
March	369	397	-7.1	385	395	-2.5
April	140	142	-1.4	109	103	5.8
May	50	44	13.6	25	30	-16.7
June	40	35	14.3	43	36	19.4
July	53	42	26.2	47	35	34.3
August	62	46	34.8	98	45	117.8
September	51	40	27.5	25	26	-3.8
October	79	70	12.9	97	103	-5.8
November	267	282	-5.3	316	311	1.6
December	544	587	-7.3	499	510	-2.2
Supplemental Fuels						
January	5	12	-58.3	12	13	-7.7
February	11	11	0.0	11	11	0.0
March	11	11	0.0	11	12	-8.3
April	10	10	0.0	10	10	0.0
May	9	9	0.0	8	7	14.3
June	8	8	0.0	9	9	0.0
July	8	8	0.0	9	8	12.5
August	9	8	12.5	9	8	12.5
September	9	8	12.5	9	8	12.5
October	10	10	0.0	10	10	0.0
November	11	9	22.2	12	11	9.1
December	12	11	9.1	13	13	0.0

See footnotes at end of table.

Table FE2. Initial Estimates and Revisions for Monthly Natural Gas Supply and Disposition in the United States, 1989-1993
(Volumes in Billion Cubic Feet) -- Continued

Month	1989			1990			1991		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Imports									
January	99	119	-16.8	186	140	32.9	147	163	-9.8
February	113	110	2.7	130	118	10.2	126	138	-8.7
March	101	113	-10.6	118	116	1.7	139	151	-7.9
April	110	110	0.0	120	123	-2.4	151	144	4.9
May	107	108	-0.9	118	123	-4.1	128	141	-9.2
June	109	104	4.8	111	117	-5.1	125	133	-6.0
July	110	101	8.9	122	120	1.7	132	135	-2.2
August	106	108	-1.9	122	118	3.4	128	127	0.8
September	113	117	-3.4	120	120	0.0	128	134	-4.5
October	125	123	1.6	120	142	-15.5	125	157	-20.4
November	127	123	3.3	124	140	-11.4	123	169	-27.2
December	136	145	-6.2	148	156	-5.1	127	181	-29.8
Additions to Storage									
January	45	53	-15.1	92	96	-4.2	59	115	-48.7
February	28	32	-12.5	85	71	19.7	41	112	-63.4
March	93	106	-12.3	119	128	-7.0	99	129	-23.3
April	166	183	-9.3	183	194	-5.7	196	234	-16.2
May	285	327	-12.8	316	304	3.9	296	331	-10.6
June	356	380	-6.3	329	335	-1.8	307	326	-5.8
July	365	377	-3.2	325	337	-3.6	266	299	-11.0
August	321	362	-11.3	321	330	-2.7	256	290	-11.7
September	283	325	-12.9	284	295	-3.7	279	304	-8.2
October	192	225	-14.7	214	217	-1.4	229	258	-11.2
November	91	105	-13.3	136	139	-2.2	115	150	-23.3
December	50	52	-3.8	72	71	1.4	92	125	-26.4
Exports									
January	5	7	-28.6	6	14	-57.1	7	10	-30.0
February	7	7	0.0	5	8	-37.5	6	11	-45.5
March	8	11	-27.3	6	11	-45.5	9	10	-10.0
April	6	11	-45.5	6	6	0.0	8	9	-11.1
May	4	8	-50.0	4	6	-33.3	6	8	-25.0
June	6	9	-33.3	8	6	33.3	8	7	14.3
July	6	9	-33.3	8	5	60.0	6	8	-25.0
August	6	9	-33.3	8	5	60.0	7	10	-30.0
September	6	9	-33.3	8	7	14.3	8	11	-27.3
October	6	10	-40.0	8	6	33.3	7	14	-50.0
November	7	8	-12.5	8	6	33.3	7	15	-53.3
December	6	8	-25.0	8	7	14.3	8	18	-55.6
Current Month Consumption									
January	2,116	2,024	4.5	2,110	2,132	-1.0	2,312	2,299	0.6
February	1,830	2,009	-8.9	1,820	1,833	-0.7	2,143	1,912	12.1
March	1,837	1,947	-5.6	1,787	1,793	-0.3	1,850	1,840	0.5
April	1,561	1,582	-1.3	1,593	1,597	-0.3	1,550	1,542	0.5
May	1,320	1,350	-2.2	1,397	1,386	0.8	1,395	1,337	4.3
June	1,239	1,202	3.1	1,253	1,282	-2.3	1,211	1,199	1.0
July	1,213	1,221	-0.7	1,276	1,269	0.6	1,207	1,283	-5.9
August	1,203	1,217	-1.2	1,321	1,294	2.1	1,305	1,274	2.4
September	1,093	1,182	-7.5	1,283	1,261	1.7	1,248	1,231	1.4
October	1,354	1,339	1.1	1,411	1,384	2.0	1,414	1,419	-0.4
November	1,531	1,568	-2.4	1,564	1,543	1.4	1,693	1,691	0.1
December	2,025	2,157	-6.1	1,976	1,940	1.9	2,229	2,009	11.0

See footnotes at end of table.

Table FE2. Initial Estimates and Revisions for Monthly Natural Gas Supply and Disposition in the United States, 1989-1993
(Volumes in Billion Cubic Feet) -- Continued

Month	1992			1993		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Imports						
January	135	165	-18.2	174	200	-13.0
February	142	175	-18.9	174	191	-8.9
March	154	180	-14.4	210	204	2.9
April	177	176	0.6	176	189	-6.9
May	173	174	-0.6	161	171	-5.8
June	156	162	-3.7	193	182	6.0
July	163	167	-2.4	192	195	-1.5
August	167	175	-4.6	165	197	-16.2
September	173	166	4.2	188	194	-3.1
October	179	176	1.7	183	192	-4.7
November	167	210	-20.5	182	210	-13.3
December	186	209	-11.0	198	225	-12.0
Additions to Storage						
January	57	60	-5.0	48	37	29.7
February	53	45	17.8	30	22	36.4
March	73	74	-1.4	81	79	2.5
April	159	161	-1.2	222	216	2.8
May	320	344	-7.0	448	471	-4.9
June	358	384	-6.8	415	424	-2.1
July	352	373	-5.6	405	398	1.8
August	358	380	-5.8	419	375	11.7
September	336	362	-7.2	378	391	-3.3
October	261	271	-3.7	247	262	-5.7
November	94	88	6.8	110	106	3.8
December	56	58	-3.4	58	54	7.4
Exports						
January	12	16	-25.0	18	17	5.9
February	9	14	-35.7	15	12	25.0
March	10	23	-56.5	18	16	12.5
April	15	18	-16.7	12	11	9.1
May	10	19	-47.4	12	11	9.1
June	9	18	-50.0	13	11	18.2
July	14	16	-12.5	15	13	15.4
August	18	18	0.0	13	11	18.2
September	22	18	22.2	11	10	10.0
October	24	19	26.3	10	9	11.1
November	24	19	26.3	10	10	0.0
December	20	19	5.3	11	10	10.0
Current Month Consumption						
January	2,249	2,239	0.4	2,341	2,292	2.1
February	2,004	2,031	-1.3	1,965	2,175	-9.7
March	1,983	1,926	3.0	2,064	2,146	-3.8
April	1,661	1,685	-1.4	1,830	1,685	8.6
May	1,474	1,418	3.9	1,427	1,303	9.5
June	1,301	1,264	2.9	1,144	1,293	-11.5
July	1,315	1,311	0.3	1,310	1,352	-3.1
August	1,344	1,264	6.3	1,332	1,369	-2.7
September	1,244	1,249	-0.4	1,311	1,280	2.4
October	1,447	1,368	5.8	1,490	1,493	-0.2
November	1,625	1,672	-2.8	1,714	1,771	-3.2
December	2,185	2,119	3.1	2,138	2,134	0.2

