

Highlights

Sales of Fuel Oil and Kerosene in 2009

In 2009, overall sales of fuel oil and kerosene fell sharply from 66.8 billion gallons to 59.7 billion gallons. The drop of 7.1 billion gallons (10.6 percent) from the level set in 2008 is the second largest drop in combined sales on record, resulting in the lowest combined total since data were first collected in 1984. Distillate sales decreased by 5.5 billion gallons, slipping to 52.7 billion gallons, the lowest total since 1995. Residual fuel oil sales fell by almost 1.6 billion gallons below the level attained in 2008 to 6.7 billion gallons. Kerosene sales reversed a downward trend and increased 18.7 percent to 259.6 million gallons, but still the second lowest level in more than 26 years.

In 2009, sales of residual fuel oil accounted for 11.2 percent of total fuel oil and kerosene sales, the lowest share of the total since EIA began publishing data. The large drop in sales of residual fuel oil resulted in distillate fuel oil sales accounting for 88.3 percent of total sales, exceeding the previous highest share of

total sales set in 2008, when distillate sales accounted for 87.3 percent of total fuel oil and kerosene sales. Sales of kerosene made up just 0.4 percent of total sales, compared to 0.3 percent in 2008.¹

Distillate Fuel Oil

In 2009, distillate sales fell 5.5 billion gallons. This marked the first time since 1991 that distillate sales fell in two consecutive years. The drop in sales during 2009 exceeded the magnitude of any previous decline in sales during that time frame.² Despite the size of the overall drop in distillate sales in 2009, sales to the commercial sector and in vessel bunkering increased slightly, while sales to all other sectors fell in comparison to the previous year.

The transportation sector continued to dominate distillate sales, accounting for 71.1 percent of the distillate market, matching the previous year. Still, overall sales to the transportation sector slipped by

Table HL1. Volume Distribution of Distillate and Residual Fuel Oils, 2008 and 2009

Energy Use	2009 Distillate		2008 Distillate		2009 Residual		2008 Residual	
	Volume (million gallons)	Percent Share						
Residential.....	4,104	7.8	4,631	7.9	—	—	—	—
Commercial.....	2,818	5.3	2,572	4.4	425	6.3	403	4.9
Industrial.....	2,196	4.2	2,366	4.1	561	8.4	1,034	12.5
Oil Company.....	742	1.4	990	1.7	25	0.4	58	0.7
Farm.....	2,657	5.0	3,212	5.5	—	—	—	—
Electric Power.....	544	1.0	544	0.9	1,125	16.8	1,699	20.5
Railroad.....	2,065	3.9	2,697	4.6	—	—	—	—
Vessel Bunkering.....	1,266	2.4	1,187	2.0	4,543	67.7	5,066	61.2
On-Highway.....	34,148	64.8	37,528	64.4	—	—	—	—
Military.....	234	0.4	260	0.4	15	0.2	9	0.1
Off-Highway.....	1,957	3.7	2,272	3.9	—	—	—	—
Other.....	0	0.0	0	0.0	11	0.2	4	0.1
Total.....	52,731		58,262		6,706		8,273	

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 2005-2009. 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.

² During the period 1991-2009, the average increase was 1.6 billion gallons while the largest previous drop was the 4.9 billion gallons that occurred in 2008.

3.9 billion gallons; nearly 3.4 billion gallons of the drop was on-highway fuel. Sales to the railroad sector dropped 632 million gallons while bunker sectors showed a slight increase of almost 79 million gallons.

The precipitous drop in sales was driven by the deteriorating economic conditions that surfaced during the second half of 2008 and continued through most of 2009. Economic conditions as measured by Gross Domestic Product (GDP) decreased at a rate of 2.6 percent in 2009,³ the first yearly drop in the GDP since 1991. The collapse of the housing market helped plunge the nation into recession as spending on new residential construction dropped by nearly 42 percent and, as a result, total spending for private construction went down by 22 percent. Capacity utilization rates for both the industrial and manufacturing sectors declined for the second consecutive year, by nearly 10.1 percent and 10.4 percent respectively.⁴ Total industrial production also showed a steep decline for the second consecutive year, from 3.3 percent to 9.3 percent.⁵ The unemployment rate increased from 5.8 percent to 9.3 percent, peaking at 10.2 percent in October. This was the highest the unemployment rate had been since the 1983 recession when it was above 10 percent.⁶

While weather plays an important role in shaping demand for distillate fuel, 2009 was a year not unlike 2008 with no dramatic differences from normal conditions. The winter was nominally cooler than in 2008 but still only very slightly cooler than normal. While colder winter weather tends to boost sales to the residential home heating market, particularly in the New England and the Central Atlantic regions where heating oil sales are concentrated,⁷ adverse economic conditions contributed to a drop in the principal consuming regions despite a reduction in the cost of heating oil. Distillate sales to the residential sector fell by almost 392 million gallons in the northeast on top of a drop of more than 430 million gallons the year before.

