

Appendix A

Request for Analysis



The Secretary of Energy

Washington, DC 20585

March 21, 2000

MEMORANDUM FOR ADMINISTRATOR, ENERGY INFORMATION
ADMINISTRATION
DIRECTOR, OFFICE OF POLICY

FROM:

BILL RICHARDSON

Handwritten signature of Bill Richardson in black ink.

SUBJECT:

Requests 60-day Study on Home Heating Oil and Diesel
Fuel Price Spikes in the Northeast

On February 16, 2000, President Clinton tasked the Department of Energy (DOE) to undertake a study of one facet of the recent home heating oil and diesel fuel price spikes in the Northeast. His charge to us was stated as:

"I've asked Secretary Richardson to conduct a 60-day study on converting factories and major users from oil to other fuels, which will help to free up future oil supplies for use in heating homes."

I am aware that work on this study is well underway; however, this is to formally record my request that you undertake jointly a study that covers the following issues:

- A short description of the causes of the Northeast fuel oil price spikes this winter;
- The role of industrial and other large users of fuel oil in the Northeast market;
- The existing and expected near-term patterns, through 2005, of fuel use by business, commercial, and residential consumers;
- Alternatives for greater fuel diversity or reduced distillate fuel oil use by these large users; and
- Obstacles to and incentives for conversion or reduced peak demand by distillate fuel oil users.

The Office of Policy will have lead responsibility for the following issue:

- Federal policies that could promote conversion by various classes of users and greater energy diversity in the region (either on an annual basis or during critical demand periods). These should include policies focused on:
 - (1) adding to gas supply in the region,
 - (2) removing disincentives for provision of natural gas, and
 - (3) supporting changes in electricity generation practices.

The study should be completed by April 14, 2000, so that we can meet the 60-day deadline for delivery to the President. At this time, the Department of Energy will send copies of the report to stakeholders such as elected officials, trade groups, and consumer organizations in the Northeast. Because of the tight deadlines, I urge you to reach out to the Federal Energy Regulatory Commission and DOE program offices, including the Office of Fossil Energy and the Office of Energy Efficiency and Renewable Energy, for their expertise.

cc: Bob Gee
Dan Reicher
James Hoecker

Appendix B

Historical Data on Fuel Consumption and Prices for the Residential Sector in the Northeast Region

Table B1. National Summary: Space Heating Equipment
(Million Households)

Year	Distillate Heating, No Gas			Distillate Heating, With Gas			Total Distillate Heating	Total Natural Gas Heating			Total Electric Heating		
	Single Family	Multi-Family	Total Distillate	Single Family	Multi-Family	Total With Gas		Single Family	Multi-Family	Total Gas	Single Family	Multi-Family	Total Electric
1978.....	9.2	0.7	9.9	2.1	3.4	5.5	15.5	30.7	11.2	41.8	8.0	4.1	12.1
1979.....	8.2	0.4	8.6	1.9	3.0	4.9	13.5	31.1	11.3	42.4	8.4	4.5	12.8
1980.....	6.9	0.9	7.8	1.7	3.0	4.8	12.6	33.4	11.2	44.6	9.2	5.1	14.3
1981.....	5.9	1.0	6.9	1.5	2.9	4.4	11.3	35.5	10.7	46.2	8.1	6.1	14.2
1982.....	6.0	1.0	7.0	1.6	2.7	4.3	11.3	34.3	13.2	47.5	8.4	4.9	13.4
1984.....	5.3	0.7	6.1	1.7	2.9	4.6	10.7	33.8	14.1	47.8	9.3	5.2	14.5
1987.....	6.2	1.0	7.2	1.3	2.5	3.7	10.9	36.0	14.0	50.0	10.9	7.0	17.9
1990.....	6.6	0.8	7.4	1.1	1.9	3.0	10.4	38.7	13.0	51.7	13.3	8.2	21.5
1993.....	6.8	0.6	7.4	1.1	1.7	2.7	10.2	39.6	11.8	51.4	15.6	9.3	25.0
1997.....	6.2	0.6	6.8	1.0	1.7	2.7	9.5	44.6	8.9	53.5	20.1	9.5	29.6

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B2. Northeast Summary: Space Heating Equipment
(Million Households)

Year	Distillate Heating, No Gas			Distillate Heating, With Gas			Total Distillate Heating	Natural Gas Space Heating			Electric Heating		
	Single Family	Multi-Family	Total Distillate	Single Family	Multi-Family	Total With Gas		Single Family	Multi-Family	Total Gas	Single Family	Multi-Family	Total Electric
1978.....	3.4	0.6	4.0	1.4	3.2	4.7	8.6	4.3	2.6	7.0	0.6	0.9	1.4
1979.....	2.8	0.3	3.1	1.2	2.9	4.1	7.2	3.9	3.2	7.1	0.6	1.1	1.7
1980.....	3.3	0.6	3.9	1.3	2.8	4.1	8.0	4.0	2.6	6.6	1.0	0.6	1.6
1981.....	2.9	0.8	3.7	1.2	2.8	4.0	7.8	4.2	2.8	7.0	0.7	0.9	1.5
1982.....	2.9	0.8	3.6	1.3	2.5	3.8	7.4	4.6	2.9	7.5	0.7	0.6	1.3
1984.....	2.9	0.6	3.5	1.4	2.8	4.3	7.8	4.6	2.6	7.2	0.8	0.6	1.4
1987.....	3.4	0.9	4.3	1.0	2.4	3.4	7.7	5.2	2.9	8.1	1.1	1.0	2.1
1990.....	3.9	0.7	4.6	0.9	1.9	2.8	7.4	5.4	3.4	8.7	1.2	0.8	2.0
1993.....	4.0	0.6	4.5	0.8	1.7	2.5	7.0	5.7	3.8	9.4	1.0	0.9	1.9
1997.....	4.1	0.5	4.7	0.7	1.7	2.4	7.1	6.8	2.3	9.2	1.5	0.9	2.3

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B3. New England Summary: Space Heating Equipment
(Million Households)

Year	Distillate Heating, No Gas			Distillate Heating, With Gas			Total Distillate Heating			Total Natural Gas Heating			Total Electric Heating		
	Single Family	Multi-Family	Total Distillate	Single Family	Multi-Family	Total With Gas	Total Distillate Heating	Single Family	Multi-Family	Total Gas	Single Family	Multi-Family	Total Electric		
1980.....	1.2	0.3	1.5	0.2	0.5	0.7	2.2	0.3	0.8	1.1	0.2	0.2	0.3		
1981.....	1.0	0.4	1.4	0.2	0.5	0.7	2.1	0.6	0.6	1.2	0.1	0.3	0.4		
1982.....	1.0	0.3	1.3	0.4	0.4	0.8	2.1	0.5	0.7	1.2	0.0	0.3	0.3		
1984.....	0.9	0.3	1.2	0.4	0.4	0.8	2.0	0.6	0.6	1.2	0.1	0.2	0.3		
1987.....	1.4	0.4	1.8	0.2	0.3	0.5	2.3	0.5	0.7	1.2	0.1	0.3	0.4		
1990.....	1.4	0.3	1.7	0.2	0.3	0.5	2.2	0.5	0.8	1.3	0.2	0.4	0.6		
1993.....	1.8	0.3	2.0	0.2	0.3	0.5	2.6	0.7	0.9	1.6	0.2	0.3	0.5		
1997.....	2.0	0.3	2.3	0.3	0.1	0.4	2.7	0.8	0.6	1.5	0.4	0.3	0.6		

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B4. Mid-Atlantic Summary: Space Heating Equipment
(Million Households)

