

This Week in Petroleum: December 10, 2008

The Decline in Motor Gasoline Consumption: A Replay of the Early 1980s?

Motor gasoline consumption in 2008 is projected to decline 320,000 barrels per day (bbl/d), or 3.4 percent, from 2007 according to the Short-Term Energy Outlook, released yesterday by the Energy Information Administration (EIA). For 2009, the Outlook projects an additional gasoline consumption decline of about 50,000 barrels per day, or 0.6 percent, from 2008. Should this projection pan out, it would be the steepest 2-year (2008-09) consecutive decline in motor gasoline consumption since 1979-80. Taking account of the rise in average ethanol content of motor gasoline, estimated to be 635,000 bbl/d in 2008 and 675,000 bbl/d in 2009, the decline in consumption of petroleum-based gasoline components is even larger.

The current decline in consumption is brought about by two factors: consumers' reaction to what had been until recently, historically high retail motor gasoline prices (\$4.11 per gallon for regular grade fuel by the second week of July) and the very weak economy. This shares some similarities and is somewhat different from the sharp decline seen almost three decades ago.

Although there have been several previous incidences of price- and recession-related declines in motor gasoline consumption, the one that most closely resembles the current set of conditions is the 1979-82 period, during which the U.S. economy experienced a mild downturn (1980) and a full-fledged recession (1981-82). In 1980, motor gasoline consumption declined by the largest volume (455,000 barrels per day) and proportion (6.5 percent).

Table 1 summarizes percent changes from the previous year in motor gasoline consumption (MG) and related indicators for the 1979-82 interval and the current downturn. The indicators include highway travel (VMT), fuel efficiency (MPG), inflation-adjusted gross domestic product (GDP), and inflation-adjusted costs per mile (CPM) for regular grade motor gasoline. Although 1979 and 2007 experienced growth in real GDP, VMT declined in each of those years as a result of substantial increases in retail prices. These hikes in fuel costs were also contributing factors in the economic slowdowns that followed in each period.

Table 1: Percent Changes in Motor Gasoline Consumption and Related Indicators from the Previous Year

Year	MG	VMT	MPG	GDP	CPM	
1979	-5.1	-1.2	+3.8	+3.2	+15.4	
1980	-6.5	-0.8	+6.4	-0.2	+15.4	
1981	+0.1	+2.2	+2.1	+2.5	-1.8	
1982	-0.7	+2.7	+3.4	-1.9	-14.1	
2007	+0.4	-0.6	-0.9	+2.0	+7.0	
2008 (forecast)	-3.4		-3.8	-0.3	+1.3	+12.3
2009 (forecast)			-0.6	+0.4	+0.9	-1.3 -38.4

Source: EIA, Short-Term Energy Outlook, December 2008.

In each of the two periods in Table 1, substantial increases in inflation-adjusted motor fuel costs during the first two years resulted in sizable declines in highway travel, even though real GDP rose for each two-year sub-period as a whole. In the initial phase in each period during which prices increased, consumers appeared to react in a similar fashion: the sharp increases in prices outweighed the positive impact of increases in GDP on vehicle miles traveled. When real costs per mile stopped increasing in 1981, vehicle miles traveled resumed its growth, buoyed by a temporary bounce in real gross domestic product. In addition, both 1982 and 2009 (projected) registered growth in highway travel as a result of sizable declines in fuel costs despite the declines in real GDP.

But there are, in fact, structural differences in consumers' responses to motor gasoline price changes between the two periods. In 1979-80, real per-mile fuel costs increased an average of more than 15 percent; and highway travel declined by an average of 1.0 percent per year despite an average annual GDP growth of 1.5 percent. In contrast, real per-mile fuel costs in 2007-08 increased an average of only 10 percent per year, somewhat less than that in 1979-80. Nonetheless, highway travel declined by an average of more than 2 percent per year, two times that of the 1979-80 decline, despite an average GDP growth similar to that of 1979-80. This result suggests that, in the second period, the rapidity of the increase in prices to record levels resulted in a larger shift in consumer behavior. The cumulative effect of previous run-ups in the retail price to \$3 per gallon in 2006 and 2007 may have also contributed. By the time retail gasoline prices peaked above \$4 per gallon, many consumers had begun to feel that \$3 per gallon was the new floor price that could be expected in the future. Recent motor gasoline volume data from the Energy Information Administration and highway travel data from the Federal Highway Administration suggest that the precipitous decline in gasoline prices by about \$2.40 per gallon from the July 2008 peak has yet to revive consumer demand for highway travel, and hence for motor gasoline, even after accounting for the current economic downturn.

Another difference between the two periods is the fuel-efficiency (MPG) response to the increase in fuel prices, as shown in Table 1. During the first period, fleet-wide fuel efficiencies grew by an average of 3.9 percent per year. As a result there was a sizable gasoline consumption decline during the first two years and a continuing overall decline during the second two years despite substantial increases in vehicle miles traveled. Because fleet-wide efficiencies in the current period are almost twice that of those prior going into the 1979-82 period, the impact on gasoline use of switching to more fuel-efficient vehicles is more limited. In addition, the increasing use of ethanol in the motor gasoline pool has lowered the average per-gallon energy content of the fuel, which increases the volume of fuel required per mile of travel at any given level of vehicle efficiency.

