Summer 2000 Motor Gasoline Outlook

Summary

For the upcoming summer season (April to September), motor gasoline markets are projected to exhibit an extraordinarily tight supply/demand balance.

- **Retail gasoline prices** (regular grade) are expected to average $1.46 per gallon, 25 percent higher than last summer's average of $1.17 per gallon. That projection also exceeds the previous (current-dollar) record summer average of $1.35 recorded in 1981. Nominal prices are expected to reach a peak of $1.52 per gallon in April—a new record--and decline steadily to $1.39 per gallon by September due to the impact of increases in world-wide crude oil production. These projections presume no disruptions of refinery motor gasoline production.

- The record price projected for April, after adjusting for inflation, is approximately 40 percent below the peak reached in March 1981. Subsequent adjustment for fuel efficiency increases since then results in about a 60-percent cost reduction over the same period.

- **Demand** is projected to average 8.72 million barrels per day, up 130,000 barrels per day, or 1.5 percent, from last summer. Even though that represents a new summer season record, that growth is well below the average of previous summers.

- **Motor gasoline stocks** are currently low and are projected to remain relatively low throughout the driving season. Total beginning-of-season (April 1) stocks are sharply below last year's levels and are near the low end of the normal range. The average projected finished motor gasoline stock draw this summer is 23,000 barrels per day, less than half that of the previous summer.

- **Total domestic output** (refinery and field production) is projected to average 8.40 million barrels per day during the summer months, up almost 190,000 barrels per day from last summer. Refineries will be expected to meet not only the 130,000 barrels-per-day increase in demand but also to accommodate the reduced availability from stocks and net imports. As a result, refinery utilization rates for the summer are projected to average 96.8 percent, up from 94.3 percent last summer.

- **Net imports** of finished motor gasoline are projected to average 295,000 barrels per day, down from 327,000 barrels per day last summer. This reflects the projected lower availability of supplies from Europe and uncertainties about foreign refiners' ability to meet Phase II reformulated gasoline specifications.

Table MG1 summarizes the base-case summer motor gasoline market-related projections and compares those projections with last summer.

Table MG1. U.S. Motor Gasoline Summer Outlook: Mid World Oil Price Case

	1999			2000			Change (%)		
	Q2	Q3	Summer	Q2	Q3	Summer	Q2	Q3	Summer
Prices (cents per gallon)									
Imported Crude Oil Price [a]	**36.8**	**46.7**	**41.8**	*60.2*	*58.5*	*59.3*	*63.7*	*25.2*	*42.1*
Wholesale Gasoline Price [b]	**61.7**	**72.6**	**67.2**	*94.2*	*87.3*	*90.7*	*52.7*	*20.1*	*35.0*
Retail Gasoline Price [c]	**112.5**	**121.2**	**116.9**	*150.1*	*141.8*	*145.9*	*33.4*	*17.0*	*24.9*
Stocks, Incl. Blending Components (million barrels)									
Beginning	**216**	**215**		*198*	*196*				
Ending	**215**	**204**		*196*	*189*				
Demand/Supply (million barrels per day)									
Total Demand	**8.591**	**8.590**	**8.590**	*8.707*	*8.728*	*8.717*	*1.4*	*1.6*	*1.5*
Total Output [d]	**8.235**	**8.189**	**8.212**	*8.435*	*8.363*	*8.399*	*2.4*	*2.1*	*2.3*
Net Finished Stock Withdrawal	**-0.027**	**0.129**	**0.052**	*-0.026*	*0.072*	*0.023*			
Net Imports	**0.383**	**0.271**	**0.327**	*0.297*	*0.293*	*0.295*	*-22.3*	*8.0*	*-9.6*
Refinery Utilization (percent)	**93.8**	**94.8**	**94.3**	*96.1*	*97.4*	*96.8*			
Market Indicators									
Real GDP (billion 1996 dollars)	**8779**	**8901**	**8840**	*9191*	*9244*	*9218*	*4.7*	*3.9*	*4.3*
Real Income (billion 1996 dollars)	**6339**	**6385**	**6362**	*6596*	*6653*	*6625*	*4.1*	*4.2*	*4.1*
Industrial Output Index (1992=1.000)	**1.361**	**1.377**	**1.369**	*1.415*	*1.414*	*1.415*	*3.9*	*2.7*	*3.3*
Miles Traveled (million miles per day)	**7556**	**7706**	**7631**	*7627*	*7817*	*7722*	*0.9*	*1.4*	*1.2*
Average MPG (miles per gallon)	**20.9**	**21.4**	**21.2**	*20.9*	*21.3*	*21.1*	*-0.4*	*-0.2*	*-0.3*