Year	Distillate Heating, No Gas			Distillate Heating, With Gas			Total Distillate Heating			Total Natural Gas Heating			Total Electric Heating		
	Single Family	Multi-Family	Total Distillate	Single Family	Multi-Family	Total With Gas	Total Distillate Heating	Single Family	Multi-Family	Total Gas	Single Family	Multi-Family	Total Electric		
1980.....	2.1	0.3	2.4	1.1	2.3	3.4	5.8	3.7	1.8	5.5	0.8	0.4	1.3		
1981.....	2.0	0.4	2.4	1.0	2.3	3.3	5.7	3.6	2.2	5.9	0.6	0.6	1.1		
1982.....	1.9	0.4	2.3	0.9	2.1	3.0	5.3	4.1	2.2	6.3	0.7	0.3	1.0		
1984.....	2.0	0.3	2.3	1.1	2.4	3.5	5.8	4.0	2.1	6.0	0.7	0.3	1.0		
1987.....	2.0	0.4	2.4	0.8	2.1	2.9	5.4	4.7	2.2	6.9	1.0	0.7	1.7		
1990.....	2.5	0.4	2.9	0.7	1.5	2.3	5.2	4.9	2.5	7.4	1.0	0.4	1.4		
1993.....	2.2	0.3	2.5	0.6	1.4	1.9	4.5	5.0	2.9	7.9	0.8	0.6	1.4		
1997.....	2.2	0.2	2.4	0.4	1.5	2.0	4.4	6.0	1.7	7.7	1.1	0.6	1.7		

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B5. Midwest Summary: Space Heating Equipment
(Million Households)

Year	Distillate Heating, No Gas			Distillate Heating, With Gas			Total Distillate Heating	Total Natural Gas Heating			Total Electric Heating		
	Single Family	Multi-Family	Total Distillate	Single Family	Multi-Family	Total With Gas		Single Family	Multi-Family	Total Gas	Single Family	Multi-Family	Total Electric
1980	1.3	0.1	1.4	0.1	0.0	0.1	1.5	11.0	4.0	15.0	1.2	0.9	2.1
1981	1.4	0.1	1.5	0.1	0.0	0.1	1.6	11.9	3.5	15.4	0.6	1.0	1.6
1982	1.2	0.2	1.4	0.1	0.1	0.2	1.5	10.9	4.6	15.5	1.3	0.8	2.1
1984	1.0	0.1	1.0	0.1	0.0	0.1	1.1	11.0	5.4	16.4	1.0	0.3	1.3
1987	1.3	0.0	1.3	0.1	0.0	0.1	1.5	11.5	5.0	16.5	1.1	0.3	1.5
1990	1.1	0.0	1.1	0.1	0.0	0.1	1.2	12.4	4.1	16.5	1.4	1.3	2.6
1993	1.1	0.0	1.2	0.1	0.0	0.1	1.3	12.8	4.1	16.9	1.8	1.1	2.9
1997	1.0	0.0	1.0	0.0	0.0	0.0	1.0	14.9	3.0	17.9	1.5	1.2	2.7

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B6. Regional Fuel Consumption for Residential Space Heating
(Quadrillion Btu)

Year	Oil Heating				Gas Heating				Electric Heating						
	New England	Mid-Atlantic	Northeast	Midwest	USA	New England	Mid-Atlantic	Northeast	Midwest	USA	New England	Mid-Atlantic	Northeast	Midwest	USA
1980...	0.254	0.607	0.861	0.137	1.233	0.096	0.533	0.629	1.486	3.302	0.008	0.034	0.042	0.061	0.276
1981...	0.204	0.532	0.736	0.155	1.032	0.117	0.611	0.728	1.746	3.782	0.013	0.043	0.056	0.052	0.299
1982...	0.202	0.474	0.677	0.137	0.964	0.107	0.559	0.666	1.327	3.277	0.008	0.025	0.033	0.069	0.266
1984...	0.215	0.512	0.726	0.105	0.948	0.110	0.528	0.638	1.563	3.472	0.009	0.029	0.038	0.047	0.263
1987...	0.205	0.461	0.666	0.120	0.912	0.099	0.625	0.725	1.399	3.345	0.010	0.038	0.047	0.045	0.283
1990...	0.213	0.415	0.629	0.109	0.828	0.098	0.614	0.712	1.421	3.339	0.011	0.030	0.041	0.058	0.303
1993...	0.248	0.380	0.629	0.123	0.885	0.125	0.646	0.771	1.558	3.645	0.010	0.031	0.040	0.074	0.407
1997...	0.271	0.372	0.642	0.100	0.834	0.121	0.618	0.738	1.650	3.579	0.012	0.031	0.042	0.054	0.380

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B7. Regional Fuel Expenditures for Residential Space Heating
(1998 Dollars per Household)

Year	Oil Space Heating					Natural Gas Space Heating					Electric Space Heating				
	New England	Mid-Atlantic	Northeast	Midwest	USA	New England	Mid-Atlantic	Northeast	Midwest	USA	New England	Mid-Atlantic	Northeast	Midwest	USA
1980...	1640	1511	1547	1271	1414	890	803	817	632	510	924	851	866	708	466
1981...	1439	1369	1388	1354	1326	1118	895	933	771	602	1257	1171	1193	814	530
1982...	1261	1159	1187	1139	1109	1145	921	957	690	598	945	887	900	821	514
1984...	1178	942	1004	997	960	1021	882	905	763	612	938	1028	1006	898	481
1987...	696	652	665	632	645	729	735	734	549	471	730	700	706	782	408
1990...	887	756	796	822	743	666	663	663	502	422	577	676	645	524	339
1993...	693	599	633	643	619	711	661	670	542	463	693	631	646	582	378
1997...	716	606	648	670	637	772	693	705	549	452	571	529	540	410	273

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B8. Regional Fuel Prices
(1998 Dollars per Million Btu)

Year	Oil Space Heating					Natural Gas Space Heating					Electric Space Heating				
	New England	Mid-Atlantic	Northeast	Midwest	USA	New England	Mid-Atlantic	Northeast	Midwest	USA	New England	Mid-Atlantic	Northeast	Midwest	USA
1980...	14.5	14.4	14.4	14.2	14.4	10.2	8.3	8.6	6.4	6.9	36.6	31.1	32.2	24.6	24.1
1981...	14.7	14.6	14.6	14.3	14.6	11.3	8.6	9.0	6.8	7.4	37.1	31.4	32.8	25.1	25.2
1982...	13.1	13.0	13.0	12.8	13.0	12.8	10.5	10.8	8.1	8.7	36.8	35.7	35.9	25.0	25.8
1984...	11.2	10.6	10.8	10.9	10.9	10.8	10.0	10.2	8.0	8.4	36.0	36.1	36.1	25.7	26.6
1987...	7.8	7.6	7.7	7.7	7.7	8.7	8.1	8.2	6.5	7.0	31.5	31.2	31.3	25.3	25.8
1990...	9.4	9.4	9.4	9.1	9.3	9.1	8.0	8.1	5.8	6.5	33.8	30.8	31.6	23.7	24.1
1993...	7.1	7.0	7.1	6.8	7.1	9.0	8.0	8.2	5.9	6.5	34.1	29.6	30.6	22.7	23.2
1997...	7.2	7.1	7.1	6.9	7.2	9.3	8.6	8.7	6.0	6.7	31.8	29.3	30.0	20.2	21.3

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B9. Regional Fuel Consumption for Residential Space Heating If All Households With Oil Heat and Gas Service Switched to Gas Heat
(Quadrillion Btu)

Year	Oil Space Heating				Natural Gas Space Heating				USA
	New England	Mid-Atlantic	Northeast	Midwest	New England	Mid-Atlantic	Northeast	Midwest	
1980.....	0.173	0.259	0.432	0.126	0.177	0.881	1.058	1.497	3.791
1981.....	0.142	0.226	0.368	0.141	0.180	0.916	1.096	1.760	4.187
1982.....	0.122	0.210	0.332	0.121	0.187	0.823	1.010	1.342	3.662
1984.....	0.126	0.213	0.339	0.096	0.199	0.826	1.025	1.572	3.887
1987.....	0.161	0.238	0.398	0.112	0.144	0.849	0.993	1.407	3.637
1990.....	0.167	0.254	0.421	0.102	0.145	0.775	0.920	1.428	3.567
1993.....	0.196	0.253	0.449	0.108	0.177	0.774	0.951	1.573	3.852
1997.....	0.229	0.238	0.467	0.097	0.163	0.751	0.914	1.653	3.775

Source: Energy Information Administration, using 1978-1997 RECS data.

