Winter Fuels Report

**Week Ending:
November 2, 1990**

**Energy Information Administration
Office of Oil and Gas
U.S. Department of Energy
Washington, DC 20585**

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Preface

The *Winter Fuels Report* is intended to provide concise, timely information to the industry, the press, policymakers, consumers, analysts, and State and local governments on the following topics:

- distillate fuel oil net production, imports and stocks for all PADD's and product supplied on a U.S. level;
- propane net production, imports and stocks for Petroleum Administration for Defense Districts (PADD) I, II, and III;
- natural gas supply and disposition and underground storage for the United States and consumption for all PADD's;
- residential and wholesale pricing data for propane and heating oil for those States participating in the joint Energy Information Administration (EIA)/State Heating Oil and Propane Program;
- crude oil and petroleum price comparisons for the United States and selected cities; and
- U.S. total heating degree-days by city.

The distillate fuel oil and propane supply data are collected and published weekly. The data are based on company submissions for the week ending 7:00 a.m. for the preceding Friday. Weekly data for distillate fuel oil are published in the *Weekly Petroleum Status Report*. Monthly data for distillate fuel oil and propane are published in the *Petroleum Supply Monthly*.

The residential pricing information is collected by the EIA and the State Energy Offices on a semimonthly basis for the EIA/State Heating Oil and Propane Program. The wholesale price comparison data are collected daily and will be published weekly. Residential heating fuel prices are derived from price quotes for home delivery of No.2 fuel oil and propane. As such, they reflect prices in effect on the dates shown. Wholesale heating oil and propane prices are estimates using a sample of terminal quotes to represent average State prices on the dates given. The Computer Petroleum Corporation, Inc., defines these prices to be "prices f.o.b. terminal, excluding taxes, discounts, and hauling allowances." Wholesale prices for 1989 and 1990 are taken from terminal postings as published in the publication, *U.S. Oil Week*. The crude oil and petroleum product prices are from various industries sources as referenced on each table.

The natural gas data are collected and published monthly in the *Natural Gas Monthly*.

This report will be published weekly by the EIA starting the first week in October 1990 and will continue until the first week in April 1991. The data will also be available electronically after 5:00 p.m. on Thursday during the heating season through the EIA Electronic Publication System (EPUB). See page ii for details.

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Feature Article

A refinery worker makes his way around a towering storage tank to check the tank level.

Natural Gas Outlook - Winter 1990-1991

The Energy Information Administration (EIA) currently projects total domestic consumption of natural gas at 11.1 trillion cubic feet for the winter of 1990-1991 (October 1990 through March 1991). This level of consumption represents a 4-percent increase over the winter of 1989-1990. The EIA anticipates that increased needs at this level can be met without difficulty. Approximately 9.1 trillion cubic feet will be provided from domestic production, while the remainder will come from imports, withdrawals from storage, and supplemental sources. This forecast is predicated on the assumptions of normal weather and a world oil price of \$30 per barrel.

Total dry gas production is expected to rise 2 percent to meet the anticipated winter demand. Based on preliminary findings from a natural gas productive capacity study for the Lower 48 States by EIA, the annual capacity utilization is estimated to be 71 percent in 1990 and 72 percent in 1991. While the annual production estimates can be met, it is likely that heavy storage withdrawals will be necessary to meet peak-day demand during extremely cold weather. Extreme cold snaps are not expected to cause the severe hardships that occurred in December 1989 because the producers are better prepared to cope with line and well "freeze-ups" due to hydrates. However, unforeseen events such as storms in the Gulf of Mexico, could cause temporary gas-well shut-ins.

Net natural gas imports are expected to rise 8 percent this winter from the 1989-1990 winter. Imports of natural gas reached their highest level ever in 1989, totaling 1.4 trillion cubic feet. Through the first 8 months of this year, estimated imports are 11 percent greater than in 1989. The great majority (97 percent) of this gas is delivered via pipeline from Canada. The remaining 3 percent, or 42 billion cubic feet, is delivered in the form of liquefied natural gas (LNG) from Algeria. The potential for growth in LNG imports is significant since only two of the four receiving terminals in the United States were operating in 1989; one only during December. Current indications are that the price of imported natural gas from Canada and LNG from Algeria should remain stable with only normal seasonal fluctuations.

Natural gas storage is crucial during winter months since it is the source used to meet the increased demand, particularly in the residential sector, brought on by cold weather. It is expected that the volume of working gas in the 397 underground storage facilities in the United States at the beginning of the 1990-1991 heating season will exceed last

year's record level of 3,268 billion cubic feet. As of August 31, 1990, working gas levels are 2 percent greater than at the same time last year.

During the record cold temperatures of December 1989, the natural gas industry was able to satisfy its commitments by relying on underground storage. Domestic production and imports were both slightly higher in December 1989 compared with December 1988; however, storage withdrawals were the highest on record, reaching 805 billion cubic feet. Despite some well freeze-up problems in the producing areas, high-priority residential customers in New England and the Mid-Atlantic States were not curtailed because the natural gas industry met the increased demand through traditional procedures, facilities, and contractual arrangements.

Last December, much attention was focused on the interruption of natural gas supplies to industrial and electric utility customers. Interruptible contracts for natural gas supplies are a typical way of conducting business in the natural gas industry and have been used for many years. They are an aid in managing load levels for pipeline and local distribution companies, and provide revenue for the companies in off-peak periods when the gas is not needed by weather-sensitive customers, such as residential users. Industrial and electric utility companies with fuel-switching capabilities typically contract for their gas supplies with interruptible provisions. In exchange for the favorable rates that interruptible contracts offer, these consumers may be interrupted by the pipeline or local distribution company when the higher priority residential and commercial customers require the supplies. Most of the fuel-switching capability for electric utilities and industrials is from natural gas to residual fuel oil. In practice, in some parts of the country customers with interruptible contracts are rarely interrupted, while elsewhere gas deliveries are cut off each year for extended periods of time.

Natural gas consumption during the winter of 1989-1990 was 10.7 trillion cubic feet, greater than that during comparable months in any of the 5 previous years. EIA's projection for the coming winter is higher by another 460 billion cubic feet, and represents an additional 4-percent increase. While EIA projects increased demand for natural gas in each of the four major consuming sectors, it is expected to occur mainly among industrial and electric utility customers. Higher residual fuel oil prices relative to natural gas will cause those companies having a choice to remain on natural gas.

Table FE 1. Disposition of Natural Gas: \$30 World Oil Price Case
(Trillion Cubic Feet)

Category	Winter of 1989-1990	Winter of 1990-1991	Volumetric Change	Percentage Change
Supply				
Total Dry Gas Production	8.95	9.13	.18	2.0
Net Imports	.73	.79	.06	8.2
Supplemental Gaseous Fuels	.07	.10	.03	42.9
Net Storage Withdrawals	1.39	1.45	.06	4.3
Total Supply	11.13	11.46	.33	3.0
Disposition				
Lease and Plant Fuel	.58	.58	0	0
Pipeline Fuel	.31	.34	.03	9.7
Residential	3.38	3.48	.10	3.0
Commercial	1.80	1.84	.04	2.2
Industrial	3.52	3.67	.15	4.3
Electric Utilities	1.07	1.24	.17	15.9
Total Consumption	10.68	11.14	.46	4.3
Unaccounted For	.46	.32	-.14	-30.4
Total Disposition	11.13	11.46	.33	3.0

Note: Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration, *Short-Term Energy Outlook*, October 1990, DOE/EIA-0202(90/4Q).

Highlights

Liquefied petroleum gases are stored in pressurized tanks while other products are stored in conventional tanks.

Highlights

Propane stocks as of the week-ending November 2, 1990, in the East Coast, Midwest, and Gulf Coast, which are the primary propane consuming areas, are estimated to be 52.2 million barrels (see Table H1). Since these regions normally hold about 97-98 percent of the U.S. propane stocks, the estimate for U.S. propane stocks as of November 2, 1990, is 54 million barrels. This level reflects a slight decrease over the level of last week, which is not unexpected for this time of year, and puts inventories about 250 thousand barrels below the level for the end of October 1989. They are still significantly below the level of 61.8 million barrels at the end of October 1988.

Inventories in the East Coast showed little change this week and are now about 350 thousand barrels below last October's ending stocks. While inventories in the Midwest declined this week from last week, they are about 2.3 million barrels above last October. Stocks in the Gulf Coast, which is both the largest propane producing and consuming section of the country, decreased slightly from last week and are about 2.2 million barrels below last October's level.

While the propane inventory has been improving, there is still cause for concern should there be significant refinery problems or a severe cold snap. The EIA will continue to monitor the propane situation closely.

Table H1. Propane Stocks by Petroleum Administration for Defense Districts (PADD) I, II, and III
(Thousand Barrels)

PAD Districts	October 1989	November 1989	Week Ending				
			10/05/90	10/12/90	10/19/90	10/26/90	11/02/90
East Coast (PADD I)	4,858	4,825	E3,691	E3,911	E4,516	E4,541	E4,500
Midwest (PADD II)	16,768	14,781	E21,002	E20,884	E20,443	E19,715	E19,103
Gulf Coast (PADD III)	30,833	27,311	E29,412	E28,777	E28,894	E29,099	E28,597
Total (PADD I-III)	52,459	46,917	E54,105	E53,572	E53,853	E53,355	E52,200

E= Estimated data.

Source: Energy Information Administration (EIA), Monthly Petroleum Supply Reporting System and Form EIA-807, "Propane Telephone Survey."

Distillate Fuel Oil

Overall view of a typical bulk terminal facility.

