Sales of Fuel Oil and Kerosene in 1995

Similar to 1994, distillate and residual fuel oil sales continued to move in opposite directions. Distillate sales rose 2.1 percent over 1994 while residual fuel oil sales fell 16.9 percent. A growing economy spurred distillate growth. On the other hand, warm weather and competitive prices of alternative fuels reduced residual fuel oil sales to their lowest level since 1938.

Distillate Fuel Oil

The transportation sector, consisting of on-highway, vessel bunkering and railroad uses, continued to dominate distillate sales with 60.9 percent of total distillate sales. A strong economy, reflected in the 4.6 percent increase (in current dollars) in the Gross Domestic Product (GDP), pushed distillate sales in the transportation sector up 5.3 percent in 1995, as demand for delivery of goods and services increased. At 25.6 billion gallons, on-highway diesel sales increased 4.6 percent to 81.6 percent of distillate in the transportation sector and 49.7 percent of all distillate sales.

Sales of distillate to railroads also increased in 1995 to 3.4 billion gallons, up 288 million gallons.[1] This demand was driven by an 8.3 percent increase in the ton-miles of cargo moved on railroads in 1995 according to the American Association of Railroads. Vessel bunkering increased as well to over 2.3 billion gallons, an increase of 150 million gallons or 6.8 percent in 1995. This increase was due to more movement of cargo (in ton-miles) on U.S. waterways according to the U. S. Army Corps of Engineers.

Distillate sales to residential customers for home heating were down 5.2 percent in 1995, primarily due to one of the mildest winters on record in the first quarter of 1995. Although the last quarter of 1995 was colder than the last quarter of 1994, this did not make up for the extremely low demand in the first part of 1995. Overall residential sales were only 6.9 billion gallons in 1995, which was the lowest since 1991. Approximately 13.3 percent of all distillate sales in 1995 were for residential use and 82.7 percent of those sales were in PAD District I.

Table HL1. Volume Distribution of Distillate and Residual Fuel Oils, 1994 and 1995

End Use	Distillate 1995		Distillate 1994		Residual 1995		Residual 1994	
	Volume (million gallons)	Percent Share	Volume (million gallons)	Percent Share	Volume (million gallons)	Percent Share	Volume (million gallons)	Percent Share
Residential	6,860	13.3	7,234	14.4	--	--	--	--
Commercial	3,631	7.1	3,775	7.5	923	7.5	1,061	7.2
Industrial	2,239	4.3	2,269	4.5	1,978	16.1	2,337	15.8
Oil Company	687	1.3	675	1.3	211	1.7	243	1.6
Farm	3,476	6.8	3,270	6.5	--	--	--	--
Electric	597	1.2	664	1.3	3,262	26.5	5,729	38.6
Railroad	3,429	6.7	3,141	6.2	--	--	--	--
Vessel Bunkering	2,339	4.5	2,189	4.3	5,886	47.8	5,386	36.3
On-Highway	25,576	49.7	24,443	48.5	--	--	--	--
Military	462	0.9	610	1.2	51	0.4	62	0.5
Off-Highway	2,173	4.2	2,153	4.3	--	--	--	--
Other	0	0.0	1	0.0	7	0.0	6	0.0
Total	51,469	100.0	50,424	100.0	12,318	100.0	14,825	100.0

Sources: Energy Information Administration, Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report," 1994 and 1995.

[1]A respondent omitted 65 million gallons of distillate for railroad use in Kansas on the 1994 report. If that volume had been counted in Kansas, the over 1994 would have been 223 million gallons.

Commercial use distillate decreased 3.8 percent in 1995 which equates to a drop of 144 million gallons. The biggest drop came in No. 2 fuel oil (used primarily for heating) which dropped 230 million gallons (down 13.4 percent) primarily due to the warmer winter of early 1995. Approximately 10 percent of the drop (i.e., over 20 million gallons) was due to a switch by several large fuel oil dealers to selling high sulfur diesel instead of fuel oil. Even with those additional gallons, high sulfur diesel was off as well, down 43 million gallons or 8.6 percent. This reflects a gradual move away from high sulfur toward low sulfur diesel.