Table B10. Regional Fuel Expenditures for Residential Space Heating If All Households With Oil Heat and Gas Service Switched to Gas Heat
(1998 Dollars per Household)

Year	Oil Space Heating				Natural Gas Space Heating				USA
	New England	Mid-Atlantic	Northeast	Midwest	New England	Mid-Atlantic	Northeast	Midwest	
1980.....	1650	1561	1596	1248	986	821	849	633	545
1981.....	1538	1388	1443	1320	1060	859	893	772	621
1982.....	1222	1173	1191	1136	1204	922	972	691	629
1984.....	1147	1016	1061	1007	1084	877	913	762	638
1987.....	684	754	724	650	751	700	708	548	483
1990.....	907	834	862	815	701	640	650	502	433
1993.....	691	715	704	627	754	635	656	543	470
1997.....	723	736	729	671	796	671	691	549	460

Source: Energy Information Administration, using 1978-1997 RECS data.

Appendix C

**Historical Distillate Price Spikes: December 1989-January 1990,
January-February 1994, and January-February 2000**

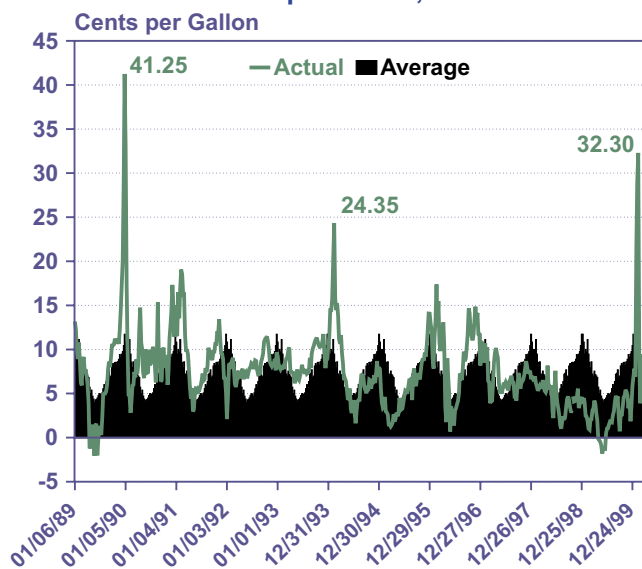
Appendix C

Historical Distillate Price Spikes: December 1989-January 1990, January-February 1994, and January-February 2000

The Northeast has experienced three distillate price spikes in recent years: December 1989-January 1990, January-February 1994, and January/February 2000. In all three cases, distillate prices suddenly soared above crude oil prices, remaining volatile and elevated for several weeks. Figure C1 shows the spread between distillate and crude oil prices since 1989, illustrating the magnitude of the different spikes.

In nominal terms, crude oil prices exacerbated the impact of the spike on consumers in the January 2000 case more than in 1989 or 1994. Crude oil prices were low during the January/February 1994 incident. During the peak distillate price week in 1994, the crude oil price averaged less than \$15 per barrel (35 cents per gallon); during the peak of the winter 1989/90 event, crude oil was \$21.70 per barrel (52 cents per gallon); and the latest event had an underlying crude oil price of \$28.06 per barrel (67 cents per gallon). As a result, the total distillate price peak was higher during the recent January/February 2000 event than during the two other price spikes.

Figure C1. New York Harbor No. 2 Heating Oil Spot Prices Minus West Texas Intermediate Crude Oil Spot Prices, 1989-1999



Source: DRI Platt's daily prices averaged over a week.

The three incidents had many similarities, but there were differences as well. Each involved a surge in demand during cold weather, accompanied by supply disruptions due to refinery outages and weather-related delivery problems. Stocks were rapidly drawn down to very low levels as demand exceeded the arrival of new supply, and prices spiked. However, stock availability at the start of the event and the severity of the weather were different for the three situations.

Stocks have played an important role in each of the price spikes. During a typical winter, distillate stocks are built up during the summer and fall, peaking in November ahead of the high winter demand months of January, February, and March. Most of the seasonal build occurs in the Northeast. Stocks are then used to help meet demand during the peak winter months. In addition to being a supply source themselves during the peak demand months, stocks are the nearest source of supply to the end-use markets, and they act as a supply buffer against unexpected surges in demand or loss of other supply, such as refinery outages. Thus, if demand is high and stocks are low and falling, then demand exceeds the arrival of new supply, and buyers bid prices up as their concern over supply availability increases. The increased price provides the incentive for added supply from increased refinery production and increased imports of distillate. Because the supply additions may take 2 to 3 weeks to be arranged for and delivered, stocks must cover the imbalance until the added supply arrives.

Dynamics of Winter Distillate Markets: Winter 1989-1990

The winter heating season of 1989-1990 began with an extremely low level of distillate stocks. The distillate stock build of late summer and fall was unusually small, and as December began, stock levels for the United States were more than 14 million barrels below average.¹⁰² The East Coast was only in a little better shape at 7 million barrels below average (Figure C2).

Refiners increased distillate production in November and early December, which might have provided some additional stock build had the weather cooperated. It turned unusually cold early in the season, however,

¹⁰²The average winter East Coast and total U.S. distillate stock patterns are based on data for the years 1989-1999.

averaging 36 percent colder than normal during December. In the second and third weeks of December, distillate production was at the highest levels seen at any point during the 3 years before 1989. But on the weekend of December 23rd, cold weather that had been plaguing the U.S. mid-continent and Northeast hit the Gulf Coast. The record-breaking cold front froze water pipes and damaged valves and instruments in refineries. Many refineries were shut down or curtailed production, and some put customers on allocation. Distillate production fell by almost 400,000 barrels per day in the fourth week of December 1989. Furthermore, natural gas production was curtailed by frozen equipment, requiring more natural gas customers to switch to distillate than might otherwise have been the case.

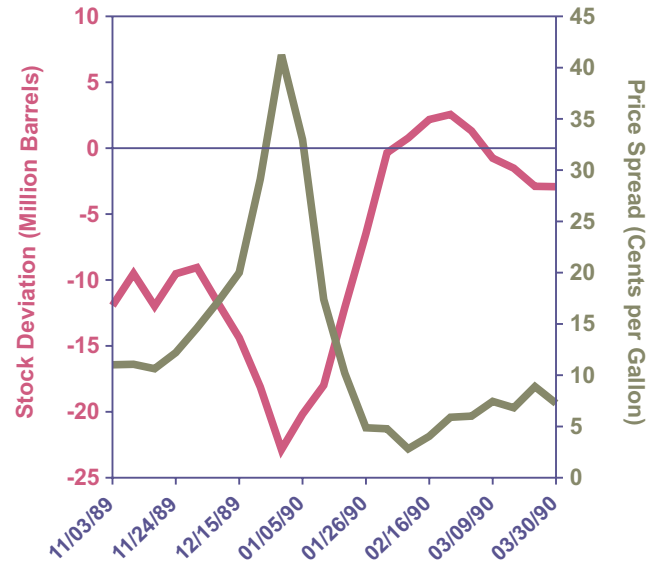
With stocks well below normal, distillate price spreads (No. 2 heating oil minus West Texas Intermediate) at the beginning of December were 15 cents per gallon and growing. The price spiked at the end of month, and the distillate spread grew to over 41 cents by the end of December. In response to the high prices, imports increased, rising from about 200,000 barrels per day for the week ending December 8 to 616,000 barrels per day for the week of February 2, 1990. Imports then fell back to around 300,000 barrels per day in March. East Coast refinery production peaked at 480,000 barrels per day for the week of January 5 before drifting down to about 400,000 barrels per day at the beginning of February.

