STATEMENT OF

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before the

SUBCOMMITTEE ON ENERGY POLICY, NATURAL RESOURCES AND REGULATORY AFFAIRS

COMMITTEE ON GOVERNMENT REFORM

UNITED STATES HOUSE OF REPRESENTATIVES

HEARING ON THE CURRENT SITUATION IN U.S. MOTOR GASOLINE MARKETS

April 23, 2002

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to appear before you today to discuss the current situation in and outlook for U.S. gasoline markets.

The Energy Information Administration (EIA) is the statutorily chartered autonomous statistical and analytical agency within the Department of Energy. We are charged with providing objective, timely, and relevant data, analysis, and projections for the use of the Department of Energy, other Government agencies, the U.S. Congress, and the public. We do not take positions on policy issues, but we do produce data and analysis reports that are meant to help policymakers determine energy policy. Because we have an element of statutory independence with respect to the analyses that we publish, our views are strictly those of EIA. We do not speak for the Department, or for any particular point of view with respect to energy policy, and our views should not be construed as representing those of the Department or the Administration. EIA's baseline projections on energy trends are widely used by Government agencies, the private sector, and academia for their own energy analyses.

The Subcommittee has requested information about the current situation and outlook for the supply, demand, and prices of petroleum fuels, particularly gasoline, in the United States. Additionally, the Subcommittee has asked that I specifically discuss the implications for petroleum markets of the current unrest in the Middle East, political turmoil in Venezuela, and proposals to ban MTBE as a gasoline additive.

Short-Term Outlook

Overview

The gasoline outlook for this Summer (and for next year as well) depends on assumptions about certain key factors including economic growth in the United States (and around the world), the extent of OPEC supply restriction and non-OPEC supply response, and the implications of these factors for world oil balances and crude oil prices.

Economic growth in the United States, while improving now, is expected to be relatively modest this year, with more robust overall growth likely in 2003 (Figure 1). U.S. real GDP is expected to be up about 1.6 percent this year after posting a 1.2-percent rise in 2001. In recent weeks, economic analysts' expectations for domestic growth this year have become increasingly optimistic and GDP growth projections for 2002 have been revised upward. Despite the sense of increasing optimism about growth, it should be kept in mind that, in contrast to real GDP, indicators of industrial output showed a significant decline in 2001, particularly in the second half of the year. Improvement now in industrial output may not actually yield year-over-year improvements in activity levels until well into the second half of 2002. Thus, it is possible to have no overall gain in industrial output in 2002 compared to 2001. EIA, in fact, projects a slight decline (on an annual basis) for industrial output this year because of the weakness in the first half of 2002. Thus, the prospects for overall growth in energy demand (including petroleum) in the United States in 2002 are not strong. Growth prospects for U.S. gasoline

markets are somewhat different from those for overall petroleum (discussed below). The situation toward the end of 2002 is likely to be one of accelerating growth, and the annual picture for growth in 2003 is quite robust.

Figure 1.

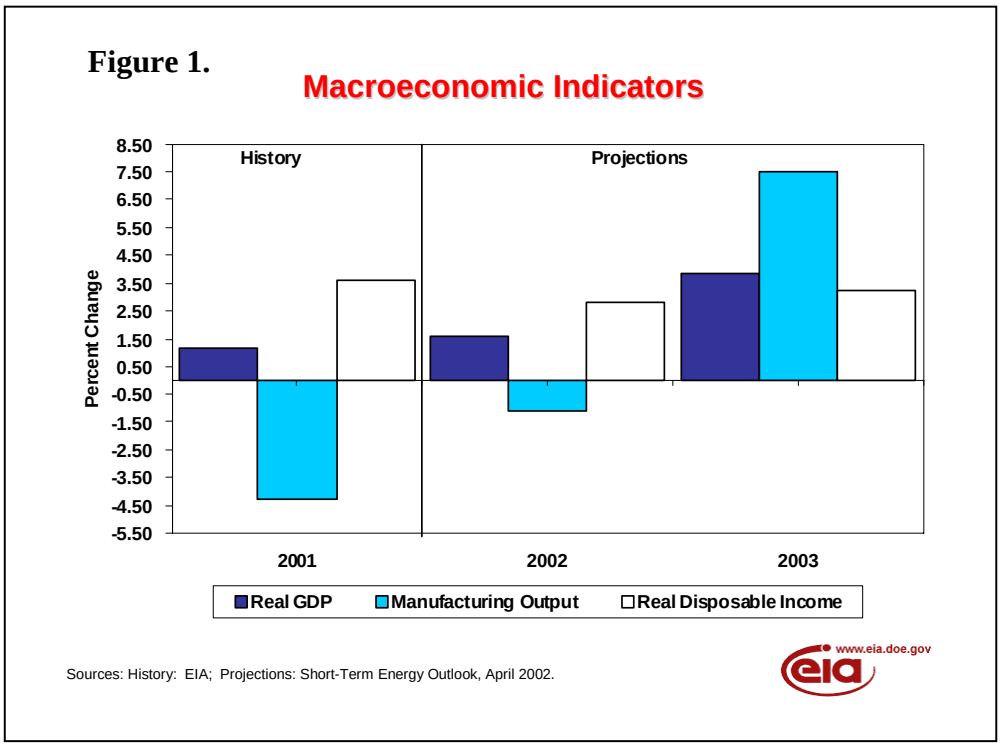
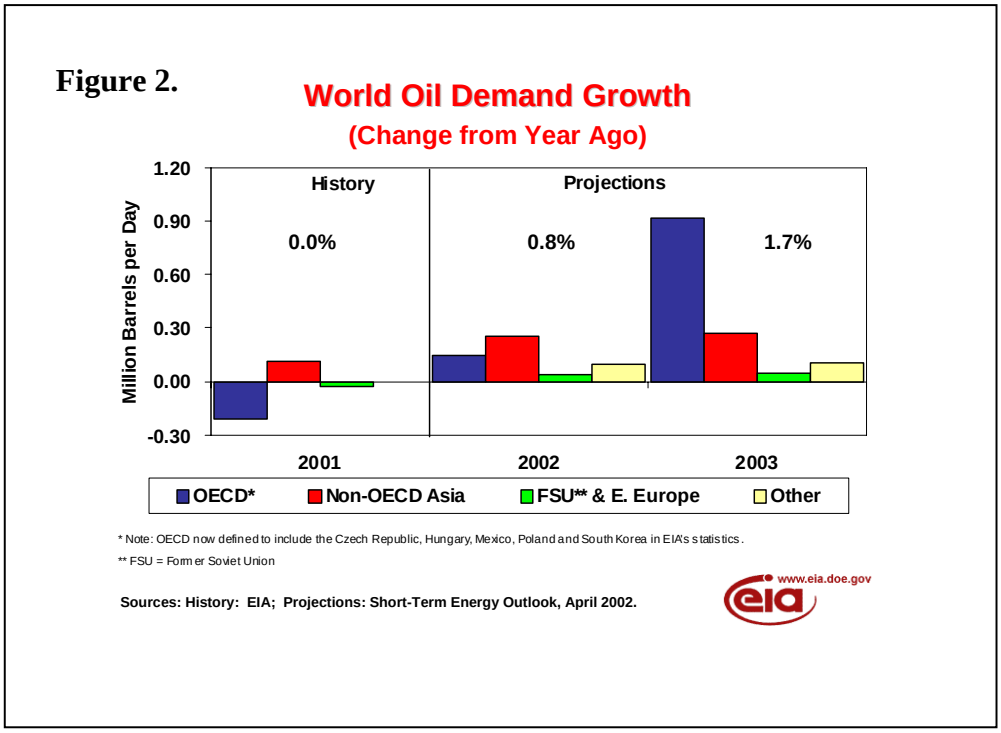
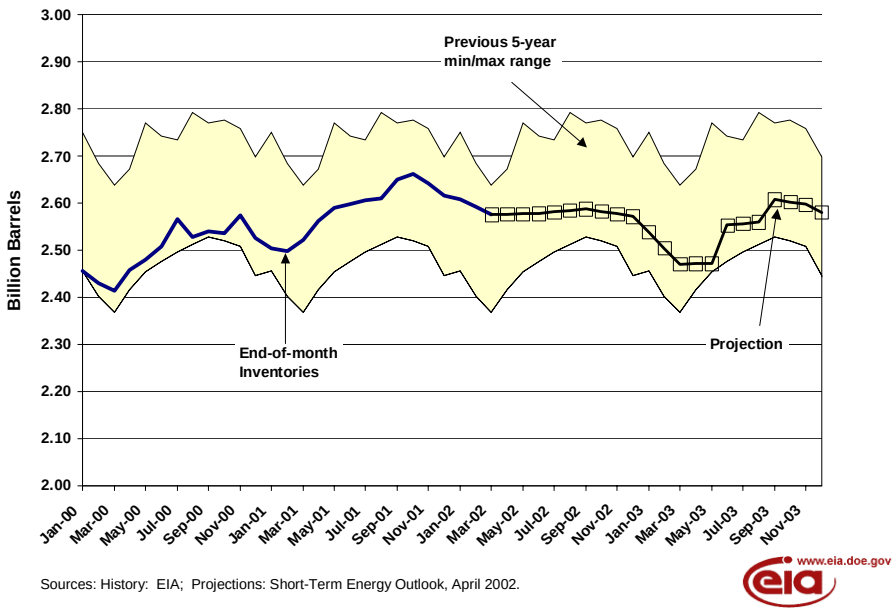


Figure 2.