^a The percent change is the initial value minus the final value, divided by the final value.
Note: The monthly volumes may not sum to total volume because the initial estimates in the early months of the year may have been revised before the annual total is first published.
Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

**Table FE3. Initial Estimates and Revisions for Monthly Natural Gas Consumption
in the United States, 1989-1993**
(Volumes in Billion Cubic Feet)

Month	1989			1990			1991		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Lease and Plant Fuel									
January	106	95	11.6	109	112	-2.7	109	102	6.9
February	97	88	10.2	97	100	-3.0	100	90	11.1
March	100	93	7.5	102	106	-3.8	106	98	8.2
April	93	88	5.7	98	100	-2.0	100	93	7.5
May	95	89	6.7	99	101	-2.0	102	93	9.7
June	91	86	5.8	95	98	-3.1	99	89	11.2
July	94	88	6.8	98	100	-2.0	100	90	11.1
August	95	87	9.2	97	100	-3.0	101	90	12.2
September	90	82	9.8	93	96	-3.1	97	89	9.0
October	98	87	12.6	102	105	-2.9	106	97	9.3
November	100	90	11.1	103	105	-1.9	106	97	9.3
December	106	97	9.3	108	108	0.0	110	101	8.9
Pipeline Fuel									
January	51	57	-10.5	55	64	-14.1	58	74	-21.6
February	51	57	-10.5	49	54	-9.3	47	61	-23.0
March	48	54	-11.1	48	56	-14.3	51	58	-12.1
April	42	49	-14.3	44	54	-18.5	48	49	-2.0
May	44	51	-13.7	47	55	-14.5	48	42	14.3
June	44	50	-12.0	44	54	-18.5	44	37	18.9
July	49	50	-2.0	49	54	-9.3	42	40	5.0
August	49	50	-2.0	49	55	-10.9	64	40	60.0
September	47	48	-2.1	47	52	-9.6	50	38	31.6
October	49	49	0.0	48	50	-4.0	70	44	59.1
November	50	50	0.0	49	53	-7.5	53	54	-1.9
December	66	65	1.5	59	58	1.7	67	64	4.7
Delivered to Consumers									
Residential									
January	754	751	0.4	794	788	0.8	848	844	0.5
February	739	743	-0.5	638	642	-0.6	668	664	0.6
March	651	646	0.8	550	552	-0.4	575	573	0.3
April	418	414	1.0	398	400	-0.5	375	373	0.5
May	260	257	1.2	246	248	-0.8	230	229	0.4
June	161	155	3.9	160	161	-0.6	147	148	-0.7
July	131	129	1.6	129	126	2.4	127	126	0.8
August	123	121	1.7	124	121	2.5	118	118	0.0
September	141	139	1.4	136	132	3.0	139	138	0.7
October	227	229	-0.9	217	214	1.4	228	225	1.3
November	400	405	-1.2	381	376	1.3	462	459	0.7
December	789	791	-0.3	642	630	1.9	660	658	0.3
Commercial									
January	374	376	-0.5	397	408	-2.7	433	434	-0.2
February	375	380	-1.3	329	342	-3.8	357	359	-0.6
March	342	342	0.0	300	308	-2.6	309	310	-0.3
April	228	233	-2.1	235	242	-2.9	226	225	0.4
May	161	159	1.3	155	162	-4.3	153	154	-0.6
June	119	121	-1.7	124	127	-2.4	119	119	0.0
July	111	110	0.9	125	126	-0.8	127	125	1.6
August	110	110	0.0	119	118	0.8	114	113	0.9
September	113	113	0.0	124	124	0.0	124	121	2.5
October	149	152	-2.0	153	155	-1.3	169	163	3.7
November	225	231	-2.6	230	229	0.4	261	256	2.0
December	389	391	-0.5	339	338	0.3	357	350	2.0

See footnotes at end of table.

**Table FE3. Initial Estimates and Revisions for Monthly Natural Gas Consumption
in the United States, 1989-1993**
(Volumes in Billion Cubic Feet) -- Continued

Month	1992			1993		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Lease and Plant Fuel						
January	111	104	6.7	104	102	2.0
February	104	92	13.0	92	92	0.0
March	108	97	11.3	98	101	-3.0
April	103	95	8.4	95	96	-1.0
May	104	97	7.2	98	98	0.0
June	100	95	5.3	97	94	3.2
July	103	98	5.1	98	96	2.1
August	97	95	2.1	95	97	-2.1
September	93	94	-1.1	96	95	1.1
October	100	101	-1.0	103	101	2.0
November	101	99	2.0	101	102	-1.0
December	101	104	-2.9	106	107	-0.9
Pipeline Fuel						
January	78	68	14.7	80	72	11.1
February	72	62	16.1	75	68	10.3
March	69	58	19.0	74	67	10.4
April	60	51	17.6	59	52	13.5
May	51	42	21.4	45	39	15.4
June	45	37	21.6	45	39	15.4
July	47	39	20.5	40	41	-2.4
August	45	37	21.6	42	42	0.0
September	45	37	21.6	40	39	2.6
October	49	41	19.5	44	45	-2.2
November	60	50	20.0	52	55	-5.5
December	75	64	17.2	64	66	-3.0
Delivered to Consumers						
Residential						
January	781	786	-0.6	829	831	-0.2
February	696	696	0.0	763	768	-0.7
March	579	574	0.9	702	703	-0.1
April	432	431	0.2	454	450	0.9
May	252	251	0.4	230	232	-0.9
June	163	162	0.6	163	164	-0.6
July	132	132	0.0	130	130	0.0
August	126	126	0.0	120	120	0.0
September	137	137	0.0	142	142	0.0
October	241	241	0.0	252	255	-1.2
November	444	437	1.6	455	457	-0.4
December	719	717	0.3	703	705	-0.3
Commercial						
January	409	410	-0.2	418	416	0.5
February	372	366	1.6	404	403	0.2
March	317	315	0.6	372	371	0.3
April	251	250	0.4	259	254	2.0
May	168	170	-1.2	153	152	0.7
June	123	125	-1.6	126	123	2.4
July	122	122	0.0	123	119	3.4
August	121	121	0.0	115	111	3.6
September	120	121	-0.8	123	120	2.5
October	164	166	-1.2	172	169	1.8
November	258	256	0.8	264	260	1.5
December	374	381	-1.8	367	362	1.4

See footnotes at end of table.