Dynamics of Winter Distillate Markets: Winter 1993-1994

The winter of 1993-1994 began with East Coast distillate stock levels above average, and they stayed about 7 million barrels above average through the beginning of January. But during the first 5 weeks of the year, East Coast stocks fell by an astounding 31 million barrels (Figure C3). January 1994 was 15 percent colder than normal in the Northeast, and one week was 40 percent colder than normal.¹⁰³ The cold weather did not extend to the Gulf Coast, and deliveries of both natural gas and petroleum from there to the Northeast were maintained, unlike during the December 1989-January 1990 event. Distillate spreads during January rose by 5 cents per gallon, to 15 cents per gallon at the end of the month. Distillate prices in New York Harbor were 9 cents per gallon higher than in Rotterdam—more than sufficient to attract imports.

During the last week of the East Coast stock decline (ending February 4, 1994), stocks stood at a level that was 12 million barrels below average, and distillate spreads peaked shortly thereafter at 28 cents per gallon (daily). The rise to peak prices from mid-January to mid-February resulted in increased supply. East Coast refinery production increased by about 50,000 barrels

Figure C2. Winter 1989-1990 East Coast Stock Variations from Average and Distillate Spreads



Notes: Price spread is the weekly average New York Harbor No. 2 heating oil price minus the West Texas Intermediate crude oil price. Stock deviation is the week-ending stock level minus the average week-ending level for the given week, calculated from 1989 through 1999.

Sources: **Spot Prices:** DRI Platt's daily prices averaged over a week. **Week-Ending Distillate Stocks, January 1990 Forward:** Energy Information Administration, *Weekly Petroleum Status Report*, DOE/EIA-0208 (various issues), Table 10. **Week-Ending Distillate Stocks, November and December 1989:** American Petroleum Institute.

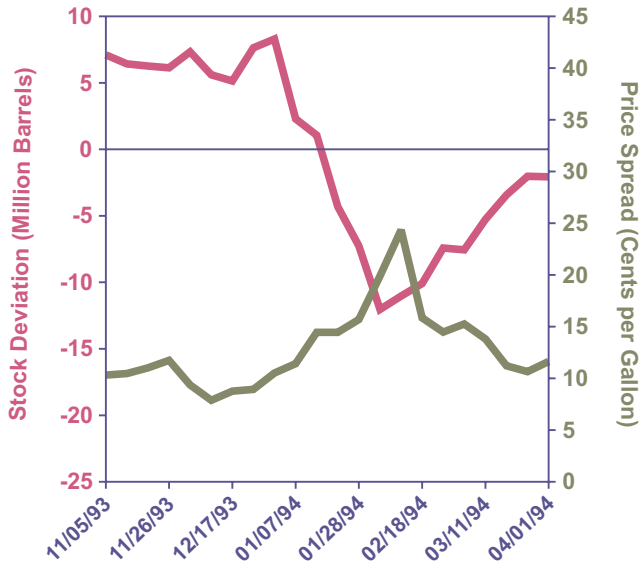
per day over January, and imports to the East Coast increased by about 120,000 barrels per day. East Coast stocks leveled out during February, although they remained at a very low level. Because of the delivery time lag, imports did not peak until the first week in March, when they reached 450,000 barrels per day, compared with January levels of less than 200,000 barrels per day.

Dynamics of Winter Distillate Markets: Winter 1999-2000

As the heating season of 1999-2000 began, distillate stocks were about average. But from December 17, 1999, to January 14, 2000, stocks fell by 12 million barrels, ending at a level that was 10 million barrels below average (Figure C4). Distillate spreads were well below seasonal averages in December, and they strengthened only modestly in early January, remaining below average. In the week ending January 21, the weather turned sharply colder for several weeks. Demand rose, and frozen rivers and high winds interfered with product deliveries. Distillate spreads rose sharply. The average weekly

¹⁰³Petroleum Industry Research Foundation, "Oil Markets During the Cold Weather: The Buck Stops Here," Memorandum Submitted to the Subcommittee on Energy and Power of the Energy and Commerce Committee, U.S. House of Representatives (February 18, 1994).

Figure C3. Winter 1993-1994 East Coast Stock Variations from Average and Distillate Spreads



Notes: Price spread is the weekly average New York Harbor No. 2 heating oil price minus the West Texas Intermediate crude oil price. Stock deviation is the week-ending stock level minus the average week-ending level for the given week, calculated from 1989 through 1999.

Sources: **Spot Prices:** DRI Platt's daily prices averaged over a week. **Week-Ending Distillate Stocks, January 1990 Forward:** Energy Information Administration, *Weekly Petroleum Status Report*, DOE/EIA-0208 (various issues), Table 10. **Week-Ending Distillate Stocks, November and December 1989:** American Petroleum Institute.

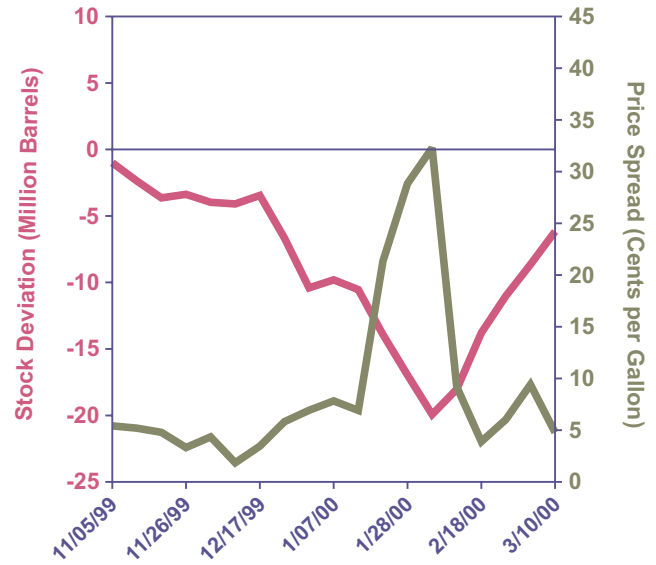
distillate spread increased by 14 cents per gallon over the level of the previous week as the region waited for new supply to relieve the imbalance.

East Coast refinery production increased by 60,000 barrels per day during the week ending February 4 and by another 60,000 barrels per day the following week. The rise in distillate production followed the margin rise by nearly 3 weeks. Imports for the week ending February 11 were 528,000 barrels per day, compared with 105,000 barrels per day during the previous week. Very high levels of imports continued for 3 weeks, averaging 566,000 barrels per day. By February 4, East Coast stocks had fallen to 20 million barrels below average before new supply was able to stop the decline. During the rest of February, distillate stocks on the East Coast stayed flat, improving relative to the normal pattern, which declines during the first quarter of the year.

Summary

Comparing the distillate stock level for the East Coast region (PADD 1) with the average winter pattern provides a good indication of the potential for price spikes.