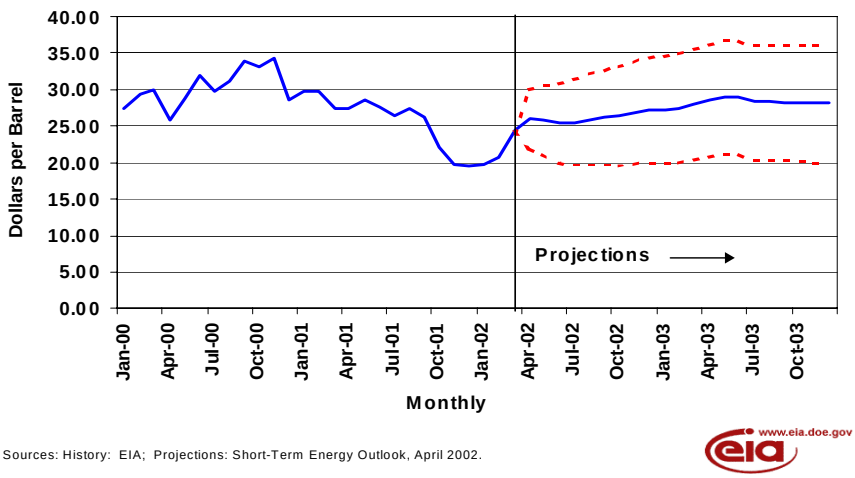
While oil demand growth in the United States is expected to be about flat this year, demand worldwide is expected to begin recovering from stagnation (no growth) seen in 2001 (Figure 2). This development, in conjunction with cutbacks in production initiated by OPEC (excluding Iraq), which between December 2000 and today has amounted to approximately 4 million barrels per day (about 15 percent of OPEC's fourth quarter 2000 production level), is expected to move industrialized country oil stocks toward the lower end of the average range later this year (Figure 3).

Figure 3.



Sources: History: EIA; Projections: Short-Term Energy Outlook, April 2002.

Figure 4.



Sources: History: EIA; Projections: Short-Term Energy Outlook, April 2002.

General support for relatively high and rising crude oil prices in 2002 and into 2003 is consistent with such a change in oil stocks. World oil prices rose on average by about $4 per barrel in March from February levels, as the U.S. benchmark West Texas Intermediate (WTI) crude oil price rose to an average of $24.50 per barrel (Figure 4).

The OPEC basket price rose to an average of $23 per barrel, thus exceeding $22 per barrel - the lower end of OPEC's suspended price band - on March 8 for the first time since September. In part, prices rose because markets focused on the uncertain situation in Iraq and the Middle East. World oil prices are expected to rise in 2002, as inventories in the Organization for Economic Cooperation and Development (OECD) countries draw down as a result of supply cuts taking place following the enactment of the January 2002 quota. WTI prices are projected to rise to the high $20's per barrel by the end of 2002, assuming that production from the OPEC 10 (the OPEC countries minus Iraq) will increase from current levels as expected. Uncertainty about overall world oil market conditions and rising tensions in the Middle East have pushed prices to levels above $27 per barrel for WTI. Furthermore, the current political turmoil in Venezuela has increased the volatility in the world oil market. Venezuela is not only a member of OPEC, but is also one of the leading exporters of petroleum to the United States.

However, if the OPEC 10 do not increase production, world oil markets could witness a repeat of 2000, when prices rose sharply during the second half of the year before large production increases eased price pressures. The OPEC 10 succeeded in reducing their oil production by an estimated 1.3 million barrels per day in January-February. Efforts to improve compliance leveled off in March, leaving the OPEC 10 producing at least 700,000 barrels per day above quota levels. If past history is a guide, OPEC compliance should decline over the next few months. Even so, prices should continue to increase despite this overproduction above quota levels. OPEC quotas have been set at low levels, resulting from repeated OPEC 10 quota cuts totaling over 5 million barrels per day over the past year. As a result, OPEC is now in a situation where world oil markets could tighten and oil prices rise even in the event of little or no demand growth and large increases in non-OPEC production. OPEC Secretary General Rodriguez has stated that he doesn't see OPEC raising output this year. However, this scenario is highly unlikely given past experience with OPEC quota compliance. Furthermore, EIA's global oil demand projections for 2002 suggest that world oil demand will continue to grow in 2002 as world economies begin to recover. EIA’s current Outlook estimates world oil demand growth of 540,000 barrels per day this year. With the expected recovery of the economies in 2003, particularly in the United States, where GDP growth is projected to reach 3.8 percent annually, world oil demand could increase by 1.3 million barrels per day, with more than half of this coming from the U.S.

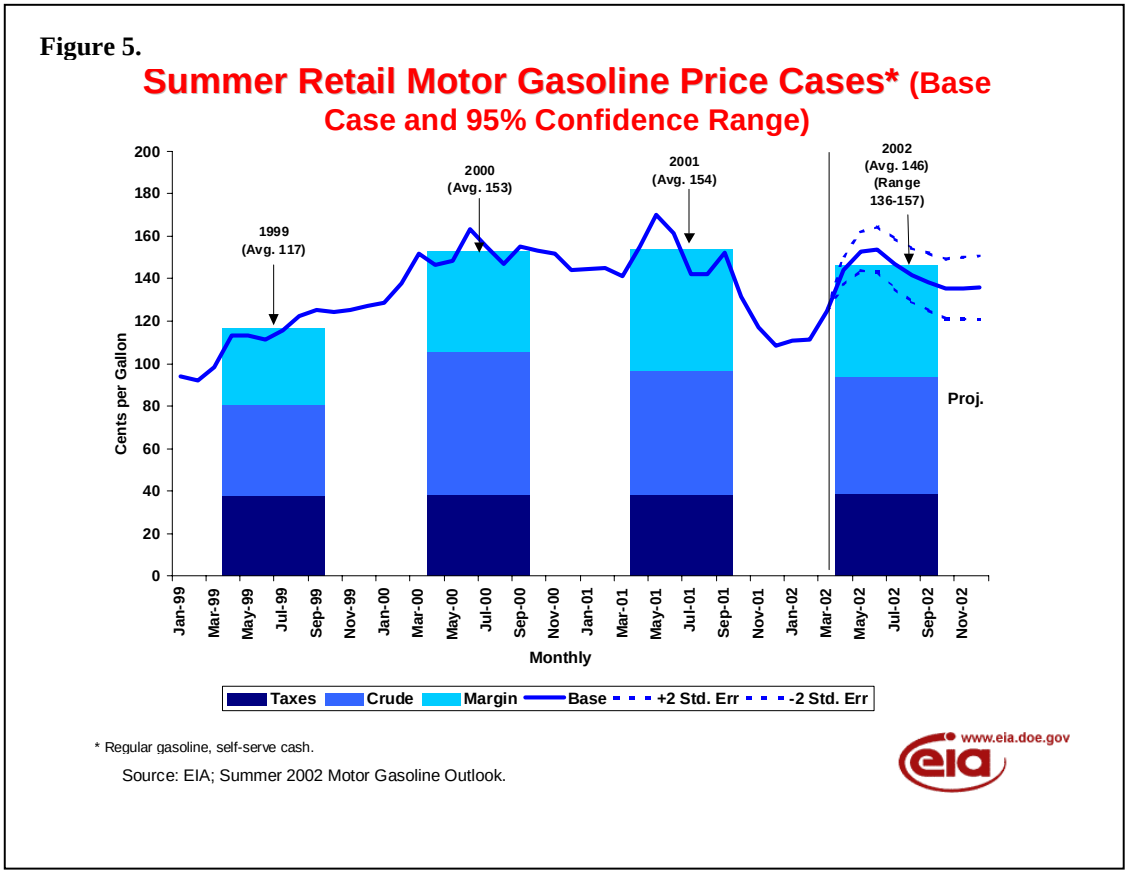
Gasoline Markets

For the upcoming Summer season (April to September 2002), rising average crude oil costs are expected to yield above-average seasonal gasoline price increases at the pump. However, year-

over-year comparisons for pump prices are still likely to be lower this Summer. Inventories are at higher levels than last year in April, so some cushion against early-season price spikes is in place and price levels are expected to range below last year's averages, assuming no unanticipated disruptions. Still, OPEC production restraint and tightening world oil markets now probably mark the end of the brief respite (since last fall) from two years of relatively high gasoline prices.