Low sulfur diesel use increased 209 million gallons or 21.3 percent in 1995 partially due to the movement away from high sulfur diesel. Steady use of on-highway diesel by governments and an increase in diesel use by transit authorities also led to the increase. Use of No. 1 distillate (for heating, in buses, and blended into government vehicles when the weather is extremely cold) was also down significantly, off 83 million gallons or 40.4 percent from 1994 due to the milder winter. The reduction in No. 1 distillate use on-highway also explains some of the increase in demand for low sulfur No. 2 diesel.

Due to a 4.1 percent increase in the use of natural gas by industrial users, industrial use of distillate was down 1.3 percent in 1995 even though industrial production was up.[2] More natural gas was available due to increased pipeline capacities and milder weather which caused fewer gas interruptions. With a significant price advantage over distillate, natural gas is the preferred alternative for industrial users.

Farm use of distillate at 3.5 billion gallons was up 6.3 percent despite the total area planted (in principal crops) being down by 1.7 percent in 1995. Some of the increase in fuel use was due to requirements to replant more corn and wheat in 1995 with an over abundance of rainfall and localized flooding in the spring; some cotton fields also required more replanting due to hail storms in Texas.[3] A major reason for the overall increase in diesel fuel use had to do with the 23.4 percent increase in the acreage planted in cotton.[4] Most of the major increases in diesel fuel use occurred in the cotton belt, in States such as Texas, Arkansas, and Georgia. The major reductions in diesel fuel use took place primarily in the corn belt States (in particular, Iowa and Nebraska) since corn acreage planted was off 10.0 percent in 1995.[5]

Off-Highway use at 2.2 billion gallons was only up 19 million gallons or 0.93 percent in 1995. This increase was small because private expenditures for construction were only up 1.9 percent in 1995.[6] Any government use of fuel for construction is categorized under military or commercial end-use.

Oil company use at 687 million gallons was up 1.7 percent in 1995 despite an apparent decrease in drilling activities in the United States. The main reason for the increase in diesel fuel use was due to changes in drilling techniques and technology. More wells are being drilled using air erosion (which is very diesel fuel intensive) rather than utilizing the traditional auger and more horizontal drilling occurred which uses significantly more fuel than vertical drilling. Some of the increase in diesel use was also driven by the 2.8 percent growth in active well servicing units and the growth in the number of exploratory oil and gas wells which were up 22.9 and 6.3 percent respectively.[7] Spacing regulations between rigs were also reduced which allowed rigs to move shorter distances and hence drill additional wells more frequently. Oil company use would have been up significantly if the total number of rotary rigs in operation had not gone down so much (i.e., by 6.7 percent) and total footage drilled was not off so dramatically (by 15.0 percent).[8]

Electric utility distillate sales were down 10.0 percent in 1995 to 597 million gallons, a drop of 66 million gallons. This decrease was primarily due to the mild weather in the first quarter of 1995 which significantly reduced demand for peak use diesel fired generation units. Demand for such units was at a premium during the first quarter of 1994 when a severe cold snap gripped the Northeast and Midwest.

[2]Manufacturing was up 3.4 percent, while mining was off 0.39 percent in 1995 according to *Economic Indicators*, July 1996.

[3]Overall expenditures for all fuels for farm use was up 7.8 percent in 1995 according to *Farm Production Expenditures 1995 Summary*, July 1996, put out by the Agricultural Statistics Board, National Agricultural Statistics Service (NASS), of the U.S. Department of Agriculture (USDA). Part of the increase was due to higher fuel prices, the rest was increased demand.

[4]Acreage planted figures come from the *Annual Crop Summary*, Agricultural Statistics Board, NASS, USDA, January 1996.

[5]Ibid.

[6]*Economic Indicators*, April 1996.