Table FE3. Initial Estimates and Revisions for Monthly Natural Gas Consumption in the United States, 1989-1993
(Volumes in Billion Cubic Feet) -- Continued

Month	1989			1990			1991		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Industrial									
January	587	598	-1.8	611	614	-0.5	694	672	3.3
February	564	570	-1.1	576	564	2.1	616	591	4.2
March	598	602	-0.7	605	587	3.1	635	607	4.6
April	550	563	-2.3	620	603	2.8	635	586	8.4
May	557	544	2.4	610	577	5.7	558	571	-2.3
June	539	530	1.7	535	544	-1.7	532	546	-2.6
July	535	525	1.9	554	536	3.4	566	572	-1.0
August	540	539	0.2	586	557	5.2	597	586	1.9
September	534	532	0.4	584	556	5.0	593	582	1.9
October	518	568	-8.8	638	604	5.6	630	626	0.6
November	602	603	-0.2	617	596	3.5	642	627	2.4
December	656	643	2.0	653	631	3.5	676	665	1.7
Electric Utility									
January	146	147	-0.7	144	146	-1.4	171	173	-1.2
February	171	172	-0.6	131	132	-0.8	146	146	0.0
March	209	211	-0.9	182	184	-1.1	192	193	-0.5
April	233	235	-0.9	197	199	-1.0	215	216	-0.5
May	249	251	-0.8	239	244	-2.0	249	249	0.0
June	259	260	-0.4	295	297	-0.7	260	260	0.0
July	317	320	-0.9	325	326	-0.3	330	330	0.0
August	306	310	-1.3	346	342	1.2	326	328	-0.6
September	274	268	2.2	300	301	-0.3	262	263	-0.4
October	248	254	-2.4	256	256	0.0	263	263	0.0
November	187	189	-1.1	185	185	0.0	197	198	-0.5
December	170	171	-0.6	175	175	0.0	170	170	0.0

See footnotes at end of table.

to annually reported marketed production was not properly updated in the estimation procedures for 1989 and 1990. The ratio was recalculated for estimating 1991 extraction loss data, and the percentage differences between initial and final values in 1991 are smaller than those shown in 1989 and 1990.

In 1992, the estimates for extraction loss improved in the latter months of the year. The ratio used to make the estimates in these months was updated because the annual data used to calculate it became available. The updated ratio reflected changes in the industry. (The ratio of extraction loss to marketed production was 4.5 percent in 1991 and 4.7 percent in 1992.) The differences between initial and final extraction loss estimates in 1993 were generally small.

Storage Withdrawals and Additions

For 1989 and 1990, monthly natural gas storage information was reported on the identical EIA and Federal Energy Regulatory Commission (FERC) monthly Forms EIA-191 and FERC Form 8, "Underground Gas

Storage Report." Interstate natural gas pipelines with storage facilities reported on the FERC Form 8. All other storage operators reported on the Form EIA-191. The annual total of monthly storage volumes reported on the Form EIA-191 is compared with the annual storage volume reported on the Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," and all differences are resolved with the respondents.

The Form EIA-191 was revised for the reporting of 1991 data. Beginning in that year, all storage operators, including interstate pipeline storage operators, file the revised form. The new form collects storage data by State, county, and storage field. Data from FERC Form 8 are no longer used.

Differences between final and initial reported storage volume data are primarily caused by two factors. First, the monthly storage volumes are taken from reports for underground facilities only, whereas the annual storage volume data also include reports for liquefied natural gas (LNG) facilities. Second, and more importantly, monthly respondents frequently estimate

Table FE3. Initial Estimates and Revisions for Monthly Natural Gas Consumption in the United States, 1989-1993
(Volumes in Billion Cubic Feet) -- Continued

Month	1992			1993		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Industrial						
January	690	701	-1.6	670	708	-5.4
February	634	644	-1.6	645	681	-5.3
March	673	674	-0.1	669	710	-5.8
April	636	628	1.3	624	659	-5.3
May	627	620	1.1	575	614	-6.4
June	587	578	1.6	582	618	-5.8
July	599	587	2.0	618	631	-2.1
August	591	582	1.5	612	641	-4.5
September	613	586	4.6	675	627	7.7
October	635	608	4.4	653	689	-5.2
November	661	641	3.1	644	689	-6.5
December	693	677	2.4	721	719	0.3
Electric Utility						
January	169	169	0.0	164	164	0.0
February	170	170	0.0	162	162	0.0
March	208	208	0.0	194	194	0.0
April	229	229	0.0	174	174	0.0
May	236	236	0.0	167	167	0.0
June	266	266	0.0	255	255	0.0
July	333	334	-0.3	333	334	-0.3
August	302	303	-0.3	357	357	0.0
September	274	274	0.0	258	258	0.0
October	213	213	0.0	233	235	-0.9
November	189	189	0.0	208	208	0.0
December	176	176	0.0	174	174	0.0

^a The percent change is the initial value minus the final value, divided by the final value.

Note: The monthly volumes may not sum to total volume because the initial estimates in the early months of the year may have been revised before the annual total is first published.

Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

the volumes they report and sometimes revise them later. Thus, differences in storage volume data are primarily due to revisions by respondents. These data are published as reported by the respondents without any statistical estimation or adjustment by the EIA.

Storage withdrawals and additions best illustrate the heating season requirements that characterize the natural gas industry. During the heating season, November through March, the monthly withdrawals are large and can climb to more than 400 billion cubic feet. In the off-season, they usually drop to less than 100 billion cubic feet. Correspondingly, monthly additions are highest from April through October. Revisions to off-season withdrawals (summer months) and off-season additions (winter months) generally tend to be small volume amounts that result in large percentage differences.

For 1989, the percentage differences for withdrawals during the winter months ranged from a negative 14 percent in March to a negative 7 percent in January. Large percentage differences occurred in April and

May of 1990. In the other months of that year, the percentage differences were no larger than negative 8 percent.

In 1989, all percentage differences for storage additions were negative and ranged from negative 15 percent to negative 3 percent. Except for the month of February, at 20 percent, the percentage differences in 1990 ranged from negative 7 percent to positive 4 percent.

Because of the revision of the form, the filings on the EIA-191 were delayed during the early months of 1991. Data initially published for storage withdrawals and injections were estimated by the EIA in January, February, March, and April. Some of the percentage differences between the initial estimates and final volumes were large for these months. For the remainder of the year, the initial volumes were taken from the EIA-191 filings.