Table 1. Monthly and Weekly Net Production^a, Imports, and Stocks of Distillate Fuel Oil by Petroleum Administration for Defense District (PADD) and Product Supplied for the United States
(Thousand Barrels per Day, Except Where Noted)

District/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total U.S.												
Production												
1988	3,008	2,666	2,705	2,865	2,935	2,891	2,783	2,847	2,777	2,826	2,908	3,067
1989	2,974	2,797	2,713	2,789	2,750	2,809	2,848	2,907	2,952	2,906	3,063	3,266
1990	3,136	2,753	2,655	2,802	2,873	2,995	3,006	3,131				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	2,974	3,003	2,915	2,908	2,893	2,968	2,860	2,957	2,890			
Imports												
1988	424	383	247	210	253	222	222	279	307	336	327	409
1989	346	331	439	301	290	233	334	254	249	261	307	324
1990	501	357	280	308	207	257	229	292				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	233	329	184	264	139	83	258	279	265			
Stocks (Million Barrels)												
1988	128.1	110.3	89.8	95.0	104.9	110.4	120.0	125.7	131.5	128.2	128.8	123.5
1989	120.6	107.6	96.7	98.5	99.6	99.6	115.0	116.3	123.2	121.7	119.8	105.7
1990	117.9	112.2	99.7	99.5	102.8	109.4	125.3	131.1				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	134.4	136.0	138.0	136.9	134.0	136.6	137.0	138.5	137.9			
Product Supplied												
1988	3,558	3,557	3,539	2,864	2,795	2,854	2,640	2,873	2,821	3,218	3,183	3,560
1989	3,303	3,427	3,428	2,975	2,954	3,002	2,596	2,966	2,889	3,127	3,311	3,914
1990	3,177	3,250	3,265	3,059	2,897	2,949	2,693	3,184				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	2,451	3,029	2,728	3,297	3,415	2,644	3,038	2,963	3,198			
East Coast (PADD 1)												
Production												
1988	346	330	303	284	315	331	327	350	359	331	332	391
1989	401	344	321	284	309	338	368	385	370	387	389	448
1990	423	370	313	313	317	343	385	367				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	313	445	398	354	365	382	311	348	319			
Stocks (Million Barrels)												
1988	48.1	44.4	33.0	30.0	34.9	37.4	44.7	52.3	57.0	56.7	54.6	49.2
1989	46.6	37.2	33.3	33.2	33.1	35.7	44.6	48.4	50.2	51.7	49.7	35.1
1990	44.3	39.5	30.9	30.0	33.6	40.1	51.7	57.9				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	58.4	60.7	63.2	63.8	62.9	65.9	66.3	66.5	65.6			

See footnotes at end of table.

Table 1. Monthly and Weekly Net Production^a, Imports, and Stocks of Distillate Fuel Oil by Petroleum Administration for Defense District (PADD) and Product Supplied for the United States (Continued)
(Thousand Barrels per Day, Except Where Noted)

District/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
New England (PADD IX)												
Stocks (Million Barrels)												
1988	8.8	8.2	6.5	4.7	4.9	5.4	7.3	10.6	11.7	11.5	9.8	7.1
1989	8.6	5.8	5.4	4.7	4.6	4.5	8.2	8.8	9.2	9.4	7.7	4.4
1990	5.4	4.7	3.9	4.0	4.4	5.0	8.8	10.1				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	9.8	9.5	9.8	11.3	10.7	10.8	10.8	10.7	10.5			
Central Atlantic (PADD IV)												
Stocks (Million Barrels)												
1988	26.5	23.6	16.7	14.6	17.0	20.1	25.8	28.9	33.5	32.6	30.7	28.2
1989	25.9	20.3	17.4	18.2	18.0	21.0	24.3	28.6	28.4	30.0	28.4	19.4
1990	26.2	22.2	16.3	15.3	17.1	22.4	30.1	35.5				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	36.0	38.3	40.5	39.2	39.0	41.3	41.2	42.6	41.6			
Lower Atlantic (PADD IZ)												
Stocks (Million Barrels)												
1988	12.9	12.7	9.8	10.7	13.0	12.0	13.5	12.8	11.8	12.5	14.1	13.9
1989	14.0	11.2	10.6	10.4	10.5	10.1	12.0	11.0	12.6	12.3	13.6	11.4
1990	12.7	12.6	10.6	10.8	12.2	12.6	12.7	12.3				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	12.8	12.9	13.0	13.1	13.1	13.6	14.1	13.6	13.5			
Midwest (PADD II)												
Production												
1988	672	622	617	690	698	684	638	669	665	679	685	733
1989	713	687	661	658	625	677	662	670	698	650	710	797
1990	735	659	637	701	725	751	757	729				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	735	664	663	765	713	748	759	717	576			
Stocks (Million Barrels)												
1988	34.4	29.8	23.3	26.6	28.9	29.7	30.6	31.0	30.5	28.7	29.2	31.3
1989	32.7	31.3	27.2	27.4	27.2	27.0	28.8	29.0	31.1	28.7	28.9	30.7
1990	33.2	32.6	30.1	29.4	29.9	30.0	31.6	30.4				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	32.6	32.3	32.3	30.9	30.4	30.2	30.6	30.6	30.0			

See footnotes at end of table.

Table 1. Monthly and Weekly Net Production^a, Imports, and Stocks of Distillate Fuel Oil by Petroleum Administration for Defense District (PADD) and Product Supplied for the United States (Continued)
(Thousand Barrels per Day, Except Where Noted)

District ^a per	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gulf Coast (PADD III)												
Production												
1988	1,475	1,232	1,251	1,332	1,325	1,297	1,271	1,279	1,183	1,280	1,319	1,391
1989	1,324	1,257	1,240	1,291	1,268	1,227	1,227	1,278	1,309	1,305	1,401	1,444
1990	1,442	1,170	1,157	1,248	1,254	1,376	1,314	1,416				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	1,320	1,280	1,253	1,211	1,229	1,261	1,214	1,325	1,396			
Stocks (Million Barrels)												
1988	31.7	23.1	21.8	24.7	25.4	27.3	29.2	28.5	28.3	28.8	29.9	28.2
1989	27.7	26.2	22.3	23.9	25.3	23.9	27.7	26.1	28.5	27.6	27.0	25.0
1990	25.8	24.8	23.6	25.5	24.0	24.9	29.5	29.1				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	29.2	29.5	29.1	28.8	27.5	28.4	28.0	29.1	29.9			
Rocky Mountain (PADD IV)												
Production												
1988	108	104	114	120	130	132	120	125	124	111	121	117
1989	111	105	113	122	123	116	127	130	139	127	130	126
1990	112	124	116	122	132	129	136	137				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	133	139	129	123	127	129	117	133	137			
Stocks (Million Barrels)												
1988	3.3	3.2	2.3	2.4	2.9	3.2	3.2	3.0	2.7	2.5	2.7	2.8
1989	2.8	2.7	2.3	2.4	2.8	2.4	2.6	2.6	2.7	2.5	2.8	3.3
1990	3.2	3.2	2.7	2.7	2.9	3.1	3.1	2.5				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	2.6	2.7	2.5	2.5	2.3	2.3	2.2	2.4	2.8			
West Coast (PADD V)												
Production												
1988	407	377	419	439	466	449	427	425	446	424	451	436
1989	426	406	378	434	424	451	465	444	436	436	433	452
1990	425	431	432	419	446	396	414	483				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	473	475	472	455	459	448	460	423	461			
Stocks (Million Barrels)												
1988	10.6	9.7	9.5	11.3	12.8	12.7	12.3	10.9	12.3	11.6	12.4	12.0
1989	10.8	10.3	11.1	11.7	11.2	10.6	11.3	10.2	10.7	11.1	11.3	11.6
1990	11.5	12.2	12.3	11.9	12.4	11.3	10.4	11.2				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	11.7	10.9	11.0	11.0	10.8	9.9	9.9	9.9	9.8			

^a Net production equals gross production minus input. Negative production will occur when the amount of product produced during the month is less than the amount of that same product reprocessed (input) or reclassified to become another product during the same month.

Notes: • Totals may not equal sum of components due to independent rounding. • Sum of PADD's IX, IV, and IZ may not equal PADD I because of independent estimation.

Source: Energy Information Administration, Weekly and Monthly Petroleum Supply Reporting Systems.

Figure 1. U.S. Distillate Fuel Oil Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The National Petroleum Council (NPC) defines the Minimum Operating Inventory as the inventory level below which operating problems and shortages would begin to appear in a defined distribution system. In its 1988 study, the NPC estimated this inventory level for distillate fuel oil to be 85 million barrels.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on weekly data collected on Forms EIA-800, -801, and -802.

Figure 2. PADD I (East Coast) Distillate Fuel Oil Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for distillate fuel oil stocks in the last 36 month period was 30.0 million barrels, occurring in April 1988.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on weekly data collected on Forms EIA-800, -801, and -802.

Figure 3. PADD II (Midwest) Distillate Fuel Oil Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for distillate fuel oil stocks in the last 36 month period was 23.3 million barrels, occurring in March 1988.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on weekly data collected on Forms EIA-800, -801, and -802.

Figure 4. PADD III (Gulf Coast) Distillate Fuel Oil Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for distillate fuel oil stocks in the last 36 month period was 21.8 million barrels, occurring in March 1988.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on weekly data collected on Forms EIA-800, -801, and -802.

Figure 5. PADD IV (Rocky Mountain) Distillate Fuel Oil Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for distillate fuel oil stocks in the last 36 month period was 2.2 million barrels, occurring in March 1989.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on weekly data collected on Forms EIA-800, -801, and -802.

Figure 6. PADD V (West Coast) Distillate Fuel Oil Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The National Petroleum Council (NPC) defines the Minimum Operating Inventory as the inventory level below which operating problems and shortages would begin to appear in a defined distribution system. In its 1988 study, the NPC estimates this inventory level for distillate fuel oil to be 8 million barrels.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on weekly data collected on Forms EIA-800, -801, and -802.

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Propane

Spherical tanks are used to store liquefied petroleum gases under pressure.

Table 2. Monthly and Weekly Net Production^a, Imports, and Stocks of Propane^b by Petroleum Administration for Defense Districts (PADD) I, II, and III
(Thousand Barrels per Day, Except Where Noted)

District/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total U.S.												
Production												
1988	858	862	757	863	860	832	859	870	861	885	878	877
1989	909	862	887	895	887	858	871	847	845	826	847	814
1990	874	914	880	862	848	835	859	880				
Imports												
1988	126	138	89	88	79	77	126	120	107	104	112	106
1989	154	140	101	93	80	105	106	106	107	109	108	122
1990	172	147	117	115	135	100	90	110				
Stocks (Million Barrels)												
1988	36.7	31.1	30.0	38.3	46.0	52.2	58.7	63.6	63.1	61.8	59.2	50.4
1989	45.1	36.4	32.3	36.7	43.9	49.6	56.5	60.4	59.0	53.9	48.2	31.5
1990	33.0	32.2	31.1	31.7	35.6	44.0	48.9	52.9				
East Coast (PADD I)												
Production												
1988	55	58	57	47	46	50	54	54	57	57	57	56
1989	60	60	55	54	46	49	52	53	56	53	53	51
1990	59	55	44	46	39	36	40	48				
Week Ending 1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E53	E59	E46	E40	E37	E39			
Imports												
1988	22	48	24	19	18	5	28	17	19	13	29	29
1989	41	37	22	19	16	19	21	4	17	9	23	12
1990	64	49	40	28	31	25	20	4				
Week Ending 1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E4	E3	E21	E5	E7	E6			
Stocks (Million Barrels)												
1988	2.6	2.5	2.1	2.5	2.9	3.0	3.7	4.7	4.9	4.8	4.9	3.8
1989	3.9	2.9	2.3	2.6	3.0	4.0	4.9	4.8	4.9	4.9	4.8	1.8
1990	2.5	2.7	2.7	3.0	3.2	3.3	3.4	3.4				
Week Ending 1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E3.6	E3.7	E3.9	E4.5	E4.5	E4.5			

See footnotes at end of table.