Retail gasoline prices (regular grade) are expected to average $1.46 per gallon, 5 percent lower than last Summer's average of $1.54 per gallon (Figure 5). Based on the aggregate uncertainties involved in forecasting the world crude oil market and the domestic refining/distribution system, a 95 percent confidence range extends an average of 11 cents, and as much as 13 cents per gallon, to either side of the baseline forecast during the upcoming driving season. The projected (baseline) average Summer gasoline price, when adjusted for inflation, is well below the record reached during the Summer of 1980 (about $2.65 per gallon in year 2001 dollars). Although we expect oil markets to tighten up generally over the course of the next year, there remains a high probability that real gasoline prices will be lower than levels seen last Summer.

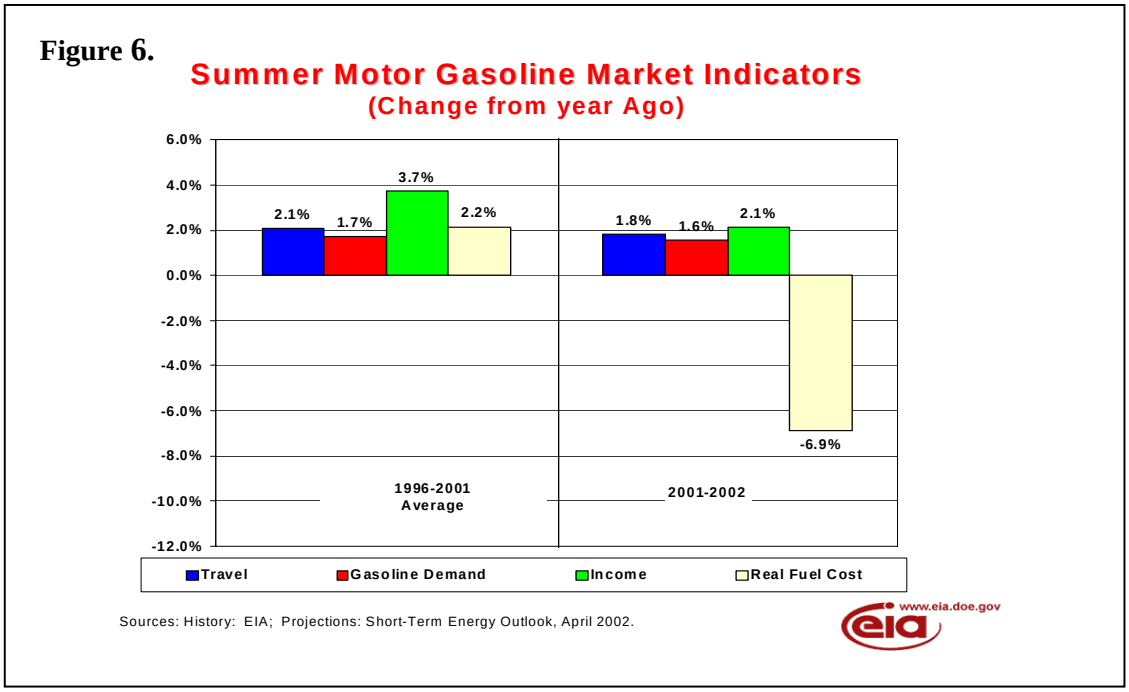
Figure 5.



Gasoline demand is projected to average 8.88 million barrels per day, a new record, up 140,000 barrels per day, or 1.6 percent, from last Summer (Figure 6). The growth comes amid the gradual acceleration of the U.S. economy out of the 2001 economic slowdown. This Summer's

expected growth rate is almost double last year's rate of 0.9 percent.

Figure 6.



Motor gasoline stocks are about 17 million barrels above last year as of the end of March (Figure 7). All Petroleum Administration for Defense Districts (PADDs) have higher levels of stocks than last year, and only the Midwest is slightly lower than its 4-year historical average (Figure 8). Inventory changes will substitute for much of the new domestic supply requirements this Summer, with some of the substitution appearing in the form of reduced imports.

Figure 7.

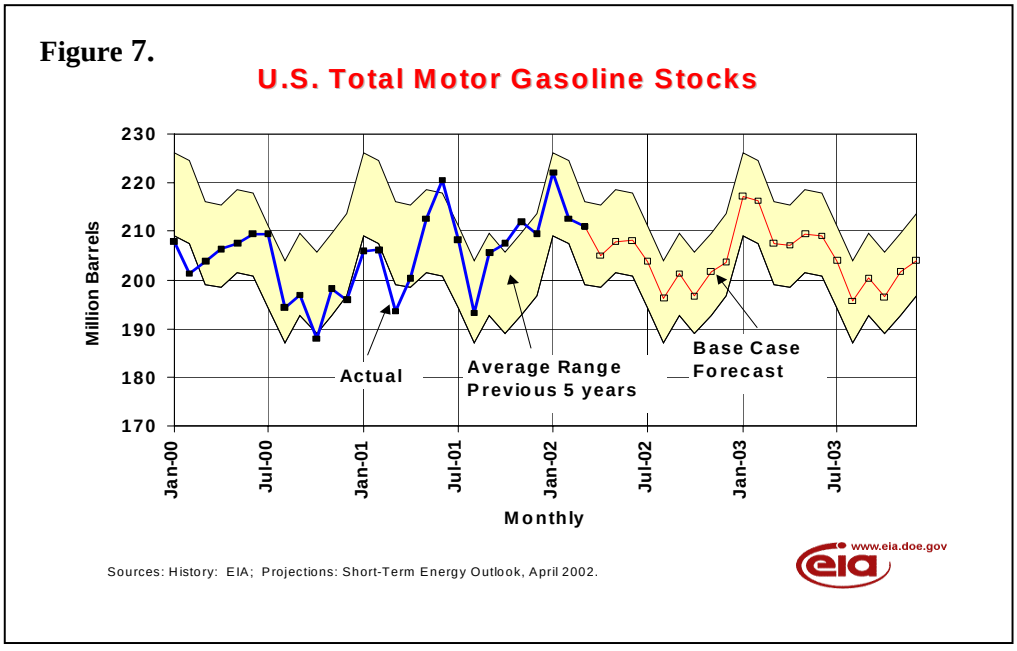
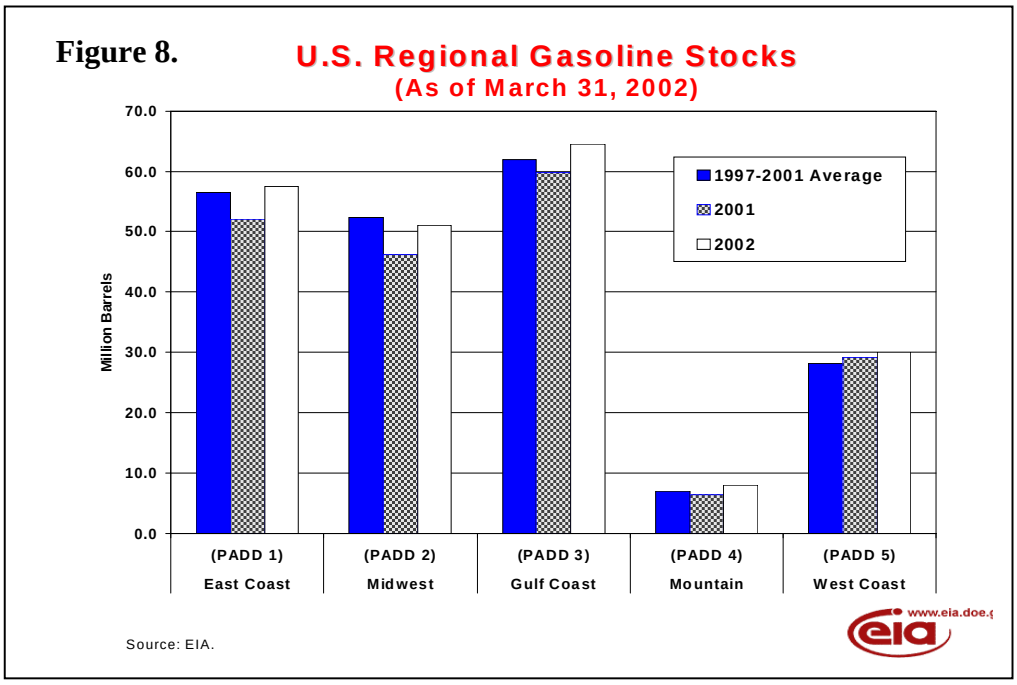
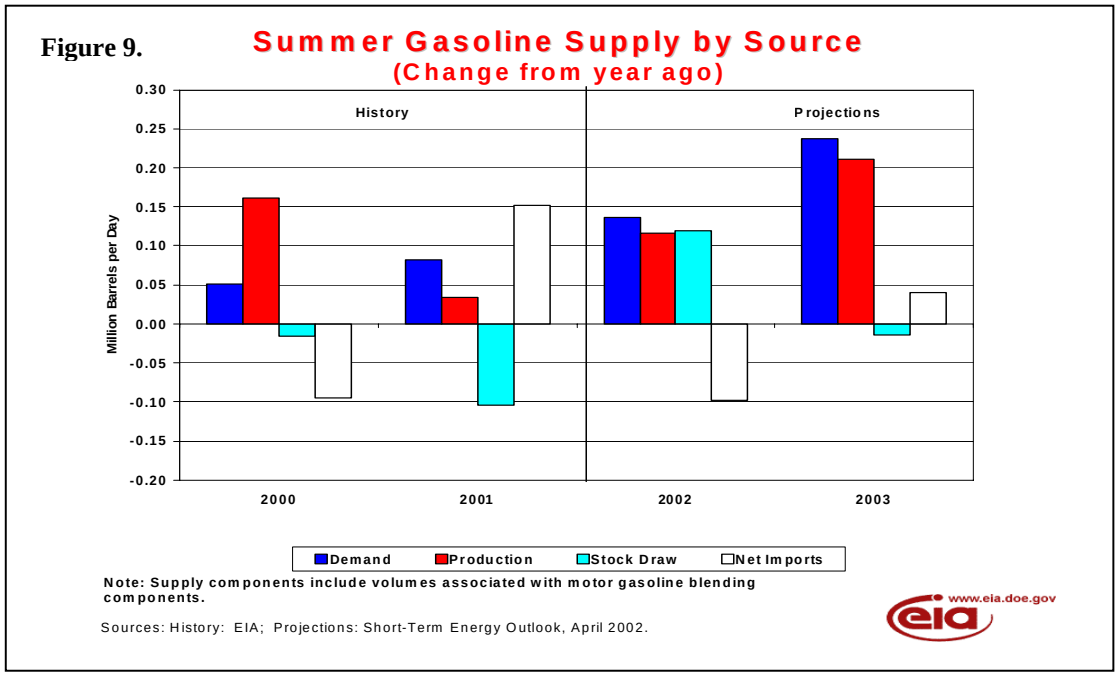