On a national level, the summer of 2009 was a bit cooler than 2008 but slightly warmer than normal.

Consequently, the need for electric utilities to consume distillate fuel to meet peak summer generation loads remained flat. Sales to utilities at the national level fell by only 155,000 thousand gallons (0.03 percent).

In the agricultural sector, the overriding factor in 2009 was the state of the economy as historical record lows in distillate sales were recorded. At the national level the farm sector declined 17.3 percent to 2.7 billion gallons, dropping below 3.0 billion barrels for the first time since 1987. Sales increased in only one section of the country, the Rocky Mountains, and by only 12 million gallons. In PAD District 1 (the East Coast), distillate sales for farm use dropped 8.7 percent. This was a small drop in comparison to the 13.6 percent drop in PAD District 2 (the Midwest farm belt), the 23.1 percent drop in PAD District 5 (the West Coast), and the 35.9 percent drop in PAD District 3 (the Gulf Coast). By volume, sales in the Midwestern farm belt decreased more than any other region, dropping almost 220 million gallons. In the Gulf Coast, sales also fell by approximately 215 million gallons, more than double the drop on the West Coast of almost 102 million gallons.

While weather traditionally plays a major role in the farm sector this did not appear to be the case in 2009. As in most years, there were extreme weather events throughout the country. In the Midwest, major delays in crop planting, maturation, and harvesting were caused by cool, wet weather during the spring, summer, and fall. This was in contrast to a drought in Texas where they experienced their driest winter in 114 years of record keeping. Surprisingly, increases were seen in the harvests of soybeans (13 percent) and rice (8 percent). The corn production harvest was the highest on record. Only wheat and cotton production showed declines from the previous year at 11 percent and 3 percent, respectively.⁸

In 2009, weather did not play a major role in influencing oil company use of distillate fuel. However, product demand and falling prices did negatively affect exploration and development activities leading to a precipitous drop in new drilling activity. For the first time since 2002 the number of

³ GDP is a prime measure of the state of the economy as measured in constant (inflation adjusted) dollars.

⁴ *Economic Indicators*, December 2010, p.17.

⁵ Total industrial production includes manufacturing of both durable and nondurable goods, mining and utilities.

⁶ *Economic Indicators, December 2010*, p 11. (Note, data apply to persons age 16 and over.)

⁷ The U.S. is divided into 5 Petroleum Administration for Defense Districts (PADD). PADD 1, East Coast, PADD 2, Midwest, PADD 3, Gulf Coast, PADD 4, Rocky Mountain, and PADD 5, West Coast. PADD 1 is broken into three sub districts PADD 1A, New England, PADD 1B, Central Atlantic, and PADD 1C, Lower Atlantic.

⁸ Department of Agriculture, National Agricultural Statistics Service, *Crop Production 2009 Summary*, January 2010, page 76.

drilling rigs in operation, an important measure of oil company activity, dropped by 42 percent compared to 2008.⁹ From the fourth quarter of 2008 through the second quarter of 2009 the number of working rigs decreased each month until July when the number ticked upward reflecting changing economic conditions and lower prices for oil and petroleum products. Distillate sales to oil companies decreased by 25.1 percent erasing all gains made the prior year. Sales tumbled dramatically in the Midwest and Rocky Mountains (62.8 percent and 77.2 percent, respectively) while dropping slightly along the Gulf Coast. Combined sales in the three sub-regions of the East Coast grew by 24.7 million gallons, driven almost entirely by West Virginia which saw an increase in sales of 18.6 million gallons. Sales on the West Coast also showed some growth. Alaska led the way by increasing sales 25.4 million gallons, however, California dropped 9.4 million gallons from the previous year resulting in a regional net increase of 15.9 million gallons.