Table 2. Monthly and Weekly Net Production^a, Imports, and Stocks of Propane^b by Petroleum Administration for Defense Districts (PADD) I, II, and III (Continued)
(Thousand Barrels per Day Except Where Noted)

District/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
New England (PADD 1X)												
Production												
1988	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0				
Week Ending												
1990	09/07 NA	09/14 NA	09/21 NA	09/28 E0	10/05 E0	10/12 E0	10/19 E0	10/26 E0	11/02 E0			
Imports												
1988	16	30	16	15	8	2	25	9	11	8	22	25
1989	27	27	17	15	8	17	14	1	10	5	18	6
1990	42	22	35	21	20	21	1	1				
Week Ending												
1990	09/07 NA	09/14 NA	09/21 NA	09/28 E**	10/05 E0	10/12 E2	10/19 E1	10/26 E3	11/02 E1			
Stocks (Million Barrels)												
1988	0.2	0.4	0.4	0.4	0.5	0.3	0.4	0.6	0.7	0.3	0.7	0.4
1989	0.4	0.2	0.3	0.4	0.2	0.6	0.7	0.4	0.3	0.1	0.3	*
1990	0.2	0.1	0.3	0.1	0.2	0.5	0.3	0.1				
Week Ending												
1990	09/07 NA	09/14 NA	09/21 NA	09/28 E0.2	10/05 E0.2	10/12 E0.1	10/19 E0.5	10/26 E0.4	11/02 E0.4			
Central Atlantic (PADD 1Y)												
Production												
1988	45	46	45	35	34	39	43	42	44	46	47	44
1989	46	46	42	41	36	40	41	40	43	39	40	39
1990	46	42	32	34	28	29	34	38				
Week Ending												
1990	09/07 NA	09/14 NA	09/21 NA	09/28 E46	10/05 E53	10/12 E39	10/19 E34	10/26 E32	11/02 E34			
Imports												
1988	5	10	7	4	3	3	3	3	3	4	5	5
1989	9	6	5	4	3	3	3	3	3	4	5	6
1990	10	23	4	7	5	4	19	3				
Week Ending												
1990	09/07 NA	09/14 NA	09/21 NA	09/28 E3	10/05 E3	10/12 E4	10/19 E4	10/26 E4	11/02 E5			
Stocks (Million Barrels)												
1988	1.7	1.3	0.8	1.0	1.4	1.8	2.2	2.8	3.0	3.2	2.9	2.4
1989	2.2	1.7	1.1	1.3	1.6	2.2	2.6	3.0	3.2	3.1	2.6	0.9
1990	1.2	1.7	1.2	1.2	1.4	1.6	1.6	1.9				
Week Ending												
1990	09/07 NA	09/14 NA	09/21 NA	09/28 E2.4	10/05 E2.5	10/12 E2.6	10/19 E2.7	10/26 E2.7	11/02 E2.7			

See footnotes at end of table.

Table 2. Monthly and Weekly Net Production^a, Imports, and Stocks of Propane^b by Petroleum Administration for Defense Districts (PADD) I, II, and III (Continued)
(Thousand Barrels per Day Except Where Noted)

District/Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lower Atlantic (PADD 1Z)												
Production												
1988	10	13	14	13	13	11	12	13	14	12	14	14
1989	14	14	13	14	9	9	12	12	13	14	13	12
1990	13	13	13	12	11	7	7	10				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E7	E6	E7	E7	E6	E6			
Imports												
1988	5	5	0	3	0	0	0	5	5	3	0	0
1989	4	4	0	0	5	0	4	0	4	0	0	0
1990	11	4	0	0	6	0	0	0				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E0	E0	E15	E0	E0	E0			
Stocks (Million Barrels)												
1988	0.6	0.8	0.9	1.0	1.0	1.0	1.2	1.2	1.3	1.3	1.4	1.0
1989	1.2	1.1	1.0	1.0	1.2	1.3	1.5	1.4	1.5	1.7	1.9	0.9
1990	1.1	0.9	1.1	1.7	1.5	1.3	1.5	1.3				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E0.9	E1.0	E1.1	E1.3	E1.4	E1.5			
Midwest (PADD II)												
Production												
1988	192	202	205	204	210	190	195	199	194	192	200	206
1989	214	205	200	204	200	203	202	194	191	179	193	197
1990	214	217	208	201	200	193	206	212				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E180	E186	E180	E176	E171	E174			
Imports												
1988	80	78	52	48	42	60	37	53	68	53	76	53
1989	103	84	70	60	49	68	43	55	62	73	75	86
1990	80	76	46	54	62	39	35	44				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E31	E29	E31	E28	E32	E44			
Stocks (Million Barrels)												
1988	14.1	11.4	10.9	13.3	15.8	18.0	20.4	22.9	22.9	21.4	21.1	17.4
1989	15.4	10.6	9.1	11.5	14.1	16.6	19.5	20.5	19.6	16.8	14.8	9.5
1990	11.4	10.6	10.7	11.4	13.6	16.1	18.0	18.4				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E21.5	E21.0	E20.9	E20.4	E19.7	E19.1			

See footnotes at end of table.

Table 2. Monthly and Weekly Net Production^a, Imports, and Stocks of Propane^b by Petroleum Administration for Defense Districts (PADD) I, II, and III (Continued)
(Thousand Barrels per Day Except Where Noted)

District/Year	Jan	Feb	Mar	Apr	May	Jun	Ju	Aug	Sep	Oct	Nov	Dec
Gulf Coast (PADD III)												
Production												
1988	512	503	501	518	512	496	513	520	512	533	522	508
1989	532	503	538	545	545	518	523	509	507	500	505	468
1990	497	537	527	521	520	520	526	525				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	RE486	RE550	RE540	RE557	RE535	E535			
Imports												
1988	10	0	5	16	13	6	57	46	15	30	0	11
1989	**	8	0	8	11	13	38	43	20	21	5	13
1990	19	17	8	29	38	32	32	58				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E0	E3	E3	E19	E3	E3			
Stocks (Million Barrels)												
1988	19.2	16.4	16.3	21.8	26.5	30.4	33.5	34.8	33.8	34.0	31.8	28.0
1989	25.1	22.3	20.2	21.7	25.7	27.9	30.8	33.6	33.0	30.8	27.3	19.1
1990	18.3	18.2	17.1	16.7	18.0	23.6	26.4	29.6				
Week Ending												
1990	09/07	09/14	09/21	09/28	10/05	10/12	10/19	10/26	11/02			
	NA	NA	NA	E29.5	E29.4	E28.8	E28.9	E29.1	E28.6			

^a Net production equals gross production minus input. Negative production will occur when the amount of product produced during the month is less than the amount of that same product reprocessed (input) or reclassified to become another product during the same month.

^b Includes propylene.

E=Estimated data. RE=Revised Estimated data.

* Less than 50,000 barrels. ** Less than 500 barrels per day.

NA=Not available.

Note: • This table presents weekly data, derived from a cut-off sample of refineries and fractionators that produce propane and from companies that import or store propane, which have been extrapolated to the universe of companies reporting in PADD's I, II, and III. • Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), Monthly Petroleum Supply Reporting System and data collected on Form EIA-807, "Propane Telephone Survey."

Figure 7. U.S. Propane Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for propane stocks in the last 36 month period was 30.0 million barrels, occurring in March 1988.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*.

Figure 8. PADD I (East Coast) Propane Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for propane stocks in the last 36 month period was 1.8 million barrels, occurring in December 1989.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on data collected on Form EIA-807, "Propane Telephone Survey."

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Figure 9. PADD II (Midwest) Propane Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for propane stocks in the last 36 month period was 9.1 million barrels, occurring in March 1989.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on data collected on Form EIA-807, "Propane Telephone Survey."

Figure 10. PADD III (Gulf Coast) Propane Stocks

¹ Average level and width of average range are based on 3 years of monthly data: July 1987-June 1990. The seasonal pattern is based on 7 years of monthly data.

² The Observed Minimum for propane stocks in the last 36 month period was 16.3 million barrels, occurring in March 1988.

Source: • Data for Ranges and Seasonal Patterns: 1983-1989, Energy Information Administration (EIA), *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Monthly Data: 1989, EIA, *Petroleum Supply Annual*; 1990, EIA, *Petroleum Supply Monthly*. • Week-Ending Stocks: Estimates based on data collected on Form EIA-807, "Propane Telephone Survey."

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Natural Gas

Pipelines carry natural gas across geographic regions.

Table 3. Supply and Disposition of Dry Natural Gas
(Billion Cubic Feet)

Year and Month	Supply				Total Supply/Disposition ^b	Disposition			
	Total Dry Gas Production	Withdrawals from Storage ^a	Supplemental Gaseous Fuels	Imports		Additions to Storage ^a	Exports	Consumption ^c	Unaccounted For ^d
1984 Total	17,392	2,098	110	843	20,443	2,295	55	17,951	143
1985 Total	16,382	2,397	126	950	19,855	2,163	55	17,281	356
1986 Total	15,991	1,837	113	750	18,692	1,984	61	16,221	427
1987 Total	16,536	1,905	101	953	19,534	1,911	54	17,211	359
1988									
January	1,581	586	12	139	2,318	47	5	2,187	79
February	1,439	462	11	117	2,029	50	5	2,038	-64
March	1,501	259	10	113	1,883	99	6	1,867	-99
April	1,374	92	8	96	1,570	165	6	1,464	-65
May	1,407	46	7	94	1,554	288	4	1,302	-40
June	1,338	36	7	93	1,474	280	8	1,170	16
July	1,355	42	7	100	1,504	300	5	1,177	22
August	1,374	52	7	94	1,527	288	6	1,222	11
September	1,297	46	6	95	1,444	314	7	1,099	24
October	1,409	92	8	106	1,615	202	6	1,232	175
November	1,436	159	9	121	1,725	117	7	1,453	148
December	1,513	397	11	127	2,048	62	9	1,820	157
Total	17,026	2,270	101	1,294	20,691	2,211	74	18,030	376
1989									
January	1,527	426	11	119	2,083	53	7	2,023	0
February	1,412	614	10	110	2,146	32	7	2,008	99
March	1,496	369	10	113	1,988	106	11	1,945	-74
April	1,426	138	8	110	1,682	184	11	1,580	-93
May	1,445	44	8	108	1,605	326	8	1,348	-77
June	1,386	20	7	104	1,517	381	9	1,200	-73
July	1,410	29	8	101	1,548	377	9	1,220	-58
August	1,397	29	8	108	1,542	362	9	1,216	-45
September	1,333	39	7	117	1,496	325	9	1,181	-19
October	1,405	96	9	123	1,633	225	10	1,337	61
November	1,459	227	9	123	1,818	105	8	1,567	138
December	1,563	821	12	145	2,541	52	8	2,156	325
Total	17,260	2,852	107	1,382	21,599	2,529	107	18,780	182
1990									
January	1,598	339	16	149	2,102	91	8	2,088	-85
February	1,422	324	14	118	1,878	70	8	1,784	16
March	1,495	256	14	115	1,880	124	10	1,749	-3
April	1,427	140	13	122	1,702	183	8	1,550	-39
May	1,452	45	11	108	1,616	289	8	1,358	-39
June	1,399	42	11	114	1,566	327	9	1,255	-25
July	^E 1,408	27	12	122	1,569	325	8	1,276	-43
August	^E 1,400	37	11	122	1,570	321	8	1,264	-23
1990 YTD	11,601	1,210	102	970	13,883	1,730	67	12,324	-241
1989 YTD	11,499	1,669	70	873	14,111	1,821	71	12,540	-321
1988 YTD	11,369	1,575	69	846	13,859	1,517	45	12,427	-130

^a Monthly and annual data for 1984 through 1989 include underground storage and liquefied natural gas storage. Data for January 1990 forward include underground storage only.