Figure 8.



Total domestic output (refinery and field production less volumes associated with net imports of and stock changes in gasoline blending components) is projected to average 8.29 million barrels per day during the Summer months, about 115,000 barrels per day (1.3 percent) above last Summer (Figure 9). Higher U.S. output and the greater availability of product in storage at the outset of the season are expected to displace net imports of gasoline. These net imports are projected to be 560,000 barrels per day (including blending components), down 100,000 barrels per day from those of last Summer.

Figure 9.



Why Do Gasoline Prices Always Seem To Rise in the Spring?

Between February 11 and April 8 of this year, gasoline prices rose by more than 30 cents per gallon, the second largest consecutive weekly increase since at least August 1990, when EIA began a weekly gasoline price survey. The largest such increase occurred last Spring and the third largest increase occurred in the Spring two years ago. Why do prices seem to rise the most in the Spring?

First, it is important to note that we have always experienced Spring gasoline price run-ups. As Figure 10 and Table 1 show, we have seen at least one significant price run-up each year. The difference is that they now are appearing more frequently, with larger increases, and in a compressed period of time.

Figure 10.

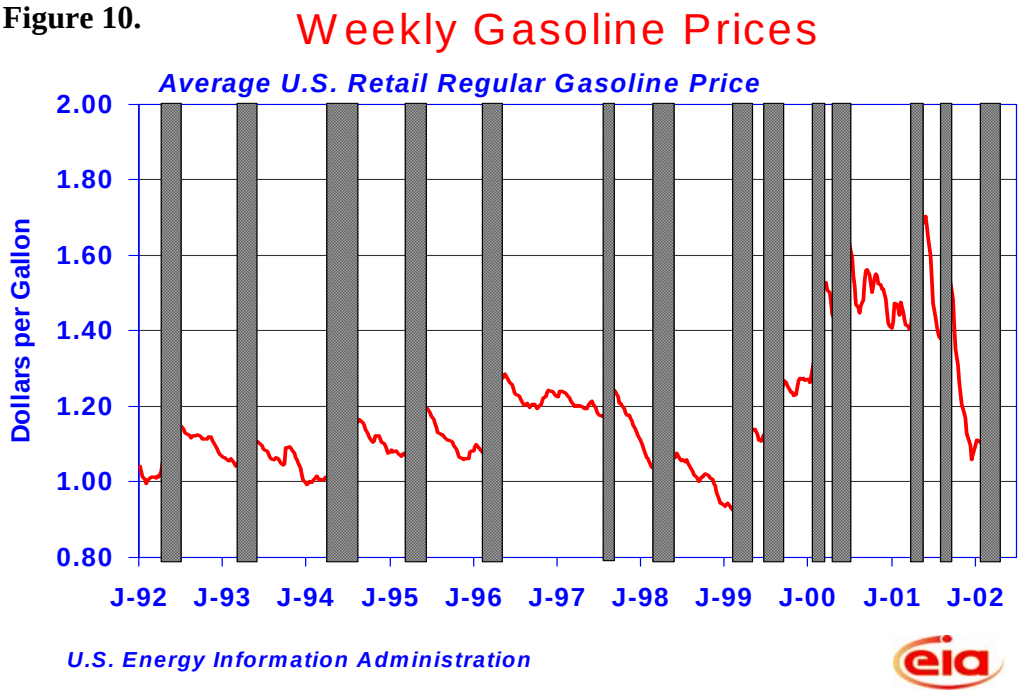


Table 1. Significant Price Increases in U.S. Retail Gasoline Prices

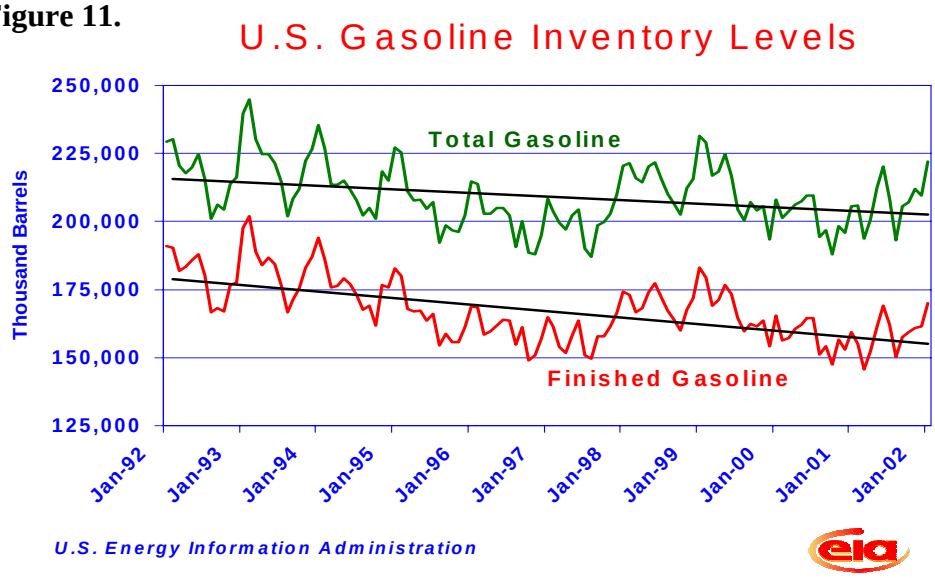
Year	Dates	Length	Price Range (c/g)	Total Increase (c/g)
1992	March 30 – June 22	12 weeks	101.3 – 115.3	14.0
1993	March 1 – May 31	13 weeks	104.2 – 110.7	6.5
1994	March 14 – August 22	23 weeks	100.5 – 116.5	16.0
1995	March 20-May 29	10 weeks	106.8 – 119.9	13.1
1996	February 12 – May 20	14 weeks	108.0 – 128.5	20.5
1997	July 28 – August 25	4 weeks	117.0 – 124.4	7.4
1998	March 23 – June 8	11 weeks	100.0 – 107.5	7.5
1999	February 22 – April 12	7 weeks	90.7 – 114.0	23.3
	June 14 – September 20	14 weeks	110.8 – 126.8	16.0
2000	January 10 – March 20	10 weeks	126.4 – 152.9	26.5
	May 1 – June 19	7 weeks	142.0 – 168.1	26.1
2001	March 26 – May 14	7 weeks	140.4 – 171.3	30.9
	August 6 – September 3	4 weeks	137.6 – 154.5	16.9
2002	February 11 – April 8	8 weeks	110.7 – 141.3	30.6

Part of the reason for the increased volatility can be traced to declining stock levels. Figure 11 shows monthly gasoline inventory levels for both finished gasoline and total gasoline (including gasoline blending components). Over the last 10 years there has been a clear downward trend in the level of gasoline inventories. This trend is exacerbated when it is compared to demand levels, which have been increasing. Thus, U.S. gasoline inventory levels cover far fewer days of consumption than they did 10 years ago. With lower inventory levels, there is a reduced ability to quickly increase supply when demand increases unexpectedly or supplies are impacted either by distribution problems (i.e., refineries or pipelines) or decreased refinery production.

