

## Highlights

# Sales of Fuel Oil and Kerosene in 1999

Despite warmer than normal winter conditions, continued strength in the U.S. economy helped boost distillate demand for the eighth year in a row to reach an all time high of more than 57.5 billion gallons. Total distillate sales increased by 4.1 percent in comparison to 1998. Residual fuel oil sales, however, did not fair as well. Despite the strength of the economy and considerable growth in the bunker market, residual fuel oil sales fell by 9.5 percent in comparison to 1998. The drop in sales indicates a return to the long-term trend of a shrinking market that with the exception of 1996 and 1998, has characterized the residual fuel oil market for more than a decade. Total sales of kerosene also decreased, dropping by 6.6 percent from the level set in 1998.

Distillate sales accounted for an even greater share of the fuel oil market in 1999 than they had in 1998. (Distillate sales made up 79.9 percent of total fuel oil sales compared to approximately 77.6 percent in 1998). Primarily as the result of declining sales to the electric power sector, residual fuel oil sales fell back below 20.0 percent of total fuel oil sales, accounting for 18.5 percent of total sales.<sup>1</sup> Kerosene sales accounted for the remaining 1.6 percent of total sales.

## Distillate Fuel Oil

As they have for the past several years, sales of distillates surpassed the previous all-time high set the previous year. Led by strong sales of on-road diesel, as well as increases in the construction, residential and commercial sectors, distillate sales exceeded 57 billion gallons for the first time. The total of 57.6 billion gallons exceeded the previous high, set in 1998, by approximately 2.3 billion gallons or 4.1 percent, nearly two and a half times the volume increase achieved in 1998.

Distillate sales derived less benefit from the continuation of low prices during the first half of the year than from the continued robust nature of the U.S. economy. Economic growth as measured by the change in gross domestic product (GDP) increased by 4.1 percent in comparison to 1998, and was only slightly below the growth rate of 4.3 percent set in 1998.<sup>2</sup>

Aside from the increased sales to the residential and commercial markets, the bulk of the increases in the distillate market can be attributed to the on-going

**Table HL1. Volume Distribution of Distillate and Residual Fuel Oils, 1998 and 1999**

End Use	Distillate 1999		Distillate 1998		Residual 1999		Residual 1998	
	Volume (million gallons)	Percent Share	Volume (million gallons)	Percent Share	Volume (million gallons)	Percent Share	Volume (million gallons)	Percent Share
Residential .....	6,302	11.0	5,820	10.5	—	—	—	—
Commercial .....	3,338	5.8	3,233	5.8	646	4.8	715	4.9
Industrial .....	2,478	4.3	2,462	4.5	1,700	12.8	1,798	12.2
Oil Company .....	659	1.2	784	1.4	124	0.9	127	0.9
Farm .....	3,412	5.9	3,411	6.2	—	—	—	—
Electric .....	816	1.4	841	1.5	4,990	37.4	6,432	43.7
Railroad .....	3,239	5.6	3,180	5.8	—	—	—	—
Vessel Bunkering .....	2,419	4.2	2,595	4.7	5,838	43.8	5,620	38.1
On-Highway .....	32,062	55.7	30,150	54.5	—	—	—	—
Military .....	357	0.6	352	0.6	26	0.2	34	0.2
Off-Highway .....	2,490	4.3	2,477	4.5	—	—	—	—
Other .....	0	0.0	0	0.0	4	0.0	4	0.0
<b>Total .....</b>	<b>57,572</b>	<b>100.0</b>	<b>55,305</b>	<b>100.0</b>	<b>13,328</b>	<b>100.0</b>	<b>14,730</b>	<b>100.0</b>

Sources: Energy Information Administration, Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report," 1998 and 1999.

<sup>1</sup>Sales of residual fuel oil to the electric power industry surged in 1998 and exceeded 20.0 percent of the total fuel oil sales for the first time since 1994. For details, see *Sales of Fuel Oil and Kerosene*, Energy Information Administration, 1999, p 4.