In 1992, differences in withdrawals in the winter months ranged from negative 9 percent in January to

**Table FE4. Initial Estimates and Revisions for Monthly Natural Gas Average Price
in the United States, 1989-1993**
(Prices in Dollars per Thousand Cubic Feet)

Month	1989			1990			1991		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Wellhead Price									
January	1.87	1.99	-6.0	2.13	2.23	-4.5	1.95	1.96	-0.5
February	1.88	1.81	3.9	1.87	1.85	1.1	1.57	1.62	-3.1
March	1.69	1.69	0.0	1.67	1.55	7.7	1.46	1.49	-2.0
April	1.62	1.56	3.8	1.60	1.49	7.4	1.47	1.50	-2.0
May	1.66	1.61	3.1	1.53	1.47	4.1	1.42	1.48	-4.1
June	1.62	1.65	-1.8	1.53	1.48	3.4	1.31	1.43	-8.4
July	1.63	1.65	-1.2	1.50	1.49	0.7	1.31	1.34	-2.2
August	1.63	1.61	1.2	1.54	1.51	2.0	1.37	1.43	-4.2
September	1.63	1.55	5.2	1.59	1.56	1.9	1.50	1.59	-5.7
October	1.61	1.58	1.9	1.80	1.76	2.3	1.73	1.82	-4.9
November	1.72	1.66	3.6	2.00	1.94	3.1	1.83	1.89	-3.2
December	1.91	1.92	-0.5	2.05	2.04	0.5	1.93	2.00	-3.5
City Gate Price									
January	3.13	3.17	-1.3	3.25	3.25	0.0	3.08	3.08	0.0
February	3.06	3.10	-1.3	3.12	3.10	0.6	2.94	2.94	0.0
March	2.88	2.89	-0.3	2.95	2.95	0.0	2.78	2.78	0.0
April	2.81	2.83	-0.7	2.84	2.84	0.0	2.75	2.74	0.4
May	2.93	2.94	-0.3	2.81	2.81	0.0	2.77	2.76	0.4
June	2.97	2.98	-0.3	3.00	3.00	0.0	2.86	2.86	0.0
July	3.08	3.08	0.0	3.03	3.03	0.0	2.76	2.74	0.7
August	3.04	3.04	0.0	2.91	2.91	0.0	2.80	2.78	0.7
September	2.99	2.99	0.0	2.92	2.92	0.0	2.91	2.91	0.0
October	2.84	2.84	0.0	2.81	2.81	0.0	3.09	2.92	5.8
November	2.97	2.98	-0.3	3.14	3.14	0.0	2.92	2.92	0.0
December	3.09	3.10	-0.3	3.19	3.19	0.0	3.06	3.05	0.3
Delivered to Consumers									
Residential Price									
January	5.42	5.41	0.2	5.41	5.43	-0.4	5.49	5.54	-0.9
February	5.39	5.38	0.2	5.61	5.65	-0.7	5.55	5.56	-0.2
March	5.44	5.45	-0.2	5.58	5.60	-0.4	5.60	5.60	0.0
April	5.53	5.54	-0.2	5.62	5.64	-0.4	5.88	5.90	-0.3
May	5.91	5.93	-0.3	5.97	6.00	-0.5	6.28	6.28	0.0
June	6.52	6.58	-0.9	6.55	6.56	-0.2	6.94	6.97	-0.4
July	6.90	6.92	-0.3	6.99	7.04	-0.7	7.23	7.23	0.0
August	7.06	7.07	-0.1	7.04	7.08	-0.6	7.35	7.36	-0.1
September	6.81	6.80	0.1	6.81	6.90	-1.3	6.92	6.92	0.0
October	6.09	6.06	0.5	6.09	6.14	-0.8	6.15	6.20	-0.8
November	5.56	5.56	0.0	5.65	5.69	-0.7	5.51	5.51	0.0
December	5.30	5.30	0.0	5.59	5.62	-0.5	5.51	5.51	0.0
Commercial Price									
January	4.87	4.81	1.2	4.99	4.97	0.4	4.91	4.94	-0.6
February	4.86	4.80	1.3	5.04	5.05	-0.2	4.97	4.94	0.6
March	4.83	4.79	0.8	4.94	4.92	0.4	4.93	4.89	0.8
April	4.85	4.77	1.7	4.84	4.82	0.4	4.89	4.87	0.4
May	4.71	4.64	1.5	4.65	4.63	0.4	4.71	4.65	1.3
June	4.65	4.57	1.8	4.59	4.56	0.7	4.79	4.80	-0.2
July	4.70	4.65	1.1	4.46	4.45	0.2	4.49	4.50	-0.2
August	4.65	4.61	0.9	4.55	4.55	0.0	4.83	4.73	2.1
September	4.71	4.67	0.9	4.57	4.55	0.4	5.03	4.57	10.1
October	4.65	4.61	0.9	4.66	4.66	0.0	4.83	4.58	5.5
November	4.75	4.71	0.8	4.80	4.81	-0.2	4.85	4.71	3.0
December	4.86	4.81	1.0	4.92	4.92	0.0	5.09	4.84	5.2

See footnotes at end of table.

Table FE4. Initial Estimates and Revisions for Monthly Natural Gas Average Price in the United States, 1989-1993
(Prices in Dollars per Thousand Cubic Feet) -- Continued

Month	1992			1993		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Wellhead Price						
January	1.69	1.74	-2.9	2.08	1.95	6.7
February	1.35	1.26	7.1	1.95	1.76	10.8
March	1.42	1.35	5.2	2.05	1.94	5.7
April	1.46	1.42	2.8	2.10	2.09	0.5
May	1.55	1.51	2.6	2.02	2.35	-14.0
June	1.60	1.62	-1.2	2.12	1.91	11.0
July	1.77	1.55	14.2	1.99	1.94	2.6
August	1.84	1.84	0.0	2.07	2.04	1.5
September	2.10	1.92	9.4	2.00	2.19	-8.7
October	2.25	2.38	-5.5	1.99	1.96	1.5
November	2.33	2.13	9.4	2.06	1.96	5.1
December	2.20	2.07	6.3	1.95	2.24	-12.9
City Gate Price						
January	2.93	2.90	1.0	3.10	3.11	-0.3
February	2.75	2.70	1.9	3.00	2.94	2.0
March	2.61	2.61	0.0	3.06	3.06	0.0
April	2.74	2.74	0.0	3.24	3.24	0.0
May	2.90	2.90	0.0	3.57	3.58	-0.3
June	3.00	3.00	0.0	3.37	3.44	-2.0
July	2.99	3.01	-0.7	3.34	3.34	0.0
August	3.15	3.18	-0.9	3.35	3.35	0.0
September	3.26	3.23	0.9	3.52	3.54	-0.6
October	3.49	3.50	-0.3	3.15	3.15	0.0
November	3.28	3.33	-1.5	3.14	3.15	-0.3
December	3.16	3.17	-0.3	3.23	3.27	-1.2
Delivered to Consumers						
Residential Price						
January	5.52	5.53	-0.2	5.71	5.73	-0.3
February	5.53	5.54	-0.2	5.71	5.73	-0.3
March	5.48	5.50	-0.4	5.67	5.67	0.0
April	5.61	5.62	-0.2	5.98	6.02	-0.7
May	6.14	6.15	-0.2	6.70	6.78	-1.2
June	6.81	6.84	-0.4	7.29	7.37	-1.1
July	7.23	7.27	-0.6	7.83	7.85	-0.3
August	7.39	7.45	-0.8	8.10	8.13	-0.4
September	7.12	7.15	-0.4	7.74	7.75	-0.1
October	6.46	6.52	-0.9	6.75	6.79	-0.6
November	5.98	6.02	-0.7	6.16	6.17	-0.2
December	5.71	5.74	-0.5	6.07	6.06	0.2
Commercial Price						
January	5.16	4.85	6.4	5.17	5.23	-1.1
February	5.04	5.03	0.2	5.08	5.14	-1.2
March	4.77	4.77	0.0	5.06	5.10	-0.8
April	4.80	4.77	0.6	5.11	5.19	-1.5
May	4.59	4.59	0.0	5.20	5.31	-2.1
June	4.72	4.72	0.0	5.29	5.40	-2.0
July	4.63	4.64	-0.2	5.03	5.14	-2.1
August	4.72	4.73	-0.2	5.26	5.34	-1.5
September	4.69	4.69	0.0	5.26	5.35	-1.7
October	4.90	4.90	0.0	5.12	5.18	-1.2
November	5.15	5.12	0.6	5.13	5.21	-1.5
December	5.11	5.11	0.0	5.26	5.33	-1.3

See footnotes at end of table.