However, crude oil prices also impact gasoline prices. Between January 2000 and February 2002, crude oil prices accounted for between 35 and 50 percent of the retail price of regular gasoline. This represents the largest portion of retail gasoline prices. A combination of State and federal gasoline taxes have represented anywhere from 25 to 29 percent of the retail price of gasoline. What is commonly referred to as the refinery margin (the difference between the spot price of gasoline and the cost of crude oil) can vary substantially depending on the crude oil and gasoline markets at the time, and has ranged between 8 and 32 percent of the retail price of gasoline over the last couple of years. The final component of the retail price, which EIA refers to as the distribution and marketing margin (calculated as the difference between the retail price and the sum of the other components), also has varied greatly, ranging between 5 and 24 percent of the retail price of gasoline. But the crude oil component has always been the largest component in each month over the past 2 years. Therefore, factors that affect the crude oil market, which can range from fundamental shifts in global supply to fears of impending

problems around the globe, also impact gasoline prices. Because analyzing crude oil markets is so important in analyzing U.S. gasoline prices, I will discuss the current situation in the Middle East and Venezuela later in this testimony.

Figure 11.



Some of the Spring run-ups occurred following a Winter in which the distillate fuel market was tight. As a result, refiners maximized distillate fuel production at the expense of gasoline, thus reducing the Winter build in gasoline stocks and starting the season with lower inventories than would otherwise have occurred. Another reason is that refiners typically increase their refinery throughput in the Spring as they increase gasoline production and build up inventories for the other fuels so that supply is there when needed. Thus this increased demand for crude oil to be used in refineries leads to some pressure on crude oil markets and at times has coincided with decreases in crude oil production, thus leading to sharp crude oil price increases that eventually lead to higher gasoline prices. And recently, we have seen that the transition from Winter grade to Summer grade gasoline has also encouraged refiners to deplete inventories at the end of Winter in order to make room for Summer gasoline, thus reducing inventories in the Spring.

Gasoline Price Increases in 2000

Gasoline prices rose over 26 cents per gallon in each of two different periods in 2000. The first began in the Winter and went into the first part of Spring. Part of this was a result of very low inventories at the end of 1999, especially for distillate fuel. When a cold weather snap occurred in the Northeast portion of the United States (where the bulk of heating oil is used) towards the end of January, refiners began to produce more distillate, thus reducing gasoline production. The heating oil price pressure also helped put pressure on crude oil as refiners began to scramble for more crude oil in order to maximize distillate fuel production, since heating oil prices were producing healthy margins for them. From early January 2000 to mid-March 2000, WTI prices

increased from $25 per barrel to $32 per barrel. This $7 per barrel increase, if passed on fully at the pump, would represent an increase in gasoline prices of about 20 cents per gallon, representing the vast majority of the 26.5 cents per gallon increase seen over this period.

The second increase, which occurred during the late Spring and early Summer (May 1 to June 19) centered more on problems in the distribution chain in the Midwest as this was the first Summer in which Phase II reformulated gasoline (RFG) was introduced. States in which ethanol was used to make RFG had more difficulty in meeting the new specification. Problems with a key pipeline flowing from the Gulf Coast into the Midwest, and a smaller pipeline in Michigan, exacerbated the problem. But even here, crude oil prices increased substantially over this period, partly due to the problems in the U.S. gasoline market. WTI increased from $26 per barrel in early May to nearly $33 per barrel by mid-June, another $7 per barrel increase that translates to about 20 cents per gallon at the pump.

Gasoline Price Increases in 2001

Similar to 1999 and 2000, there were two gasoline price run-ups in 2001, the first occurring in the Spring while the second occurred sometime later (the end of Summer in 2001). However, unlike in 2000, the price run-up in the Spring of 2001 could not be attributed to crude oil prices, as WTI only increased by about $1 to $2 per barrel over this time period. This increase, totaling 30.9 cents per gallon from March 26 to May 14, is the largest consecutive increase EIA has seen since the inception of our weekly survey, and can largely be attributed to low gasoline inventories at the beginning of the gasoline season, which were the lowest they have been since 1957. In 2001, we saw what can happen when low inventories combine with regional capacity limitations and unique gasoline requirements. First, in the Midwest, the shutdown of the Blue Island refinery in Illinois created a level of concern about RFG supplies in Chicago and Milwaukee. The closure also created the need for greater volumes to move from the Gulf Coast to the Midwest. Economic incentives to build inventories were further eroded as Gulf Coast prices surged in response to strong demand not only from the Midwest and West Coast, but also from the East Coast, where refineries underwent extended maintenance. During April, with little inventory cushion in place, the transition from Winter to Summer grade reformulated gasoline in the Midwest required running tanks down to very low levels, further undercutting stock levels. Just as tanks were beginning to refill, Tosco's Wood River, Illinois refinery had a fire that reduced its ability to produce both conventional and reformulated gasolines for a period of 2 to 3 weeks. While East Coast prices did not surge as much as the Midwest, the East Coast endured extended refinery maintenance in early Spring. In addition, several foreign refineries that are key suppliers of reformulated gasoline to the East Coast had extended outages. There were also pressures in California, which frequently sees price surges due to its tight supply/demand balance, the unique nature of its gasoline, and its long distance from other supply sources. The Spring of 2001 was no exception.

The second price increase in 2001, while much shorter and of lower magnitude than the first, was partly a result of the first increase. Gasoline prices rose so high (without a corresponding increase in crude oil prices) that refinery margins on making gasoline were historically high. This led to a lot of increased supply flooding into the U.S. gasoline market during the Summer of 2001, and after peaking at $1.71 per gallon on May 14, gasoline prices fell even below where they started the first price run-up, at just under $1.38 per gallon as of August 6. Meanwhile crude oil prices remained relatively stable, such that refinery margins plunged over this period. As such, gasoline production was curtailed and refiners switched to making more distillate fuel in preparation for the upcoming Winter season, thinking that enough gasoline supply existed in the system to get through the end of the Summer season. However, gasoline demand remained strong through August, and inventories were drawn down significantly to meet this demand, which put pressure on gasoline prices again. This led to a short-term increase that lasted only four weeks.

The Gasoline Price Rise of 2002

The price rise this Spring, once again, appears to be more attributed to the crude oil market than the gasoline market. Between mid-February and early April, WTI prices rose by $7 per barrel, explaining about 20 cents per gallon of the more than 30 cents per gallon rise seen so far. The additional price rise can mostly be attributed to normal seasonal increases. Of course, a large part of the crude oil price increase reflects a tightening of crude oil markets as decreases in global supply, specifically from OPEC, have more than compensated for any decrease in demand related to the global economy and impacts from September 11. Needless to say, this year's increases relate mostly to the crude oil market. While global supply/demand fundamentals, as described earlier, explain much of the recent rise in crude oil prices, events in the Middle East and in Venezuela have added upward pressure, and could continue to be significant factors through this Summer and beyond.