Figure C4. Winter 1999-2000 East Coast Stock Variations from Average and Distillate Spreads



Notes: Price spread is the weekly average New York Harbor No. 2 heating oil price minus the West Texas Intermediate crude oil price. Stock deviation is the week-ending stock level minus the average week-ending level for the given week, calculated from 1989 through 1999.

Sources: **Spot Prices:** DRI Platt's daily prices averaged over a week. **Week-Ending Distillate Stocks, January 1990 Forward:** Energy Information Administration, *Weekly Petroleum Status Report*, DOE/EIA-0208 (various issues), Table 10. **Week-Ending Distillate Stocks, November and December 1989:** American Petroleum Institute.

In each of the three events discussed here, when PADD 1 stocks fell to 10 million barrels below average, a price spike followed. In the most severe incidents—1989-1990 and 1999-2000—stocks ultimately fell to 20 million barrels below average. There has been only one other winter season since 1989 when stocks fell to 10 million barrels below average, and that was in February 1996. For the week ending February 16, 1996, stocks were 10.7 million barrels below average. Weekly average distillate spreads had increased from 11 cents per gallon to 17 cents per gallon over the preceding 2 weeks. But in the following 2 weeks, demand moderated and was in balance with supply. Stocks stopped falling, and distillate spreads fell back. The imbalance was of a shorter duration.

In summary, when East Coast winter stocks levels are below normal and there is an imbalance between supply and demand that results in a rapid drawdown of stocks, price pressure mounts as inventories approach 10 million barrels below average. If the level approaches 20 million barrels below average, Northeast prices are likely to spike. The examples to date indicate that such spikes can be severe.

Appendix D

Electricity Generation and Fuel Consumption Data, 1980-1999

Table D1. Electricity Generation by Fuel, 1980-1999
(Megawatthours)

Year	Electric Utility Generation										Total	% Heavy Oil ^a	% Light Oil ^a	% Oil
	Coal	Heavy Oil ^a	Hydro	Light Oil ^a	Natural Gas	Nuclear	Other	Total	% Heavy Oil ^a	% Light Oil ^a				
1980	1,161,562,405	232,141,939	276,021,192	13,447,470	346,239,969	251,115,612	5,911,109	2,286,439,696	10.15%	0.59%	10.74%			
1981	1,203,203,324	196,019,707	260,683,719	10,049,895	345,777,209	272,673,555	6,405,233	2,294,812,642	8.54%	0.44%	8.98%			
1982	1,192,004,270	139,030,539	309,213,090	7,392,201	305,259,814	282,773,297	5,538,667	2,241,211,878	6.20%	0.33%	6.53%			
1983	1,259,424,317	135,871,495	332,129,928	7,972,536	274,098,499	293,677,148	7,111,027	2,310,284,950	5.88%	0.35%	6.23%			
1984	1,341,680,794	111,730,557	321,150,440	7,460,401	297,393,648	327,633,552	9,255,230	2,416,304,622	4.62%	0.31%	4.93%			
1985	1,402,128,153	92,548,917	281,149,617	7,050,532	291,945,995	383,690,727	11,327,367	2,469,841,308	3.75%	0.29%	4.03%			
1986	1,385,831,473	128,780,706	290,844,314	6,961,050	248,508,475	414,038,069	12,346,127	2,487,310,214	5.18%	0.28%	5.46%			
1987	1,463,781,290	109,830,793	249,695,233	7,764,358	272,620,840	455,270,390	13,163,995	2,572,126,899	4.27%	0.30%	4.57%			
1988	1,540,652,759	138,637,645	222,939,877	9,222,815	252,800,706	526,973,056	13,023,420	2,704,250,278	5.13%	0.34%	5.47%			
1989	1,553,661,269	144,746,151	265,063,302	12,232,745	266,598,229	529,354,733	12,648,386	2,784,304,815	5.20%	0.44%	5.64%			
1990	1,559,605,707	107,935,943	279,925,918	7,546,663	264,089,401	576,861,678	12,185,699	2,808,151,009	3.84%	0.27%	4.11%			
1991	1,551,166,838	103,113,412	275,519,186	7,021,584	264,171,598	612,565,087	11,465,160	2,825,022,865	3.65%	0.25%	3.90%			
1992	1,575,895,394	81,206,269	239,559,447	5,777,272	263,871,508	618,776,263	12,132,998	2,797,219,151	2.90%	0.21%	3.11%			
1993	1,639,151,186	89,950,830	265,062,757	6,524,028	258,915,301	610,291,214	12,629,450	2,882,524,766	3.12%	0.23%	3.35%			
1994	1,635,492,971	80,860,175	243,693,113	8,036,642	291,114,905	640,439,832	11,074,441	2,910,712,079	2.78%	0.28%	3.05%			
1995	1,652,914,466	51,361,853	293,652,709	7,673,894	307,306,050	673,402,123	8,217,497	2,994,528,592	1.72%	0.26%	1.97%			
1996	1,737,453,477	57,343,476	327,969,977	8,351,904	262,729,781	674,728,546	8,864,991	3,077,442,152	1.86%	0.27%	2.13%			
1997	1,787,806,344	67,077,688	337,233,538	7,294,360	283,624,806	628,644,171	10,842,237	3,122,523,144	2.15%	0.23%	2.38%			
1998	1,807,479,829	95,048,609	304,402,562	10,391,091	309,222,404	673,702,104	11,924,192	3,212,170,791	2.96%	0.32%	3.28%			
1999	1,765,429,778	72,640,051	289,692,790	9,232,907	295,639,305	725,036,130	7,660,493	3,165,331,454	2.29%	0.29%	2.59%			

Year	Nonutility Generation					% Oil: Utility and Nonutility
	Coal	Hydro	Natural Gas	Nuclear	Oil	
1989	30,162,928	5,871,784	96,252,075	47,186	5,542,985	3.05%
1990	30,699,089	6,172,345	113,582,794	112,686	7,030,835	3.34%
1991	38,772,705	6,180,457	127,767,083	77,124	7,493,951	3.12%
1992	45,189,441	9,351,974	154,429,179	65,094	10,507,858	3.67%
1993	50,858,685	11,395,678	169,501,795	76,041	12,814,453	4.08%
1994	56,197,354	13,094,665	186,924,386	51,987	14,463,980	4.22%
1995	57,261,055	14,626,063	204,804,378	0	14,415,816	3.97%
1996	58,256,728	16,389,835	207,417,140	0	14,336,502	3.89%
1997	56,024,858	17,675,113	213,683,643	0	14,974,500	4.03%
1998	66,466,303	14,486,196	239,992,299	0	16,774,565	4.13%

^aLight oil is distillate fuel oil, and heavy oil is residual fuel oil.

Notes: EIA began collecting nonutility data in 1989 and is only final through 1998. Nonutilities do not directly report the split between light and heavy oil generation.

Sources: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-860B, "Annual Electric Generator Report—Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report."