For the first time since 1991, sales of distillate fuel to the transportation sector fell for two consecutive years, dropping in aggregate by 3.9 billion gallons. Nearly 3.4 billion gallons of that drop resulted from reduced demand in the on-highway sector. Sales of on-highway diesel fell in all regions of the country. Sales of distillate fuel for use by railroads also fell in every region except the Rocky Mountains. There sales increased 11 percent (15 million gallons). At the national level, sales to railroads fell by nearly 23 percent, dropping 632 million gallons, compared to a drop of 938 million gallons in 2008. In a turnaround from last year, sales of bunker marine fuel, the final component of transportation sales, increased a moderate 6.6 percent (79 million gallons) after dropping more than 38 percent (736 million gallons). The Gulf Coast states drove sales showing an increase of almost 51 percent while maintaining the largest share of the national total at approximately 43 percent, up from 30 percent in 2008.

In 2009, sales to the off-highway sector dropped for the second consecutive year and the third time in the last four years. The sales of 1.96 billion gallons were the lowest recorded total since the 1.76 billion gallons in 1992. In 2009 alone sales dropped by 315 million gallons, down by 13.9 percent. This is yet another indicator of the downturn in the economy which affected sales of distillate fuel across the board.

⁹ Baker Hughes, Inc., Houston, Texas, *Rotary Rigs Running by State*.

¹⁰ *Economic Indicators*. December 2010, p.17.

Bucking the downward trend, the commercial sector was one of only two sectors that showed an increase in sales at the national level (vessel bunkering was the other). This was the first increase in the sector in five years. In 2009 sales bumped-up 245.9 million gallons, an increase of 9.6 percent. Every region contributed to the sector growth showing an increase in sales from the year before. Only in the Central Atlantic sub-region of the East Coast was there a minimal drop (4.8 percent) which was negated by gains in the other two sub-regions. Sales continued to be strong both in the Midwest and on the West Coast where sales increased for the second consecutive year. In the Midwest region sales increased 43 million gallons (9.5 percent) on top of the 42 million gallons (10.3 percent) recorded in 2008. Sales in the West Coast region increased 23 million gallons (7.7 percent) after 2008 sales of 84.8 million gallons (38.8 percent).

Nationally, sales to the industrial sector fell 7.2 percent (169.7 million gallons) reflecting a drop in industrial production of 9.3 percent and in industrial utilization of 10.1 percent.¹⁰ This put sales at their lowest point since 1993. Regionally, sales of distillate fuel oil to the industrial sector fell on the East Coast, the Midwest, and the West Coast. The East Coast contributed the most to this loss by dropping 144.4 million gallons (18.7 percent) from the previous year. Sales increased somewhat on the Gulf Coast but the largest increase was in the Rocky Mountains where sales were up by 36.9 million gallons (15.2 percent).

Dropping 25.7 million gallons (9.9 percent), distillate sales to the military fell for the second consecutive year. Regionally, sales fell in the Midwest, Gulf Coast, Rocky Mountains and the West Coast. Only on the East Coast did sales show an increase and that was mostly confined in the Central Atlantic states where sales jumped 11.1 million gallons (56.0 percent). The largest declines were on the Gulf Coast where sales fell 5.6 million gallons (14.3 percent) and on the Pacific Coast where sales dropped 22.6 million gallons (15.2 percent).

Residual Fuel Oil

Both the long term trend of declining sales of residual fuel oil and the adverse economic conditions that affected sales of petroleum products continued during 2009 as overall sales of residual fuel fell by 18.9

percent (1.6 billion gallons). Sales to the various market segments were mixed with small volumetric increases to the commercial, military, and the miscellaneous “all other” category. However, the losses suffered in the electric utility, bunker, industrial, and oil company sectors overwhelmed these small gains.

While sales of bunker fuel continued to represent the largest share of the residual fuel oil sales market (67.8 percent) the largest decline in sales was in the electric utility sector. Here the loss of residual fuel oil sales hit 573.6 million gallons, a drop of 33.8 percent from the previous year. This loss was closely followed by the drop in sales of bunker fuel of 522.3 million gallons (10.3 percent) and the decrease in sales of 472.6 million gallons (45.7 percent) to the industrial market. Sales to the oil company market showed a relatively modest drop of 32.7 million gallons, a decrease of 56.4 percent. In comparison, the three sectors showing growth combined for a total of only 33.8 million gallons.