Oil Supply Disruptions in Venezuela and the Middle East

Venezuela

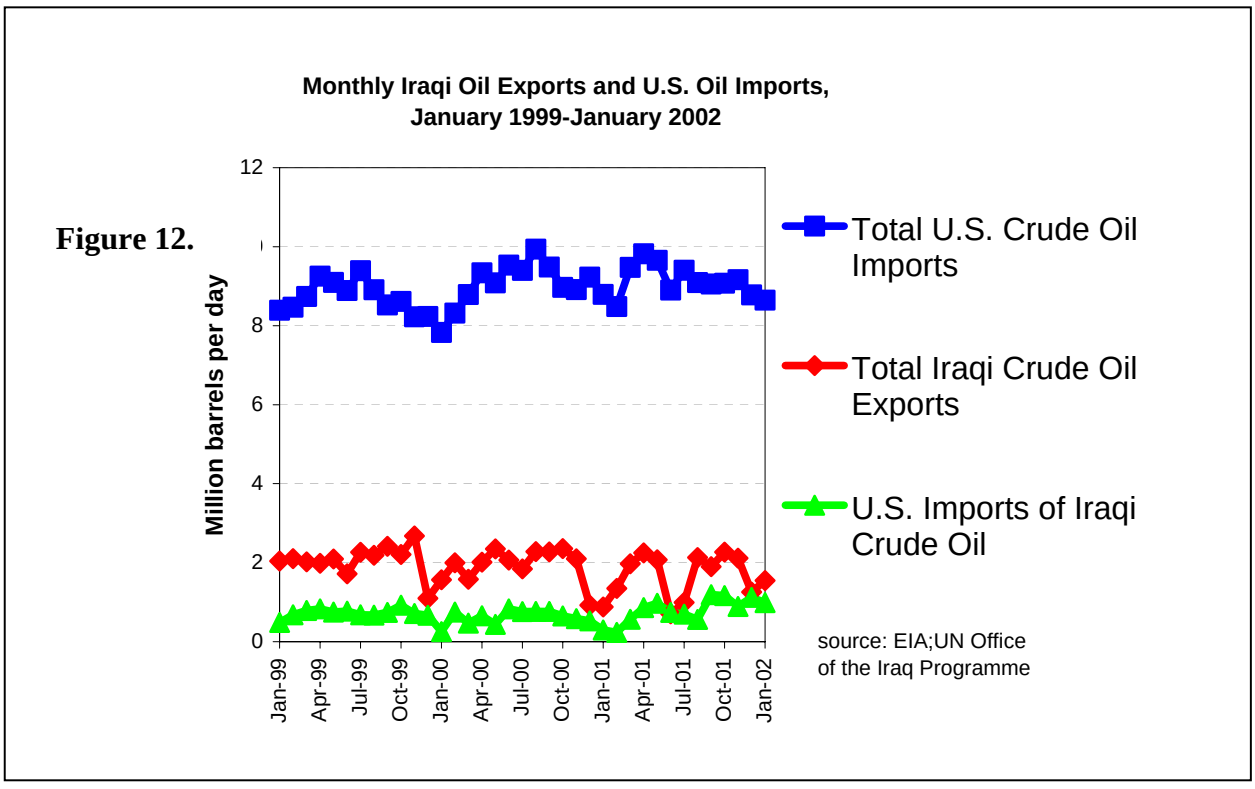
Venezuela, OPEC's only member located in the Western Hemisphere, has ranked consistently in the last several years as one of the four top sources of U.S. oil imports (along with Canada, Mexico, and Saudi Arabia). Venezuelan exports to the U.S. peaked in 1997 at about 1.8 million barrels per day. While total U.S. petroleum imports have risen by about 1.5 million barrels per day since 1997, imports from Venezuela have decreased by about 235,000 barrels per day. In 1997, Venezuelan imports accounted for over 17% of total U.S. imports, whereas they accounted for about 13% of that total in 2001. Recent events in Venezuela have temporarily disrupted exports; however, since Friday, April 12, they appeared to be returning to a normal pace.

Iraq and the Middle East

On April 8, 2002, Iraq announced that it would halt its oil exports for 30 days or until Israel withdrew from Palestinian territories. To date, no other countries have joined in Iraq's embargo action, although Libya and Iran have expressed some sympathy. In fact, some major producers have been quoted as saying that they will make up any shortfall from Iraq, or at least that they will maintain adequate world oil supplies. On the other hand, Iran, with current net oil exports of around 2.2 million bbl/d, and Libya, with net oil exports of around 1.1 million bbl/d, have said that they would join an export cut if other OPEC members also agreed to take part.

In 2001, Iraq was a net oil exporter of around 1.9-2.0 million barrels per day (bbl/d) (Figure 12). Recently, Iraqi exports have been lower -- around 1.7 million bbl/d. This number includes Iraq's exports through the UN "Oil-for-Food" program via the Turkish port of Ceyhan and the Iraqi port of Mina al-Bakr, plus exports to Jordan permitted by the United Nations. In addition, there have been periodic reports that Iraq has smuggled up to 450,000 bbl/d of crude oil and products, worth an estimated $3 billion (or more) per year, via a number of routes. These earnings are outside the UN "Oil-for-Food" program.

Figure 12.



According to industry and press sources, Iraqi export routes outside the UN program include: 1) to Turkey (as high as 100,000-150,000 bbl/d, mainly of fuel oil) by truck through the Habur border point (reportedly, this smuggling was stopped from September 18, 2001 through January 7, 2002); 2) to Jordan (possibly 10,000-30,000 bbl/d above domestic needs) by truck; 3) to Syria (150,000-200,000 bbl/d or more), mainly via the Kirkuk-Banias pipeline; 4) to Iran along the Gulf coast and via Qais Island; and 5) to Dubai with the use of small tankers sailing from Umm Qasr. Press reports also have estimated that these shipments may be providing Iraq with as much as $600 million-$2 billion per year in additional revenues, above and beyond the earnings through the UN "Oil-for-Food" program.

The United States is Iraq's largest customer, importing about 778,000 bbl/d of Iraqi oil in 2001, and about 988,000 bbl/d in January 2002. Imports from Iraq accounted for an average 8 percent of total U.S. oil imports in 2001. In 2001, Iraq was the sixth-largest source of U.S. crude oil imports, behind Saudi Arabia, Mexico, Canada, Venezuela, and Nigeria.

The loss of Iraqi oil exports can be made up by spare oil production capacity in other OPEC and non-OPEC countries. Excluding Iraq, OPEC currently has about 6.3-6.8 million bbl/d in spare oil production capacity (Figure 13). Of this, Saudi Arabia has around 2.8-3.3 million bbl/d, which represents between 44 and 49 percent of the OPEC total. So, the loss of Iraqi oil exports could be compensated for fairly easily by surplus capacity in Saudi Arabia and other OPEC countries. OPEC countries have provided the excess crude oil needed during previous Iraq oil export stoppages.

Figure 13.

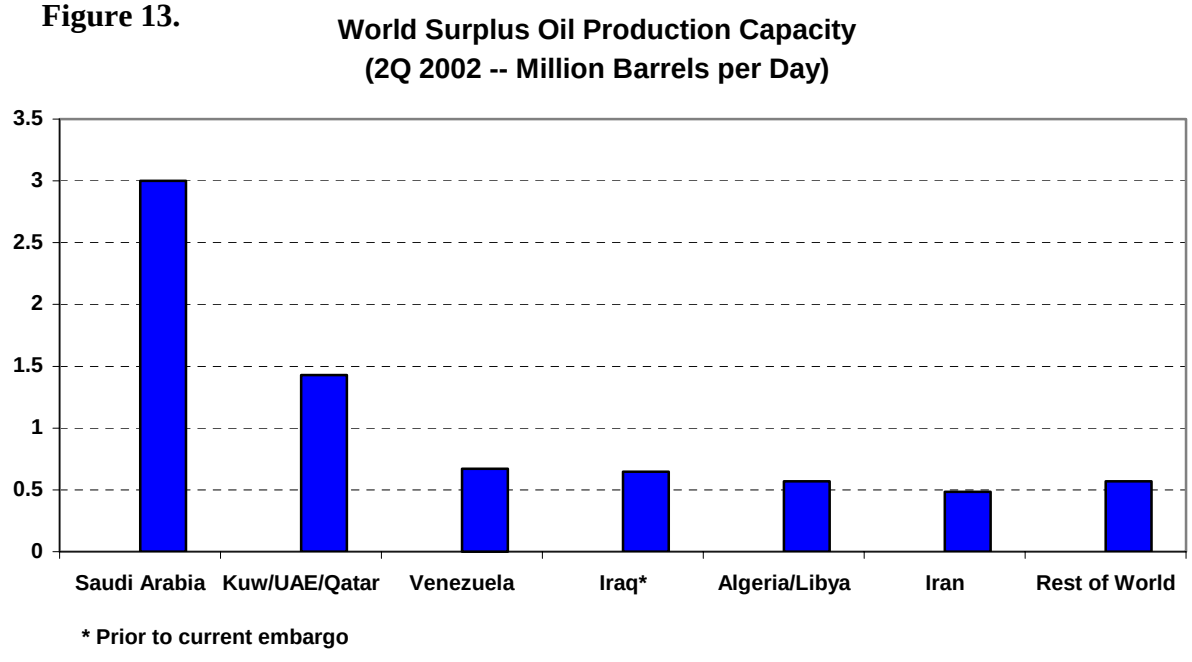
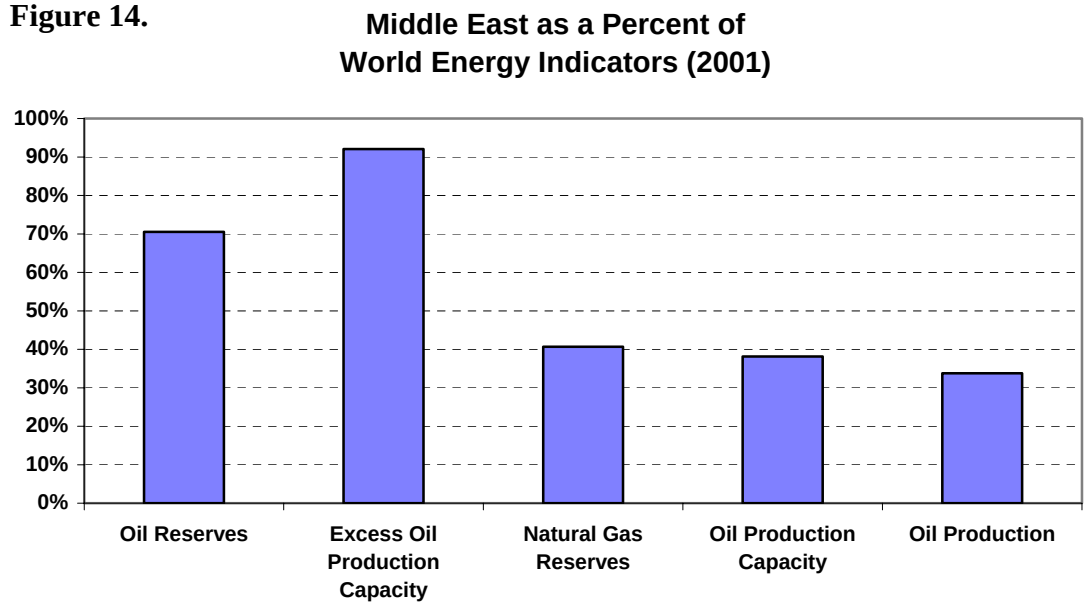