Table FE4. Initial Estimates and Revisions for Monthly Natural Gas Average Price in the United States, 1989-1993
(Prices in Dollars per Thousand Cubic Feet) -- Continued

Month	1989			1990			1991		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Industrial Price									
January	3.36	3.37	-0.3	3.47	3.53	-1.7	3.23	3.25	-0.6
February	3.27	3.31	-1.2	3.34	3.41	-2.1	3.03	2.97	2.0
March	3.10	3.10	0.0	3.02	3.08	-1.9	2.79	2.75	1.5
April	2.89	2.89	0.0	2.78	2.85	-2.5	2.55	2.68	-4.9
May	2.76	2.78	-0.7	2.65	2.68	-1.1	2.38	2.40	-0.8
June	2.69	2.67	0.7	2.55	2.58	-1.2	2.33	2.34	-0.4
July	2.62	2.68	-2.2	2.47	2.50	-1.2	2.28	2.23	2.2
August	2.67	2.69	-0.7	2.52	2.52	0.0	2.31	2.29	0.9
September	2.60	2.66	-2.3	2.59	2.60	-0.4	2.45	2.40	2.1
October	2.72	2.74	-0.7	2.68	2.69	-0.4	2.69	2.69	0.0
November	2.90	2.96	-2.0	3.04	3.02	0.7	2.77	2.84	-2.5
December	3.27	3.31	-1.2	3.25	3.25	0.0	3.03	3.09	-1.9
Electric Utility Price									
January	2.64	2.63	0.4	3.01	3.00	0.3	2.71	2.70	0.4
February	2.44	2.44	0.0	2.76	2.76	0.0	2.35	2.35	0.0
March	2.32	2.32	0.0	2.37	2.37	0.0	2.21	2.21	0.0
April	2.31	2.31	0.0	2.29	2.28	0.4	2.10	2.10	0.0
May	2.39	2.39	0.0	2.19	2.18	0.5	2.01	2.01	0.0
June	2.40	2.40	0.0	2.16	2.16	0.0	1.94	1.94	0.0
July	2.41	2.40	0.4	2.22	2.21	0.5	1.88	1.88	0.0
August	2.38	2.38	0.0	2.23	2.23	0.0	1.96	1.96	0.0
September	2.35	2.33	0.9	2.21	2.21	0.0	2.19	2.19	0.0
October	2.39	2.39	0.0	2.45	2.45	0.0	2.35	2.35	0.0
November	2.56	2.56	0.0	2.79	2.79	0.0	2.43	2.43	0.0
December	2.85	2.85	0.0	2.89	2.89	0.0	2.65	2.64	0.4

See footnotes at end of table.

negative 5 percent in November. Except for February 1992 at 18 percent, all differences for additions in 1992 ranged from negative 7 percent to positive 7 percent. In 1993, differences in withdrawals in the winter months were negative 3 percent or less, and differences in additions in the summer months ranged from 12 percent in August to minus 6 percent in October.

Imports and Exports

Initial monthly exports of natural gas are estimated based on analysis of the industry and shipments of liquefied natural gas. Initial monthly import data are estimated by the same techniques plus data from the National Energy Board of Canada. From 1984 to 1992, pipeline imports of gas came only from Canada. Small amounts of gas were imported from Mexico from late 1993 through the first half of 1994.

Final monthly export and import data are reported on the Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas." Although this is an annual form, it requires the reporting of data by month. The final data are published every year in a feature article in the *Natural Gas Monthly* in July or August following the end of the reporting year. The feature article provides detailed information about natural gas imports and exports.

From October 1991 through February 1992, the percentage differences between initial imports estimates and final volumes were negative 18 percent or larger. This discrepancy reflected the unanticipated growth in Canadian imports at the end of the year, due to competitive prices for Canadian gas. The estimation methodology was adjusted to account for this growth.

Exports are the smallest component of disposition. Revisions to natural gas export data generally are small volume amounts that result in large percentage differences. In 1991, Mexico adopted new air pollution regulations which resulted in increased use of natural gas in that nation, and U.S. exports to Mexico rose markedly. That growth continued through 1992. In 1993, exports to Mexico fell as its economy slowed. The estimation methodology was adjusted to account for these changes.

Supplemental Gaseous Fuels

Monthly supplemental gaseous fuels are estimated from the sum of marketed production, net imports, and net withdrawals from storage. The ratio of supplemental gaseous fuels to the sum of these three components, as reported annually in the *Natural Gas Annual*, is applied to the monthly sum of these three components to

Table FE4. Initial Estimates and Revisions for Monthly Natural Gas Average Price in the United States, 1989-1993
(Prices in Dollars per Thousand Cubic Feet) -- Continued

Month	1992			1993		
	Initial Value	Final Value	Percent Change ^a	Initial Value	Final Value	Percent Change ^a
Industrial Price						
January	3.09	3.04	1.6	3.25	3.15	3.2
February	2.79	2.78	0.4	3.12	3.02	3.3
March	2.57	2.58	-0.4	3.09	2.98	3.7
April	2.49	2.54	-2.0	3.13	3.04	3.0
May	2.41	2.44	-1.2	3.24	3.14	3.2
June	2.51	2.53	-0.8	3.00	2.86	4.9
July	2.50	2.54	-1.6	2.71	2.62	3.4
August	2.67	2.71	-1.5	2.86	2.76	3.6
September	2.79	2.82	-1.1	3.03	2.95	2.7
October	3.17	3.21	-1.2	2.88	2.77	4.0
November	3.23	3.26	-0.9	3.09	3.02	2.3
December	3.34	3.38	-1.2	3.35	3.28	2.1
Electric Utility Price						
January	2.49	2.49	0.0	2.70	2.70	0.0
February	2.03	2.03	0.0	2.54	2.54	0.0
March	1.99	1.99	0.0	2.61	2.61	0.0
April	2.06	2.07	-0.5	2.75	2.75	0.0
May	2.11	2.11	0.0	2.90	2.90	0.0
June	2.18	2.18	0.0	2.48	2.48	0.0
July	2.15	2.13	0.9	2.45	2.45	0.0
August	2.42	2.42	0.0	2.60	2.60	0.0
September	2.51	2.51	0.0	2.69	2.69	0.0
October	3.04	3.04	0.0	2.45	2.45	0.0
November	2.87	2.87	0.0	2.59	2.59	0.0
December	2.81	2.81	0.0	2.76	2.76	0.0

^a The percent change is the initial value minus the final value, divided by the final value.

Note: The monthly volumes may not sum to total volume because the initial estimates in the early months of the year may have been revised before the annual total is first published.

Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

calculate part of the estimate. The final estimate is the sum of this calculation and the volume of gas from coal gasification obtained from the Great Plains coal gasification plant. When annual data become final, the monthly supplemental gaseous fuels data are adjusted and become final.

