

Highlights

Sales of Fuel Oil and Kerosene in 2005

Market results in 2005 differed sharply from those in 2004 when driven by a sizeable drop in distillate sales, overall sales of fuel oil fell by 1.4 percent. In 2005, total sales of distillate and residual fuel oils, and kerosene all increased, pushing total sales to a new all-time record of nearly 77.7 billion gallons, more than 1.5 billion gallons above the previous record of 76.1 billion gallons set in 2003. Sales in 2005 also surpassed the level of sales set in 2004 by more than 2.6 billion gallons, an increase of 3.5 percent.

Although distillate sales increased by more than 900 million gallons during 2005, and kerosene exceeded one billion gallons for the first time since 2001, it was the sales of residual fuel that accounted for the largest portion of the overall increase in sales of more than 1.6 billion gallons. Consequently, for the first time since 2001, sales of residual fuel exceeded 13.4 billion gallons. Sales of residual fuel oil accounted for approximately 17.3 percent of total sales, the highest percentage of total fuel oil sales since 2001,

when residual fuel oil accounted for 18.2 percent of the total. In 2005, because of the increase in the sale of residual fuel oil, distillate sales accounted for 81.3 percent of total sales, the smallest share since 2001 when distillate sales accounted for 80.3 percent of total fuel oil sales. Sales of kerosene accounted for 1.4 percent of total sales compared to 1.3 percent in 2004.¹

Total distillate sales, boosted in large measure by substantial increases in sales to the transportation sector, amounted to 63.2 billion gallons, an increase of more than 900 million gallons (1.5 percent). Nonetheless, distillate sales fell short of the all-time high of 63.9 billion gallons set in 2003.

Despite an increase of nearly 1.5 percent in overall sales of distillate fuel oil and growth in economic activity, sales of distillate fuel to a number of end-use sectors declined during 2005. Although higher prices played a role, other factors also had a negative impact on the market during the year. In particular, weather

Table HL1. Volume Distribution of Distillate and Residual Fuel Oils, 2004 and 2005

Energy Use	2005 Distillate		2004 Distillate		2005 Residual		2004 Residual	
	Volume (million gallons)	Percent Share						
Residential.....	6,154	9.7	6,645	10.7	—	—	—	—
Commercial.....	3,224	5.1	3,383	5.4	720	5.4	782	6.6
Industrial.....	2,460	3.9	2,327	3.7	1,671	12.4	1,540	13.1
Oil Company.....	473	0.7	473	0.8	74	0.6	47	0.4
Farm.....	3,216	5.1	3,189	5.1	—	—	—	—
Electric Power.....	907	1.4	823	1.3	5,764	42.9	4,704	39.9
Railroad.....	3,448	5.5	3,047	4.9	—	—	—	—
Vessel Bunkering.....	2,006	3.2	2,140	3.4	5,179	38.5	4,690	39.8
On-Highway.....	38,053	60.2	37,125	59.6	—	—	—	—
Military.....	269	0.4	359	0.6	30	0.2	30	0.3
Off-Highway.....	2,956	4.7	2,747	4.4	—	—	—	—
Other.....	0	0.0	0	0.0	5	0.0	1	0.0
Total.....	63,165		62,258		13,442		11,794	

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

Sources: Energy Information Administration Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report," for 2001-2005. On-Highway Diesel data are Federal Highway Administration statistics of highway special fuels use.

¹ Numbers may not sum to 100 percent due to rounding.

was an important factor for not only was the winter warmer than normal, playing a role in decreased sales to the commercial and especially the residential sectors, but the impact of severe weather also had a negative impact on oil company use, vessel bunkering, electric power use and farm use.

Total sales of residual fuel oil, driven by sharp increases in sales to the electric power and vessel bunkering sectors, increased by more than 1.6 billion gallons (14.0 percent), to exceed 13.4 billion gallons.

Although sales of kerosene also increased, continuing the recovery from 2002 when sales plunged by approximately 40 percent, the amount of the increase was the smallest since the recovery began in 2003. Total sales of kerosene increased by approximately 81.5 million gallons (8.2 percent) to reach nearly 1.1 billion gallons, just below the record level set in 2001.