[7]*Monthly Energy Review*, June 1996, Table 5.1.

[8]Ibid

Military distillate use dropped 149 gallons in 1995 to 462 million gallons due to continued downsizing of the military and reduced military training operations. This 462 million gallons is the lowest annual amount of distillate used by the military since 1960.

Residual Fuel Oil

In 1995, residual fuel oil sales in the United States decreased for the sixth year in a row, dropping a dramatic 16.9 percent from the previous year to its lowest level in 57 years.[9] Residual fuel oil sales dropped from 14.8 billion gallons in 1994 to 12.3 billion gallons in 1995. See the feature article on page 11 for more detail on why residual fuel oil sales have continued to drop dramatically throughout the 1990s.

Vessel bunkering use captured 47.8 percent of the residual fuel oil market in 1995, surpassing electric utility use as the primary end use for this fuel. The increase in vessel bunker market share was primarily due to weak demand for residual fuel oil at electric utilities. Vessel bunkering use, at 5.9 billion gallons, was up 9.3 percent. The competitive prices in Los Angeles and Houston in 1995 compared to prices in Singapore and Rotterdam also helped to increase sales. Reduced demand for the fuel in other sectors of the economy also made the fuel more available for bunkering.

In 1995, electric utilities accounted for 26.5 percent of all residual fuel oil sales, down from the 38.6 percent market share in 1994. Sales dropped an extraordinary 43.1 percent last year, going from 5.7 billion gallons to only 3.3 billion gallons. The variety of factors that contributed to this massive decline in demand are outlined below.

The primary factor was the mild winter in early 1995 compared to the bitterly cold winter in early 1994. Although demand for electricity is highest when temperatures are hot, demand for residual fuel oil is usually highest when it is extremely cold. The reason is that the key alternative to residual fuel oil as the peak load fuel for electricity generation (i.e., natural gas) is typically unavailable to utilities. Natural gas interruptions occurred frequently in 1994 and were rare in 1995.

Price also had a major impact. For five months in 1994, the average U.S. price for residual fuel oil was less than the price of natural gas; the monthly average U.S. price for residual fuel oil was never less than natural gas in 1995 (*Electric Power Monthly*, July 1996, p. 39). A significant increase in the availability of most of the less costly alternative fuels (such as hydroelectric, nuclear, natural gas, and coal) also reduced demand in 1995. Table HL2 illustrates this change.

Industrial remained the third largest end use category for residual fuel oil with sales of 1.9 billion gallons in 1995. Like electric utility, industrial use dropped dramatically in 1995, 15.4 percent. The two main reasons for the volume decrease in 1995 were increased availability of natural gas in 1995 and the significantly lower cost of natural gas compared to residual fuel oil (in 1995).

Commercial use of residual fuel oil dropped 13.1 percent in 1995 to 923 million gallons. Decreased need for heating in 1995 was the primary reason for the drop, although some of the drop is due to a gradual decline in the number of apartment buildings and commercial facilities heated with residual fuel.

Oil company use of residual fuel oil was down 12.9 percent in 1995 from 243 million to 211 million gallons. Since fewer refineries are producing this fuel, and the cost of other fuels is typically less, refineries are using less residual fuel oil for operations.

Table HL2. Electric Utility Net Generation of Electricity
(Million Kilowatt Hours)

Year	Petroleum	Hydro-Electric	Nuclear	Natural Gas	Coal
1994	91,039	243,693	640,440	291,115	1,635,493
1995	60,844	293,653	673,402	307,306	1,652,914
Change	-30,195	+49,950	+32,962	+16,191	+17,421

Source: *Electric Power Monthly*, July 1996, p. 12.