For 1989 and 1990, all adjustments from initial to final supplemental gaseous fuels data were downward, except for December of 1990 which was not adjusted. Although the percentage differences are large, the supplemental gaseous fuels data represent small volumes of gas, less than 1 percent of the total supply of natural gas.

The EIA reexamined the calculation of the ratio used to make part of the estimate and determined that it needed to be adjusted. The change was made for 1991, and the estimates improved. With the exception of the January 1992 volume, the final volumes in 1991, 1992, and 1993 required either no adjustment or an adjustment of 1 to 2 billion cubic feet from the initial reports.

Consumption in Prior Months

Consumption in prior months is estimated from reported data. The initial and final estimates for the data are shown in Table FE3. The percentage difference is calculated by taking the difference between the initial value and the final value, dividing it by the final value, and multiplying the result by 100.

Deliveries to consumers represent about 91 percent of total annual consumption. Lease and plant fuel data represent about 6 percent of total annual consumption and are initially estimated from monthly marketed production data. Pipeline fuel represents the smallest component of annual consumption, approximately 3 percent. It is initially estimated as a percent of total consumption. Monthly consumption numbers are revised to agree with data published in the *Natural Gas Annual* and shown in the issue of the *Natural Gas Monthly* published immediately after the annual report is released.

Deliveries to consumers in the residential, commercial, and industrial sectors are estimated from reports on the Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers," a sample survey of natural gas companies that deliver gas to consumers. The sample is drawn from the respondents to the annual Form EIA-176. The sample design and estimation procedures are described in detail in "Statistical Considerations," Appendix C of the *Natural Gas Monthly*. Briefly, the sample design is stratified so that within each State, all companies handling large amounts of gas respond to the survey, and a sample of companies handling small amounts of gas also respond. In some States where there are a small number of companies, all companies report, and the reported data are shown without any estimation adjustments.

Deliveries to electric utilities are reported on the Form EIA-759, "Monthly Power Plant Report." This survey requires all power plant operators to report; no sampling or estimation procedures are needed.

Deliveries to Consumers

The percentage differences between the final and initial monthly estimates for volumes of natural gas delivered to each of the consuming sectors are shown in Table FE3 and Figures FE3 through FE6.

Residential. Generally, the revisions to residential consumption estimates were very small. The percentage differences ranged from negative 1 percent to positive 4 percent in 1989 and from negative 1 percent to positive 3 percent in 1990. They varied by no more than plus or minus 1 percent in 1991, 1992, and 1993, except in November 1992 when the difference was 2 percent.

Commercial. For 1989, the monthly adjustments to commercial deliveries were all small, with percentage differences ranging from negative 3 percent to positive 1 percent. The largest difference in 1990 was a negative 4 percent in May, and in 1991 it was a positive 4 percent in October. For 1992 and 1993, differences ranged from negative 2 percent to positive 4 percent.

Industrial. For 1989, the percent changes to final industrial estimates were no larger than positive or negative 2 percent, except in October which showed a negative 9 percentage difference. A problem of misreporting was identified that month and subsequently corrected.

In nearly all months of 1990 the percentage differences between final and initial industrial estimates were larger than they were in the previous year. Problems of misunderstanding of reporting instructions by respondents were identified and addressed in 1990. As

a result of these efforts, the percentage differences between initial estimates and the final estimates in the last half of 1991 were smaller than in 1990. In April 1991 there was a positive 8 percent difference. A problem of misreporting was identified that month and subsequently corrected. Generally, the differences ranged from minus 2 percent to positive 5 percent in 1992 and from minus 7 percent to positive 8 percent in 1993.

Electric Utilities. As discussed above, data on consumption by electric utilities are taken from reports to the Form EIA-759, filed by the utilities, and no estimation procedures are needed. Usually these data are not revised, and if revisions are required they are nearly always very small. Over the 5-year period, these percentage differences were no larger than positive or negative 2 percent.

Lease and Plant Fuel.

Consumption of natural gas in lease operations and by natural gas-processing plants represents about 6 percent of total annual consumption. Monthly lease and plant fuel consumption is initially estimated from monthly marketed production. The annual ratio of lease and plant fuel consumption to marketed production, as published in the *Natural Gas Annual*, is applied to the monthly marketed production number to calculate an estimate. The ratio is calculated from the most recently available annual data. When annual data for lease and plant fuel become final, the monthly lease and plant fuel data are adjusted and become final.

Beginning in 1991, the final estimate of monthly lease and plant fuel data includes reported lease fuel data. Lease fuel data were reported for the first time in 1991 on the Form EIA-627. The respondents—energy, tax, or conservation agencies in the natural gas-producing States—provide a distribution by month of their annual lease fuel data. Plant fuel data are reported annually on the Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production," beginning in 1990. A monthly distribution is not reported for plant fuel. Annual plant fuel consumption is adjusted to the monthly distribution of the estimates. Previously, annual lease fuel consumption (prior to 1991) and plant fuel consumption (prior to 1990) were estimated from reports to the Form EIA-176, and the monthly numbers were adjusted to these estimates. See Appendix A, "Summary of Data Collection Operations and Report Methodology," of the *Natural Gas Annual* for a more detailed discussion of the reporting of lease and plant fuel data.

From 1989 to 1992, the percentage differences between initial and final volumes of lease and plant fuel consumption varied from negative 4 percent to positive 13

percent. During 1993 they ranged from negative 3 percent to positive 3 percent.

Pipeline Fuel

Pipeline fuel data are the smallest component of consumption, representing 3 percent of total consumption annually. To initially estimate monthly consumption of natural gas by pipelines, the most recent annual ratio of pipeline fuel consumption to total consumption, as published in the *Natural Gas Annual*, is applied to the monthly total consumption. When annual data for pipeline fuel become final, the revised annual ratio is calculated and is applied to each month's revised total consumption number to compute final monthly pipeline fuel consumption estimates.

The differences between initial and final pipeline fuel monthly estimates across the 5-year period were small volume amounts. The largest differences during the 5-year period occurred in August and October of 1991, the differences were positive 60 and 59 percent, respectively. A computation error on the initial value was discovered in those months and was subsequently corrected as evidenced in the final values.

Average Prices

The differences between initial and final average prices for natural gas are shown in Table FE4.

Wellhead Price

An initial estimate of the wellhead price is calculated based on the statistical relationships between U.S. monthly wellhead gas prices and the monthly composite spot wellhead prices published in the *Natural Gas Week*. The estimate is prepared using the same methodology that generates monthly price estimates for the EIA publication, *Short-Term Energy Outlook*. The initial estimate is the latest monthly estimate presented.

Initial wellhead prices are adjusted the following month based on the change in the production-weighted gas price from 4 States: Mississippi, New Mexico, Oklahoma, and Texas. See Appendix A, "Explanatory Notes," of the *Natural Gas Monthly* for further discussion of wellhead values.

Final monthly wellhead prices are calculated from reports to the Form EIA-627. (This survey is discussed above in the section on marketed production.) The wellhead value reported on the form is divided by the

associated marketed production volume to compute the average price. See Appendix A, "Summary of Data Collection Operations and Report Methodology," of the *Natural Gas Annual* for a more detailed discussion of the reporting of wellhead values and prices.