Distillate Fuel Oil

Once again in 2005, distillate sales increased, supporting the long-term trend of rising distillate sales and reversing the unusual drop in sales that occurred in 2004.² Although, the increase of 906.6 million gallons (1.5 percent) was the smallest increase since 2001, it approximately equaled the average of the increases during the 1990's.³ Nonetheless, in 2005, despite substantial increases in sales of distillate fuels to the industrial, construction, electric power and transportation sectors, sales to a number of end-use sectors, particularly the residential, commercial and vessel bunkering segments, fell in comparison to the previous year.

The increases were dominated by substantial growth in the transportation sector where sales to the on-highway sector increased by 927.9 million gallons (2.5 percent). Sales to railroads also increased by 400.1 million gallons (13.1 percent). Sales to the industrial sector increased by 133.1 million gallons (5.7 percent). In addition, sales to the farm use sector increased by 26.8 million gallons (0.8 percent). Sales for oil company use were essentially flat, increasing by only two thousand gallons.

The largest declines, reflecting at least in part warmer than normal winter conditions, occurred in the

residential and commercial sectors, which fell by 490.5 million gallons (7.4 percent) and by 158.8 million gallons (4.7 percent), respectively. Sales for vessel bunkering and military use also fell, by 134.1 million gallons (6.3 percent) and 90.1 million gallons (25.1 percent) respectively.

Despite higher energy prices in 2005, economic conditions as measured by Gross Domestic Product (GDP), a prime measure of the state of the economy, continued to improve during 2005. GDP increased in constant dollars at 3.5 percent, a somewhat slower rate than 2004's increase of 4.2 percent, but still the second highest rate of increase since 2000. Spending on new housing increased by nearly 13 percent; while spending on new construction in the commercial sector increased by more than 10 percent, a larger increase than occurred in 2004. In addition, production of durable goods increased by approximately 6.6 percent, manufacturing increased by 4.0 percent and the industrialization utilization rate increased by 2.3 percent.⁴ Improved economic conditions were also reflected by the drop in unemployment from 5.5 to 5.1 percent, the lowest rate since 2001.⁵

Although prices were somewhat higher during the first eight months of 2005 than had been the case during 2004, in September and for essentially the remainder of the year, prices were sharply higher as a result of the devastating impact of hurricanes Katrina and Rita on the energy infrastructure in the Gulf Coast states as well as offshore installations in the U.S. Gulf of Mexico. One measure of the impact of the disruptions to the production and processing oil and natural gas is reflected in the fact that for the first time since 2001, total energy consumption in the United States decreased. Total energy consumption dropped from the all-time high set in 2004 by 0.633 quads to 99.781 quads.⁶

Despite sharply higher prices for fuel oil in the aftermath of hurricanes Katrina and Rita, the impact of the higher prices on sales to the transportation sector was not significant. Sales to railroads increased by 400.1 million gallons, a jump of more than 13.1 percent. During 2005, sales of diesel fuel to the on-highway segment increased by 927.9 million gallons (2.5 percent). Although the increase in sales to the on-highway sector far surpassed the

² The drop in 2004 of nearly 1.6 billion gallons not only goes against the long-term trend but also is nearly three times the size of the drop in sales that occurred in 2001 when total distillate sales fell by 588 million gallons.

³ The average increase during the period 1991-2001 was 1.47 billion gallons.

⁴ *Economic Indicators*, April 2006, Washington D.C. U.S. Government Printing Office, p 17. (Industry production indexes, 2000 = 100).

⁵ *Economic Indicators*, April 2006, p 12. (Note, data apply to persons age 16 and over.)

⁶ One quad equals one quadrillion (a one followed by fifteen zeros) British thermal units (Btu).

miniscule increase of 21.7 million gallons registered during 2004, it nonetheless was the second smallest increase in on-highway sales in more than a decade. However, sales for vessel bunkering, the third component of the distillate transportation market, did not fare so well. Influenced at least in part by damage and disruption along the Gulf Coast, sales fell by 134.1 million gallons (6.3 percent).