^b "Total" data for 1984 through 1989 do not equal equivalent data in Table 1 of the 1989, *Natural Gas Annual* due to the exclusion of intransit receipts and deliveries in the *Natural Gas Monthly*.

^c Consists of pipeline fuel use, lease and plant fuel use, and deliveries to consuming sectors.

^d Represents quantities lost and imbalances in data due to differences among data sources.

^E=Estimated data.

Notes: • Data for 1984 through 1989 are final. All other data are preliminary unless otherwise indicated. • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding. • Full explanations of all survey processing, estimation procedures, and computations are provided in the publications listed under "Sources."

Sources: Energy Information Administration (EIA), *Natural Gas Annual* and *Natural Gas Monthly*.

Table 4. Underground Natural Gas Storage (All Operators)
(Billion Cubic Feet)

Year and Month	Natural Gas In Underground Storage at End of Period			Change in Working Gas from Same Period Previous Year		Storage Activity		
	Base Gas	Working Gas	Total ^b	Volume	Percent	Injections	Withdrawals	Net ^c
1984 Total^a	3,830	2,876	6,706	281	10.8	2,252	2,064	188
1985 Total^a	3,842	2,607	6,448	-270	-9.4	2,128	2,359	-231
1986 Total^a	3,819	2,749	6,567	142	5.5	1,952	1,812	140
1987 Total^a	3,792	2,756	6,548	7	.3	1,887	1,881	6
1988								
January	3,792	2,228	6,020	-52	-2.3	47	578	-531
February	3,791	1,827	5,618	-161	-8.1	50	456	-406
March	3,790	1,682	5,473	-197	-10.5	99	255	-156
April	3,790	1,769	5,559	-169	-8.7	162	92	71
May	3,790	2,027	5,818	-179	-8.1	282	46	236
June	3,792	2,293	6,085	-144	-5.9	274	36	238
July	3,793	2,567	6,359	-69	-2.6	294	42	252
August	3,791	2,835	6,626	-1	--	282	52	230
September	3,791	3,120	6,911	71	2.3	308	46	262
October	3,792	3,243	7,035	137	4.4	198	92	105
November	3,803	3,171	6,974	112	3.7	117	157	-40
December	3,800	2,850	6,650	94	3.4	62	391	-329
Total	--	--	--	--	--	2,174	2,244	-69
1989								
January	3,798	2,509	6,307	281	12.6	53	418	-365
February	3,801	1,994	5,796	168	9.2	32	602	-570
March	3,801	1,776	5,578	94	5.6	106	362	-256
April	3,801	1,823	5,624	54	3.0	181	138	43
May	3,802	2,062	5,863	34	1.7	321	44	277
June	3,802	2,374	6,176	82	3.6	375	20	355
July	3,802	2,644	6,446	77	3.0	371	29	341
August	3,802	2,938	6,740	103	3.6	356	29	328
September	3,802	3,187	6,990	67	2.2	320	39	281
October	3,792	3,268	7,061	25	.8	221	96	124
November	3,809	3,199	7,008	28	.9	105	223	-118
December	3,812	2,513	6,325	-337	-11.8	52	805	-752
Total	--	--	--	--	--	2,493	2,804	-311
1990								
January	3,818	2,265	6,083	-243	-9.7	91	339	-248
February	3,814	2,013	5,827	19	.9	70	324	-253
March	3,818	1,878	5,695	101	5.7	124	256	-131
April	3,839	1,932	5,771	109	6.0	183	140	43
May	3,823	2,159	5,982	97	4.7	289	45	245
June	3,844	2,454	6,297	79	3.3	327	42	285
July	3,850	2,747	6,597	103	3.9	325	27	298
August	3,851	2,995	6,846	57	1.9	321	37	283

^a Total as of December 31.

^b Total underground storage capacity at the end of each calendar year (in billion cubic feet): 1984 - 8,043; 1985 - 8,087; 1986 - 8,145; 1987 and 1988 - 8,124; and 1989 - 8,124. Current total capacity is 8,125.

^c Positive numbers indicate the volume of injections in excess of withdrawals. Negative numbers indicate the volume of withdrawals in excess of injections. Notes: • Data for 1984 through 1989 are final. All other data are preliminary unless otherwise indicated. • Gas in storage at the end of a reporting period may not equal the quantity derived by adding or subtracting net injections or withdrawals during the period to the quantity of gas in storage at the beginning of the period. This is due to changes in the quantities of native gas included in base gas and/or losses in base gas due to migration from storage reservoirs. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia. • Full explanations of all survey processing, estimation procedures, and computations are provided in the publications listed under "Sources."

Sources: Energy Information Administration (EIA), Form EIA-191/FERC-8, "Underground Gas Storage Report," Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," *Natural Gas Annual*, and *Natural Gas Monthly*.

Figure 11. Underground Natural Gas Storage In the United States

Source: Energy Information Administration (EIA), Form EIA-191/FERC-8, "Underground Natural Gas Storage Report," and Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," *Natural Gas Annual*, and *Natural Gas Monthly*.

Table 5. Natural Gas Consumption by Petroleum Administration for Defense District (PADD)
(Billion Cubic Feet)

Year and Month	New England				Central Atlantic			
	Residential	Commercial	Industrial	Electric Utilities	Residential	Commercial	Industrial	Electric Utilities
1988								
January	28	13	5	0	156	72	47	7
February	27	12	5	0	145	68	46	11
March	24	12	5	0	124	59	46	13
April	18	9	5	1	84	41	40	15
May	12	7	5	2	56	29	39	23
June	7	4	5	6	30	18	35	31
July	5	4	4	4	24	16	33	36
August	4	4	5	5	22	17	34	37
September	5	4	5	1	24	16	34	17
October	8	5	6	1	46	26	38	10
November	15	9	6	1	80	47	41	7
December	22	11	5	0	117	57	42	3
Total	174	93	60	21	907	462	476	210
1989								
January	28	14	5	0	146	68	46	4
February	26	13	5	0	137	65	45	6
March	27	13	6	2	133	65	49	23
April	18	10	6	6	89	46	45	31
May	12	7	6	6	56	31	41	31
June	6	5	5	7	31	21	38	34
July	5	4	4	7	25	19	36	35
August	4	4	5	6	23	19	37	33
September	5	4	5	8	24	20	38	27
October	8	6	6	10	42	27	40	25
November	13	7	6	2	73	41	43	13
December	27	13	5	0	151	71	46	5
Total	180	100	65	54	931	493	506	268
1990								
January	31	14	5	0	151	67	43	6
February	24	12	5	1	120	56	43	9
March	22	11	6	1	111	53	44	21
April	18	9	8	6	85	43	42	22
May	11	6	6	9	47	26	37	21
June	7	4	6	5	31	22	35	27
July	5	4	6	9	24	21	35	34
1990 YTD	118	61	42	31	569	286	280	140
1989 YTD	124	66	39	28	617	315	301	165
1988 YTD	120	61	34	13	618	304	288	137

See footnotes at end of table.

Table 5. Natural Gas Consumption by Petroleum Administration for Defense District (PADD) (Continued)
(Billion Cubic Feet)

Year and Month	Lower Atlantic				PAD District I			
	Residential	Commercial	Industrial	Electric Utilities	Residential	Commercial	Industrial	Electric Utilities
1988								
January	50	30	34	11	234	115	86	18
February	48	29	38	9	220	110	89	20
March	39	24	42	12	186	96	93	25
April	22	17	39	15	124	67	84	30
May	13	12	40	17	81	48	85	42
June	8	10	39	20	45	33	80	57
July	7	9	37	21	36	29	74	61
August	6	10	40	21	32	30	78	64
September	7	10	38	16	36	30	77	34
October	14	13	41	8	69	44	84	19
November	24	17	39	5	118	67	85	13
December	40	25	37	7	179	93	84	10
Total	278	208	464	161	1,359	763	1,000	392
1989								
January	43	27	42	12	218	109	93	16
February	42	26	39	11	204	104	89	17
March	35	24	44	15	195	102	99	40
April	23	18	44	17	131	74	95	54
May	13	13	43	19	81	50	90	56
June	8	10	41	21	45	36	85	62
July	7	10	39	21	37	33	79	63
August	6	9	41	20	34	32	83	60
September	7	10	39	20	37	34	82	54
October	12	12	44	17	63	45	91	52
November	24	17	43	14	111	65	92	28
December	53	29	34	10	231	113	85	15
Total	275	205	493	196	1,386	799	1,064	518
1990								
January	51	30	43	12	233	111	92	18
February	33	23	40	13	177	90	88	22
March	29	21	43	15	164	85	93	37
April	21	18	40	16	123	70	90	44
May	11	12	42	18	69	44	85	48
June	8	10	39	17	46	36	81	49
July	7	10	43	22	36	34	84	64
1990 YTD	161	124	291	112	849	470	612	283
1989 YTD	171	128	291	115	911	509	631	309
1988 YTD	186	133	268	104	925	498	591	253

See footnotes at end of table.