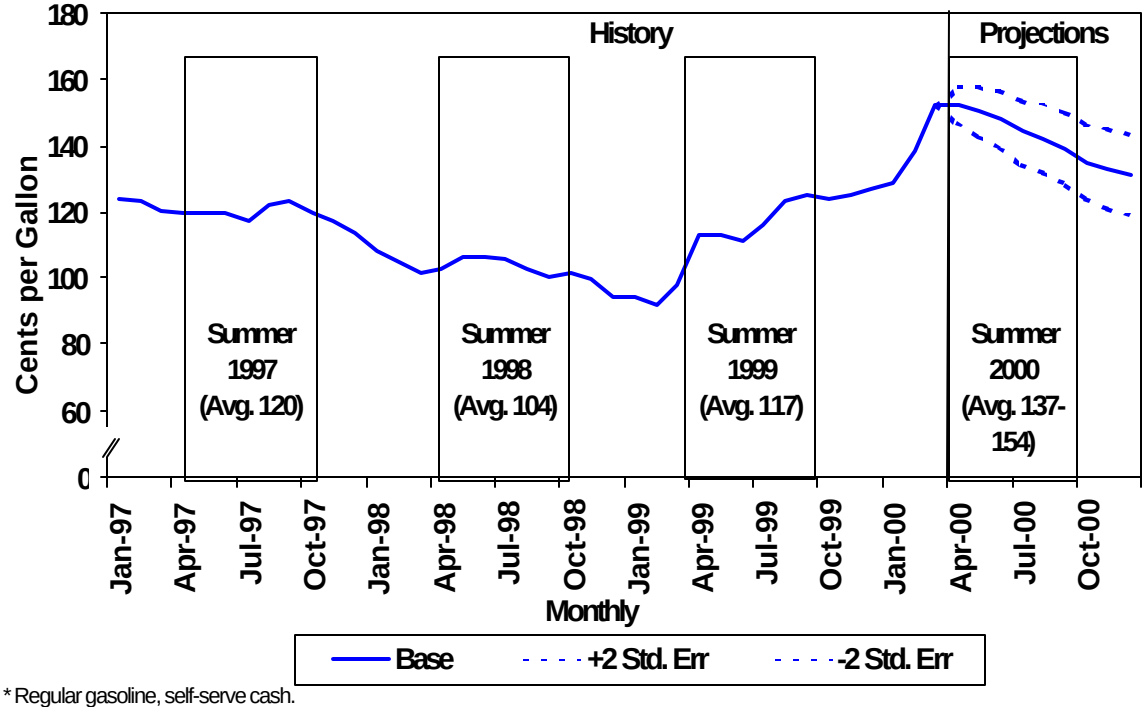
[a] Cost of imported crude oil to U.S.
[b] Price of gasoline sold by refiners to resellers.
[c] Average pump price for regular gasoline.
[d] Refinery output plus motor gasoline field production, including fuel ethanol blended into gasoline and new supply of oxygenates and other hydrocarbons for gasoline production.
Notes: Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System. Sources: Historical data: latest data available from: Energy Information Administration, *Petroleum Supply Monthly*, DOE/EIA-0109; *Monthly Energy Review*, DOE/EIA-0035; U.S. Department of Commerce, Bureau of Economic Analysis; Federal Reserve System; National Oceanic and Atmospheric Administration. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0299.

Prices

The U.S. retail price of regular gasoline reached an estimated average of $1.52 per gallon in March 2000, about 53 cents per gallon above the same month in 1999. February's average was also 23 cents per gallon above the average seen in January 2000. Increases of this magnitude are highly unusual. The last such episode was associated with the onset of the Gulf War (August 1990). The high nominal gasoline prices being experienced now follow from two important (and related) results of production cutbacks by major producing countries since 1998: dwindling world petroleum inventories and sharply higher crude oil prices. Crude oil prices began a steep upturn on world markets in March of 1999 and continued to climb through the winter just ended. Since then, the cost paid by U.S. refiners for crude oil rose almost $15 per barrel (35 cents per gallon). Meanwhile, U.S. inventories of crude oil and finished products fell sharply. As of April 1, crude oil and motor gasoline inventories were at very low levels in the context of what is considered “normal” for this time of year. Expected demand growth this year, while small by historical standards, is expected to keep stock levels lean, even with anticipated increases in refinery output.

Figure MG1. Retail Gasoline Price Cases*

(Base Case and 95 Percent Confidence Range)

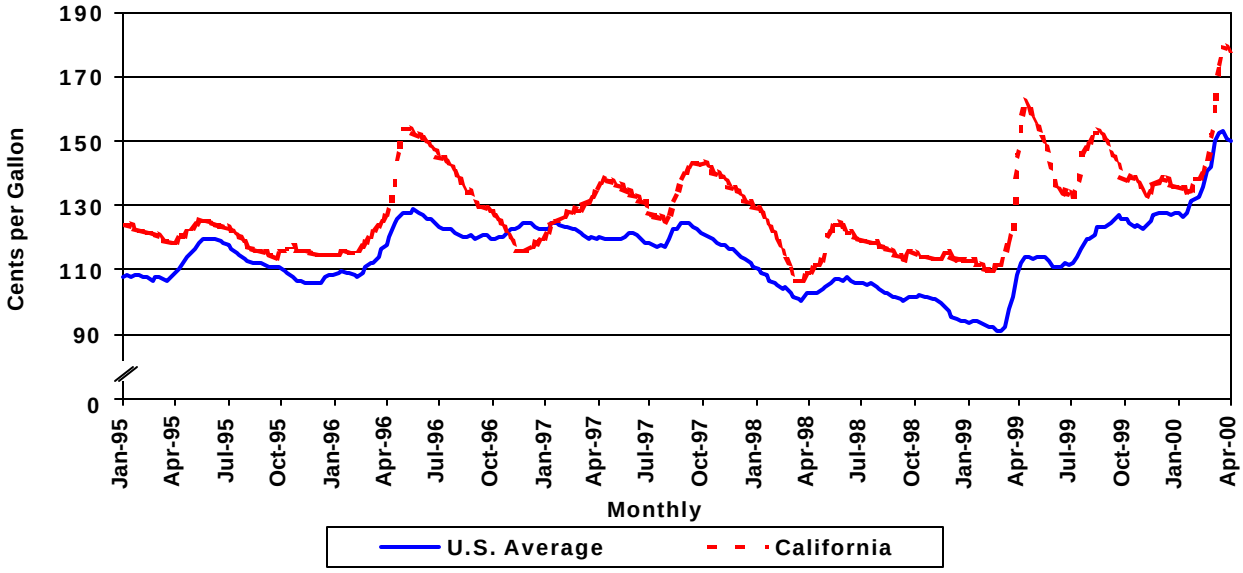


* Regular gasoline, self-serve cash.

Retail gasoline prices (regular grade) this summer are expected to average $1.46 per gallon, 25 percent higher than last summer's average of $1.17 per gallon. That projection also exceeds the previous (current-dollar) record summer average of $1.35 recorded in 1981. The peak monthly average price this summer (April) is expected to be $1.52 per gallon, the same as seen in March. Prices are then expected to decline to $1.39 by the end of summer, given the implications of the recently concluded agreement by OPEC members to increase production.