In the industrial sector, high oil prices were offset to some extent by the large differential between the prices for oil and natural gas that developed during the fourth quarter of the year as the impact of the hurricanes on the infrastructure influenced the market. During the fourth quarter of 2005, prices of natural gas reached historic highs not only leading some customers with the ability to switch from gas to oil to choose oil over gas, but also causing some plants to shut down production until the price of gas dropped.⁷ These developments are reflected by the drop in sales of natural gas to the industrial sector during 2005. Sales of natural gas totaled 31.9 trillion Btu compared to 33.5 trillion Btu in 2004, a drop of 4.6 percent.⁸

In 2004, an increase of 155.1 million gallons in sales to the off-highway and construction sector accounted for nearly all of the increase in total distillate sales during a year of generally declining distillate sales. In 2005, despite an increase in sales of 208.6 million gallons to the sector, the increase represented less than 25 percent of the overall increase in distillate sales. In 2005, spending on new construction increased by nearly 9.5 percent over the amount spent in 2004. Although less was spent on residential construction, spending in the commercial sector increased by 10.1 percent compared to an increase of only 8.8 percent in 2004.

Weather played a significant role in shaping demand for distillate fuel during 2005. As was the case in 2004, the impact of weather was more widespread than typical. First, the winter of 2005 was warmer than normal throughout every region of the country. In addition, the winter was also warmer than 2004 in New England, a principal consuming region of home

heating oil. Consequently, although sales of heating oil to the residential market fell in every region of the country, they fell the most in the New England and Central Atlantic regions. Sales fell by 231.3 million gallons (9.5 percent) in New England and by 118.5 million gallons (3.9 percent) in the Central Atlantic. Overall, sales of residential heating oil decreased by 490.5 million gallons or 7.4 percent to approximately 6.2 billion gallons.

Second, atypically warm weather also contributed to a change in distillate sales for use in electric power generation. The summer of 2005 was both warmer than the previous summer, and also warmer than normal in most regions of the U.S. Consequently, demand for distillate fuel to meet peak summer generation loads was higher than it had been in 2004.⁹ Nationally, sales increased by approximately 83.6 million gallons (10.2 percent). Sales to the electric power sector increased throughout the country other than in the New England and Lower Atlantic portions of PAD District 1.¹⁰

Third, at the national level, distillate sales to the farm use sector were essentially unchanged at 3.2 billion gallons from the level set in 2004. Sales increased by only 26.8 million gallons, just 0.8 percent and that small change is also reflected in the number of acres of five major crops harvested during 2005. Although the number of harvested acres of cotton and corn increased, the acreage of soybeans and winter wheat that were harvested declined. As a result, for the principal crops the number of acres harvested decreased by 0.4 percent. Nationally the amount of citrus fruit harvested increased by 3.0 percent.¹¹ However, that percentage conceals the fact that the increase took place primarily in the citrus growing regions in the far west. Damages to all crops along the Gulf Coast from the hurricanes totaled an estimated \$1.1 billion. Nonetheless, distillate sales to the farm use sector in Florida, Alabama, Mississippi and Texas show either modest or robust increases, with sales increasing 12.8 percent in PAD District 3.

Fourth, weather also had a negative impact on sales for direct use by oil companies. Hurricanes Katrina

⁷ Reuters News, 14:34 October 18, 2005; Associated Press, December 1, 2005.

⁸ EIA, *Monthly Energy Review*, May 2006, Table 2.1

⁹ Smaller peaking units, especially older units are often combustion turbines (in some cases converted jet turbine engines that run on No 2 fuel oil). Such units are used in the winter when it is very cold, periods when interruptible contract provisions are triggered and some users of natural gas must switch to alternatives. It is also not unusual for distillate fuel to be used in such peaking units during the summer to meet peak cooling demand.

¹⁰ The U.S. is divided into 5 Petroleum Administration for Defense Districts (PAD Districts). District 1, East Coast, District 2, Midwest, District 3, Gulf Coast, District 4, Rocky Mountain, and District 5, West Coast. PAD District 1 is broken into three subdivisions: Subdistrict 1A, New England, Subdistrict 1B, Central Atlantic, and Subdistrict 1C, Lower Atlantic.