<sup>2</sup>*Economic Indicators*, April 2000, Washington D.C., U.S. Government Printing Office, p1-2, 19.

health of the economy, the resulting boost in demand for the transportation and delivery of goods, and for use in the construction industry.<sup>3</sup>

The transportation sector continued to dominate distillate fuel oil sales in 1999, accounting for two thirds of total distillate sales.<sup>4</sup> In addition, sales of on-highway distillates accounted for nearly 80 percent of the increase in the sales of all distillates.

Sales of on-highway diesel fuel increased by 6.3 percent or 1.9 billion gallons. The magnitude of the increase in sales to the on-highway market was the largest single factor responsible for the overall gain in distillate sales.

For the first time since 1996, distillate sales to railroads increased due to improved efficiency. Unlike the situation in 1997 when the merger of two large systems resulted in significant disruptions to scheduling and deliveries, further consolidations among major railroads in 1999 were successfully completed without major incident.<sup>5</sup> Sales to railroads increased by 58.9 million gallons.

The strength of the economy also stimulated growth in distillate sales to the residential, commercial, off-road construction, and agricultural sectors of the market. Sales to the residential sector increased by 8.3 percent, or 482 million gallons, in comparison with the level of sales in 1998. However, the magnitude of the increase may be somewhat misleading. Note: The size of the increase must be viewed in a larger context, taking into account the unusually low volume of sales reported in 1998 when sales of the residential sector fell by more than 700 million gallons from the 1997 level. In addition, the sample used to develop the 1999 results was updated, replacing the four-year old sample used in compiling the data for 1998. Consequently, some of the apparent differences between 1999 and 1998 may have been influenced by the differences between the two samples.

The winter in 1999, while warmer than normal, was considerably cooler than the winter of 1998 and stimulated a sizeable increase in residential demand. How-

ever, when distillate sales to the residential sector reported for 1999 are compared to the level of sales reported in 1997, sales fell by approximately 3.5 percent, or just over 228 million gallons. The exceptionally low volume of sales in 1998 resulted from an unusually warm winter and high levels of stocks from the outset of the year that were sustained throughout the year.<sup>6</sup> By contrast, the winter of 1997 was both cooler than the winter in 1999 and colder than normal in New England, the principal region for heating oil. The result was increased demand in 1999 in comparison to 1998, but a slight drop in sales in 1999 when compared to 1997.

Sales to the agricultural sector were essentially unchanged from 1998, increasing only about 1 million gallons. Nonetheless, this marked the first time in three years that sales did not decline from the previous year. Agricultural sales were supported by record setting acreage of the soybean crop, and sizeable increases in production of fruit, vegetable, and nut crops. The small increase in sales, in large measure, reflects the smaller harvests and the decline in amount of acreage devoted to corn and wheat in 1999.<sup>7</sup>

Sales to the off-highway and construction sector benefited from late passage of the highway bill in 1998 which added to the list of projects undertaken in 1999 (projects funded under the 1998 bill had to be completed even as 1999 projects were underway). Consequently, sales to the off-highway and construction sector increased by approximately 13.3 million gallons.

Not all segments of the distillate market experienced increased sales. As the result of a combination of higher distillate prices during the second half of the year, and a milder than normal winter coupled with a summer less severe than in 1998, sales to the electric power industry decreased slightly, by 2.9 percent or 24.7 million gallons compared to the surge in demand of more than 200 million gallons that occurred in 1998.

Neither winter nor summer weather reached the extremes necessary to play a significant role in shaping fuel oil or distillate demand. The winter was cooler than in 1998 but was still milder than normal. Al-

<sup>3</sup>Total vehicle miles traveled increased by 2.1 percent in 1999 compared to 2.5 percent in 1998. Source, Federal Highway Administration, Annual Vehicle Distance Traveled in Miles and Related Data 1998, Table VM-1, and *Traffic Volume Trends April 2000*, Table 1 & 9B.

<sup>4</sup>Compared to approximately 65.0 percent in 1998.

<sup>5</sup>In 1997, delays from prolonged congestion on one major system were sufficient to impact demand of distillate and fuel oil. The delays directly contributed to the reduction in demand of distillate used by the railroads. At the same time, the delays indirectly stimulated demand for fuel oil by reducing the availability of coal for the production of electric power.