Despite that agreement, uncertainty about world petroleum supply and demand patterns over the next few quarters remains. The impact of that uncertainty engenders a broad range of plausible paths for crude oil and petroleum product prices over time. The range of potential outcomes constitute approximately 2 standard errors on either side of the base case projection are illustrated for the average pump price for regular gasoline in Figure MG1. (The range is based on the normal error distributions associated with the Short-Term Integrated Forecasting System model.) The probability of prices ranging above (or below) these curves is, for any month, approximately 5 percent. An interesting result of this kind of analysis is the conclusion that, even in the currently bullish atmosphere relating to gasoline, the approximate probability of the average pump price for regular gasoline exceeding $1.57 per gallon in any month this summer is about 3 percent or less. This calculation, however, reflects underlying uncertainties in crude oil markets but assumes that no significant refinery disruptions occur.

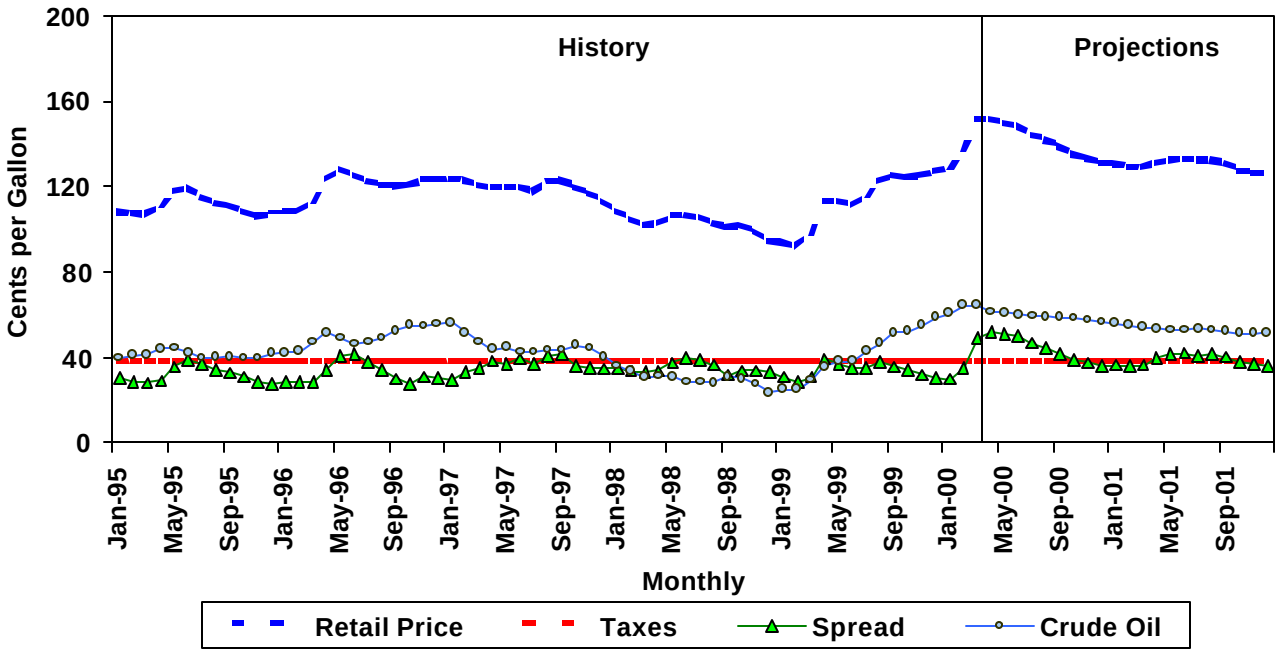
Figure MG2. U.S. and California Retail Regular Gasoline Prices



In addition to the general uncertainty concerning the gasoline market projections for this summer, other qualifications to the U.S. forecast that are of interest include regional variations in price due to such factors as tax differences, environmental requirements and unique market circumstances. Based on 5 years of history, gasoline prices between Petroleum Administration for Defense Districts (PADDs) typically vary by 10 to 20 cents per gallon. State gasoline taxes (excise and sales taxes) alone yield interstate price differences of as high as 27 cents per gallon. California presents a particularly interesting comparison to the average U.S. gasoline price situation because of the strict environmental standards, the above-average tax rate and the relative isolation of West Coast markets.

The California gasoline market is subject to much greater swings in price than the rest of the country, a feature that is clearly illustrated in Figure MG2. Last year, West Coast refinery outages in February and March hurt the short-term supply situation in California and started a sharp runup in wholesale and retail prices there. That problem reverberated to elsewhere in the United States, but the overwhelming impact was localized. This year, California gave maximum expression to the effects of a tight domestic gasoline market as spot prices for reformulated gasoline wholesale reached $1.35 per gallon on March 10, 80 cents per gallon above the same time last year. Retail gasoline prices in California in late March reached $1.79 cents per gallon, 26 cents per gallon above the national average for the same period. The California price staged a 45 cents-per-gallon runup from mid January, outpacing the average for the United States by 21 cents per gallon. As the strong upturn in West Coast wholesale gasoline prices that lies behind the pump price surge in California has been largely reversed, pump prices there have started to come down. As of early April, however, California retail prices were still about 27 cents per gallon above the national average.