Table 5. Natural Gas Consumption by Petroleum Administration for Defense District (PADD) (Continued)
(Billion Cubic Feet)

Year and Month	PAD District II				PAD District III			
	Residential	Commercial	Industrial	Electric Utilities	Residential	Commercial	Industrial	Electric Utilities
1988								
January	377	187	177	17	34	48	245	99
February	341	174	178	15	73	43	235	86
March	266	137	170	17	54	34	251	97
April	173	88	137	18	33	25	222	97
May	94	53	128	17	19	18	225	119
June	53	36	121	25	15	16	220	137
July	43	36	114	28	14	17	225	160
August	40	36	119	32	13	17	251	179
September	45	34	119	18	13	14	229	133
October	109	81	134	16	16	18	224	98
November	182	96	149	15	27	20	235	93
December	284	143	185	18	55	36	245	76
Total	2,005	1,081	1,709	234	416	305	2,807	1,373
1989								
January	318	157	171	17	86	40	254	74
February	329	162	171	17	72	41	246	92
March	286	144	172	17	60	37	250	103
April	180	90	150	20	33	26	249	107
May	105	54	135	23	19	19	244	132
June	54	34	123	21	15	17	249	122
July	45	32	120	27	14	19	254	150
August	42	33	120	26	13	17	258	156
September	54	34	121	19	14	15	249	121
October	105	56	139	17	18	17	255	111
November	193	99	155	16	32	23	279	86
December	371	176	178	19	75	41	295	99
Total	2,083	1,072	1,756	238	431	311	3,083	1,354
1990								
January	314	170	171	18	102	51	257	73
February	264	136	154	14	63	37	234	63
March	222	120	158	17	54	35	255	89
April	165	90	146	16	38	29	275	94
May	97	53	136	20	25	24	284	131
June	55	35	123	27	19	24	264	168
July	44	37	124	29	17	25	275	160
1990 YTD	1,160	641	1,011	140	318	225	1,844	778
1989 YTD	1,317	675	1,043	141	279	198	1,746	781
1988 YTD	1,345	711	1,024	136	292	201	1,622	795

See footnotes at end of table.

Table 5. Natural Gas Consumption by Petroleum Administration for Defense District (PADD) (Continued)
(Billion Cubic Feet)

Year and Month	PAD District IV				PAD District V			
	Residential	Commercial	Industrial	Electric Utilities	Residential	Commercial	Industrial	Electric Utilities
1988								
January	44	27	19	3	112	47	51	31
February	40	25	18	0	81	39	55	48
March	31	20	17	1	60	34	65	64
April	23	14	16	1	47	29	47	56
May	14	9	16	1	50	30	53	61
June	8	6	14	1	31	27	53	60
July	6	4	14	2	25	22	53	78
August	5	4	15	2	24	26	50	68
September	6	5	16	1	24	30	58	48
October	10	7	16	1	29	27	64	48
November	18	12	16	1	47	29	57	29
December	33	20	17	2	80	29	66	32
Total	240	152	194	15	610	370	672	622
1989								
January	41	25	20	2	109	45	60	37
February	41	25	19	1	97	47	44	42
March	36	21	19	1	89	37	61	48
April	22	14	17	1	48	30	52	50
May	14	8	15	1	37	27	59	37
June	9	6	15	0	32	29	58	54
July	7	4	13	1	26	22	59	78
August	6	4	16	1	26	23	62	66
September	7	5	15	1	28	25	65	70
October	10	7	17	1	33	27	67	72
November	19	12	17	1	50	33	60	58
December	33	20	18	1	79	40	65	36
Total	244	152	201	12	633	385	713	646
1990								
January	41	25	20	0	95	45	55	35
February	35	22	18	0	91	44	50	32
March	31	19	18	1	74	39	48	38
April	23	14	17	1	45	31	54	41
May	16	10	16	1	37	25	49	39
June	10	6	16	1	30	22	51	50
July	6	4	15	1	26	25	56	71
1990 YTD	161	100	120	5	398	231	364	307
1989 YTD	169	103	117	8	417	236	394	346
1988 YTD	167	105	114	8	407	229	378	397

Notes: • Data for 1984 through 1989 final. All other data are preliminary unless otherwise indicated. • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding. • Full explanations of all survey processing, estimation procedures, and computations are provided in the publications listed under "Sources."

Sources: Energy Information Administration (EIA), Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers," Form EIA-759, "Monthly Power Plant Report," *Natural Gas Annual* and *Natural Gas Monthly*.

Figure 12. Natural Gas Deliveries to Consumers

Sources: Energy Information Administration (EIA), Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers," Form EIA-759, "Monthly Power Plant Report," *Natural Gas Annual* and *Natural Gas Monthly*.

Prices

Distillate fuel oil and propane are two sources of residential heating in the United States.

Table 6. Residential Heating Oil Prices by Region and State
(Cents per Gallon)

Region/State	1990/91 Heating Season											
	10/01	10/15 ^P	11/05	11/19	12/03	12/17	01/07	01/21	02/04	02/18	03/04	03/18
Average	126.0	132.1										
East Coast (PADD I)	129.6	133.6										
New England (PADD IX)	130.7	134.8										
Connecticut	128.9	135.6										
Maine	127.5	131.2										
Massachusetts	133.8	136.2										
New Hampshire	129.2	132.2										
Rhode Island	131.3	134.0										
Vermont	125.5	132.7										
Central Atlantic (PADD IY)	129.4	133.1										
Delaware	123.0	130.3										
District of Columbia	126.4	135.2										
Maryland	126.9	131.8										
New Jersey	131.7	137.7										
New York	134.1	136.5										
Pennsylvania	121.5	126.8										
Lower Atlantic (PADD IZ)	126.7	132.5										
North Carolina	125.7	130.7										
Virginia	127.7	134.6										
Midwest (PADD II)	119.9	125.9										
Illinois	121.1	126.5										
Indiana	123.2	129.5										
Iowa	116.9	120.3										
Michigan	125.9	129.6										
Minnesota	116.7	124.3										
Ohio	122.4	128.7										
Wisconsin	115.8	122.0										

P=Preliminary data.

Source: Based on data collected by State Energy Offices.

Figure 13. Residential Heating Oil Prices, New England

Source: Based on data collected by State Energy Offices.

Figure 14. Residential Heating Oil Prices, Central Atlantic

Source: Based on data collected by State Energy Offices.

Figure 15. Residential Heating Oil Prices, Lower Atlantic

Source: Based on data collected by State Energy Offices.

Figure 16. Residential Heating Oil Prices, Midwest

Source: Based on data collected by State Energy Offices.

Table 7. Residential Propane Prices by Region and State
(Cents per Gallon)

Region/State	1990/91 Heating Season											
	10/01	10/15 ^P	11/05	11/19	12/03	12/17	01/07	01/21	02/04	02/18	03/04	03/18
Average	100.5	105.5										
East Coast (PADD I)	127.6	130.9										
New England (PADD IX)	124.4	128.7										
Connecticut	129.5	128.8										
Maine	NA	NA										
Massachusetts	NA	NA										
New Hampshire	126.5	130.2										
Rhode Island	131.8	135.0										
Vermont	118.4	127.2										
Central Atlantic (PADD IY)	134.9	139.0										
Delaware	123.4	132.2										
Maryland	125.9	133.4										
New Jersey	129.8	141.0										
New York	143.8	145.1										
Pennsylvania	117.0	128.2										
Lower Atlantic (PADD IZ)	NA	NA										
North Carolina	121.5	122.2										
Virginia	NA	NA										
Midwest (PADD II)	93.1	98.1										
Illinois	92.2	95.0										
Indiana	93.7	105.3										
Iowa	80.7	84.1										
Kansas	80.0	85.6										
Michigan	99.7	105.5										
Minnesota	101.6	102.1										
Missouri	90.1	95.8										
Nebraska	73.0	80.5										
North Dakota	77.8	82.2										
Ohio	117.3	128.2										
South Dakota	73.9	78.8										
Wisconsin	97.7	101.6										

P=Preliminary data.

NA=Not available.

Source: Based on data collected by State Energy Offices.

Figure 17. Residential Propane Prices, New England

Source: Based on data collected by State Energy Offices.

Figure 18. Residential Propane Prices, Central Atlantic

Source: Based on data collected by State Energy Offices.

Figure 19. Residential Propane Prices, Lower Atlantic

Source: Based on data collected by State Energy Offices.

Figure 20. Residential Propane Prices, Midwest

Source: Based on data collected by State Energy Offices.

Table 8. Wholesale Heating Oil Prices by Region and State
(Cents per Gallon)

(Cents per Gallon)

Region/State	1990/91 Heating Season											
	10/01	10/15 ^P	11/05	11/19	12/03	12/17	01/07	01/21	02/04	02/18	03/04	03/18
Average	103.6	106.8										
East Coast (PADD I)	104.1	106.8										
New England (PADD IX)	105.9	108.4										
Connecticut	105.6	108.2										
Maine	105.7	109.1										
Massachusetts	106.6	108.5										
New Hampshire	104.5	107.2										
Rhode Island	105.2	108.0										
Vermont	104.6	109.6										
Central Atlantic (PADD IV)	103.2	106.1										
Delaware	101.5	105.7										
District of Columbia	103.8	106.3										
Maryland	102.5	105.7										
New Jersey	102.4	105.5										
New York	104.5	106.7										
Pennsylvania	103.1	106.4										
Lower Atlantic (PADD IZ)	103.5	105.7										
North Carolina	103.4	105.4										
Virginia	103.5	105.9										
Midwest (PADD II)	102.2	107.0										
Illinois	102.1	106.1										
Indiana	103.1	106.3										
Iowa	102.7	107.2										
Kansas	103.7	106.8										
Michigan	100.1	105.8										
Minnesota	102.1	107.3										
Missouri	103.6	106.8										
Nebraska	103.7	107.3										
North Dakota	102.3	107.6										
Ohio	102.2	108.5										
South Dakota	103.9	107.7										
Wisconsin	102.0	107.5										

P=Preliminary data

Sources: • The 1989/90 heating season data are based on quotes at representative terminal locations as published in the *U.S. Oil Week*. • The 1990/91 heating season data are based on terminal quotes collected by the Computer Petroleum Corporation, Inc.

Figure 21. Wholesale Heating Oil Prices, New England

Sources: • The 1989/90 heating season data are based on quotes at representative terminal locations as published in the *U.S. Oil Week*. • The 1990/91 heating season data are based on terminal quotes collected by the Computer Petroleum Corporation, Inc.

Figure 22. Wholesale Heating Oil Prices, Central Atlantic

Sources: • The 1989/90 heating season data are based on quotes at representative terminal locations as published in the *U.S. Oil Week*. • The 1990/91 heating season data are based on terminal quotes collected by the Computer Petroleum Corporation, Inc.

Figure 23. Wholesale Heating Oil Prices, Lower Atlantic

Sources: • The 1989/90 heating season data are based on quotes at representative terminal locations as published in the *U.S. Oil Week*. • The 1990/91 heating season data are based on terminal quotes collected by the Computer Petroleum Corporation, Inc.

Figure 24. Wholesale Heating Oil Prices, Midwest

Sources: • The 1989/90 heating season data are based on quotes at representative terminal locations as published in the *U.S. Oil Week*. • The 1990/91 heating season data are based on terminal quotes collected by the Computer Petroleum Corporation, Inc.