Residential Heating Fuel Prices Plunge Downward

Residential heating oil prices fell at a renewed pace during the period ending December 8, 2008. The average residential heating oil price fell 16.8 cents last week to reach 251.2 cents per gallon, showing a decrease of 74.7 cents from this time last year. Wholesale heating oil prices plummeted 30.5 cents, reaching 151.9 cents per gallon, which was a drop of 105.8 cents compared to the same period last year.

The average residential propane price dropped 3.3 cents to reach 236.8 cents per gallon. This was a decrease of 10.3 cents from the 247.1 cents per gallon average for this same time last year. Wholesale propane prices slipped 15.6 cents per gallon, falling from 85.9 cents to 70.3 cents per gallon. This was a decrease of 87.7 cents from the December 10, 2007 price of 158.0 cents per gallon

Gasoline and Diesel Prices Still Falling

Continuing the downward slide of the past 12 weeks, the average price of regular gasoline again fell in all regions of the country. The national average price dropped 11.2 cents to 169.9 cents per gallon, 130.1 cents below the price a year ago and the lowest price since February 23, 2004. The price is now 241.5 cents below the all-time high set on July 7 of this year. The average price on the East Coast slipped 10.3 cents to 175.7 cents per gallon. Contracting by 11.5 cents to 160.2 cents per gallon, the price in the Midwest remained the lowest of any region. The average price on the Gulf Coast declined 9.3 cents to 163.9 cents per gallon, the smallest drop of any region. In the Rocky Mountains, the price fell 11.5 cents to 162.3 cents per gallon. The price on the West Coast plunged 14.3 cents, the most of any region, dropping to 182.9 cents per gallon. In California, the price tumbled 15 cents, to 180.5 cents per gallon, the lowest there since February 2004.

The U.S. average diesel price lost a dime to settle at 251.5 cents per gallon, 81 cents below a year ago and the lowest since February 19, 2007. For the tenth consecutive week, prices fell in all regions of the country. On the East Coast, the average price slid 10.3 cents to 263.2 cents per gallon, 74 cents below the price last year at this time. The price in the Midwest dipped 8.7 cents to 249.1 cents per gallon. The average price in the Gulf Coast shrank 9.1 cents to 246.5 cents per gallon. The price in the Rocky Mountains slumped 13 cents to hit 244.7 cents per gallon. The average price on the West Coast fell to 242.1 cents per gallon. The drop of 13.2 cents was the most of any region and, consequently, for the second week in a row, the price on the West Coast was the lowest on a regional basis. The average price in California plunged 13.6 cents to 240.2 cents per gallon, the lowest average price for the State since May 30, 2005.

Propane Inventories Report Unexpected Gain

An unexpected gain of 0.8 million barrels was reported by primary stockholders of propane last week, pushing up inventories to an estimated 61.1 million barrels as of December 5, 2008. With last week's build, propane inventories moved within the lower boundary of the average range for the first time since last spring. The Gulf Coast accounted for all of last week's gain, showing an increase of 1.1 million barrels. In other areas, the combined Rocky Mountain/West Coast region and the Midwest region remained relatively unchanged. East Coast inventories during this same time were down sharply by 0.3 million barrels. Propylene non-fuel use inventories pushed higher by 0.3 million barrels and accounted for a 6.2 percent share of total propane/propylene inventories, up from the prior week's 5.8 percent share.

Summary of Weekly Petroleum Data for the Week Ending December 5, 2008

U.S. crude oil refinery inputs averaged nearly 15.0 million barrels per day during the week ending December 5, up 387 thousand barrels per day from the previous week's average. Refineries operated at 87.4 percent of their operable capacity last week. Gasoline production rose last week, averaging about 9.0 million barrels per day. Distillate fuel production increased last week, averaging nearly 4.7 million barrels per day.

U.S. crude oil imports averaged nearly 10.0 million barrels per day last week, up about 0.5 million barrels per day from the previous week. Over the last four weeks, crude oil imports have averaged nearly 10.1 million barrels per day, 109 thousand barrels per day above the same four-week period last year. Total motor

gasoline imports (including both finished gasoline and gasoline blending components) last week averaged 1.1 million barrels per day. Distillate fuel imports averaged 103 thousand barrels per day last week.

U.S. commercial crude oil inventories (excluding those in the Strategic Petroleum Reserve) increased 0.4 million barrels from the previous week. At 320.8 million barrels, U.S. crude oil inventories are in the upper half of the average range for this time of year. Total motor gasoline inventories increased by 3.8 million barrels last week, and are just below the lower boundary of the average range. Both finished gasoline and gasoline blending components inventories increased last week. Distillate fuel inventories increased by 5.6 million barrels, and are in the lower half of the average range for this time of year. Propane/propylene inventories increased last week by 0.8 million barrels and moved within the lower limit of the average range. Total commercial petroleum inventories increased by 6.7 million barrels last week, and are in the upper half of average range for this time of year.

Total products supplied over the last four-week period has averaged 19.3 million barrels per day, down by 6.1 percent compared to the similar period last year. Over the last four weeks, motor gasoline demand has averaged 8.9 million barrels per day, down by 3.2 percent from the same period last year. Distillate fuel demand has averaged 3.9 million barrels per day over the last four weeks, down by 4.0 percent from the same period last year. Jet fuel demand is 16.8 percent lower over the last four weeks compared to the same four-week period last year.

The tables that follow display the latest U.S. Petroleum Balance Sheet and the most recent 4 weeks of Weekly Petroleum Status Report data.