Figure MG3. Retail Gasoline Price* Components



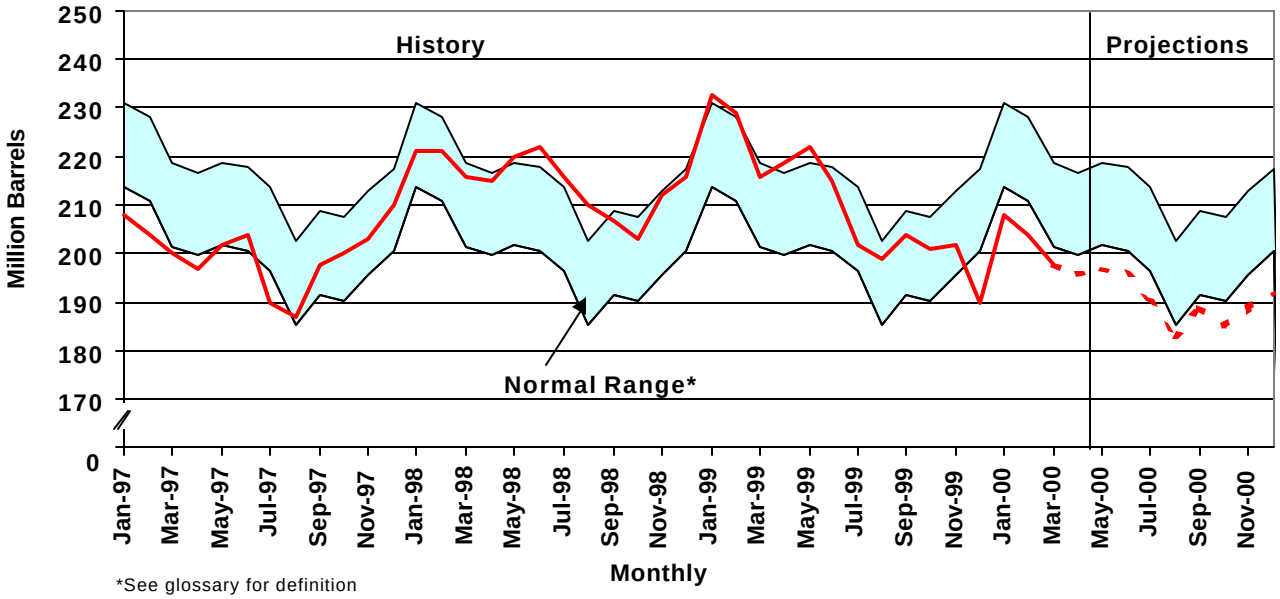
* Retail Price: regular gasoline, self-serve cash. Crude: average imported cost to U.S. refiners.

Some perspective on the causes of average summer gasoline price movements is provided in Figure MG3. The dramatic increase in crude oil costs that has occurred since last summer and which is expected to dominate the price changes anticipated for summer 2000, makes the importance of previous year-to-year variations in price pale in comparison, certainly since the early 1990's. In addition, the spread between crude costs and ex-tax prices has grown to above-normal levels this year, adding to the total increase in pump prices. Mostly, these increased spreads represent premiums on relatively scarce short-term supplies (that is, low stocks) and higher costs for imported volumes. Increased spreads are typically transitory and are expected to dissipate during the summer along with the expanded crude oil availability expected from OPEC producers.

This summer promises to present a very stark contrast to the sharply depressed gasoline prices of just two summers ago. Far from the record low real (inflation-adjusted) prices of summer 1998, we expect to see a summer-2000 average price which marks a 15-year high in real terms.. This summer's average retail price for regular gasoline, in inflation-adjusted terms, would be 42 percent below the historical peak reached during the summer of 1981. That summer, gasoline prices averaged $2.52 per gallon in present-day dollars. Nevertheless, the increase in real gasoline expenditures expected to be generated by higher gasoline costs this summer ranks as one of the sharpest ever. We estimate that the average household in the United States, which typically logs about 12,000 miles during the summer months (April through September), would see a $160-$170 increase (25 percent) in summer gasoline expenditures if the conditions included in the base case forecast hold. A return to more normal price and

expenditure levels is envisioned for summer 2001 as continued expansion of OPEC and non-OPEC oil output eases oil market pressures.