<sup>6</sup>Stock levels remained high throughout the year reflecting diminished demand resulting from warm winter conditions throughout much of the Northern Hemisphere as well as the lingering effects of the economic downturn in Asia.

<sup>7</sup>Department of Agriculture, National Agricultural Statistics Service, *Statistical Highlights 1999 & 2000: Overview, U.S. Crop Summary*, p 4-5.

though the summer was somewhat warmer than normal, it was also milder than the summer of 1998. For the U.S. as a whole, the winter was 8.7 percent milder than normal compared to 12.8 percent milder in 1998 and the summer was 7.1 percent warmer in 1999 compared to 13.9 percent warmer during the previous year.

Oil company direct use of distillate fuel oil decreased sharply for the second year in a row as companies continued to deal with low prices by cutting back on exploration, development and other activities requiring fuel usage. In 1999, driven by the falling crude oil and natural gas prices during the first several months of the year, the number of rotary rigs in operation dropped, steadily falling below 500 for the first time. Overall for the year, rig counts declined by 24.5 percent. However, rig counts recovered strongly during the fourth quarter of the year reaching 798 by December.<sup>8</sup> Other than in portions of PAD District I, the East Coast and in PAD District V, the West Coast, direct oil company use decreased throughout the U.S. Sales fell by more than 124 million gallons or a decline of 15.9 percent.

On a regional basis, distillate sales to the residential sector, despite a somewhat warmer than normal winter, increased in the New England and Middle Atlantic portions of PAD District I, and in PAD District II, III and V as well. Sales declined only in PAD District IV, the Rocky Mountains and the southeastern portion of PAD District I where the winter was particularly mild. Sales increased significantly in the New England and Middle Atlantic portions of PAD District I, two regions where sales had fallen sharply in 1998. Sales increased by 139 million gallons in New England, and by 279 million gallons in the Middle Atlantic region.

Sales to the commercial sector also increased in most areas of the country. However, in New England, although heating oil sales increased, overall distillate sales to the commercial sector dropped. To some extent, the decline reflected the warmer than normal winter, and to some extent changing fuel use patterns. Sales were also down in the southeastern portion of PAD District I where the winter in Florida was particularly mild. However, sales in the Middle Atlantic region were up sharply, by more than 140 million gallons.

Overall sales of distillate to the industrial sector increased slightly, by 0.6 percent. The relatively small

increase in part reflects the increased use of natural gas, a somewhat smaller increase in the output of durable goods than was the case in 1998, and in large measure the impact of high volume of purchases and storing of product late in 1998 as prices fell. On a regional basis, sales of distillate for industrial purposes increased in the Middle Atlantic region of PAD District I, in PAD District III, the Gulf Coast, and in PAD District IV, the Rocky Mountains.

Distillate sales to the military increased slightly during 1999. Sales increased by 1.3 percent or 4.4 million gallons in comparison to the drop of 80.4 million gallons that occurred in 1998. On a regional basis and reflecting increased activity in support of operations in the Balkans, sales increases were concentrated in PAD District I along the East Coast and in PAD District II, the Middle West. Sales fell in both PAD District III, the Gulf Coast, PAD District IV, the Rocky Mountains, and PAD District V, the Pacific Coast.

Sales to the agricultural sector increased slightly for the U.S. as a whole, but decreased in some of the principal crop raising areas of the country. Sales of distillates for agricultural uses increased throughout PAD District I, the East Coast and in PAD District V, and the West Coast where the production of the vegetables, fruits and nuts are concentrated and where production increased significantly in 1999. The decrease in the number of corn and wheat harvested acres, coupled with warm weather through much of the year (reducing heating demand in the winter and crop drying needs in the summer and fall) had a negative impact on distillate demand in some of the major agricultural regions. Sales decreased in PAD District II, the Midwest by 4.7 percent or 79 million gallons. Sales also fell in PAD District III and PAD District IV by 9 percent and 4.6 percent, respectively.