¹¹ Department of Agriculture, National Agricultural Statistics Service, *Statistical Highlights of U.S. Agriculture, 2005 & 2006*.

and Rita ravaged the oil and gas infrastructure in the Gulf of Mexico, causing widespread and extensive damage to production platforms and to subsurface structures in the Gulf of Mexico that far exceeded the damage done in 2004 by Hurricane Ivan. In addition, the two storms in 2005 also caused extensive damage to refineries, pipelines, pumping stations and other facilities and installations. Much of that damage took months to repair.¹²

At the national level, distillate sales for oil company use were virtually unchanged, totaling approximately 473 million gallons in both 2005 and 2004. Sales increases in PAD Districts 1 and 2 were offset by declines in PAD Districts 3 and 5. Although the sales in PAD District 3 fell only by 8.5 million gallons despite the widespread devastation in the region, that slight drop must be seen as a further drop within the context of the 50.8 million gallon (15.8 percent) drop that occurred following Hurricane Ivan in 2004. In PAD District 2, the Midwest, sales increased by 7.5 percent and sales also increased in the Rocky Mountains where major natural gas exploration efforts, especially in Wyoming and Colorado, are underway. Sales in that region increased by 4.1 percent.

On a regional basis, the warmer winter weather resulted in a drop in distillate sales to the residential sector in those regions of the U.S. where sales for home heating are concentrated. Sales fell the most in PAD District 1 (the East Coast), dropping by 390.0 million gallons. Within PAD District 1, sales fell the most in Subdistrict 1A (New England) and Subdistrict 1B (the Central Atlantic), sales dropped by 231.3 million gallons and 118.5 million gallons respectively. In PAD District 2 sales fell by 76.3 million gallons.

Sales to the commercial sector decreased in all three subdistricts of PAD District 1, falling by 56.9 million gallons in Subdistrict 1A, 62.2 million gallons in Subdistrict 1B, and 27.2 million gallons in Subdistrict 1C. Sales also fell in PAD District 2 by 80.8 million gallons, and PAD District 4 where sales slipped by 1.9 million gallons. Sales increased by 43.8 million in PAD District 3 (the Gulf Coast) and 26.4 million gallons in PAD District 5 (the Pacific Coast). The substantial decreases in the Central Atlantic and New England sub-regions of PAD District 1 reflect, to some extent, reduced opportunities for fuel switching

that resulted from warmer winter conditions than occurred in 2004.

Nationally, despite an overall decrease in total energy consumption by the industrial sector of 4.6 percent, sales of distillate fuel oil for use in industrial applications increased.¹³ On a regional basis, sales of distillate to the industrial sector were mixed, down in some regions and up in others. Although overall sales increased in PAD District 1, sales decreased in both the New England and Central Atlantic portions of the region, down 15.7 million gallons and 4.6 million gallons, respectively. The overall increase in PAD District 1 was driven by a substantial increase of 75.7 million gallons (15.4 percent) in Subdistrict 1C, the Lower Atlantic. In PAD District 2, sales increased by 44.9 million gallons (7.1 percent). Sales also increased in the PAD District 5, the West Coast region, going up by 28.9 million gallons or 10.1 percent.

Although sales to the military fell by 25.1 percent overall, sales by region were mixed. Sales in the Central Atlantic portion of PAD District 1 fell, while sales in the New England and Lower Atlantic portions of the District increased. Sales also increased in PAD Districts 3 and 4, while the largest decline took place in PAD District 5, where sales fell by 110.0 million gallons (a drop of 62.4 percent).

At the regional level, sales to the off-highway and construction sector were somewhat mixed with sales in PAD District 2. Sales in the Northeast and Middle Atlantic portions of PAD District 1 fell, while sales in the Lower Atlantic portion of PAD District 1 and in PAD Districts 3, 4, and 5 increased. In PAD District 1, sales in the New England and Central Atlantic regions fell by 6.0 million gallons and 34.0 million gallons, respectively, while sales in PAD District 2 fell by 18.6 million gallons. Sales increased the most in PAD District 3, the Gulf Coast. Although the hurricanes may have had a negative impact on sales in Alabama and Mississippi, sales for off-highway and construction increased in Louisiana, possibly reflecting the cleanup efforts in the New Orleans area. Sales in Texas increased the most in the region.