Table D2. Nonutility Diesel, Distillate Fuel Oil, and Residual Fuel Oil Consumption, 1991-1998
(Trillion Btu)

Fuel	1991	1992	1993	1994	1995	1996	1997	1998
National								
Diesel.....	0.000	1.111	0.776	2.344	1.997	1.759	3.468	62.036
Light Oil ^a	25.445	26.390	40.368	49.314	42.773	29.442	43.559	61.277
Heavy Oil ^a	143.471	161.073	178.430	190.096	164.183	187.660	163.697	202.143
Total.....	168.916	188.574	219.574	241.754	208.952	218.862	210.725	325.456
Percent Light Oil ^a	15.06%	14.58%	18.74%	21.37%	21.43%	14.26%	22.32%	37.89%
Census Division 1 - New England								
Diesel.....	0.000	0.087	0.087	0.059	0.093	0.439	0.322	0.080
Light Oil ^a	5.646	4.032	4.840	5.169	3.823	2.317	5.810	6.617
Heavy Oil ^a	37.415	46.032	51.329	53.033	43.297	55.141	42.672	47.435
Total.....	43.061	50.151	56.256	58.261	47.213	57.898	48.805	54.132
Percent Light Oil ^a	13.11%	8.21%	8.76%	8.97%	8.29%	4.76%	12.57%	12.37%
Census Division 2 - Mid-Atlantic								
Diesel.....	0.000	0.120	0.090	0.130	0.692	0.230	0.152	0.272
Light Oil ^a	2.861	3.497	14.586	14.836	13.148	6.398	8.855	5.907
Heavy Oil ^a	28.156	25.877	25.072	29.826	19.231	20.985	17.358	13.365
Total.....	31.016	29.493	39.747	44.792	33.071	27.614	26.365	19.543
Percent Light Oil ^a	9.22%	12.26%	36.92%	33.41%	41.85%	24.00%	34.16%	31.61%
Census Division 3 - East North Central								
Diesel.....	0.000	0.038	0.047	0.038	0.023	0.439	0.534	0.084
Light Oil ^a	0.434	0.613	1.069	2.405	2.027	1.881	1.162	11.834
Heavy Oil ^a	10.082	10.207	11.483	12.142	8.235	16.785	12.747	14.267
Total.....	10.517	10.859	12.598	14.585	10.284	19.106	14.443	26.186
Percent Light Oil ^a	4.13%	6.00%	8.86%	16.75%	19.93%	12.15%	11.74%	45.52%

^aLight oil is distillate fuel oil, and heavy oil is residual fuel oil.

Note: EIA began collecting nonutility data in 1989 and is only final through 1998. Nonutilities do not directly report the split between light and heavy oil generation.

Sources: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-860B, "Annual Electric Generator Report—Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report."

Table D3. Distillate Fuel Oil Consumption for Electricity Generation by Month, 1980-1999
(Barrels)

Year	January	February	March	April	May	June	July	August	September	October	November	December
	Electric Utility Consumption											
1980	3,203,286	2,767,869	2,195,969	1,361,970	1,523,699	1,950,633	3,828,468	4,016,097	2,149,294	1,428,027	2,310,439	2,315,747
1981	3,046,537	2,242,266	1,404,684	1,356,357	1,794,981	2,704,752	2,615,287	1,421,908	1,144,780	1,123,018	1,139,225	1,319,180
1982	3,130,528	1,420,724	1,303,949	1,132,099	991,248	1,052,983	1,360,263	1,052,720	920,767	869,811	1,007,366	1,094,257
1983	1,110,424	984,406	944,960	1,054,406	936,947	1,019,790	1,432,640	1,542,904	1,507,341	869,613	1,075,166	4,033,723
1984	2,175,565	1,017,589	1,016,260	830,822	1,009,891	1,926,542	1,258,544	1,521,989	995,602	965,315	1,326,327	1,145,748
1985	2,481,723	1,333,055	979,639	910,681	962,052	1,111,396	1,109,123	1,337,600	978,768	969,455	1,021,161	1,440,044
1986	1,688,473	1,099,686	927,837	892,584	1,209,008	1,390,314	1,727,407	1,149,790	1,106,992	869,279	1,075,512	1,189,023
1987	1,316,961	1,148,510	1,226,721	1,033,183	1,182,806	1,406,711	2,074,848	1,647,568	924,170	891,454	1,307,064	1,206,905
1988	2,299,165	1,136,519	1,044,761	805,213	998,067	1,856,758	1,942,820	3,207,212	1,004,284	1,099,674	1,201,673	2,172,828
1989	2,054,576	2,426,944	2,690,518	1,045,381	1,522,137	2,069,505	2,179,763	1,530,441	1,526,021	1,180,010	1,484,111	5,781,277
1990	1,236,942	974,012	915,910	1,035,276	1,146,358	1,554,847	1,614,610	1,618,368	1,317,642	1,185,978	910,261	1,312,892
1991	1,187,303	803,666	827,774	1,018,718	1,814,465	1,122,367	1,218,129	1,379,572	1,165,147	902,337	1,146,089	1,143,410
1992	1,103,110	806,236	843,393	810,841	842,662	1,076,973	1,427,819	1,011,487	848,761	792,314	1,003,591	988,506
1993	1,013,193	935,016	1,276,928	818,766	867,766	1,032,707	1,816,950	1,566,013	1,030,726	897,268	885,856	1,026,776
1994	3,708,634	1,396,753	1,014,052	1,041,314	1,163,764	1,871,348	1,529,794	1,020,993	869,853	810,684	862,505	1,048,118
1995	1,056,994	1,316,380	906,942	917,867	1,133,485	1,194,824	1,878,603	2,853,030	903,066	932,183	1,051,046	1,421,037
1996	1,912,533	2,480,281	1,545,042	978,254	1,345,936	1,079,182	1,293,874	1,109,970	1,066,205	937,095	997,098	2,146,357
1997	1,622,809	790,182	834,433	982,828	943,462	1,348,491	2,492,659	1,300,740	972,977	1,052,854	1,020,488	1,794,679
1998	937,723	753,648	1,179,683	963,474	1,991,844	3,102,943	3,362,457	3,044,973	2,604,877	974,845	991,126	2,133,607
1999	2,250,700	826,918	1,013,812	1,517,235	1,208,081	1,856,872	4,500,679	2,845,033	1,166,132	966,986	856,043	1,015,676
	Nonutility Consumption											
1980	18,659	16,123	12,792	7,933	8,876	11,362	22,301	23,394	12,520	8,318	13,458	13,489
1981	17,746	13,061	8,182	7,901	10,456	15,755	15,234	8,283	6,668	6,542	6,636	7,684
1982	18,235	8,276	7,596	6,594	5,774	6,134	7,924	6,132	5,363	5,067	5,868	6,374
1983	6,468	5,734	5,504	6,142	5,458	5,940	8,345	8,987	8,780	5,065	6,263	23,496
1984	12,673	5,927	5,920	4,840	5,883	11,222	7,331	8,866	5,799	5,623	7,726	6,674
1985	14,456	7,765	5,706	5,305	5,604	6,474	6,461	7,792	5,701	5,647	5,948	8,388
1986	9,835	6,406	5,405	5,199	7,042	8,099	10,062	6,698	6,448	5,064	6,265	6,926
1987	7,671	6,690	7,146	6,018	6,890	8,194	12,086	9,597	5,383	5,193	7,614	7,030
1988	13,393	6,620	6,086	4,690	5,814	10,816	11,317	18,682	5,850	6,406	7,000	12,657
1989	11,968	14,137	15,672	6,089	8,866	12,055	12,697	8,915	8,889	6,874	8,645	33,676
1990	7,205	5,674	5,335	6,030	6,678	9,057	9,405	9,427	7,675	6,908	5,302	7,648
1991	6,916	4,681	4,822	5,934	10,569	6,538	7,096	8,036	6,787	5,256	6,676	6,660
1992	6,426	4,696	4,913	4,723	4,909	6,273	8,317	5,892	4,944	4,615	5,846	5,758
1993	5,902	5,446	7,438	4,769	5,055	6,016	10,584	9,122	6,004	5,227	5,160	5,981
1994	21,603	8,136	5,907	6,066	6,779	10,901	8,911	9,947	5,067	4,722	5,024	6,105
1995	6,157	7,668	5,283	5,347	6,603	6,960	10,943	16,619	5,260	5,430	6,122	8,278
1996	11,141	14,448	9,000	5,698	7,840	6,286	7,537	6,466	6,211	5,459	5,808	12,503
1997	9,453	4,603	4,861	5,725	5,496	7,855	14,520	7,577	5,668	6,133	5,944	10,454
1998	5,462	4,390	6,872	5,612	11,602	18,075	19,586	17,737	15,173	5,678	5,773	12,428
1999	13,110	4,817	5,905	8,838	7,037	10,816	26,216	16,572	6,793	5,633	4,986	5,916

Note: EIA began collecting nonutility data in 1989 and is only final through 1998. Nonutilities do not directly report the split between distillate fuel oil and residual fuel oil generation.
Sources: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-860B, "Annual Electric Generator Report—Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report."