Distillate sales to the utility sector fell in 1999 as the result of several factors. During the final months of 1998, utilities took advantage of exceptionally low prices to make unusually heavy purchases of fuel. Consequently, product storage levels were particularly high at the beginning of 1999. As the winter developed to be milder than normal, stock levels remained high. By the middle of the year, rapidly rising prices and a milder than normal summer in many areas of the country further dampened demand. Demand fell in the electric power sector throughout the eastern portions of the U.S. and the Gulf Coast. Demand increased slightly in PAD District IV, the Rocky

<sup>8</sup>U.S. Average Rig Counts by State, Baker Hughes (Hughes Christensen), 1998, 1999. See also, EIA *Monthly Energy Review*, Table 5.1.

<sup>9</sup>The U.S. is divided into 5 Petroleum Administration for Defense Districts (PAD Districts). District I, East Coast, District II, Midwest, District III, Gulf Coast, District IV, Rocky Mountains, and District V, Pacific Coast. PAD District I is broken into three subdivisions: Sub district A, New England, Sub district B, Middle Atlantic, and Sub district C, Southeast

Mountain States and in PAD District V, the West Coast.

## Residual Fuel Oil

The long-term downward trends in residual sales resumed in 1999, reversing the unusual upturn in demand that occurred in 1998. Both the large increase in sales in 1998 and subsequent sharp drop in sales in 1999, resulted in large measure from changing market conditions in the utility sector. In 1998, sales to electric utilities surged by more than 1.8 billion gallons driven by the unusually low prices and a shift away from coal on the part of utilities. Initially in 1999, the build-up of storage that resulted from the unusually heavy purchases by utilities late in 1998 dampened demand. Demand was further curtailed as the result of both another warmer than normal winter and summer. While warmer than normal, it was considerably milder in most areas of the country than the summer of 1998 and thus reduced the demand to meet summer peaks.<sup>10</sup> Finally, rapidly rising, and prolonged higher prices significantly reduced demand, particularly during the second half of the year. The drop in demand to the utility sector not only reversed the gains made in 1998, but also overwhelmed the gains made in the bunker market and in the overall demand for residual fuel oil falling by 9.5 percent in comparison to 1998.

Sales to the utility segment fell throughout the U.S. except in PAD District V, the Pacific Coast. The largest drop was in PAD District I, the East Coast, where utility sales are concentrated. Sales in PAD District I fell by nearly 25 percent or 1.4 billion gallons. Sales also fell sharply in PAD District III, the Gulf Coast where sales were off by more than 40 percent, or 169 million gallons.

The drop in total sales of residual fuel oil should be viewed in the context of the long-term decline in sales that resulted in a drop in sales of approximately 40 percent between 1987 and 1996. Although price volatility and other considerations, such as the sustained outages of facilities<sup>11</sup> may result in significant increases in regional or even national sales of residual fuel to the utility market, such conditions are unlikely to be robust in the long-term. Nationally, as new power plants come on line, most will be gas fired reducing demand. Regionally, the New England market will

likely shrink significantly as gas flows into the region from Sable Island reach their expected levels.

Sales of residual fuel oil to the commercial, industrial, and military sectors declined in 1999 as they had in 1998. The drop in commercial sales of residual fuel oil was particularly sharp in the New England region of PAD District I and in PAD District V along the Pacific Coast. However, sales did increase in the Middle Atlantic and Southern portions of PAD District I but dropped somewhat in the Mississippi River Valley, PAD District II. Sales to the industrial sector were also mixed on a regional basis. Overall sales declined moderately, by 5.4 percent. However, sales increased by 10.6 percent in PAD District III, the Gulf Coast and more than doubled in PAD District V where sales had plunged the year before. Sales of residual fuel oil to the military fell in all regions of the country. Total sales dropped by 23.6 percent or 7.9 million gallons. The decline in sales was greatest in PAD District I where sales fell by 5.6 million gallons.

The impact of low prices during 1998 and the early months of 1999 led to dramatic cuts by oil companies in budgets for exploration, development, and other projects. Consequently, the number of drilling rigs in operation fell below 500 for the first time during the year.<sup>12</sup> Nonetheless, sales of residual fuel oil for direct use by oil companies were mixed on a regional basis. While sales fell in PAD District I, III, and IV, strong sales in PAD District V, and a small increase in PAD District II resulted in a relatively small decrease overall.