On a regional basis, distillate sales to the electric power sector increased in all five PAD Districts. Sales increased the most in PAD District 3, the Gulf

¹² Oil Daily various issues; see especially October 5, on the extent of damage to on-shore natural gas facilities; see October 12, on the price impact for natural gas; October 13 on the impact on heating oil prices; October 19 on the drop in LNG imports due to damaged facilities.

¹³ EIA, *Monthly Energy Review*, May 2006, Table 2.1.

Coast, and in the Central Atlantic region of PAD District 1. Sales dropped somewhat in the New England and Lower Atlantic subdistricts but not enough to overcome the increase in the Central Atlantic subdistrict where sales grew by 75.0 million gallons.

Residual Fuel Oil

The strength of the economy and continued strong sales for vessel bunkering and electric power helped boost overall sales of residual fuel oil by nearly 1.7 billion gallons, an increase of 14.0 percent. Although the largest component of the increase in sales was to the electric power segment where sales increased by nearly 1.1 billion gallons (22.5 percent), sales also increased to most other sectors as well. Prompted in part by the high price of natural gas and by supplier-constrained natural gas availability following the hurricane-related damage to production and distribution facilities, fuel switching on the part of some industrial consumers took place. This helped boost sales of residual fuel oil to the industrial sector by 130.7 million gallons (8.5 percent). Sales of bunker fuel also increased, growing by 488.1 million gallons (10.4 percent). The only sizeable decline in the sales of residual fuel took place in the commercial segment of the market where sales fell by 61.6 million gallons (7.9 percent).

In 2005, the largest increase in sales of residual fuel oil was for the generation of electric power. The summer of 2005 was 13.4 percent warmer than the summer of 2004, and 15.0 percent warmer than normal, helping to push electric power sales to their highest level since 1998. There is some evidence that concern over the supply of natural gas for use in the generation of electricity is leading to less emphasis on natural gas in at least one region of the country. In October 2005, ISO New England approved the 2005 Regional System Plan that, among other provisions, called for the diversification of the fuel mix for the region, including the conversion of more than 1,000 megawatts of gas-only fired generation to dual-fuel capability by the winter of 2009-2010.¹⁴

On a regional basis, sales of residual fuel to the commercial sector decreased in most regions of the country. Sales fell the most in the Central Atlantic subdistrict 1B and in PAD District 2. Sales increased only in the New England subdistrict 1A and in PAD District 4, the Rocky Mountains.

Sales to the industrial sector increased the most in PAD District 3, the Gulf Coast, where despite the impact of the hurricanes, sales were up in Alabama, Louisiana, and Texas. Sales in PAD District 3 increased by 141.6 million gallons, or by 94.4 percent. Sales also increased in PAD District 4 and the New England portion of PAD District 1. However, falling sales in both the Central and Lower Atlantic portions of PAD District 1 resulted in an overall drop in sales in the region of 29.7 million gallons (2.6 percent).

In 2005, although sales to the military decreased slightly on a national basis, dropping by just 2.1 percent, sales on a regional basis were more mixed. While sales increased in the New England portion of PAD District 1, sales dropped in the Lower and Central Atlantic portions of the District. Sales also dropped somewhat in PAD District 5, the West Coast and in PAD District 3, the Gulf Coast.¹⁵

Sales of residual fuel for direct use by oil companies increased by 27.2 million gallons nationally, an increase of 58.2 percent. Although sales dropped slightly in PAD District 1, the East Coast, strong gains were registered in PAD Districts 2, 4 and 5.

Although sales of residual fuel oil increased in each of the past three years, this fact does not necessarily indicate that the long-term trend in the decline of heavy fuel oil has been reversed. Rather, a new dynamic has entered the market. Whenever weather and high prices for competing fuels provide the incentive for fuel switching, larger customers in the industrial, commercial and especially the electric power sectors may take advantage of the situation and switch temporarily to oil.

For residual fuel oil, although the overall trend has been down, fluctuations in the amount of fuel sold remain likely to occur whenever interruptible gas contracts take effect during the coldest winter periods and whenever price differentials make switching attractive. The fluctuations can occur either in the short-term or when prolonged higher prices of natural gas make fuel switching attractive.