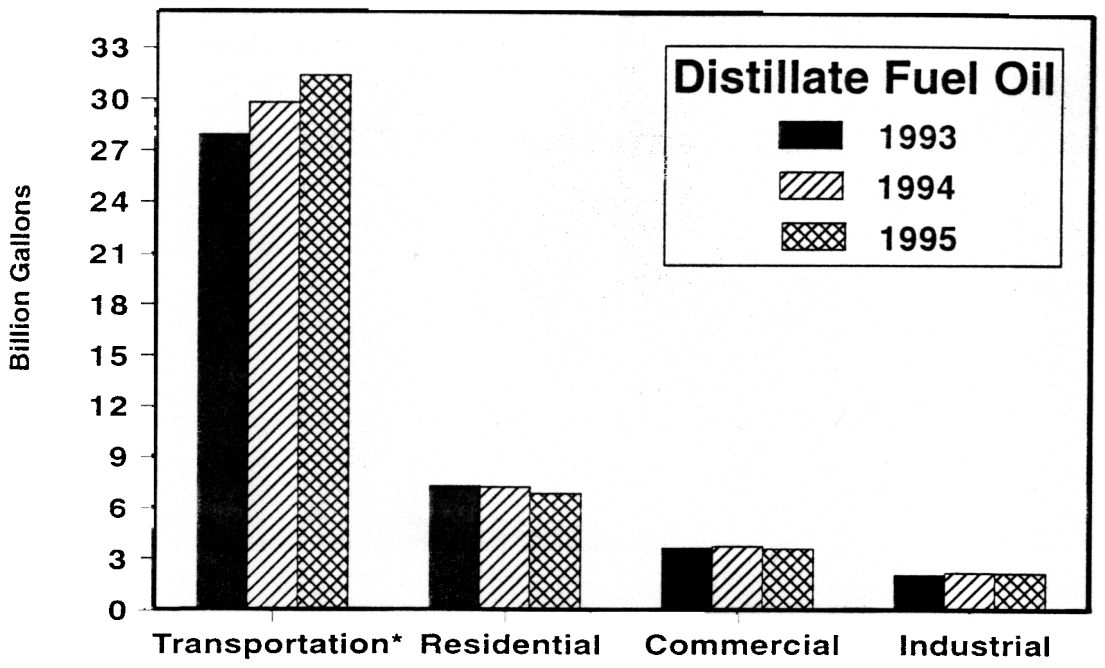
[9]According to U.S Bureau of Mines statistics, the last time sales were lower was 1938, after the big oil boom of 1937 went bust, and the resulting stock drawdown in 1938 left sales at slightly less than 12.3 billion gallons.

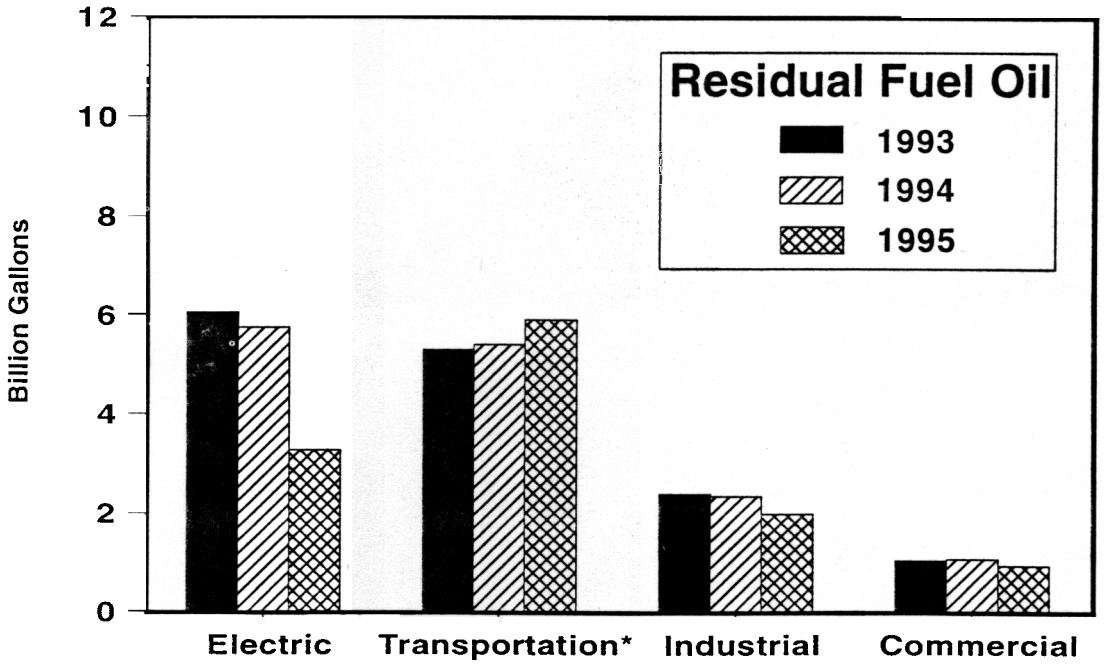
Military use dropped 17.8 percent to only 51 million gallons as many older fuel oil ships are being mothballed and few new ships are entering service. Many of the bases that have residual fuel oil burners have been closed down as well. Military use of residual fuel oil appears to be the lowest it has been since prior to World War I, when steam ships were fired by coal.