Figure MG4. U.S. Total Motor Gasoline Stocks



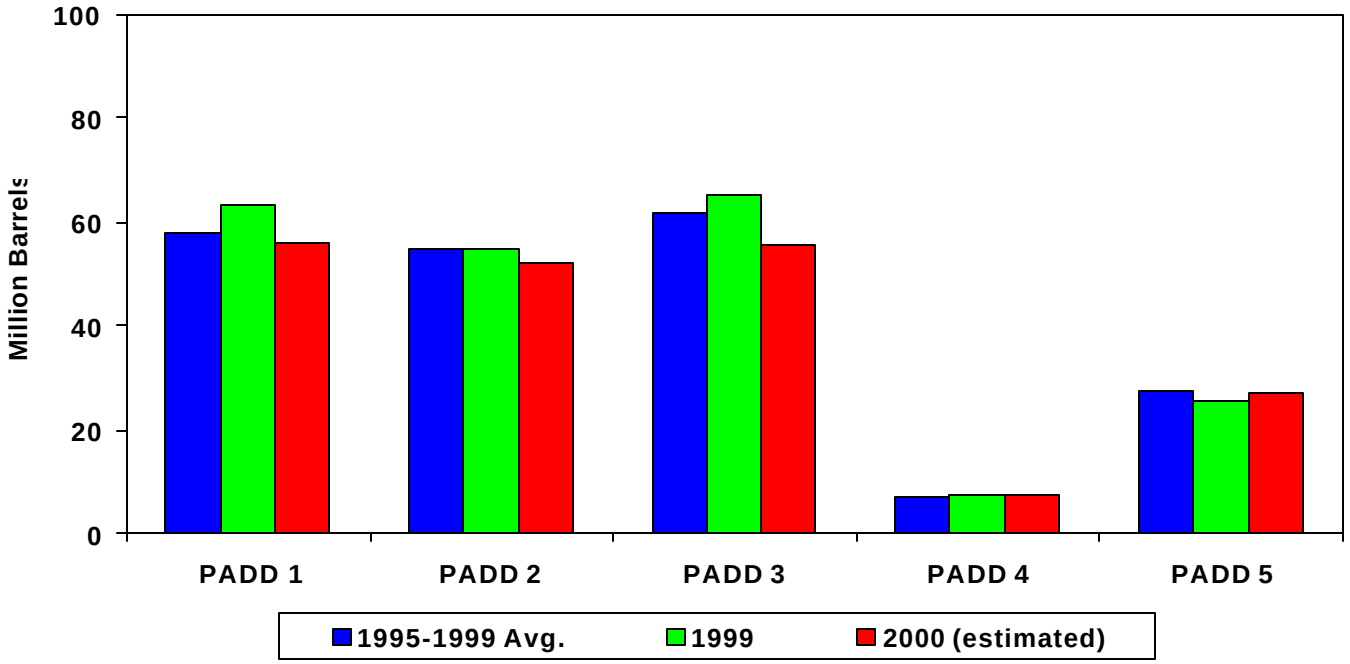
*See glossary for definition

A decline from ample levels of gasoline stocks has occurred since last summer, as shown in Figure MG4. In June 1999, total motor gasoline stocks stood at 215 million barrels, or 6 million barrels above the middle of the normal range. This situation deteriorated as the year went on, particularly during the late-fall and mid-winter periods, such that at the outset of the summer 2000 driving season (April 1) stocks were sharply below last year's level and well below the midpoint of the normal range. Total gasoline stocks are projected to remain relatively low throughout the driving season.

Under normal conditions, while U.S. refiners need to ramp up refinery output of gasoline significantly during the summer in order to meet demand, a key component of uninterrupted gasoline supply is sufficient stocks to bridge the gap between peak demand and output volumes plus available imports. This year, a much-narrowed safety margin in terms of available stocks is facing the domestic gasoline market, which increases the susceptibility of the market to price shocks. Below-normal stock levels, particularly during the time of year when highway travel begins to increase toward the summer peak, implies a reduced portion of incremental seasonal gasoline demand that can be met from inventories, setting the stage for increased reliance on domestic refinery output or imports. Typically, unplanned refinery outages in the United States exert little influence on prices unless the outages are particularly significant or prolonged. This summer, however, the low stock levels might result in larger-than-normal gasoline price fluctuations if domestic production capability falters.

Figure MG5. U.S. Regional Gasoline Stocks

(Beginning of Season - March 31, 2000)



As noted above, total beginning-of-season stocks (including blending components) were estimated to be well below average for this time of year. Indeed, gasoline stock levels are currently not very far from record seasonal lows.

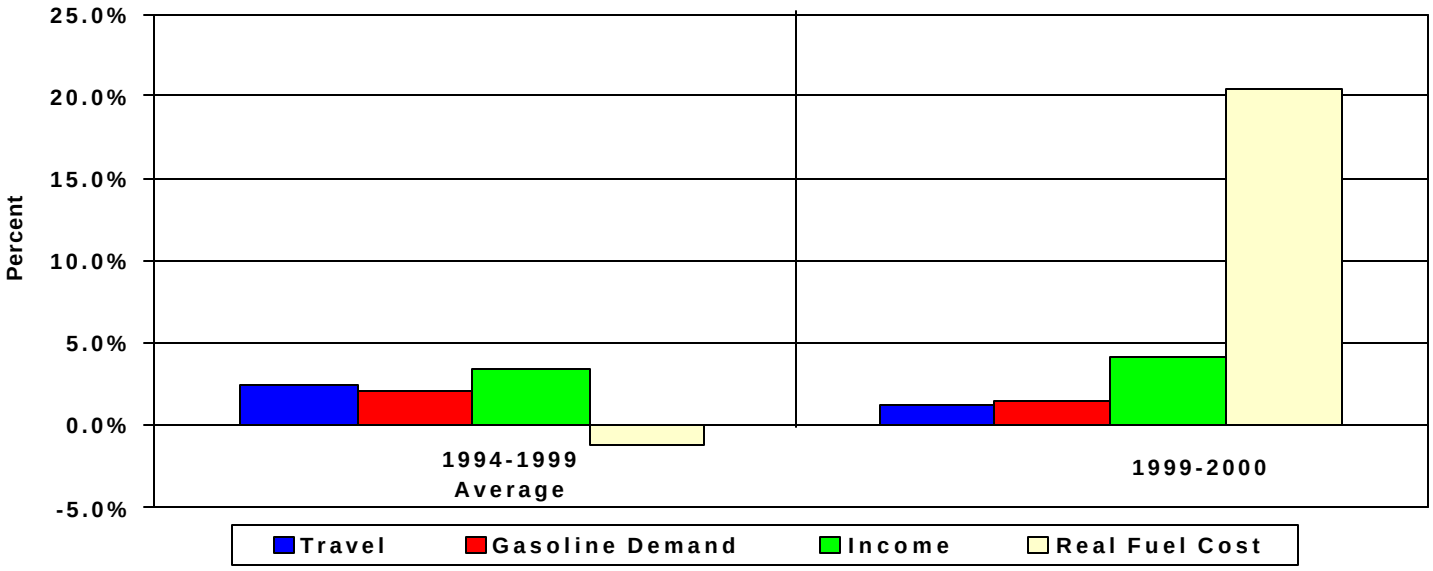
Some regional differences are worth noting (Figure MG5). Much of the shortfall in inventories relative to normal or average levels appears on the Gulf Coast (PADD 3). Below average levels are seen in PADD 1 (East Coast) and PADD 2 (Midwest) as well. Current stock levels on the West Coast (PADD 5), while perhaps not unusually high, are not out of line with recent norms for this time of year.

So far this year, as we have seen, the region with the strongest reaction to the tight gasoline market has been the West Coast (particularly California) with disproportionately high increases in pump prices since mid-January. However, since stocks are particularly low in other areas, the potential for unusually sharp seasonal runups in price somewhere other than the West Coast seems evident.

Since most gasoline imports come into the East Coast, and since the East Coast and the domestic region from which incremental supplies would normal come are currently holding below-normal stocks, it seems clear that the availability of imports is an issue which is of particular interest this summer for those concerned about potential additional short-term increases in gasoline prices.