Table D4. Electricity Generation by Fuel, Census Division 1, 1980-1999
(Megawatthours)

Year	Electric Utility Generation										Total	% Heavy Oil ^a	% Light Oil ^a	% Oil
	Coal	Heavy Oil ^a	Hydro	Light Oil ^a	Natural Gas	Nuclear	Other	Total	% Heavy Oil ^a	% Light Oil ^a				
1980	4,538,654	46,698,737	3,404,694	484,627	576,169	22,450,207	48,941	78,202,029	59.72%	0.62%	60.34%			
1981	4,467,540	40,958,382	4,640,841	237,925	795,669	25,784,625	26,089	76,911,071	53.25%	0.31%	53.56%			
1982	11,199,301	33,086,247	4,397,879	310,927	1,471,006	26,496,606	43,436	77,005,402	42.97%	0.40%	43.37%			
1983	11,927,216	32,281,816	4,686,480	383,976	2,584,300	26,251,134	50,480	78,165,402	41.30%	0.49%	41.79%			
1984	14,622,781	33,251,450	4,599,830	718,752	3,575,159	23,785,862	177,586	80,731,420	41.19%	0.89%	42.08%			
1985	16,167,923	28,486,302	4,003,191	568,504	4,673,852	27,207,862	280,138	81,387,772	35.00%	0.70%	35.70%			
1986	14,149,446	36,919,358	4,808,530	823,824	1,376,579	29,387,580	84,729	87,550,046	42.17%	0.94%	43.11%			
1987	16,673,651	31,867,359	4,108,658	963,434	4,744,476	29,255,747	155,930	87,769,255	36.31%	1.10%	37.41%			
1988	16,979,148	36,670,879	3,819,144	1,139,922	1,933,230	32,498,780	341,927	93,383,030	39.27%	1.22%	40.49%			
1989	17,248,003	35,784,662	4,333,616	1,253,146	5,193,375	33,126,123	501,728	97,440,653	36.72%	1.29%	38.01%			
1990	16,583,321	27,257,610	5,603,383	477,902	6,250,712	37,403,556	515,784	94,092,268	28.97%	0.51%	29.48%			
1991	17,147,179	25,860,842	4,739,749	531,833	4,360,009	33,820,053	548,714	87,008,379	29.72%	0.61%	30.33%			
1992	16,284,393	20,969,720	3,959,435	322,847	4,108,822	38,473,922	466,194	84,585,333	24.79%	0.38%	25.17%			
1993	14,986,976	17,102,047	3,760,414	273,416	3,001,972	44,299,286	470,502	83,894,613	20.39%	0.33%	20.71%			
1994	15,495,426	14,634,520	4,124,901	374,733	4,623,652	41,169,782	510,645	80,933,659	18.08%	0.46%	18.55%			
1995	16,223,448	10,676,063	3,613,701	449,614	8,836,651	35,670,207	531,193	76,000,877	14.05%	0.59%	14.64%			
1996	17,178,120	12,632,757	5,401,061	368,772	8,648,431	30,255,125	572,390	75,056,656	16.83%	0.49%	17.32%			
1997	19,123,961	22,184,709	4,508,236	309,665	10,340,158	16,432,023	601,094	73,499,846	30.18%	0.42%	30.60%			
1998	13,164,281	21,376,314	4,359,462	382,809	4,859,433	20,686,136	572,847	65,401,282	32.68%	0.59%	33.27%			
1999	4,760,016	7,993,338	1,491,777	272,531	2,103,337	27,341,549	681,114	44,643,662	17.90%	0.61%	18.52%			

Year	Nonutility Generation					% Oil	% Oil: Utility and Nonutility
	Coal	Hydro	Natural Gas	Nuclear	Other		
1989	363,447	2,024,297	687,780	0	1,627,685	10,544,303	15.44%
1990	1,808,396	2,349,897	1,571,217	0	1,541,056	13,866,406	11.11%
1991	2,384,479	2,241,520	6,508,509	0	1,254,397	19,604,366	6.40%
1992	2,248,528	2,667,431	10,726,313	0	1,459,459	25,135,836	5.81%
1993	2,267,749	2,500,641	12,091,148	0	1,708,635	27,206,106	6.28%
1994	2,417,117	2,682,306	13,504,443	0	1,876,056	28,862,406	6.50%
1995	2,254,075	2,535,751	13,033,773	0	1,796,956	28,289,140	6.35%
1996	2,142,117	3,202,504	13,122,453	0	1,721,262	28,792,708	5.98%
1997	2,395,707	2,946,283	13,677,824	0	1,523,053	28,946,805	5.26%
1998	5,608,848	3,261,759	19,481,471	0	3,902,364	39,871,951	24.38%

^aLight oil is distillate fuel oil, and heavy oil is residual fuel oil.

Note: EIA began collecting nonutility data in 1989 and is only final through 1998. Nonutilities do not directly report the split between light and heavy oil generation.

Sources: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-860B, "Annual Electric Generator Report—Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report."

Table D5. Electricity Generation by Fuel, Census Division 2, 1980-1999
(Megawatthours)

Year	Electric Utility Generation										Total	% Heavy Oil ^a	% Light Oil ^a	% Oil
	Coal	Heavy Oil ^a	Hydro	Light Oil ^a	Natural Gas	Nuclear	Other	Total	% Heavy Oil ^a	% Light Oil ^a				
1980	119,530,366	54,799,580	26,689,332	2,520,929	17,867,007	38,993,730	133,105	260,534,049	21.03%	0.97%	22.00%			
1981	113,329,898	50,507,443	26,083,217	1,795,135	18,933,659	43,395,362	110,489	254,155,203	19.87%	0.71%	20.58%			
1982	116,349,135	42,764,535	26,932,565	1,372,440	19,836,038	44,949,012	169,701	252,373,426	16.94%	0.54%	17.49%			
1983	119,802,570	48,135,831	27,100,726	1,762,981	21,218,825	37,422,096	420,411	255,863,440	18.81%	0.69%	19.50%			
1984	122,568,700	41,372,191	27,783,222	1,822,821	24,099,052	48,360,207	380,262	266,386,455	15.53%	0.68%	16.22%			
1985	127,375,546	34,907,491	27,679,556	1,313,144	21,475,013	68,094,447	309,716	281,154,913	12.42%	0.47%	12.88%			
1986	119,366,734	43,423,184	30,642,328	1,580,480	15,592,728	76,675,061	382,382	287,662,897	15.10%	0.55%	15.64%			
1987	128,211,283	39,747,541	28,364,881	2,008,663	22,932,655	80,605,746	446,317	302,317,086	13.15%	0.66%	13.81%			
1988	136,162,930	49,739,679	24,383,703	2,577,385	18,499,292	85,927,934	515,129	317,806,052	15.65%	0.81%	16.46%			
1989	139,529,773	50,785,260	24,946,737	3,508,265	22,084,968	85,044,763	488,917	326,388,683	15.56%	1.07%	16.63%			
1990	133,670,746	37,441,953	27,301,259	1,388,888	25,423,894	105,180,794	419,199	330,826,733	11.32%	0.42%	11.74%			
1991	130,534,488	31,728,748	25,406,213	1,149,704	25,535,125	110,730,570	387,822	325,472,670	9.75%	0.35%	10.10%			
1992	132,529,150	19,948,841	26,670,800	655,442	23,323,852	105,882,758	418,838	309,429,681	6.45%	0.21%	6.66%			
1993	127,675,591	18,860,089	27,988,973	793,362	19,943,469	111,152,035	386,291	306,799,810	6.15%	0.26%	6.41%			
1994	119,457,273	16,062,213	26,545,193	1,343,062	22,305,985	118,567,584	442,238	304,723,548	5.27%	0.44%	5.71%			
1995	121,848,141	9,989,369	23,969,141	1,265,934	29,965,394	109,603,224	548,859	297,190,062	3.36%	0.43%	3.79%			
1996	127,128,343	11,226,123	27,494,718	1,327,034	16,435,561	114,925,730	635,350	299,172,859	3.75%	0.44%	4.20%			
1997	134,019,227	9,213,301	28,929,951	1,016,348	24,093,598	111,132,280	621,853	309,026,558	2.98%	0.33%	3.31%			
1998	135,606,564	17,188,098	28,003,634	1,287,133	23,339,326	119,595,071	634,949	325,654,775	5.28%	0.40%	5.67%			
1999	102,627,689	13,547,180	20,928,811	1,392,525	21,190,580	136,874,310	371,488	296,932,583	4.56%	0.47%	5.03%			