Continuing what appears to be a downward trend; overall sales of residual fuel oil have fallen by nearly 50 percent over the past decade. Despite the downward trend, the period has been characterized by extreme volatility with precipitous swings in the volume of sales, particularly with respect to the electric utility sector. Since 1999, annual sales to the electric power sector have fallen by at least one billion gallons three times and increased by at least one billion gallons three times. Sales fell by 1.4 billion gallons in 1999, 2.1 billion gallons in 2002, and 3.3 billion gallons in 2006. Sales increased by 1.3 billion gallons in 2001, 1.7 billion gallons in 2003, and 1.1 billion gallons in 2005. However, the overall trend translates into a 77.5 percent drop in sales to the electric utility sector over the past decade.

Historically, the high degree of volatility was at times attributed to changes in the electric power sector, weather conditions, the pricing structure of residual fuel oil and competing fuels, and other factors affecting the production and sales of residual fuel in general. However, the potential for some level of fluctuation in the amount of fuel sold remains

whenever interruptible gas contracts take effect during extremely cold winter periods and whenever price differentials make switching attractive. Fluctuations can occur either in the short term or when prolonged periods of higher prices of either residual fuel or natural gas make fuel switching attractive for the relative few that can switch.

Nonetheless, the principal reasons for the decline in sales of residual fuel oil remain, changing crude oil specifications and the 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 general and its use in the production of electric power in particular.¹¹

Kerosene

For the first time in four years, kerosene sales increased at the national level. Spurred on almost entirely by the residential sector, total sales of kerosene jumped 40.8 million gallons, enough for a solid 18.7 percent increase over the previous year. However, this increase had little effect on a downward trend that in 2008 saw kerosene sales at their lowest total in more than 25 years. Regardless of the increase recorded in 2009, kerosene sales have plunged by 75.7 percent since 2005. Anecdotal evidence suggests that fuel switching to natural gas and to some extent, to propane is primarily responsible for the drop in sales.

Sales to the residential sector showed the most dramatic increase jumping 40.1 million gallons more than the prior year, an impressive 25.4 percent. Without exception, all regions of the country exhibited growth with the largest increases occurring along the East Coast from New England to Florida. This is the same region that in 2008 showed the biggest drop in sales. The rise in kerosene sales in the New England and Central Atlantic states alone accounted for 29.3 million gallons of the increase in national sales (73.2 percent). These numbers were

¹¹ 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.

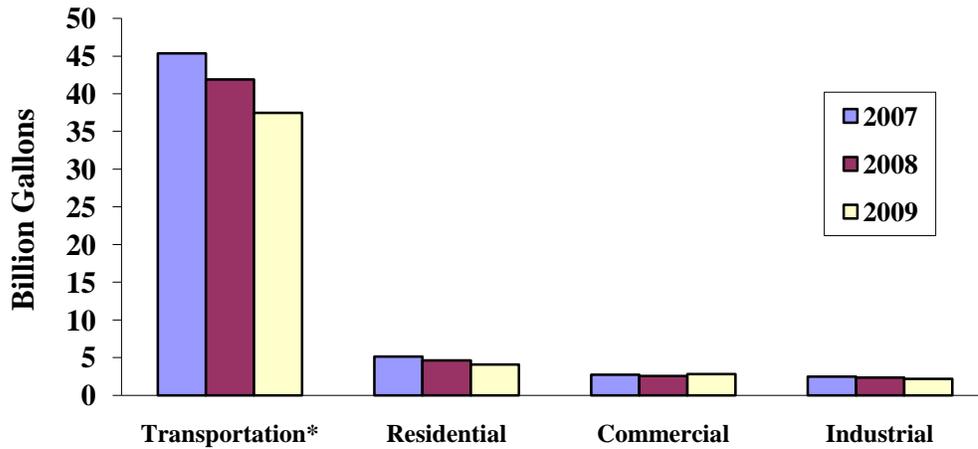
complemented by the Midwest region where sales rose by 10.3 million gallons or 25.7 percent of the increase in national sales.