Table 9. Wholesale Propane Prices by Region and State
(Cents per Gallon)

Region/State	1990/91 Heating Season											
	10/01	10/15 ^P	11/05	11/19	12/03	12/17	01/07	01/21	02/04	02/18	03/04	03/18
Average	63.4	65.0										
East Coast (PADD I)	64.8	66.5										
New England (PADD IX)	NA	NA										
Central Atlantic (PADD IY)	65.9	66.7										
New York	66.2	67.3										
Pennsylvania	65.6	66.3										
Lower Atlantic (PADD IZ)	NA	NA										
North Carolina	63.3	66.2										
Midwest (PADD II)	63.0	64.6										
Illinois	64.9	66.1										
Indiana	64.1	65.0										
Iowa	64.1	65.3										
Kansas	60.3	63.2										
Minnesota	62.4	62.9										
Missouri	64.5	64.7										
Nebraska	66.8	65.2										
North Dakota	56.7	60.4										
Ohio	64.3	65.5										
South Dakota	62.7	65.6										
Wisconsin	63.5	66.7										

P=Preliminary data.

NA=Not available.

Source: These data are average prices collected by the Computer Petroleum Corporation, Inc.

Figure 25. Wholesale Propane Prices, Central Atlantic

Source: These data are average prices collected by the Computer Petroleum Corporation, Inc.

Figure 26. Wholesale Propane Prices, Lower Atlantic

Source: These data are average prices collected by the Computer Petroleum Corporation, Inc.

Figure 27. Wholesale Propane Prices, Midwest

Source: These data are average prices collected by the Computer Petroleum Corporation, Inc.

Table 10. U.S. Crude Oil and Petroleum Product Prices
(Cents per Gallon, Except Where Noted)

Report Period	Crude WTI ^a (Dollars per Barrel)	No. 2 Distillate				Propane	
		Spot ^a	Terminal ^b	Residential ^c	Diesel Retail ^d	Spot ^e	Residential ^e
Monthly							
1/90	22.86	72.7	75.1	114.0	127.9	45.0	94.5
2/90	22.09	57.5	58.2	96.3	120.8	27.6	81.2
3/90	20.39	58.0	58.5	94.7	116.6	23.9	71.5
4/90	18.43	58.5	58.6	93.1	115.0	23.0	68.5
5/90	18.20	53.9	56.3	90.7	114.9	22.3	54.8
6/90	16.70	48.1	51.4	86.4	113.7	24.0	57.4
7/90	18.69	53.3	52.5	83.8	111.9	28.0	55.6
8/90	27.35	75.3	78.4	98.9	127.5	38.1	63.1
Week Ending							
9/7/90	30.23	82.9	85.8	NA	134.6	40.4	NA
9/14/90	30.99	81.4	86.6	NA	NA	40.7	NA
9/21/90	34.21	87.6	86.3	NA	135.8	45.1	NA
9/28/90	39.16	102.0	97.3	NA	NA	55.9	NA
10/5/90	36.64	97.2	100.8	127.8	145.6	55.0	100.5
10/12/90	39.88	102.7	103.5	NA	NA	58.9	NA
Daily							
10/15/90	38.00	101.2	106.4	132.1	NA	56.8	105.5
10/16/90	39.34	103.1	106.2	NA	NA	55.8	NA
10/17/90	36.03	96.9	106.4	NA	NA	55.3	NA
10/18/90	37.03	95.1	106.0	NA	NA	52.8	NA
10/19/90	33.82	87.0	105.0	NA	150.4	48.3	NA
10/22/90	28.46	74.5	102.7	NA	NA	39.8	NA
10/23/90	29.95	80.4	100.2	NA	NA	41.3	NA
10/24/90	30.80	83.5	98.6	NA	NA	43.3	NA
10/25/90	34.35	90.3	97.6	NA	NA	47.0	NA
10/26/90	33.03	86.6	97.3	NA	NA	48.8	NA
10/29/90	35.28	90.0	97.3	NA	NA	50.3	NA
10/30/90	34.93	90.5	97.2	NA	NA	48.8	NA
10/31/90	35.31	88.3	97.7	NA	NA	47.3	NA
11/1/90	35.30	88.6	97.4	NA	NA	49.3	NA
11/2/90	33.95	85.9	97.3	NA	NA	49.1	NA

NA=Not available.

^a Source: Spot West Texas Intermediate (WTI) at Cushing, Oklahoma; No. 2 distillate in New York Harbor from Reuters.

^b Source: Computer Petroleum Corp. rack prices.

^c Source: Residential No. 2 distillate and propane prices from Energy Information Administration (EIA), *Petroleum Marketing Monthly*, and State Heating Oil and Propane Program starting October 1, 1990.

^d Source: Diesel Retail prices from *Lundberg PS*.

^e Source: Mt. Belvieu, Texas, spot propane prices from *Platts' Oilgram Price Report*.

Table 11. Petroleum Product Prices for Selected Cities
(Cents per Gallon)

Report Period	Chicago				Houston			
	No. 2 Distillate			Propane	No. 2 Distillate			Propane
	Spot ^a	Terminal ^b	Diesel Retail ^c	Terminal ^d	Spot ^a	Terminal ^b	Diesel Retail ^c	Terminal ^d
Monthly								
1/90	60.0	69.2	140.4	72.5	61.5	76.3	130.6	54.4
2/90	52.2	54.3	128.4	31.3	54.1	56.9	124.4	32.5
3/90	54.8	56.5	123.3	25.8	52.7	55.7	115.9	25.7
4/90	54.2	56.2	122.7	26.1	52.2	54.5	113.6	25.3
5/90	59.4	54.0	121.8	26.4	48.8	51.6	112.7	24.1
6/90	55.1	48.6	120.8	29.4	45.9	47.5	111.3	24.7
7/90	54.9	51.1	119.1	32.4	51.3	51.7	109.9	27.9
8/90	75.1	77.5	135.8	43.9	73.9	77.3	124.2	38.9
Week Ending								
9/7/90	81.7	82.4	139.0	47.8	81.9	82.4	131.9	93.4
9/14/90	81.5	83.3	NA	48.4	81.0	83.7	NA	41.3
9/21/90	86.5	84.1	140.0	49.8	86.8	84.4	134.0	43.0
9/28/90	98.4	96.7	NA	58.3	100.9	96.7	NA	51.5
10/5/90	94.1	99.0	150.3	62.9	95.7	99.7	145.4	56.2
10/12/90	100.1	102.9	NA	64.5	100.6	102.5	NA	58.3
Daily								
10/15/90	101.1	106.2	NA	66.3	99.2	104.9	NA	60.4
10/16/90	103.4	105.6	NA	65.0	101.1	104.5	NA	60.4
10/17/90	98.0	105.9	NA	63.5	95.4	104.3	NA	59.6
10/18/90	96.8	105.4	NA	63.5	93.7	103.5	NA	59.6
10/19/90	90.3	104.0	156.6	60.4	85.9	101.6	149.6	57.6
10/22/90	79.3	101.0	NA	58.1	73.8	98.4	NA	51.7
10/23/90	83.0	94.3	NA	51.0	78.4	91.9	NA	45.9
10/24/90	87.9	92.2	NA	49.6	82.4	89.1	NA	44.5
10/25/90	93.8	92.7	NA	51.4	88.7	89.5	NA	44.8
10/26/90	91.3	93.1	NA	53.8	84.9	89.9	NA	47.0
10/29/90	91.5	94.1	NA	56.1	89.6	90.5	NA	47.6
10/30/90	90.8	95.1	NA	56.6	89.0	91.7	NA	49.4
10/31/90	90.3	95.4	NA	56.2	87.9	92.2	NA	50.4
11/1/90	89.6	95.5	NA	55.2	87.5	91.9	NA	49.8
11/2/90	85.6	95.8	156.7	55.5	84.7	91.9	148.8	50.4

See footnotes at end of table.

Table 11. Petroleum Product Prices for Selected Cities (Continued)
(Cents per Gallon)

Report Period	Los Angeles				New York			
	No. 2 Distillate			Propane	No. 2 Distillate			Propane
	Spot ^a	Terminal ^b	Diesel Retail ^c	Terminal ^d	Spot ^a	Terminal ^b	Diesel Retail ^c	Terminal ^d
Monthly								
1/90	58.5	65.6	114.8	48.9	72.7	86.9	141.1	67.9
2/90	54.7	58.3	114.0	45.2	57.5	61.2	129.1	43.5
3/90	55.4	56.6	113.5	41.3	58.0	61.0	124.6	34.1
4/90	55.2	57.3	113.0	32.7	58.5	61.7	120.9	32.6
5/90	51.6	55.9	113.1	28.3	53.9	59.2	120.7	31.3
6/90	47.6	50.4	112.7	27.0	48.1	52.3	123.6	31.7
7/90	49.6	50.4	112.1	27.6	53.3	55.1	123.1	34.4
8/90	77.2	78.1	129.0	33.1	75.3	78.2	135.2	45.3
Week Ending								
9/7/90	85.6	91.2	140.4	35.8	82.9	85.4	140.5	48.6
9/14/90	82.5	88.8	NA	36.9	81.4	85.9	NA	49.4
9/21/90	89.0	85.9	141.9	38.1	87.6	86.8	143.2	51.2
9/28/90	103.1	95.7	NA	40.0	102.0	98.9	NA	59.6
10/5/90	98.3	103.0	152.3	45.7	97.2	103.4	153.9	65.9
10/12/90	104.7	104.1	NA	49.5	102.7	105.8	NA	66.7
Daily								
10/15/90	104.0	106.0	NA	53.5	101.2	107.8	NA	68.3
10/16/90	102.8	106.1	NA	53.5	103.1	106.8	NA	67.7
10/17/90	102.5	105.7	NA	54.8	96.9	106.9	NA	67.7
10/18/90	96.5	105.6	NA	54.8	95.1	105.8	NA	67.7
10/19/90	89.3	105.6	157.4	54.8	87.0	103.3	159.7	66.3
10/22/90	76.5	105.4	NA	54.8	74.5	100.0	NA	63.8
10/23/90	81.0	104.5	NA	55.5	80.4	94.6	NA	59.7
10/24/90	85.5	103.4	NA	55.5	83.5	93.8	NA	55.6
10/25/90	93.1	103.0	NA	55.5	90.3	93.6	NA	55.6
10/26/90	96.5	102.9	NA	55.5	86.6	94.6	NA	56.9
10/29/90	99.0	102.8	NA	55.7	90.0	95.0	NA	57.9
10/30/90	97.8	102.9	NA	55.0	90.5	95.9	NA	58.7
10/31/90	94.5	103.0	NA	55.0	88.3	95.9	NA	58.9
11/1/90	96.0	103.0	NA	55.0	88.6	95.1	NA	58.5
11/2/90	94.8	103.2	157.6	55.0	85.9	94.9	161.1	58.7

NA=Not available.