Figure MG6. Summer Motor Gasoline Market Indicators

(Percent Change from Year Ago)



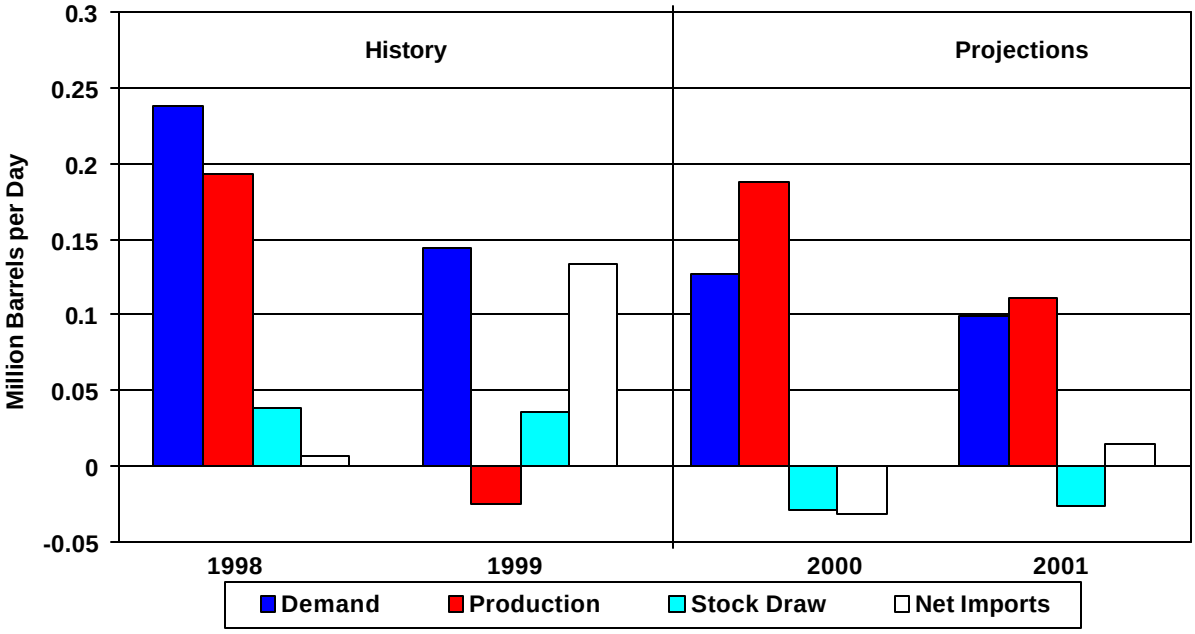
Although it is widely understood that the short-run responsiveness of gasoline demand to increases in real fuel prices is quite low, the current runup in prices will not be without effect relative to consumer demand. Figure MG6 indicates that gasoline demand growth as well as highway travel growth this summer should be below the averages seen over the previous 5 years. Although travel demand growth has apparently been slowing somewhat in recent years anyway (due perhaps to a slowing of the rate of growth in the driving population), we do expect that the high prices expected for this summer will exacerbate the slowdown in demand growth, at least temporarily. This will probably not keep summer gasoline demand from reaching record levels once again. However, we expect demand to increase by about 1.5 percent this summer compared to the 1994-1999 average of 2.0 percent.

The significant growth in real fuel costs evident in Figure MG6 (more than 23 percent above last summer) continues the reversal, begun last year, of the cumulative 7-year real decline of 25 percent that began in 1992. From 1991 to 1998, real fuel costs declined an average of 4 percent per year. For the summer of 2000, we expect per-mile fuel cost to reach a level, in inflation-adjusted terms, that has not been seen since 1990.

Still, with the economy flourishing, and with unemployment and overall (i.e. nonenergy-related) inflation still low, continued travel increases are to be expected. The 1.2-percent growth expected for highway travel this summer would yield an average daily rate of highway travel (all vehicles) of about 7.7 billion miles this summer.

Figure MG7. Summer Gasoline Supply by Source

(Change from Year Ago)



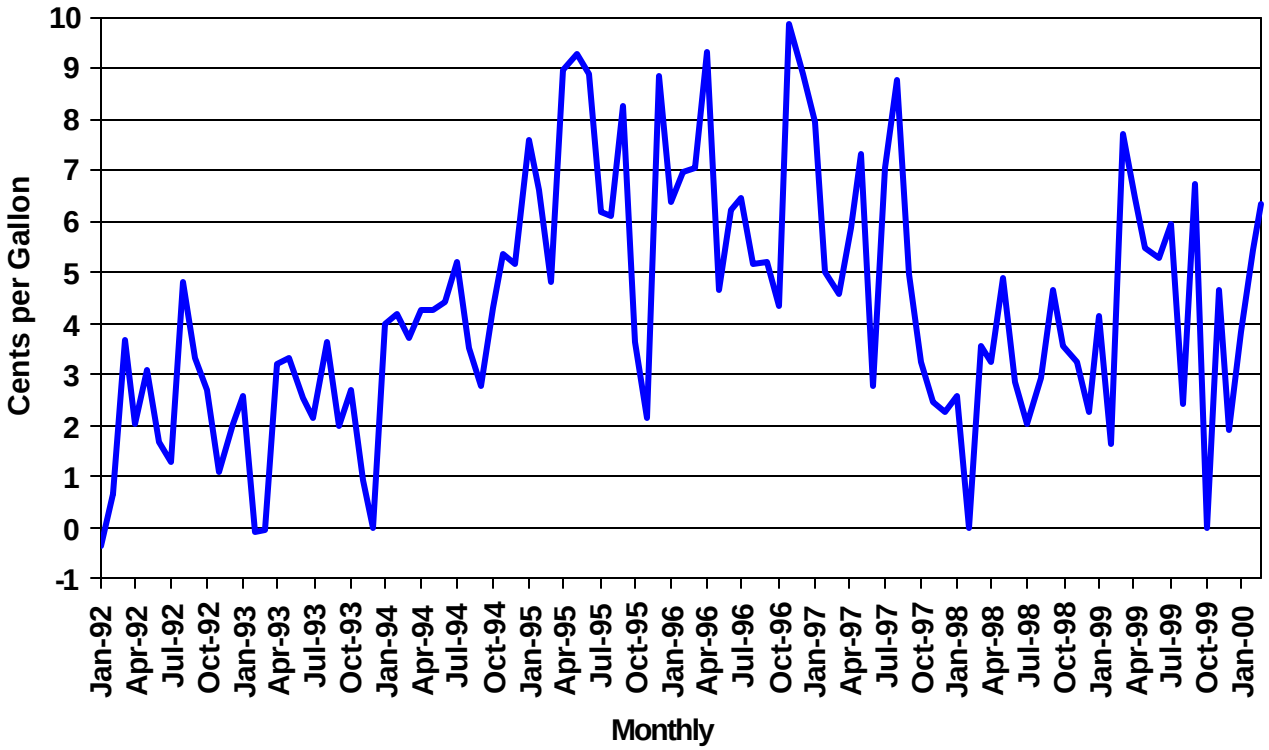
Last summer, virtually all of the increase in U.S. gasoline demand above the summer 1998 level was met by increases in net imports. Very little in the way of increased refinery production was needed (or desired), reflecting the general state of oversupply in the U.S. gasoline market at that time (Figure MG7). This year, however, low gasoline inventories in the United States and abroad will limit the near-term supplies from domestic or foreign stockpiles that can be depended on during the peak demand season.