Sales to all other sectors were basically flat. Both the industrial and farm sectors rose but only by 1.5 million gallons and 1.1 million gallons respectively at the national level. The New England sub-region of

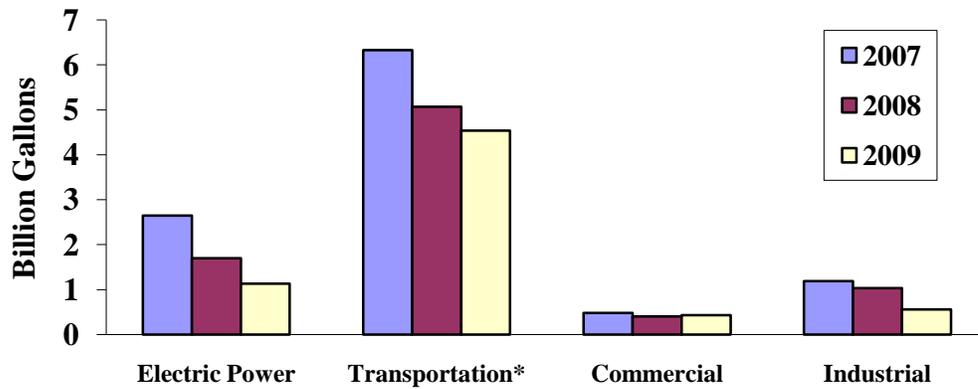
the East Coast drove sales to the industrial market by gaining 1.7 million gallons (35.3 percent). Sales to the farm sector increased in every region except the Rocky Mountains where sales remained flat. On the negative side, national sales fell in both the commercial and “all other” sectors but again, only by 1.4 million gallons and 439 thousand gallons respectively.

Figure HL1. U.S. Sales of Distillate and Residual Fuel Oils by Energy Use, 2007-2009

Distillate Fuel Oil



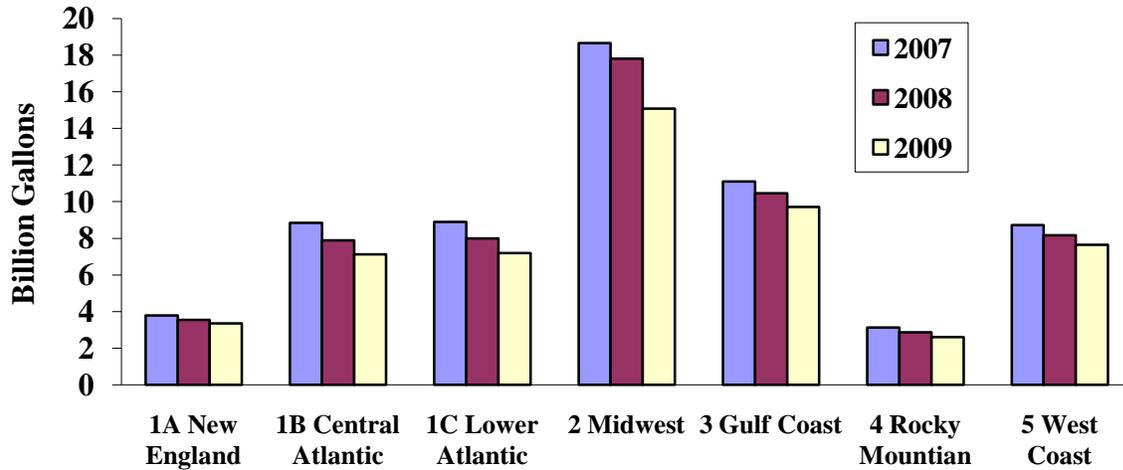
Residual Fuel Oil



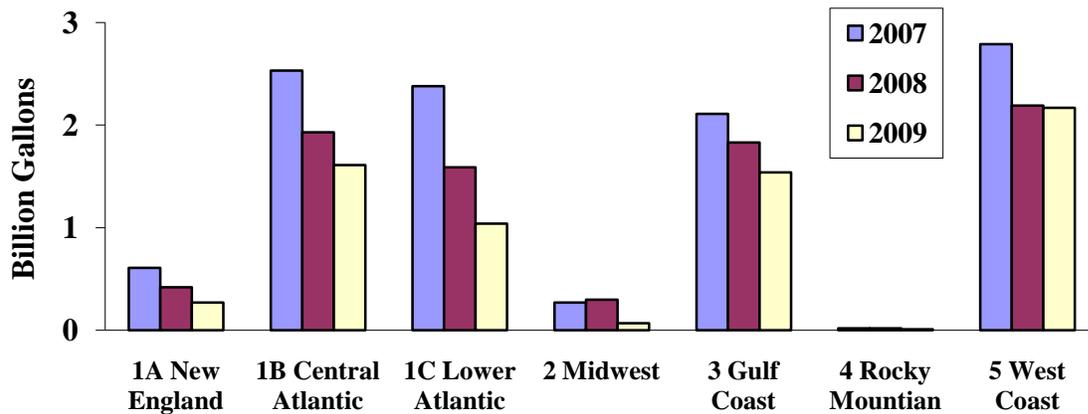
*For distillate fuel oil, transportation use comprises railroad, vessel bunkering, and on-highway diesel energy use categories. For residual fuel oil, transportation use comprises vessel bunkering energy use category.
 Source: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 2008 and 2009.