As stated previously, respondents to the Form EIA-627 reported only annual wellhead values from 1989 to 1993. The percentage distribution of the initial estimates for wellhead values across the 12 months was applied to the annual wellhead value to estimate monthly wellhead values. These estimates were then used to calculate final monthly price estimates. From 1989 to 1991, the percentage differences between initial and final wellhead prices ranged from 8 percent to negative 8 percent. The differences in some months of 1992 and 1993 were larger. Beginning with the collection of data for 1994, the State offices filing Form EIA-627 report actual monthly wellhead values.

City Gate Price

The city gate price is the price at the point or measuring station at which a gas distribution company receives gas from a pipeline company or transmission system. These prices are reported monthly on the sample survey Form EIA-857, described above in the section on consumption in prior months. City gate prices are not reported on an annual survey form. Annual prices are calculated by dividing the sum of the revenues for 12 months by the sum of the volumes for 12 months.

Across the 5-year period, the differences between initial and final city gate prices were no larger than positive or negative 2 percent, with one exception. The difference in October 1991 was 6 percent.

Residential, Commercial, and Industrial Prices

Revenues for deliveries to residential, commercial, and industrial consumers are also reported on the Form EIA-857 with their associated volume. Average prices are calculated by dividing total revenue by total volume. Monthly prices are revised to agree with data published in the *Natural Gas Annual* and shown in the issue of the *Natural Gas Monthly* published immediately after the annual report is released. Average prices for deliveries to consumers are calculated for onsystem sales only. Prices for gas delivered for the account of others are not available.

As the natural gas industry has moved toward open access, there has been an increase in the demand for the service of delivering gas for others. This type of arrangement means that someone other than the respon-

dent to the Form EIA-857 actually owns and sells the gas. For example, a consumer contracts directly with a gas well operator to purchase gas supplies, while a pipeline or local distribution company (the Form EIA-857 respondent) provides only the transmission service. The respondents to the Form EIA-857 do not know the price of the gas that they transport for others.

In 1993, 71 percent of the volume of gas delivered to industrials was delivered for the account of others. Thus the 1993 price data represent information for only 29 percent of deliveries to industrials. In the commercial sector, the 1993 price data represent information for 84 percent of deliveries.

In the residential, commercial and industrial sectors, when annual data become available, the percentage distribution across months for the reported revenue is applied to the annual revenue amount to estimate monthly revenue. An average price is then calculated using this revenue and the similarly estimated volume amounts.

Residential. Prices of gas delivered to residential consumers are the highest of all of the consuming sectors and generally show the smallest variation from year to year. Across the 5-year period, the percentage differences between initial and final residential prices were no larger than positive or negative 1 percent.

Commercial. Generally, the percentage differences between initial and final commercial prices were small. Across the 5-year period, the differences for the commercial sector were no larger than positive or negative 2 percent, except in the latter months of 1991 and January 1992. Larger differences occurred from September 1991 through January 1992, primarily due to

problems of misreporting in the State of California. Changes had been made to the State Law governing sales and transportation of natural gas. Because of corresponding changes in company records, respondents had a difficult time correctly compiling information for submission to EIA. After those difficulties were resolved, the reporting of commercial price improved.

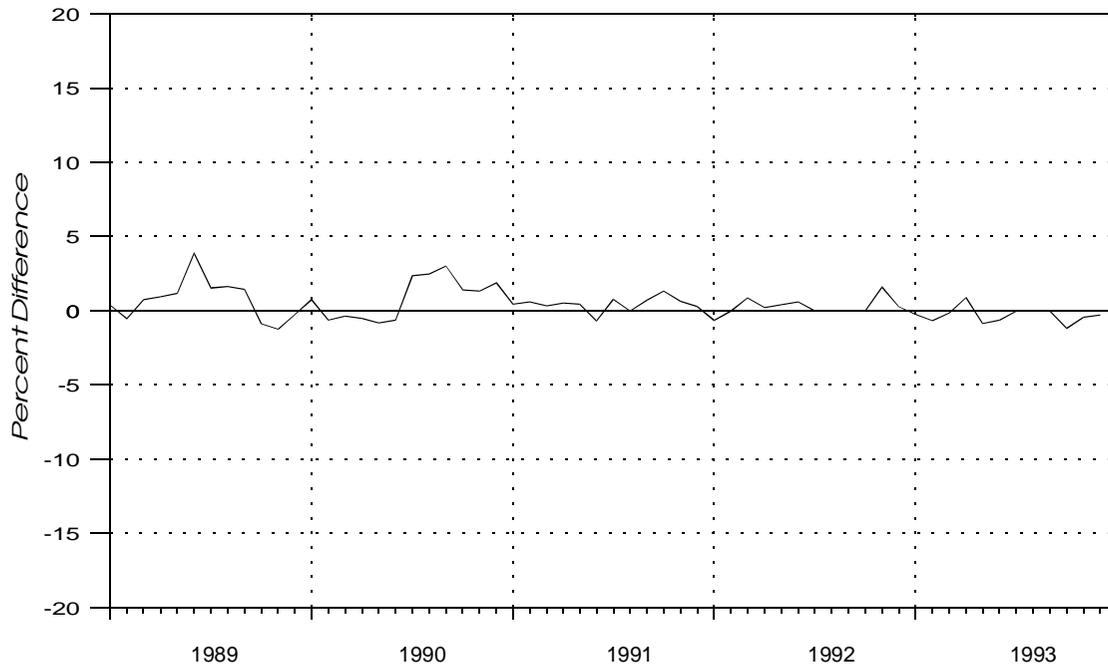
Industrial. As previously explained, the prices for deliveries to industrial consumers are only for onsystem sales of natural gas. The percent of deliveries to industrials represented by onsystem sales was 37 percent in 1989 and dropped to 29 percent by 1993. From 1989 to 1992 the percentage differences between initial and final prices for deliveries of gas to industrials were no larger than positive or negative 2 percent in nearly every month. In 1993 they were all positive differences and ranged from 2 percent to 5 percent.

Electric Utility Prices

Electric utility prices are taken from reports by the utilities on the Federal Energy Regulatory Commission (FERC) Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." Revenues are reported in cents per million Btu and converted to dollars per thousand cubic feet of natural gas. See the EIA annual report *Cost and Quality of Fuels for Electric Utility Plants* for more detailed information about prices of natural gas delivered to electric utilities.