Although the long-term trend toward lower sales of residual fuel continues to affect the market, with long-term high-priced natural gas, some industrial companies and particularly utilities, have switched units to fuel oil on a longer term basis than simply reacting to seasonal price spikes. In addition, there is

¹⁴ ISO New England, 2005 Regional System Plan, October 20, 2005. ISO is Independent System Operator.

¹⁵ No sales of residual fuel to the military were recorded in PAD District 3 or 4 in either 2001 or 2002.

some evidence of concern regarding increasing dependency on natural gas for the generation of electric power, which may lead to a greater degree of fuel diversification and provide stimulation to the sale of residual fuel oil for the generation of electric power.

Nonetheless, the principal reasons for the changing relationship remain, changing crude oil specifications, enhanced refinery sophistication resulting in increased production of gasoline and distillate at the expense of heavier products such as residual fuel oil, environmental constraints and restrictions on fuel oil use, and the availability of abundant relatively inexpensive natural gas have contributed to a diminished use of residual fuel oil in the production of electric power.¹⁶

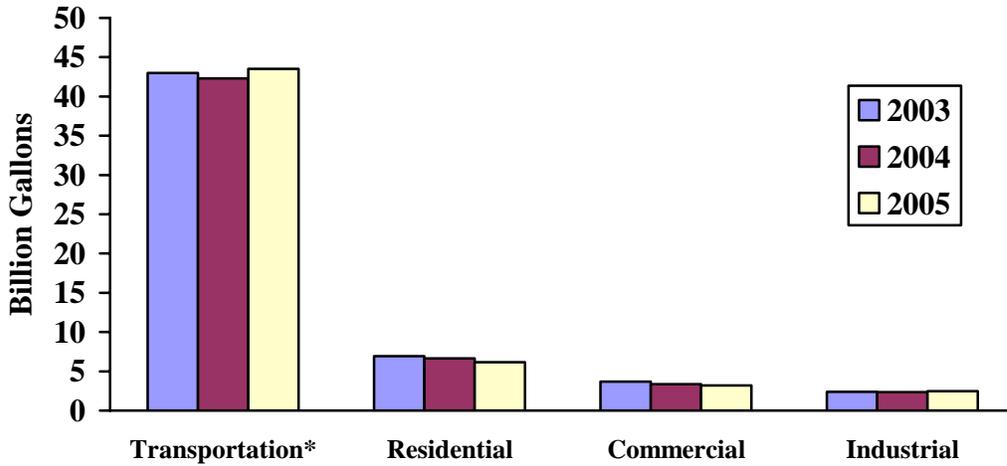
Kerosene

Although the sales of kerosene reached their highest point since 2001, increasing by 81.5 million gallons over the total reached in 2005, the amount of the increase was only slightly more than half the increase of 151.2 million gallons registered in 2004. In 2005, sales of kerosene increased to all sectors of the market with the exception of the residential market where the warm winter hampered sales for home heating. The drop in sales to the residential sector was greatest in PAD District 1 where sales in the Lower Atlantic subdistrict fell by 11.6 million gallons (6.4 percent). Sales in the Central Atlantic region of PAD District 1 increased by 5.1 million gallons (2.5 percent), while sales in the New England subdistrict 1A were essentially unchanged. Sales to the industrial segment of the market increased the most, jumping by 74.9 million gallons (38.9 percent). Although sales to the farm sector increased nationally, sales were down in PAD Districts 3, 4, and 5.