EIA projects that U.S. refineries will have to increase output of gasoline this summer by more than the expected increase in gasoline demand because of the expected decline in available net imports or inventories. Some of the increased production will undoubtedly have to come at the expense of other products, particularly distillate fuel, which may affect heating oil supplies this fall.

Mostly, however, this situation should result in sharply increased U.S. demand for additional crude oil for processing this summer, implying continued pressure on U.S. crude oil inventories and significantly expanded requirements for crude oil imports. The extent to which this development tends to support higher oil prices depends on the amount of additional oil that actually begins to flow into the market as a result of the March 27 OPEC ministerial meeting. In any case, U.S. refiners are expected to have an edge over foreign refiners in terms of efficiency in meeting short-term gasoline supply needs. This seems particularly likely inasmuch as there is substantial room (capacity) for output expansion in the United States.

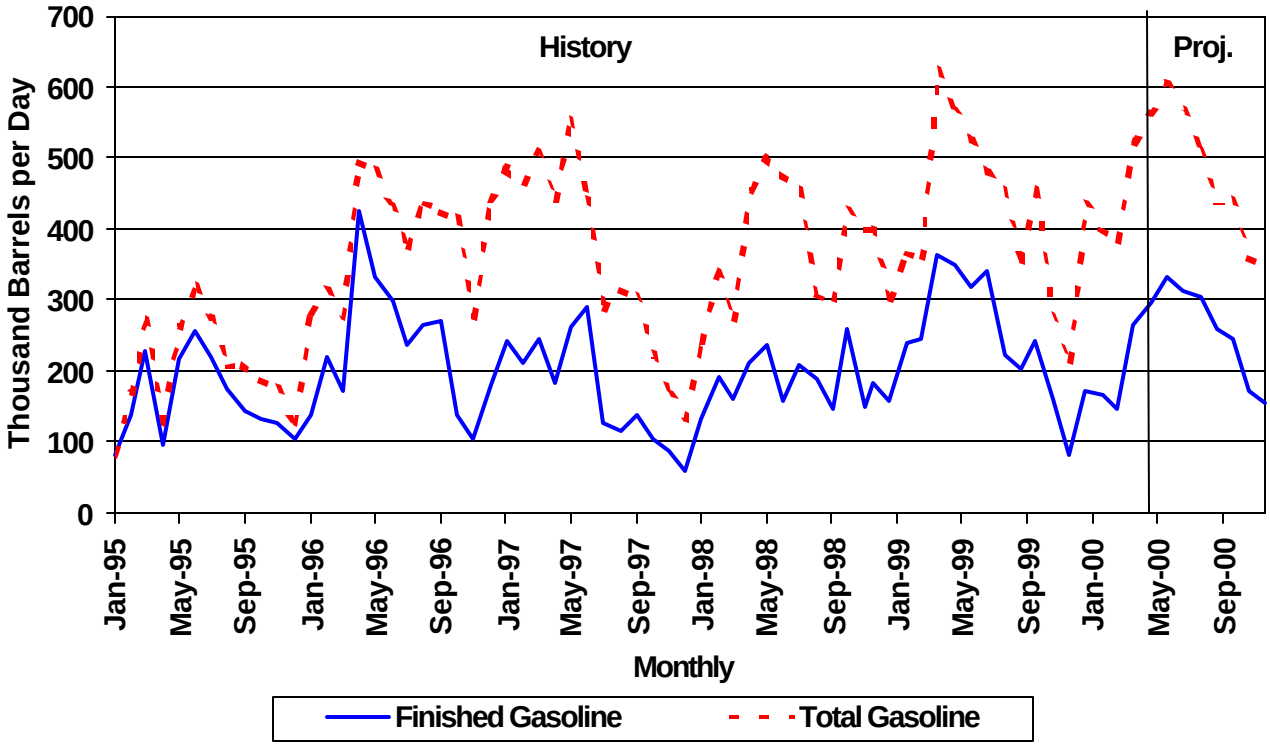
Figure MG8. Trans-Atlantic Gasoline Price Differentials

(New York Harbor less Rotterdam)



Gasoline imports are an important source of supply for the East Coast of the United States, accounting for about 15 to 20 percent of peak summer demand in that region, on average, over the last few years. Over the last three years, almost all imports of gasoline into the United States were destined for the East Coast, specifically the region identified by EIA as Petroleum Administration for Defense District (PADD) 1. Although the majority of these imports come from Canada, Venezuela and the Caribbean, Western Europe is an important source of incremental or swing gasoline supply in the United States. Trans-Atlantic gasoline price differentials provide some indication of the attractiveness of the U.S. market to European refiners (Figure MG8). When U.S. prices exceed European prices adequately to cover transportation cost, they indicate an increased likelihood that moving product across the Atlantic (or diverting supplies otherwise destined for Western Europe) is advantageous. While transportation costs vary, they average 4 cents per gallon. The price differential increased in 1999, particularly in late winter and early spring. A surge in imports accompanied the increase that lasted from April until June. About 60 percent of that surge came from Europe. The differential moved up again in early 2000 primarily due to the impacts of the distillate fuel shortage on U.S. gasoline supplies and prices. We estimate that first quarter 2000 net imports were about even with Q1 1999 levels. It is possible that, if European gasoline supplies prove to be more ample than we are assuming, differentials will rise this summer and some additional imports will substitute for increased U.S. refinery output.