Kerosene

Total U.S. kerosene sales increased 10.4 percent in 1995. Increases were observed in the residential and commercial end-use sectors. Residences continued to use the majority of kerosene, with a 66.4 percent of all kerosene sales.

Figure HL1. U.S. Sales of Distillate and Residual Fuel Oils by End Use, 1993-1995

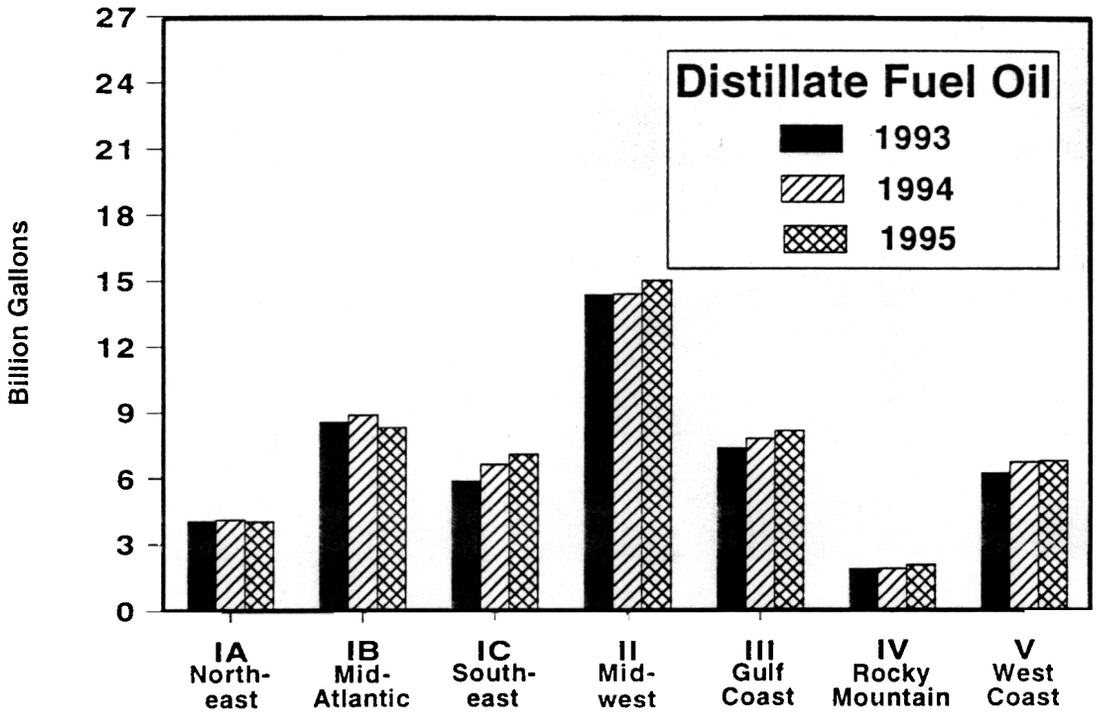


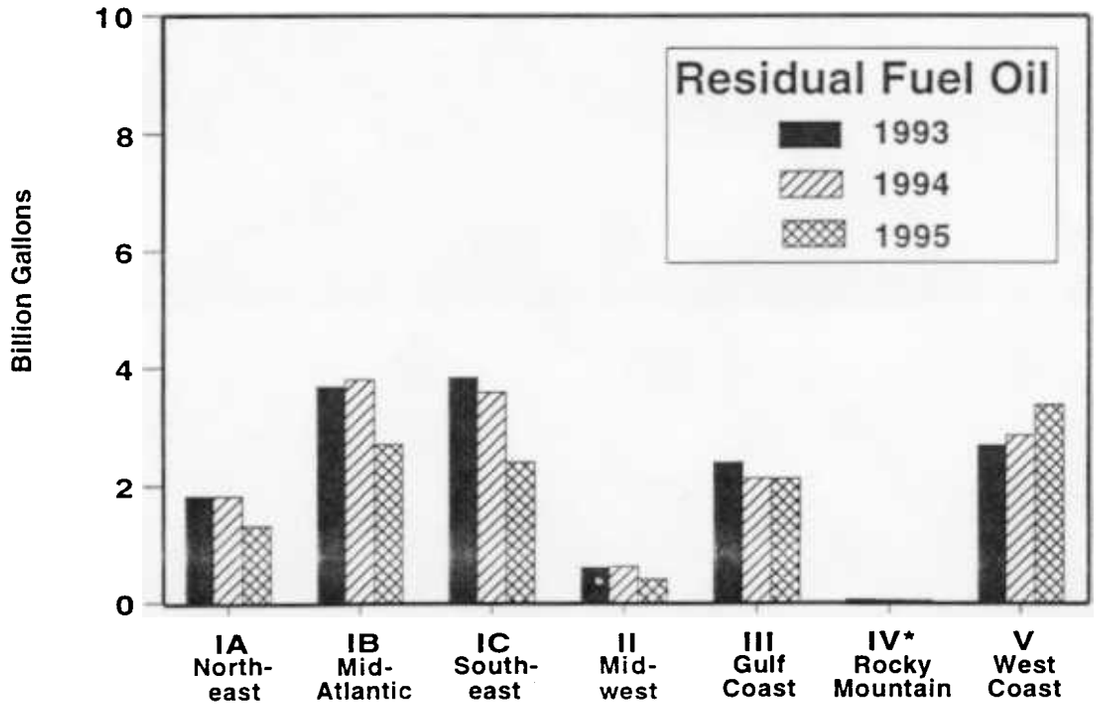


*For distillate fuel oil, transportation use comprises railroad, vessel bunkering, and on-highway diesel end-use categories. For residual fuel oil, transportation use comprises the vessel bunkering end-use category.

Sources: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 1994 and 1995.

Figure HL2. Volume Distribution of Distillate and Residual Fuel Oils by PAD District, 1993-1995