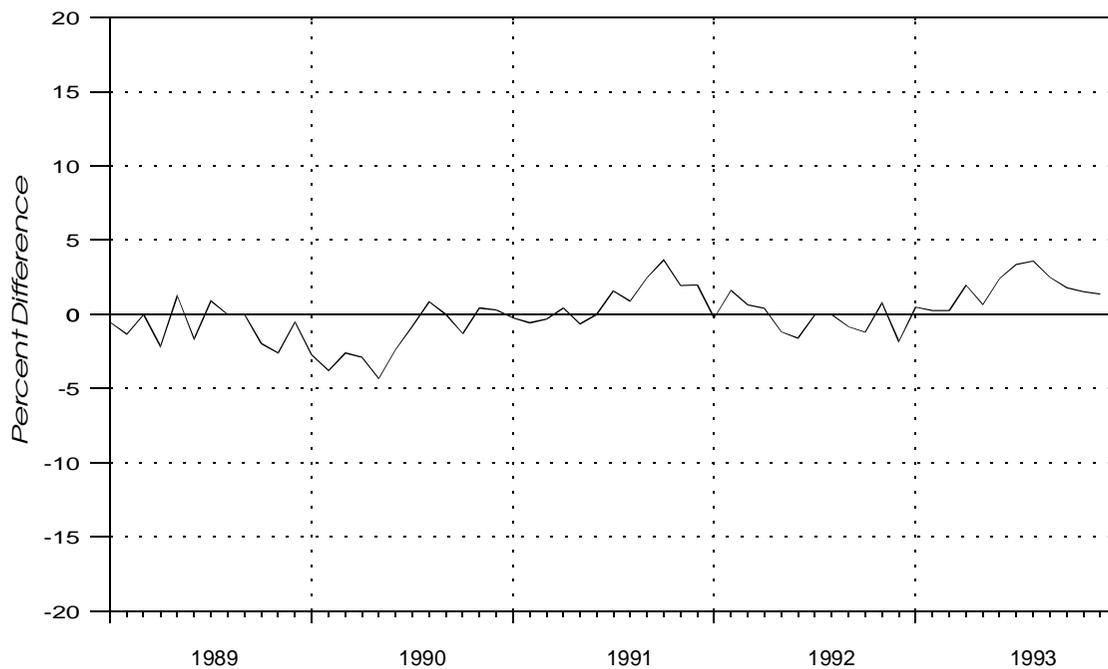
Prices for deliveries to electric utilities are reported on the FERC Form-423. All of the percentage differences from 1989 to 1993 were no larger than positive or negative 1 percent.

Figure FE3. Percent Difference Between Initial and Final Monthly Values for Natural Gas Delivered to Residential Consumers, 1989-1993



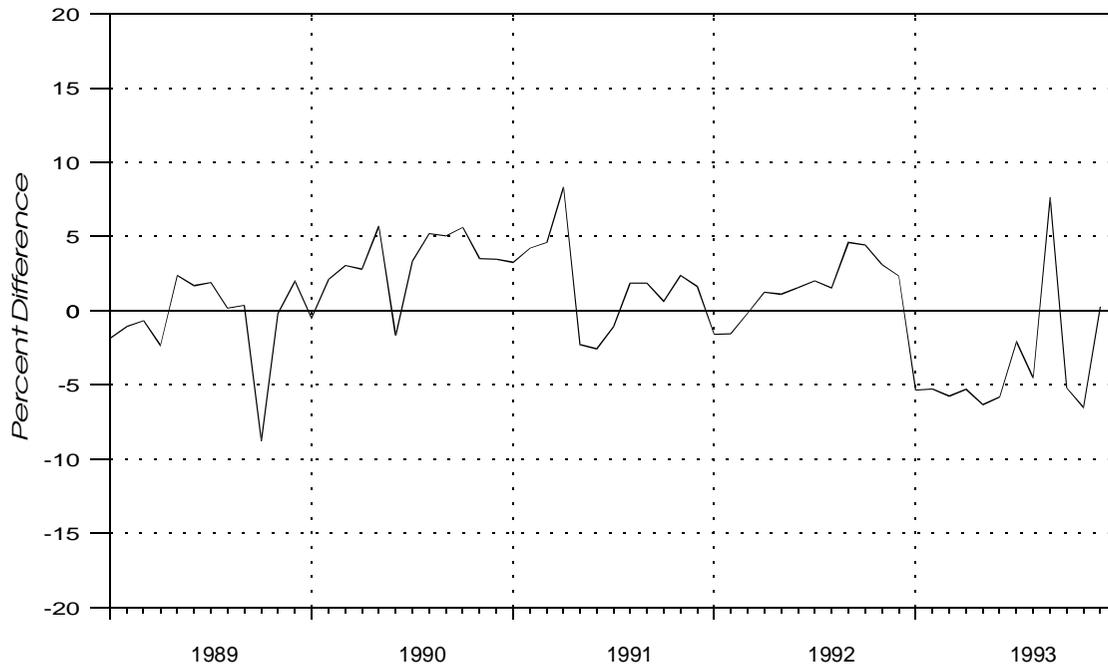
Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

Figure FE4. Percent Difference Between Initial and Final Monthly Values for Natural Gas Delivered to Commercial Consumers, 1989-1993



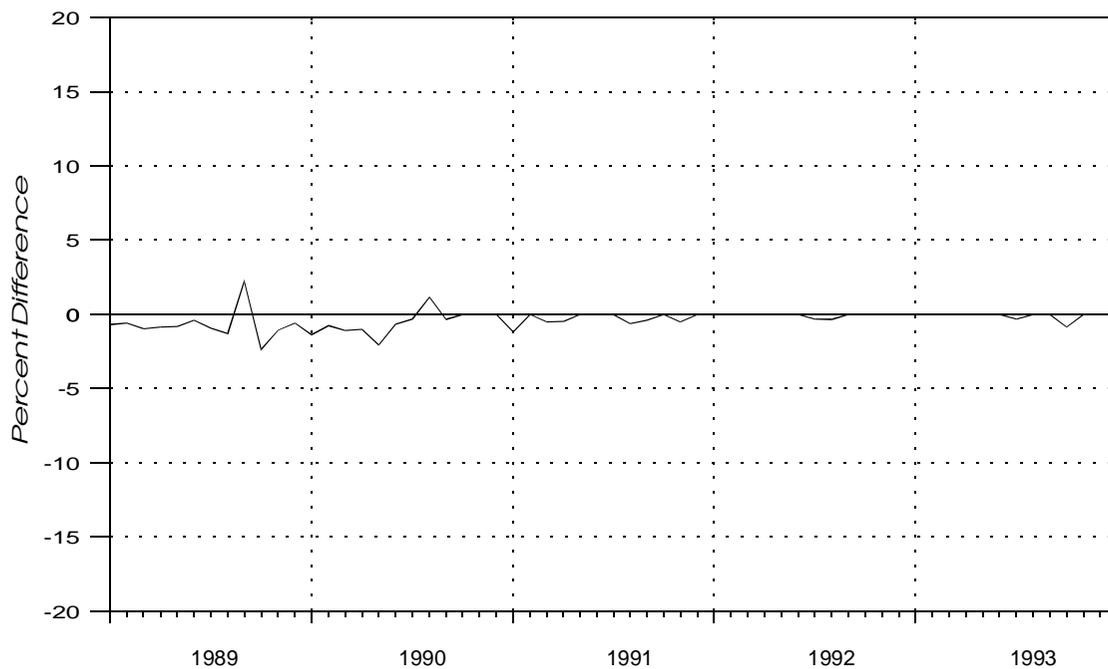
Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

Figure FE5. Percent Difference Between Initial and Final Monthly Values for Natural Gas Delivered to Industrial Consumers, 1989-1993



Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.

Figure FE6. Percent Difference Between Initial and Final Monthly Values for Natural Gas Delivered to Electric Utility Consumers, 1989-1993



Source: Energy Information Administration, *Natural Gas Monthly*, 1989 through 1993.