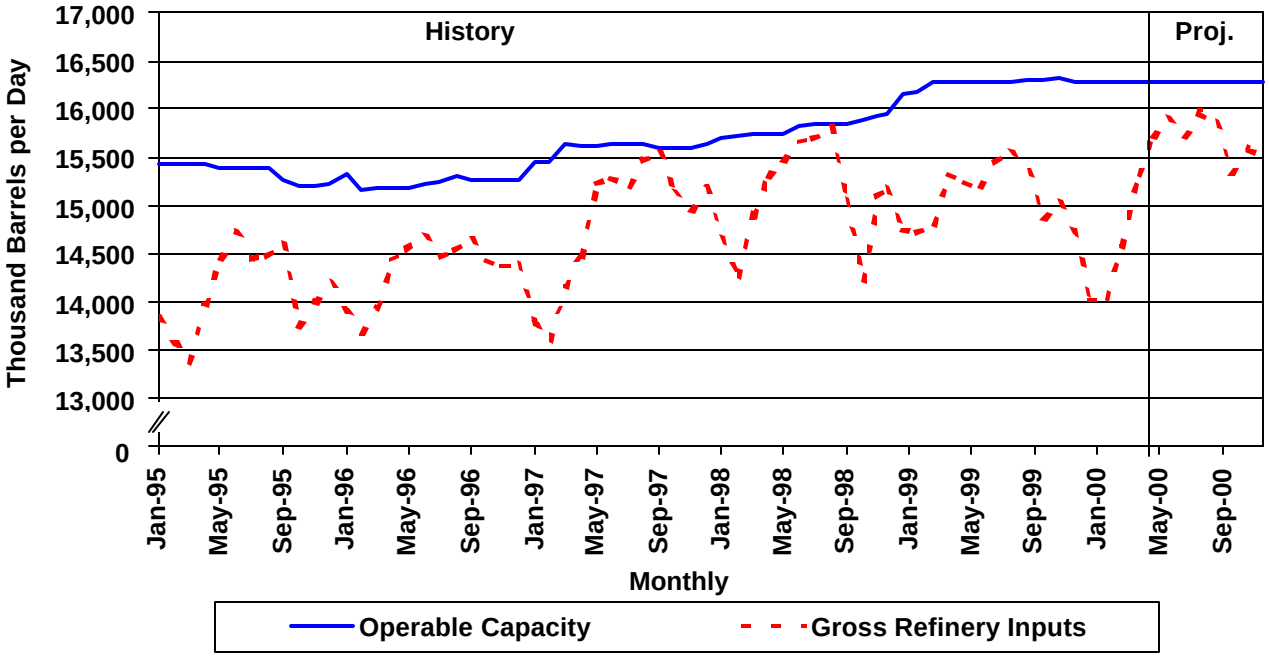
Figure MG9. Motor Gasoline Net Imports



Although imports of finished gasoline have declined in recent years, those of blending components required to meet environmental specifications increased from 1995, when the RFG program was implemented, to 1998. Imports of blending components remained high in 1999. During that time, net imports of blendstocks occasionally exceeded that of finished motor gasoline, boosting total net imports to as much as 500,000 barrels per day. Some of the increase in finished motor gasoline production in the United States was related to the additional quantities of imported blending components, especially during the summer months (Figure MG9). It is likely that some of the increase in "refinery output" this summer will actually stem from increased blendstock imports, blurring somewhat the distinction between refinery production increases and imports growth.

For the summer of 2000, the dominant response to current market conditions will be for U.S. refiners to maximize gasoline output to meet demand. Until the loosening effects of increased OPEC output work their way through the world oil market, U.S. suppliers will try to avoid producing any more product than will be needed to meet extra demand on a current (month-by-month or even week-by-week) basis this year. Producing to build stocks now will be done at high cost and will exacerbate the potential negative effects (on product margins and profits) of declining prices later this year as OPEC output expands.

Figure MG10. U.S. Refinery Capacity and Throughput



The increasing tightness in world oil markets that started to develop last year, and which continued through early 2000, generated a dramatic falloff in peak U.S. refinery utilization which culminated in a 9-year low for monthly utilization being recorded this past January (Figure MG10) of 86.2 percent. The United States will need to see significantly higher gasoline output this summer in order to meet increased demand without relying on inventory withdrawals. Currently, high gasoline spreads (the difference between gasoline prices and oil input costs) would seem to provide sufficient incentive for increased output. Whether the currently high gasoline prices will also attract significant additional gasoline imports remains to be seen.

Total domestic output (refinery and field production) is projected to average 8.40 million barrels per day during the summer months, up about 190,000 barrels per day from last summer. This reflects the expectation that refineries will be expected to meet not only the increase in demand but also compensate for reduced availability from stocks and net imports. As a result, refinery utilization rates for the summer are projected to average 96.8 percent, up from 94.3 percent last summer.

About a third of gasoline sold in the U.S. must meet Phase II reformulated specifications. This gasoline must be in place at distribution terminals by May 1 and at retail outlets by June 1. While the supply of reformulated gasoline from domestic refiners, blenders, and imports should be sufficient, low gasoline inventories raise the risk of localized shortages. The new requirements for reformulated gasoline may slow the response time for delivery of emergency supplies and reduce the availability of imported gasoline.