The bright spot in residual sales were the sales to the bunker markets. Bunker sales surged, increasing 3.9 percent or, 217.7 million gallons. Bunker sales increased in the Middle Atlantic and Southeastern portions of PAD District I and along the Pacific Coast. The largest increase occurred in PAD District V, the West Coast where sales surged by more than 340 million gallons, an increase of 21.2 percent. Despite a decline in sales in the New England portion of PAD District I, overall sales in Pad District I increased by 10.3 percent, approximately 158 million gallons. Unlike the other coastal regions, bunker sales in PAD District III fell as competition from throughout the Caribbean region increased.<sup>13</sup>

<sup>10</sup>For the U.S. as a whole, 1999 was 12.9 percent milder as measured in cooling degree days than 1998. The only exceptions were New England which measured 16.6 percent warmer than 1998 and the Middle Atlantic which was just 4.4 percent warmer than 1998.

<sup>11</sup>For example, the outage of several nuclear plants that boosted sales in the New England regional market in 1997 and 1998.

<sup>12</sup>See footnote 9 for details.

<sup>13</sup>Vessel bunkering residueal fuel oil sales in PAD District III for 1998 were overstated by approximately 300 million gallons, due to misreporting by a large company.

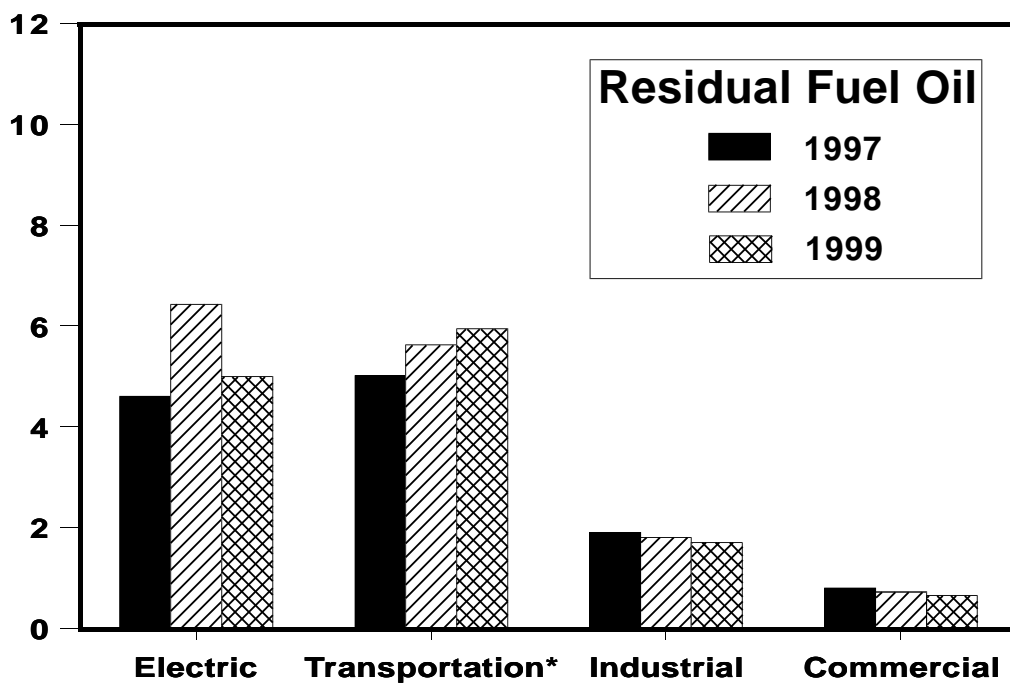
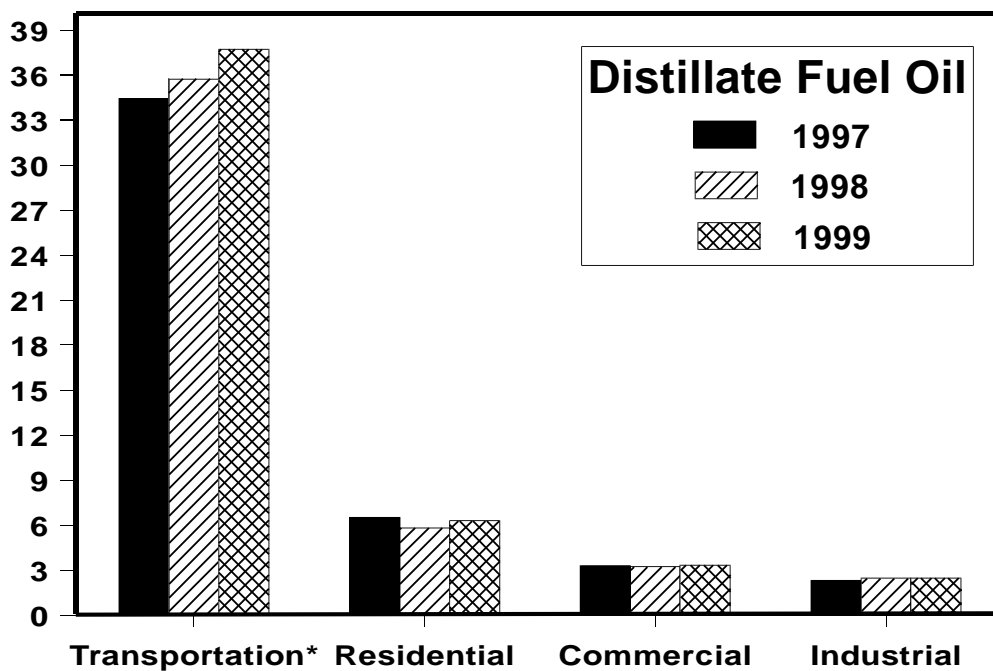
The extremely strong sales of vessel bunkering fuel oil in PAD District V reflected the improving economic situation in Asia. In part, the increase also reflected oversupply and low prices in the PAD District at a time of tight supplies and higher prices in Asia. As a result, the regional market became particularly attractive to shippers and also opened arbitrage opportunities to ship products to Asia.