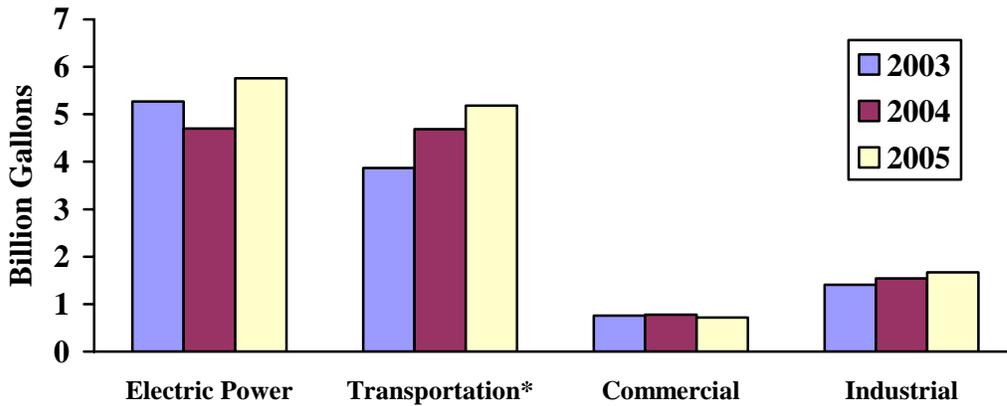
¹⁶ It should be noted that the ability to increase production of light, higher-value products does not typically mean that refineries with upgraded processing capacity no longer possess the ability to produce heavier products such as residual fuel; rather, the economics involved dictate the production of the higher-value products. Due to the divestiture of many electric power generation facilities, changes in fuel use and plant operations also contributed to the decline of residual fuel oil. For example, operators of these merchant plants blend fuels to achieve greater efficiency and to lower emissions of dirtier fuels (oil blended with natural gas and even oil and coal). When it is advantageous, the operators also may purchase power rather than generate electricity and re-sell the fuel.

Figure HL1. U.S. Sales of Distillate and Residual Fuel Oils by Energy Use, 2003-2005

Distillate Fuel Oil



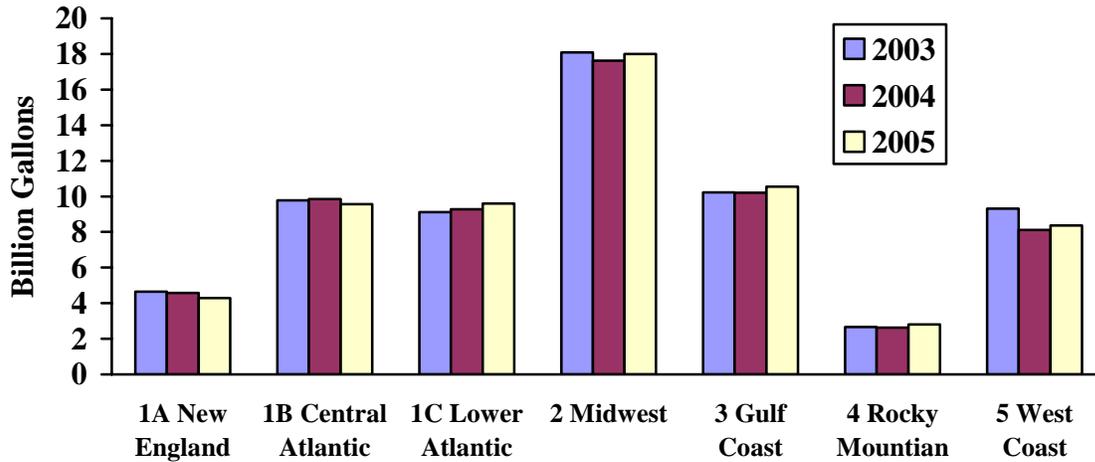
Residual Fuel Oil



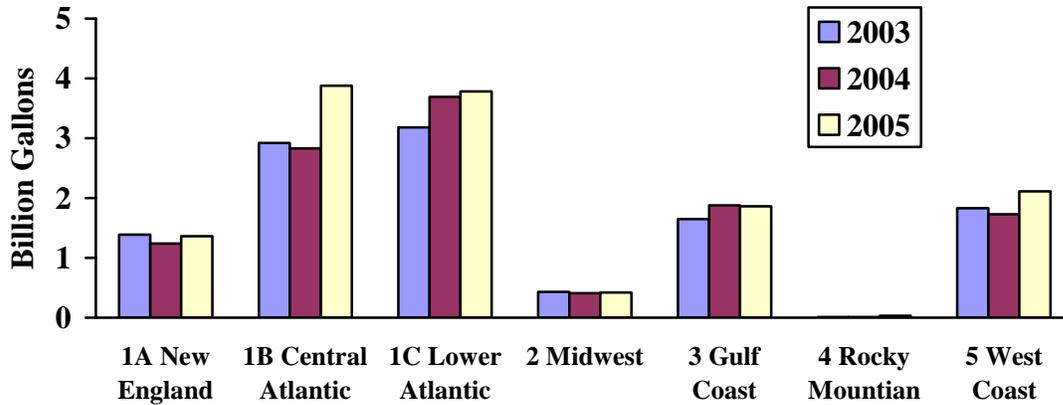
*For distillate fuel oil, transportation use comprises railroad, vessel bunkering, and on-highway diesel energy use categories. For residual fuel oil, transportation use comprises vessel bunkering energy use category.
 Source: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 2004 and 2005.