^a Source: No. 2 distillate spot prices in Chicago, Houston, and Los Angeles, are from Telerate; New York spot prices are from Reuters.

^b Source: No. 2 distillate terminal prices in Chicago, Houston, Los Angeles, and New York are from Computer Petroleum Corp.

^c Source: Diesel Retail self-serve prices in Chicago, Houston, Los Angeles, and Long Island, New York are from Lundberg PS.

^d Source: Propane terminal prices in Lemont, Illinois; Mt. Belvieu, Texas; Los Angeles, California; and Selkirk, New York are from Computer Petroleum Corp.

Weather Summary

Oil pumpjack at an oil field, illustrating the U.S. petroleum supply and demand.

United States Weather Summary

The following excerpts from the National Weather Service highlight only those regions which are forecast to have other than normal weather conditions.

6 - 10 Day Outlook - November 13 through November 17, 1990

Below normal temperatures are expected along the Pacific Coast region down into Northern California, as well as from Florida northeastward through Eastern Virginia and from the Eastern shore of Maryland through coastal Maine. Above normal temperatures are expected from northeastern Nebraska to the Canadian border. Elsewhere temperatures are expected to be normal.

Below normal or no precipitation is expected in the southern plateau (southeastern California, southern Nevada, and Arizona). Above normal precipitation is expected in the southern Florida peninsula, Minnesota, northern Wisconsin, and from the West Coast eastward into the Rockies. Elsewhere precipitation is expected to be normal.

30 Day Outlook - November 1990

The 30 day outlook calls for a 55 percent probability of below normal temperatures through the upper Mississippi Valley and the North Atlantic States. The likelihood of below average temperatures also exists for Southern California, Arizona, and parts of New Mexico.

Below median precipitation with a probability of 55 percent is expected through the northern tier of states from Montana through North Dakota, Wisconsin, and the Great Lakes. There is at least a 55 percent chance of above median precipitation from the Central Plains Region through the Middle Mississippi Valley.

The next 30-Day Outlook will be released November 13, 1990.

90 Day Outlook - November 1990 through January 1991

Below normal temperatures are not expected for any region. Above normal temperatures with at least a 55 percent chance are expected for the Atlantic Coast states, the eastern Gulf Coast region, the Ohio Valley, Tennessee, and the Lower Great Lakes region. Within this region, the likelihood of warmer temperatures rises to 70 percent over Florida and eastern portions of the South Atlantic Coast states. Above normal temperatures are also expected with at least 55 percent chance over California, southwestern Arizona, and the western halves of Washington and Oregon.

Below median precipitation is expected with at least a 55 percent chance along the Pacific Coast over the northern half of California and much of Oregon and Washington. Above median precipitation is expected with at least a 55 percent chance over the Central Plains, the middle Mississippi Valley, the Ohio Valley, Tennessee, and much of the Great Lakes.

The next 90-Day Outlook will be released November 28, 1990.

Source: National Weather Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Table 12. U.S. Total Heating Degree Days by City
(Population Weighted Heating Degree-Days^a, Except Where Noted)

City	1990	1989-1990	Normal	Percent Change	
				1990 vs. 1989-1990	1990 vs. Normal
July 1 - June 30		4,582	4,689	--	--
July 1 - November 3	362	422	399	-14	-9
Albuquerque	253	338	300	-25	-16
Amarillo	263	353	284	-25	-7
Ashville	322	426	386	-24	-17
Atlanta	132	172	165	-23	-20
Billings	654	814	812	-20	-19
Boise	545	620	625	-12	-13
Boston	346	441	461	-22	-25
Buffalo	569	693	655	-18	-13
Cheyenne	867	903	916	-4	-5
Chicago	553	568	510	-3	8
Cincinnati	386	452	419	-15	-8
Cleveland	498	541	556	-8	-10
Columbia, SC	118	146	148	-19	-20
Denver	535	654	613	-18	-13
Des Moines	512	570	495	-10	3
Detroit	515	642	609	-20	-15
Fargo	863	968	958	-11	-10
Hartford	424	544	556	-22	-24
Houston	63	75	48	****	****
Jacksonville, FL	29	51	33	****	****
Kansas City	333	482	346	-31	-4
Las Vegas	41	104	83	****	****
Los Angeles	8	18	121	-56	-93
Memphis	193	176	174	10	11
Miami	0	2	0	****	****
Milwaukee	556	651	668	-15	-17
Minneapolis	703	744	747	-6	-6
Montgomery	109	159	107	-31	2
New York	204	263	320	-22	-36
Oklahoma City	185	274	191	-32	-3
Omaha	444	564	471	-21	-6
Philadelphia	244	320	350	-24	-30
Phoenix	5	1	20	****	****
Pittsburgh	455	557	562	-18	-19
Portland, ME	652	727	857	-10	-24
Providence	385	487	517	-21	-26
Raleigh	154	232	229	-34	-33
Richmond	188	267	281	-30	-33
St. Louis	277	320	343	-13	-19
Salem, OR	524	578	665	-9	-21
Salt Lake City	430	494	533	-13	-19
San Francisco	148	359	443	-59	-67
Seattle	575	546	782	5	-26
Shreveport	139	137	94	****	****
Washington, DC	197	249	246	-21	-20

^a See Glossary.

**** Normal heating degree days 100 or less or ratio incalculable.

Note: The weather for the Nation, as measured by population-weighted heating degree-days from July 1, 1990, through November 3, 1990, has been 14 percent warmer than last year and 9 percent warmer than normal.

Source: Weather data reported in the *Winter Fuels Report* are taken directly from a computerized system implemented by the National Oceanic and Atmospheric Administration, Department of Commerce. The National Oceanic and Atmospheric Administration (NOAA)/NWS, as a U.S. Government Agency, does not endorse any consumer information services.

Appendix A

District Descriptions and Maps

Tank trucks are used to distribute heating oil to remote areas.

District Descriptions and Maps

The following are the Petroleum Administration for Defense (PAD) Districts.

PAD District I

East Coast: District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Tompkins, Chemung, and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York, and all counties east thereof.

Appalachian No. 1: The State of West Virginia and those parts of the States of Pennsylvania and New York not included in the East Coast District.

Sub-PAD District I

New England (PADD IX): The States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

Central Atlantic (PADD IY): The District of Columbia and the States of Delaware, Maryland, New Jersey, New York, and Pennsylvania.

Lower Atlantic (PADD IZ): The States of Florida, Georgia, North Carolina, South Carolina, Virginia, and West Virginia.

PAD District II

Indiana-Illinois-Kentucky: The States of Indiana, Illinois, Kentucky, Tennessee, Michigan, and Ohio.

Minnesota-Wisconsin-North and South Dakota: The States of Minnesota, Wisconsin, North Dakota, and South Dakota.

Oklahoma-Kansas-Missouri: The States of Oklahoma, Kansas, Missouri, Nebraska, and Iowa.

PAD District III

Texas Inland: The State of Texas except the Texas Gulf Coast District.

Texas Gulf Coast: The following counties of the State of Texas: Newton, Orange, Jefferson, Jasper, Tyler, Hardin, Liberty, Chambers, Polk, San Jacinto, Montgomery, Harris, Galveston, Waller, Fort Bend, Brazoria, Wharton, Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.

Louisiana Gulf Coast: The following Parishes of the State of Louisiana: Vernon, Rapides, Avoyelles, Pointe Coupee, West Feliciana, East Feliciana, Saint Helena, Tangipahoa, Washington, and all Parishes south thereof. Also the following counties of the State of Mississippi: Pearl River, Stone, George, Hancock, Harrison, and Jackson. Also the following counties of the State of Alabama: Mobile and Baldwin.

North Louisiana-Arkansas: The State of Arkansas and those parts of the States of Louisiana, Mississippi, and Alabama not included in the Louisiana Gulf Coast District.

New Mexico: The State of New Mexico.

PAD District IV

Rocky Mountain: The States of Montana, Idaho, Wyoming, Utah, and Colorado.

PAD District V

West Coast: The States of Washington, Oregon, California, Nevada, Arizona, Alaska, and Hawaii.

Petroleum Administration for Defense (PAD) Districts

Appendix B

Explanatory Notes

The cluster of pipes and valves that control the flow of oil at the mouth of an oil well is what oilmen call a "Christmas Tree."

Appendix B

Explanatory Notes

Note 1. Overview

The following Explanatory Notes are provided to assist in understanding and interpreting the data presented in this publication.

- Note 2. Monthly Data
- Note 3. Weekly Data
- Note 4. Price Data
- Note 5. Interpretation and Derivation of Average Inventory Levels

Note 2. Monthly Data

Data for distillate fuel oil and propane are extracted from selected surveys in the Monthly Petroleum Supply Reporting System (MPSRS). Refer to the *Petroleum Supply Monthly* for a detailed discussion of the MPSRS.

The forms that comprise the monthly data are:

Form Number	Name
EIA-810	<i>Monthly Refinery Report</i>
EIA-811	<i>Monthly Bulk Terminal Report</i>
EIA-812	<i>Monthly Product Pipeline Report</i>
EIA-814	<i>Monthly Imports Report</i>
EIA-816	<i>Monthly Natural Gas Liquids Report</i>

Note 3. Weekly Data

Distillate Fuel Oil

Data collected from the Weekly Petroleum Supply Reporting System (WPSRS) are used to develop estimates for distillate fuel oil.

The forms that comprise the WPSRS are:

Form Number	Name
EIA-800	<i>Weekly Refinery Report</i>
EIA-801	<i>Weekly Bulk Terminal Report</i>

EIA-802 *Weekly Product Pipeline Report*

EIA-803 *Weekly Crude Oil Report*

EIA-804 *Weekly Imports Report*

A sample of all petroleum companies report weekly data to the Energy Information Administration (EIA) on crude oil and petroleum products stocks, refinery inputs and production, and crude oil and petroleum product imports. The sample of companies that report weekly is selected from the universe of companies that report on the comparable monthly surveys.

Sampling

The sampling procedure used for the weekly system is the cut-off method. In the cut-off method, companies are ranked from largest to smallest on the basis of the quantities reported during some previous period. Companies are chosen for the sample beginning with the largest and adding companies until the total sample covers about 90 percent of the total, for each item and each geographic region for which weekly data are published.

Estimation and Imputation

After the company reports have been checked and entered into the weekly data base, explicit imputation is done for companies which have not yet responded. The imputed values are exponentially smoothed means of recent weekly reported values for this specific company. The imputed values are treated like reported values in the estimation procedure, which calculates ratio estimates of the weekly totals. First, the current week's data for a given product reported by companies in a geographic region are summed. (Call this weekly sum, W_t .) Next, the most recent month's data for the product reported by those same companies are summed. (Call this monthly sum, M_t .) Finally, let M_1 be the sum of most recent month's data for the product as reported by all companies. Then, the current week's ratio estimate for that product for all companies, W_1 , is given by:

$$W_1 = \frac{M_t}{M_1} \cdot W_t$$

This procedure is used directly to estimate total weekly inputs to refineries and production. To estimate stocks of finished products, the preceding procedure is followed separately for

refineries, bulk terminals, and pipelines. Total estimates are formed by summing over establishment types.