## **Kerosene**

Unlike 1998, kerosene sales reached the highest level during the decade at 1.2 billion gallons. In 1999, sales

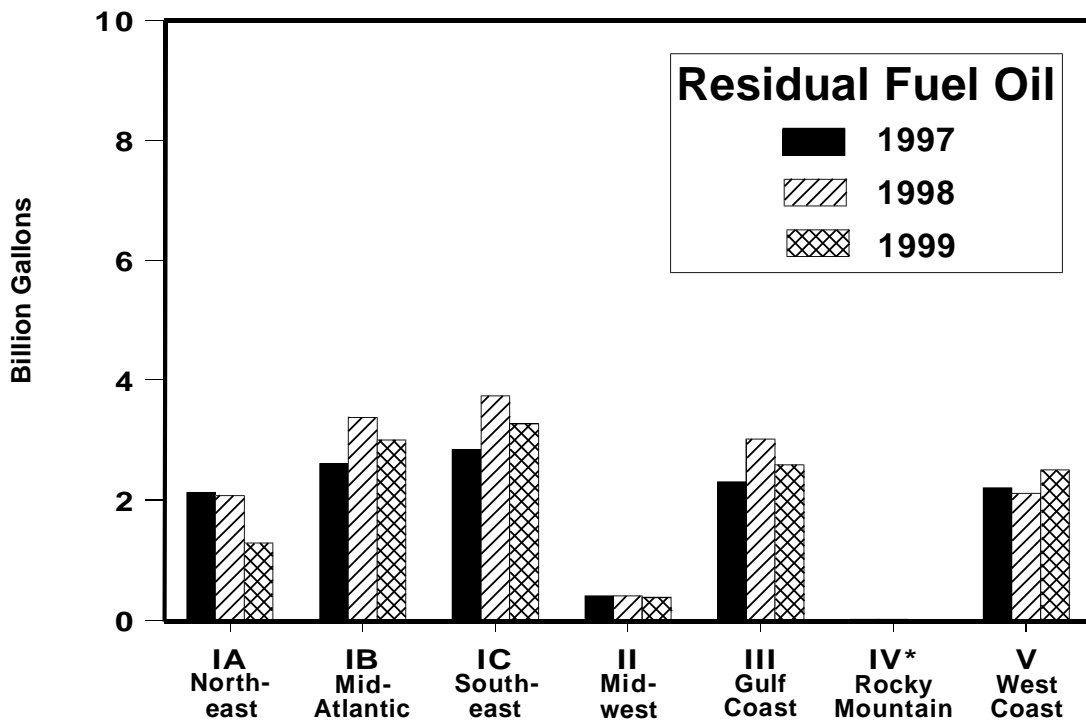
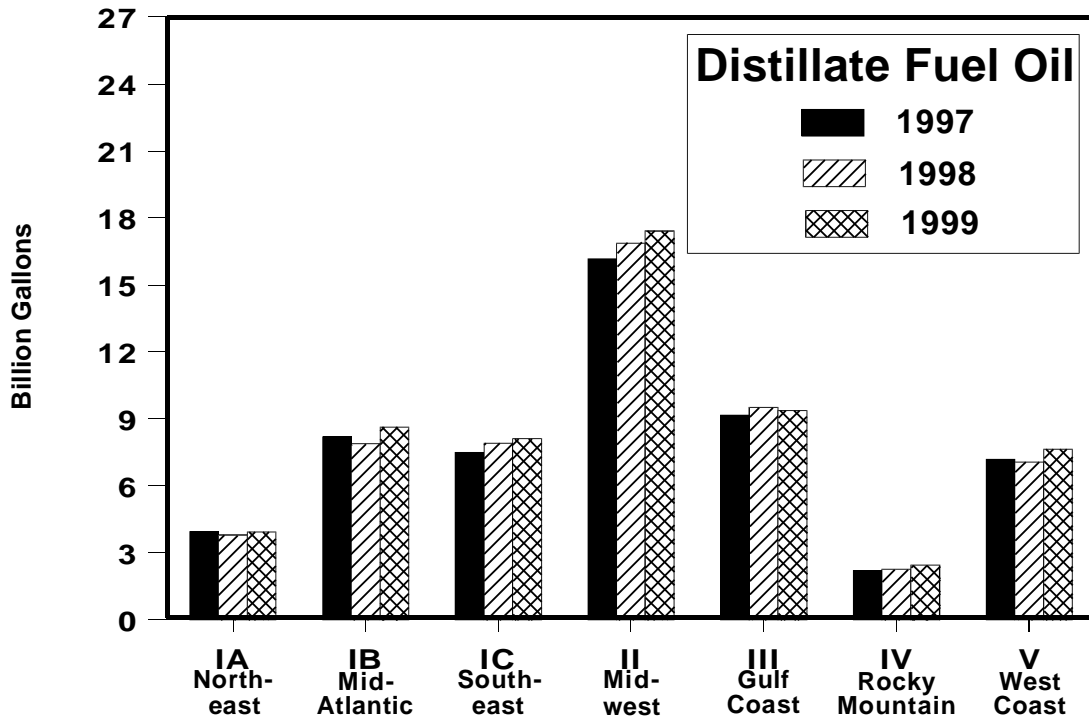
fell by 6.6 percent. Although sales to the residential sector increased slightly (by 2.6 percent or 21.1 million gallons) sales to all other sectors fell. Sales on a regional basis were generally down as well. The only exception was in PAD District II, the Midwest where gains in sales to the residential sector resulted in an overall increase despite declines in sales to other sectors in the region. Sales to residential consumers continued to dominate the kerosene market accounting for more than two thirds of total kerosene sales. Kerosene sales to the commercial sector decreased by 13.5 percent and sales to the industrial sector decreased sharply by nearly 53 percent.

Figure HL1. U.S. Sales of Distillate and Residual Fuel Oils by End Use, 1997-1999



\*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," 1998 and 1999.

Figure HL2. Volume Distribution of Distillate and Residual Fuel Oils by PAD District, 1997-1999