Year	Nonutility Generation					% Oil	% Oil: Utility and Nonutility
	Coal	Hydro	Natural Gas	Nuclear	Other		
1989	4,593,724	734,125	5,034,383	0	1,759,692	13,125,197	7.64%
1990	4,970,933	959,516	6,971,914	0	2,743,948	16,777,214	6.74%
1991	7,357,624	868,084	10,722,609	0	3,902,716	23,951,791	4.60%
1992	9,278,947	1,897,010	21,839,871	0	5,251,611	39,418,313	2.92%
1993	10,427,744	1,706,811	27,550,666	0	5,662,383	46,977,369	3.47%
1994	11,556,854	1,858,441	33,171,098	0	5,701,588	54,422,540	3.92%
1995	14,037,534	1,568,617	43,855,830	0	6,068,114	67,248,816	2.56%
1996	14,749,887	2,313,414	41,789,350	0	6,109,904	66,341,196	2.08%
1997	13,681,606	2,143,932	42,943,210	0	5,901,798	66,145,624	2.23%
1998	13,878,090	1,943,842	40,673,523	0	6,042,125	63,698,534	1.82%

^aLight oil is distillate fuel oil, and heavy oil is residual fuel oil.

Note: EIA began collecting nonutility data in 1989 and is only final through 1998. Nonutilities do not directly report the split between light and heavy oil generation.

Sources: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-860B, "Annual Electric Generator Report—Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report."

Table D6. Electricity Generation by Fuel, Census Division 3, 1980-1999
(Megawatthours)

Year	Electric Utility Generation										Total	% Heavy Oil ^a	% Light Oil ^a	% Oil
	Coal	Heavy Oil ^a	Hydro	Light Oil ^a	Natural Gas	Nuclear	Other	Total	% Heavy Oil ^a	% Light Oil ^a				
1980	318,737,720	12,369,798	3,542,335	2,105,695	4,489,256	55,662,818	65,731	396,973,353	3.12%	0.53%	3.65%			
1981	314,160,401	7,870,170	3,638,526	1,522,682	3,108,490	60,675,078	71,015	391,046,362	2.01%	0.39%	2.40%			
1982	300,605,571	4,805,427	3,798,062	1,219,126	2,105,608	56,121,538	79,231	368,734,563	1.30%	0.33%	1.63%			
1983	316,788,766	3,366,904	4,081,849	1,034,882	2,206,395	58,606,609	68,166	386,153,571	0.87%	0.27%	1.14%			
1984	331,113,923	2,324,018	3,757,723	977,890	1,465,988	64,112,071	288,731	404,040,344	0.58%	0.24%	0.82%			
1985	335,639,564	1,039,246	3,888,392	1,099,962	1,086,124	65,480,464	359,616	408,593,368	0.25%	0.27%	0.52%			
1986	339,512,009	2,414,521	3,567,489	973,161	1,508,457	66,094,347	515,749	414,585,733	0.58%	0.23%	0.82%			
1987	348,953,676	1,806,007	2,504,834	916,707	940,007	83,406,568	660,942	439,188,741	0.41%	0.21%	0.62%			
1988	350,815,830	1,778,323	2,389,259	1,049,361	1,579,892	106,892,852	692,867	465,198,384	0.38%	0.23%	0.61%			
1989	355,688,019	1,515,202	2,698,089	929,653	1,524,204	119,641,214	719,114	482,715,495	0.31%	0.19%	0.51%			
1990	362,333,020	766,901	3,263,316	922,275	2,277,257	115,387,612	884,973	485,835,354	0.16%	0.19%	0.35%			
1991	365,922,735	1,120,295	3,722,686	968,609	3,404,539	124,711,513	620,891	500,461,268	0.22%	0.19%	0.42%			
1992	360,265,015	585,362	3,858,054	714,599	2,899,912	118,603,736	636,749	487,563,427	0.12%	0.15%	0.27%			
1993	376,682,351	933,539	3,728,314	931,864	2,794,372	128,373,693	336,432	513,780,565	0.18%	0.18%	0.36%			
1994	383,432,200	1,401,292	3,280,251	1,132,569	4,547,292	109,267,496	348,533	503,409,633	0.28%	0.22%	0.50%			
1995	388,842,356	954,914	3,594,239	1,006,164	6,014,150	130,666,901	626,623	531,705,347	0.18%	0.19%	0.37%			
1996	408,295,640	936,078	4,104,902	914,545	3,723,063	120,644,464	761,384	539,380,076	0.17%	0.17%	0.34%			
1997	416,284,507	697,443	3,926,264	922,217	5,995,918	92,229,327	922,559	520,978,235	0.13%	0.18%	0.31%			
1998	418,626,920	1,153,843	2,805,713	1,160,522	9,116,698	93,962,727	1,342,695	528,169,118	0.22%	0.22%	0.44%			
1999	408,764,344	1,166,331	2,007,648	1,274,409	7,793,638	123,863,436	1,092,646	545,962,452	0.21%	0.23%	0.45%			

Year	Nonutility Generation					% Oil	% Oil: Utility and Nonutility
	Coal	Hydro	Natural Gas	Nuclear	Other		
1989	5,482,204	196,841	5,239,145	0	2,207,364	13,514,850	2.88%
1990	5,248,707	239,601	11,536,178	0	2,638,400	20,124,779	2.30%
1991	5,236,546	263,591	11,796,682	0	3,034,696	20,687,139	1.72%
1992	6,301,252	509,868	13,135,997	0	492,481	23,541,224	2.09%
1993	6,834,096	515,108	13,840,733	0	605,717	25,318,738	2.39%
1994	8,292,266	527,927	14,675,851	0	692,476	27,994,687	2.47%
1995	6,507,582	483,263	15,694,169	0	623,473	27,466,240	2.27%
1996	6,672,292	519,380	17,569,020	0	784,382	30,074,873	2.61%
1997	6,639,081	522,544	17,606,281	0	711,619	30,558,751	2.33%
1998	9,315,096	433,820	16,975,793	0	1,063,869	32,963,686	3.23%

^aLight oil is distillate fuel oil, and heavy oil is residual fuel oil.

Note: EIA began collecting nonutility data in 1989 and is only final through 1998. Nonutilities do not directly report the split between light and heavy oil generation.

Sources: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report"; Form EIA-860B, "Annual Electric Generator Report—Nonutility"; and Form EIA-867, "Annual Nonutility Power Producer Report."