Figure 14.



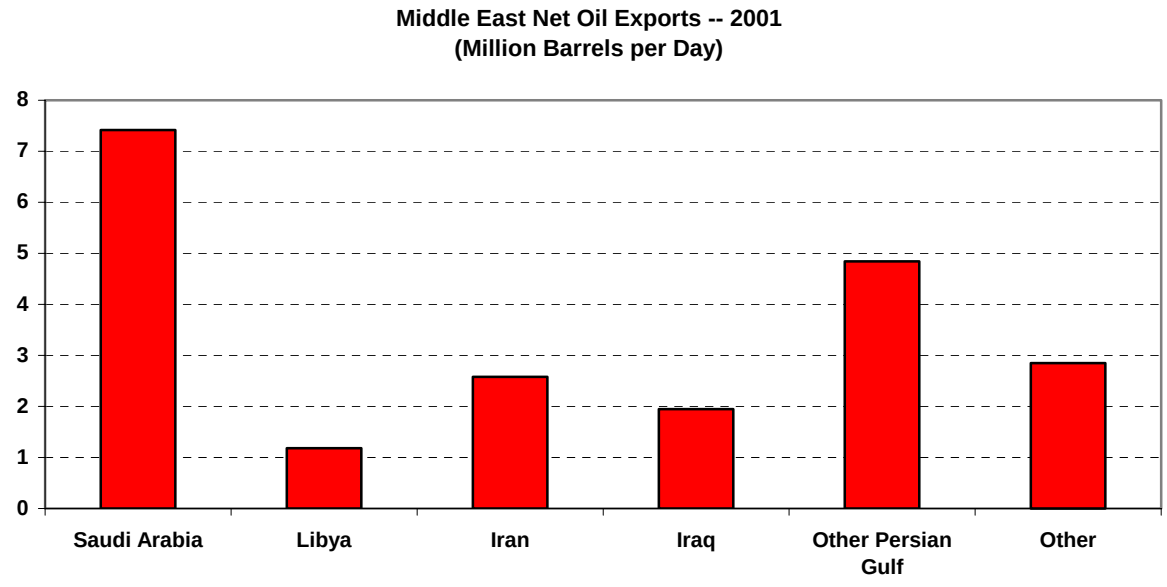
The Middle East (including North Africa) accounts for approximately 71 percent of world oil reserves, 41 percent of world natural gas reserves, 39 percent of the world oil production capacity, 34 percent of world total oil production, and about 92 percent of the world's excess oil production capacity (Figure 14). As of early 2002, world excess oil production capacity was over 7 million bbl/d. This capacity can be brought online in a supply disruption, as long as those countries are not affected by the disruption.

In 2001, Middle Eastern countries had net oil exports of around 20.8 million bbl/d. Of this total, Saudi Arabia accounted for 7.4 million bbl/d, or 36 percent; Iran for 2.6 million bbl/d, or 12 percent; Iraq for 2.0 million bbl/d, or 9 percent; and Libya for 1.2 million bbl/d, or 6 percent (Table 2, Figure 15). Other significant Middle East net oil exporters in 2001 included the United Arab Emirates, with about 2.1 million bbl/d; Kuwait (1.9 million bbl/d); and Algeria (1.2 million bbl/d).

Table 2. Top World Oil Net Exporters, 2001*		
	Country	**Net Exports (million barrels per day)**
1)	Saudi Arabia	7.4
2)	Russia	4.8
3)	Norway	3.2
4)	Iran	2.7
5)	Venezuela	2.6
6)	United Arab Emirates	2.1
7)	Nigeria	2.0
8)	Iraq	2.0
9)	Kuwait	1.8
10)	Mexico	1.6
11)	Libya	1.2
12)	Algeria	1.2

Table includes all countries with net exports exceeding 1 million barrels per day in 2001.

Figure 15.



U.S. gross oil imports from the Middle East during 2001 were around 3 million bbl/d (of which 2.7 million bbl/d was from the Persian Gulf). The vast majority of Middle Eastern oil imported by the United States came from Saudi Arabia (about 1.7 million bbl/d), with significant amounts also coming from Iraq (778,000 bbl/d), Algeria (275,000 bbl/d) and Kuwait (243,000 bbl/d) (Table 3). The United States imported about 100,000 bbl/d from the United Arab Emirates, Yemen, Oman, Qatar, Tunisia, Egypt, and Syria in 2001, and none from Libya.

In 2001, the United States imported more oil on a daily basis from the Persian Gulf (*not* the Middle East as a whole) than in any previous year. The Persian Gulf accounted for 24 percent of U.S. *net* oil imports, and 14 percent of U.S. oil demand, in 2001.

Table 3. Major Sources of U.S. Petroleum Imports, 2001*
(all volumes in million barrels per day)

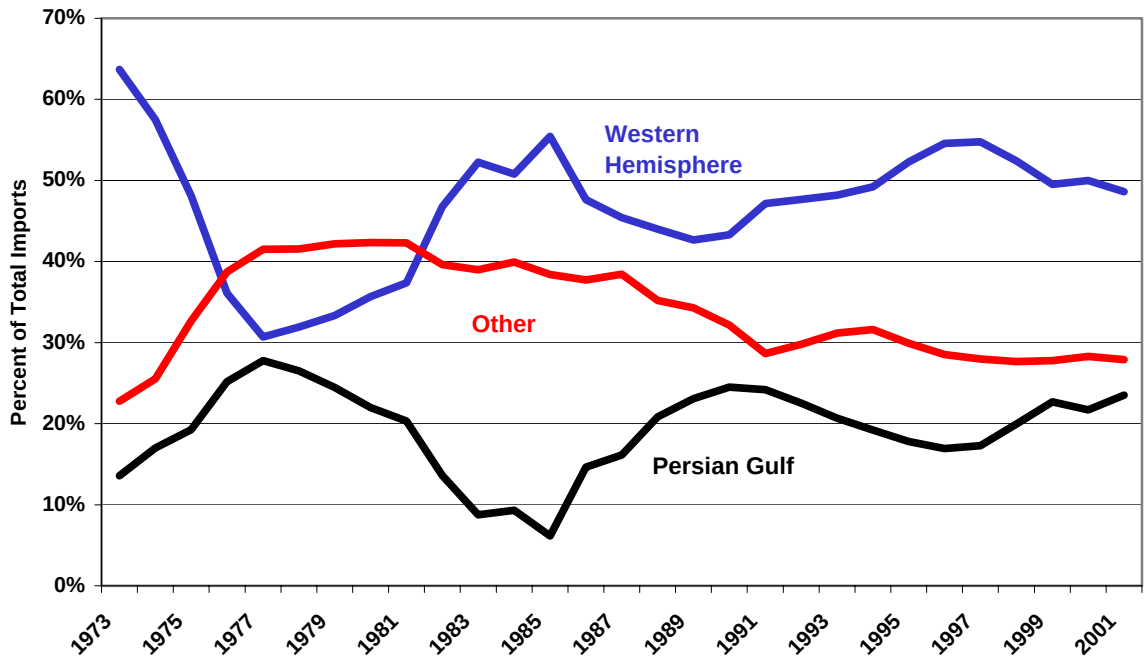
	Total Oil Imports	Crude Oil Imports	Petroleum Product Imports
Canada	**1.79**	**1.32**	**0.47**
Saudi Arabia	**1.66**	**1.61**	**0.05**
Venezuela	**1.54**	**1.28**	**0.26**
Mexico	**1.42**	**1.38**	**0.04**
Nigeria	**0.86**	**0.81**	**0.04**
Iraq	**0.78**	**0.78**	**0.00**
Norway	**0.33**	**0.27**	**0.06**
Angola	**0.32**	**0.31**	**0.07**
United Kingdom	**0.31**	**0.23**	**0.08**
Total Imports	**11.62**	**9.15**	**2.47**