Weekly imports data are highly variable on a company-by-company basis or a week-by-week basis. Therefore, an exponentially smoothed ratio has been developed. The estimate of total weekly imports is the product of the smoothed ratio and the sum of the weekly reported values and imputed values.

Propane

Data collected on the Form EIA-807, "Propane Telephone Survey" are used to develop estimates for propane.

Sampling

The sampling procedure used for Form EIA-807 is the cut-off method. In the cut-off method, establishments were ranked from largest to smallest on the basis of quantities reported (propane production, propane imports, propane stocks) during October 1989. Companies were chosen for the sample beginning with the largest and adding companies until the total sample covered about 80 percent of the total for each item and each geographic region (Petroleum Administration for Defense Districts I, IX, IV, IZ, II and III) for which data are published.

Estimation and Imputation

After the company reports have been checked and entered into the EIA-807 data base, imputation is done for companies which have not yet responded. The imputed values are equal to the latest reported data for a particular reporting unit. Response rates are over 90 percent so very little imputation is done.

After the data files have been edited and corrected, aggregation is done for net production, imports, and stocks by each geographic region. Estimation factors, which were derived from 1989 reported data, are then applied to each cell to generate published estimates.

Note 4. Price Data

The residential No. 2 heating oil and propane prices for a given State are based on the results of telephone surveys of a sample of marketers and refiners. Data are collected under the EIA State Heating Oil and Propane Program.

Sampling Methodology and Estimation Procedures

To estimate aggregate propane and No. 2 heating oil price data for a State, the sample weight and volume sales data were

applied to the reported price, summed and divided by the sum of the weighted volume:

$$\sum_{j=1}^s \sum_{i=1}^{n_j} w_{ij} v_{ij} p_{ij} / \sum_{j=1}^s \sum_{i=1}^{n_j} w_{ij} v_{ij} \quad \text{where } i =$$

respondent, n_j = sample size of stratum j , and s = number of strata, to obtain a volume weighted price.

Residential No. 2 Heating Oil

For the No. 2 heating oil price data, a sample design similar to that used for the Energy Information Administration (EIA) Form EIA-782B, "Resellers'/Retailers' Monthly Petroleum Product Sales Report" sample design was used. The sampling frame was an extract of approximately 11,000 companies from the Form EIA-863, "Petroleum Product Sales Survey" conducted in 1989 and containing 1988 sales volume information. A one-way stratified sample design using No. 2 residential distillate frame sales volumes by State, for each of the 27 States to be sampled, was used. Stratum boundaries were determined by the Dalenius-Hodges procedure. Sample weights were calculated as the inverse of the probability (N/n). Certainty strata were established based on sales volumes and the number of States in which the company has sales. The expected price coefficient of variation is one to two percent.

Residential Propane

Since no volume sales information existed to predetermine the volume sales of propane dealers, two strata for propane dealers was used. A certainty stratum of the known, large, multi-State dealers was created. These companies were identified using establishment lists obtained in deriving the frame. All other dealers were in a second stratum and a random sample from this stratum was selected. Sample weights were calculated as the inverse of the probability (N/n). The name and address list sampling frame was constructed by first extracting from the Form EIA-863, "Petroleum Product Sales Identification Survey," companies who marked the box on the survey indicating they sell propane. This was augmented by companies on the Office of Oil and Gas Master File who have the words propane or liquefied petroleum gas (LPG) in their name. In addition, companies who file the Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report," and report retail propane or the Form EIA-782C, "Monthly Report of Petroleum Products Sold into States for Consumption," and report propane, as well as companies that were active on the Form EIA-174, "Liquefied Petroleum Gas Survey," prior to its discontinuance, were included.

After unduplicating these companies, the initial frame file contained approximately 5,100 companies. Additional com-

panies were obtained from an extract of a current Dun and Bradstreet file of SIC code 5984(9903), primary and secondary retail propane dealers, containing 3,283 names and addresses. Removal of duplicates within this file and between it and the initial frame file was performed using tailored automated match programs with manual review, and resulted in approximately 1,000 potential adds to the initial file. Similarly, additional names and addresses were furnished by industry associations and journals and by State Energy Offices, yielding another 7,429 names. Again, removal of duplicates through the match programs yielded an approximate potential add of 900 companies. Another 800 companies were identified as residing on the Master File but not previously selected as potential propane sellers. Further matching, merging and unduplicating reduced the final total frame count to approximately 6,000 companies. Reseller/retailer propane price data were unavailable to calculate a target coefficient of variation. However, it was expected that residential propane price variances were similar to heating oil. Increases in variances were expected as a result of lack of detailed stratification, but were only expected to reach three to four percent.

Note 5. Interpretation and Derivation of Average Inventory Levels

The national inventory (stocks) graphs for distillate fuel oil and propane include features to assist in comparing current inventory levels with past inventory levels and with judgments of critical levels. Methods used in developing the average inventory levels and minimum operating levels are described below.

Average Inventory Levels

The charts displaying inventory levels of distillate fuel oil and propane (Figures 1 through 10) provide the reader with actual inventory data compared to an "average range" for the most recent 3-year period running from January through December or from July through June. The ranges also reflect seasonal variation for the past 7 years.

The seasonal factors, which determine the shape of the upper and lower curves, are estimated with a seasonal adjustment technique developed at the Bureau of Census (Census X-11). The seasonal factors are assumed to be stable (i.e., unchanging from year to year) and additive (i.e., the series is deseasonalized by subtracting the seasonal factor for the appropriate month from the reported inventory levels.) The intent of deseasonalization is to remove only annual variation from the data. Thus, deseasonalized series would contain the same trends, cyclical components, and irregularities as the original data. The seasonal factors are updated annually in October, using the 7 most recent year's final monthly data.

The seasonal factors are used to deseasonalize data from the most recent 3-year period (January-December or July-June). The average of the deseasonalized 36-month series determines the midpoint of the "average range." The standard deviation of the deseasonalized 36 months is then calculated after adjusting for extreme data points. The upper curve of the "average range" is defined as average plus the seasonal factors plus the standard deviation. The lower curve is defined as the average plus the seasonal factors minus the standard deviation. Thus, the width of the "average range" is twice the standard deviation. The ranges are updated every 6 months in April and October.

Glossary

Downstream processing units are used to upgrade petroleum products.

Definitions of Petroleum Products and Other Terms

Degree-Day Normals. Simple arithmetic averages of monthly or annual degree-days over a long period of time (usually the 30-year period 1951-1980). These may be simple degree-day normals or population-weighted degree-day normals.

Distillate Fuel Oil. A general classification for one of the petroleum fractions produced in conventional distillation operations. It is used primarily for space heating, on-and-off-highway diesel engine fuel including railroad engine fuel and fuel for agricultural machinery, and electric power generation. Included are products known as No. 1, No. 2, and No. 4 fuel oils; No. 1, No. 2, and No. 4 diesel fuels.

No. 1 Fuel Oil. A light distillate fuel oil intended for use in vaporizing pot-type burners. ASTM Specification D396 specifies for this grade maximum distillation temperatures of 400 degrees F at the 10-percent recovery point and 550 degrees F at the 90-percent point, and kinematic viscosities between 1.4 and 2.2 centistokes at 100 degrees F.

No. 2 Fuel Oil. A distillate fuel oil for use in atomizing-type burners for domestic heating or for moderate capacity commercial-industrial burner units. ASTM Specification D396 designates minimum and maximum distillation temperatures at the 90-percent recovery point of 540 degrees F and 640 degrees F, and kinematic viscosities between 2.0 and 3.6 centistokes at 100 degrees F.

No. 1 and No. 2 Diesel Fuel Oils. Distillate fuel oils used in compression-ignition engines, as designated in the ASTM Specification D975:

No. 1-D. A volatile distillate fuel oil with a maximum distillation temperature of 550 degrees F at the 90-percent recovery point for use in high-speed diesel engines generally operated under variations in speed and load. Includes type C-B diesel fuel used for city buses and similar operations. Properties are defined in ASTM Specification D975.

No. 2-D. A gas oil type distillate of lower volatility with minimum and maximum distillation temperatures at the 90-percent recovery point of 540 and 640 degrees F for use in high-speed diesel engines generally operated under uniform speed and load condi-

tions. Includes Type R-R diesel fuel used for railroad locomotive engines, and Type T-T for diesel-engine trucks. Properties are defined in ASTM Specification D975.

No. 4 Fuel Oil. A fuel oil for commercial burner installations not equipped with preheating facilities. It is used extensively in industrial plants. This grade is a blend of distillate fuel oil and residual fuel oil stocks that conforms to ASTM Specification D396 or Federal Specification VV-F-815C; with minimum and maximum kinematic viscosities between 5.8 and 26.4 centistokes at 100 degrees F. Also included is No. 4-D, a fuel oil for low and medium-speed diesel engines that conforms to ASTM Specification D975.

Heating Degree-Days. The number of degrees per day the daily average temperature is below 65 degrees F. The daily average temperature is the mean of the maximum and minimum temperature for a 24-hour period.

Population-Weighted Degree-Days. Heating or cooling degree-days weighted by the population of the area in which the degree-days are recorded. To compute national population-weighted degree-days, the Nation is divided into nine Census regions comprised of from three to eight States which are assigned weights based on the ratio of the population of the region to the total population of the Nation. Degree-day readings for each region are multiplied by the corresponding population weight for each region and these products are then summed to arrive at the national population weighted degree-day figure.

Propane. A normally gaseous straight-chain hydrocarbon, (C₃H₈). It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees F. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.

Propylene. An olefinic hydrocarbon, (C₃H₆), recovered from refinery processes or petrochemical processes.

Report Dates. The official report dates for the residential and wholesale price surveys are the first and third Mondays. The official day for the primary stock survey is 7 a.m. on the Friday preceding the report date.

Residential Heating Oil Price. The price charged for home delivery of No. 2 heating oil, exclusive of any discounts such as those for prompt cash payment. Prices do not include taxes paid by the consumer.

Residential Propane Price. The "bulk keep full" price for home delivery of consumer grade propane intended for use in space heating, cooking, or hot water heaters in residences.

United States. For the purpose of this report, the 50 States and the District of Columbia. Data for the Virgin Islands, Puerto Rico, and other U.S. territories are not included in the U.S. Totals.

Wholesale Price. The rack price charged for No. 2 heating oil; that is, the price charged customers who purchase No. 2 heating oil free-on-board at a supplier's terminal and provide their own transportation for the product.

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