Figure HL2. Volume Distribution of Distillate and Residual Fuel Oils by PAD District, 2007-2009

Distillate Fuel Oil



Residual Fuel Oil

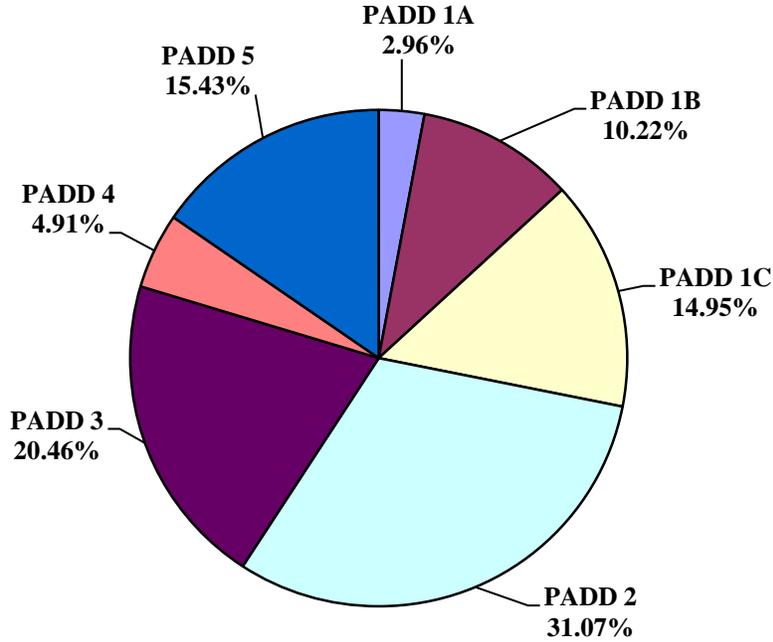


*Residual fuel oil sales in PAD District 4 are too small to appear in the graph.

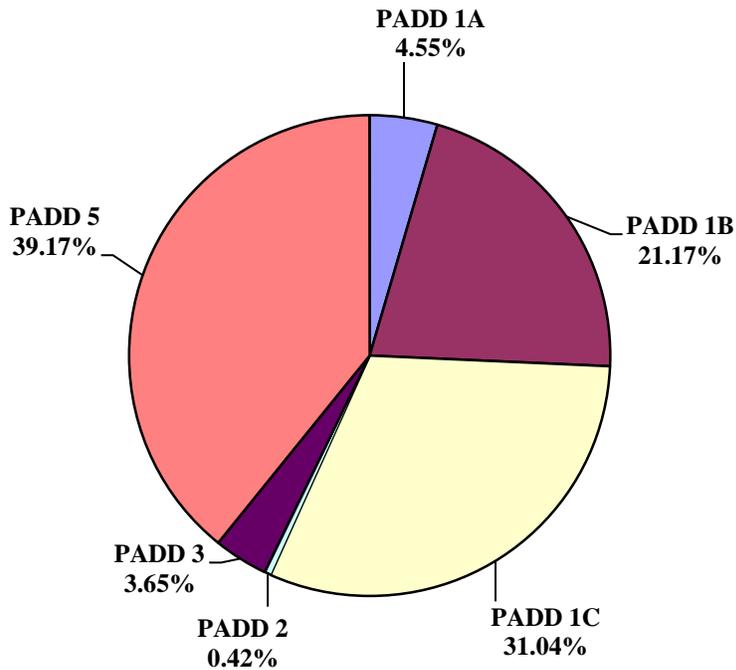
Source: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 2008 and 2009.

Figure HL3. Distillate and Residual Fuel Oil Sales for Selected Energy Use Categories by PADD District, 2009

Distillate: Transportation



Residual: Electric Power



*Residual fuel oil sales in PADD District 4 are too small to appear in the graph.
 Source: Energy Information Administration, Form EIA-821, "Fuel Oil and Kerosene Sales Report," 2009.