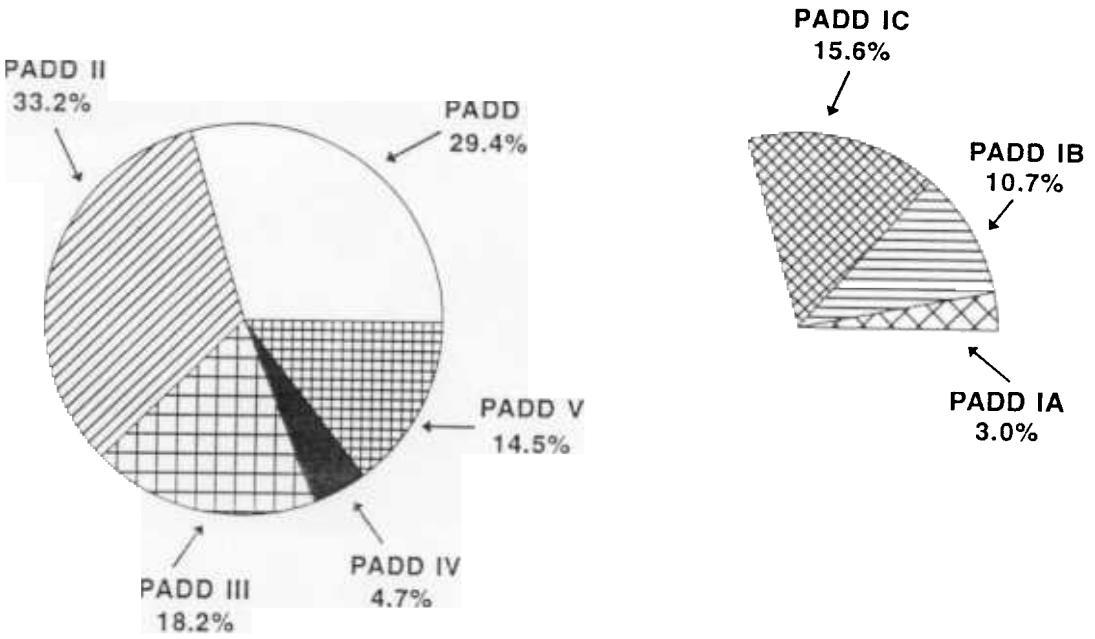




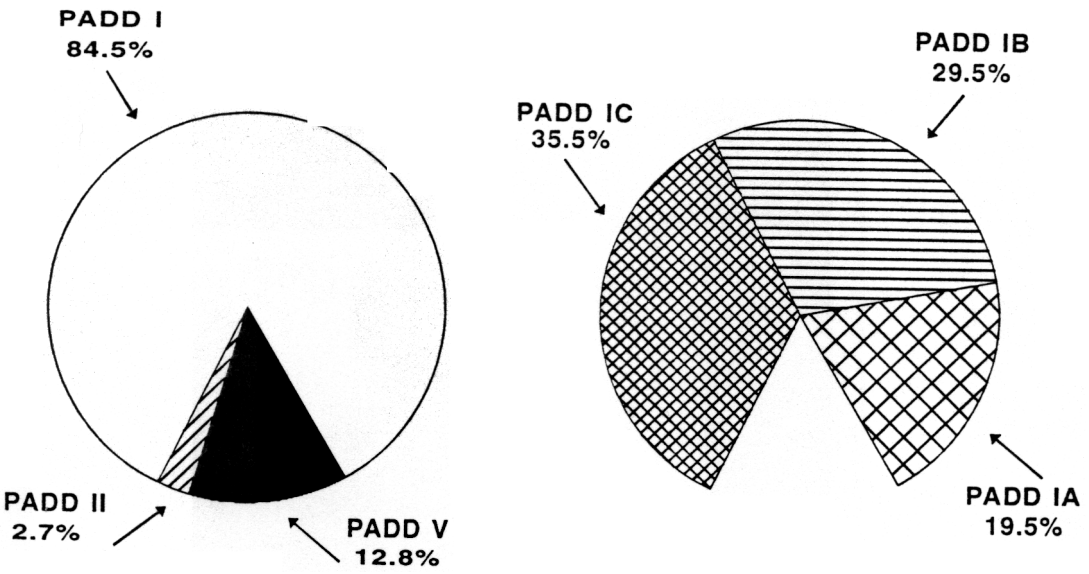
*Residual fuel oil sales in PAD District IV are too small to appear in this graph.
Sources: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 1994 and 1995.

Figure HL3. Distillate and Residual Fuel Oil Sales for Selected End-Use Categories by PAD District, 1995

Distillate: Transportation



Residual: Electric Utility



Source: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 1995.