Figure HL2. Volume Distribution of Distillate and Residual Fuel Oils by PAD District, 2003-2005

Distillate Fuel Oil



Residual Fuel Oil

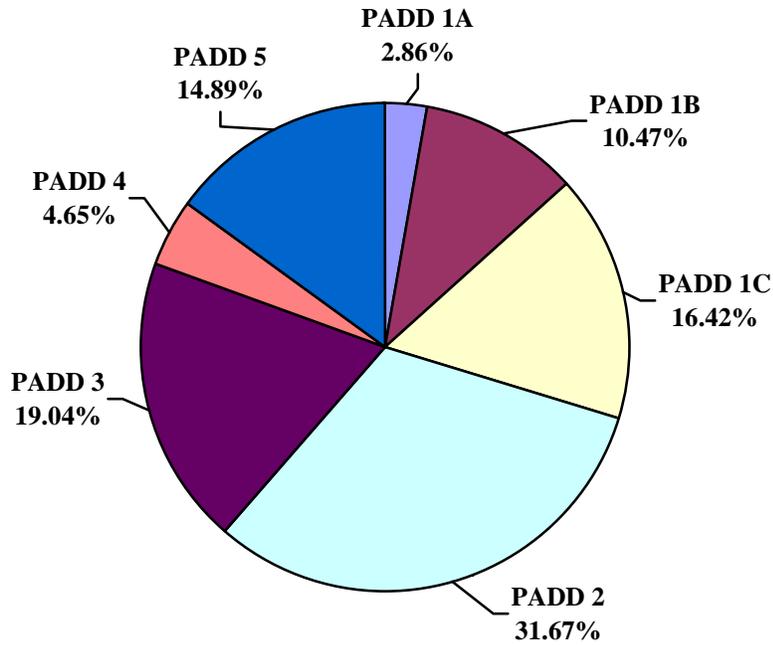


*Residual fuel oil sales in PAD District 4 are too small to appear in the graph.

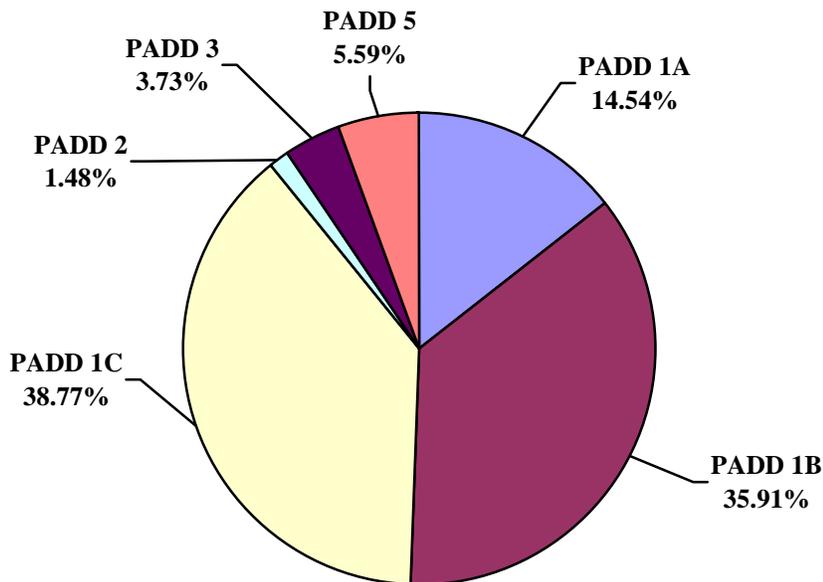
Source: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 2004 and 2005.

Figure HL3. Distillate and Residual Fuel Oil Sales for Selected Energy Use Categories by PADD District, 2005

Distillate: Transportation



Residual: Electric Power



*Residual fuel oil sales in PAD District 4 are too small to appear in the graph.

Source: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 2005.