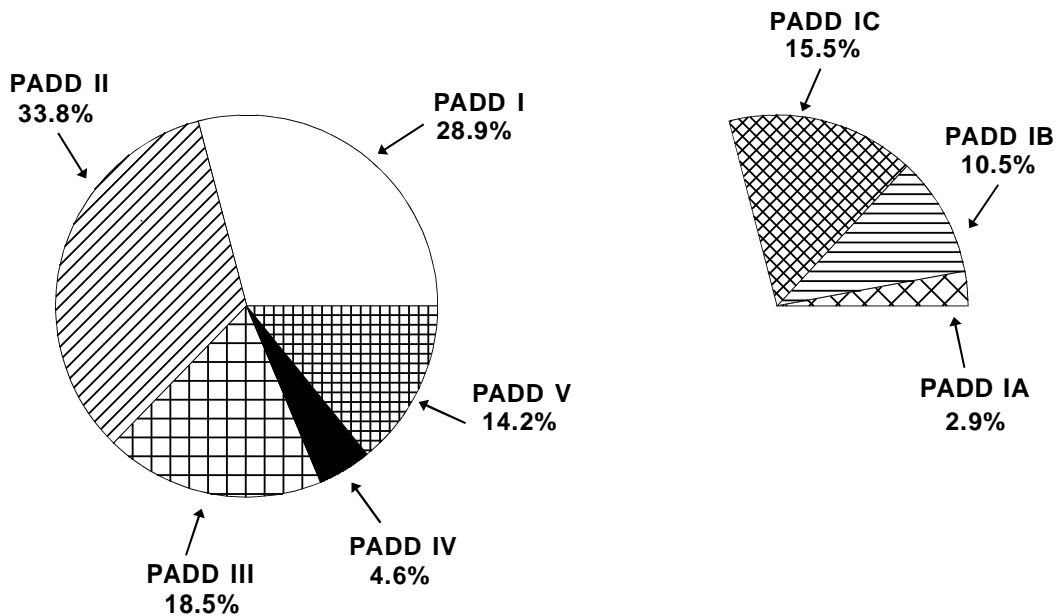


\*Residual fuel oil sales in PAD District IV are too small to appear in this graph.

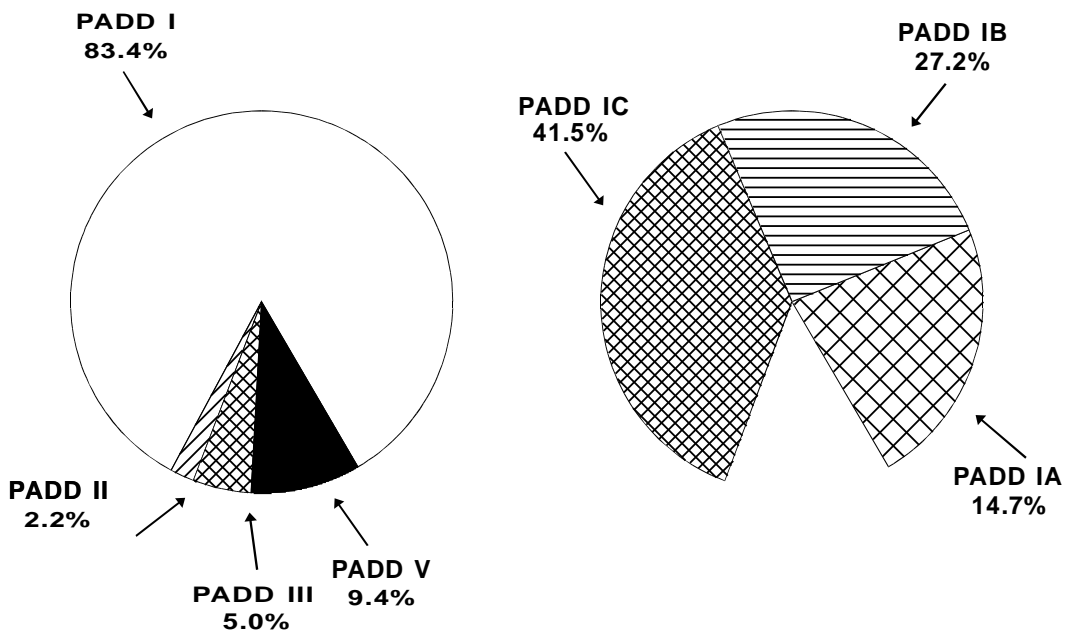
Sources: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 1998 and 1999.

Figure HL3. Distillate and Residual Fuel Oil Sales for Selected End-Use Categories by PAD District, 1999

### Distillate: Transportation



### Residual: Electric Utility



Sources: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 1999.