Table includes all countries from which the U.S. imported more than 300,000 barrels per day in 2001

Since 1973, sources of U.S. oil imports have fluctuated greatly. The Persian Gulf, for instance, supplied around 14 percent of U.S. oil imports in 1973 (Figure 16). This increased to 28 percent

in 1977, but then declined rapidly following the Iranian revolution in late 1978. By 1985, U.S. oil imports from the Persian Gulf had declined to 6 percent of total U.S. oil imports. After 1985, a year which saw oil prices collapse, Persian Gulf oil imports rebounded sharply, reaching 25 percent in 1990, the year of the Iraqi invasion of Kuwait. The Persian Gulf share then fell once again, to 17 percent in 1996 and 1997, before rising once again, reaching 24 percent in 2001. U.S. oil imports from the Middle East outside the Persian Gulf come mainly from Algeria. Until 1981, the United States also received significant volumes of oil from Libya. Since 1983, the United States has received no oil imports from Libya.

Figure 16. **U.S. Gross Oil Imports by Source. 1973-2001**



In general, U.S. oil import reliance on the Western Hemisphere -- Canada, Mexico, Venezuela, and others -- followed a pattern during the 1970s and 1980s that was essentially the mirror image of the Persian Gulf oil import share. Since the early 1990s, U.S. oil imports from the Western Hemisphere have been relatively stable, hovering around 50-55 percent for nearly a decade.

Western Europe (defined as European countries belonging to the Organization for Economic Cooperation and Development -- OECD) averaged 2.8 million bbl/d of net oil imports from the Persian Gulf during the first 9 months of 2001. Western Europe also imports heavily from North Africa -- Algeria, Libya, and Tunisia. Japan averaged 4.1 million bbl/d of net oil imports from the Persian Gulf during the first 9 months of 2001, Japan relied on oil imports from the Persian Gulf to meet about 76 percent of its total oil demand in 2001.

Renewable Fuel Standard and an MTBE Ban

Finally, returning to domestic gasoline markets, I would like to discuss the potential impact of two proposed Federal legislative initiatives: a minimum renewable fuel standard (RFS), and a ban on the use of methyl tertiary butyl ether (MTBE) in gasoline.

Certain assumptions and limitations of this analysis need to be understood, before I present the results:

- This is an annual analysis that does not look separately at the difficulty of making low vapor pressure summer reformulated gasolines in the absence of MTBE, or with ethanol.
- An adequate supply of ethanol is assumed to be available to meet either market or RFS demands and ethanol prices are not affected by possible tight or limited supplies.
- The continued availability of imported gasolines, included reformulated gasoline, is assumed even with the MTBE ban.
- Credit trading and banking was not included in this analysis.
- The new EPA MSAT requirements are not directly captured in this analysis and, therefore, their impact on regional supply is not known.

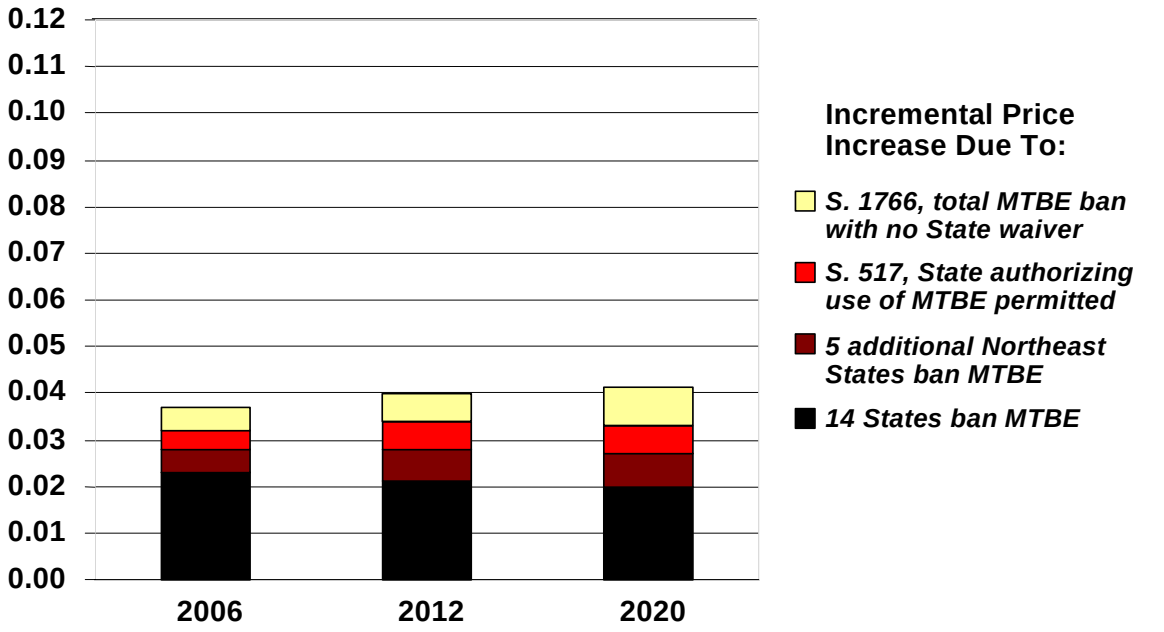
EIA has provided two analysis reports on the impact of the renewable fuels standard (RFS) and methyl tertiary butyl ether (MTBE) provisions of the energy bill. The first analysis looked at provisions of Senate bill S. 1766, an older version of the energy bill, and was done at the request of Sen. Frank Murkowski, the Ranking Minority Member of the Senate Committee on Energy and Natural Resources. A second, more recent analysis looked at provisions of the current bill S. 517, and was done at the joint request of Senators Daschle and Murkowski. Both bills require a 10 year ramp-up in the amount of renewable fuels included in gasoline, reaching 5 billion gallons per year in 2012, and the elimination of the oxygen requirement on reformulated gasoline (RFG). The bills differ in the provisions related to MTBE reduction and the oxygen requirement of RFG. Both bills aim to eliminate the use of MTBE as a gasoline additive but S. 517 incorporates greater flexibility because it includes a provision that would allow States to decide to continue to allow MTBE. As directed in the April 10, 2002 letter from Senators Daschle and Murkowski, EIA's analysis of S. 517 assumes that this provision will result in a net reduction in MTBE of 87 percent, rather than the 100 percent reduction assumed in our analysis of S. 1766. Another difference between the two bills is that S. 517 provides for the elimination of the 2 percent oxygen requirement, while S. 1766 would have allowed States to waive this requirement. Therefore, our recent analysis reflects no oxygen requirement, while the analysis of S. 1766 reflected an assumption that only States on the East and West Coast waived the requirement. In all the cases, the continuation of the ethanol tax exemption is assumed to

continue through 2020. In accordance with the Federal Highway Bill of 1998, the exemption is currently 53 cents per gallon but will be reduced by 1 cent per gallon in 2003 and again in 2005. Legal authority for the tax exemption expires in 2007, but because the exemption has been renewed several times since it was initiated in 1978, this analysis assumes that it will be extended at the 51-cent (nominal) level for 2007 through 2020.

The price impact of these different provisions are discussed as increments from the current state of the market. In the absence of Federal legislation, 14 States have already passed legislation to ban or restrict MTBE that would become effective by 2004; Arizona, California, Colorado, Connecticut, Indiana, Iowa, Illinois, Kansas, Michigan, Minnesota, Nebraska, New York, South Dakota, and Washington. Of these States, only Arizona, California, Connecticut, and New York have RFG markets that rely on MTBE. Our analysis indicates that the implementation of these State-level restrictions results in projected annual average prices of all gasoline that are roughly 2 cents per gallon (2000 dollars) higher than they would have been without these restrictions between 2006 and 2020 (Figure 17); and RFG prices that are 3.5 to 4 cents per gallon higher (Figure 18).

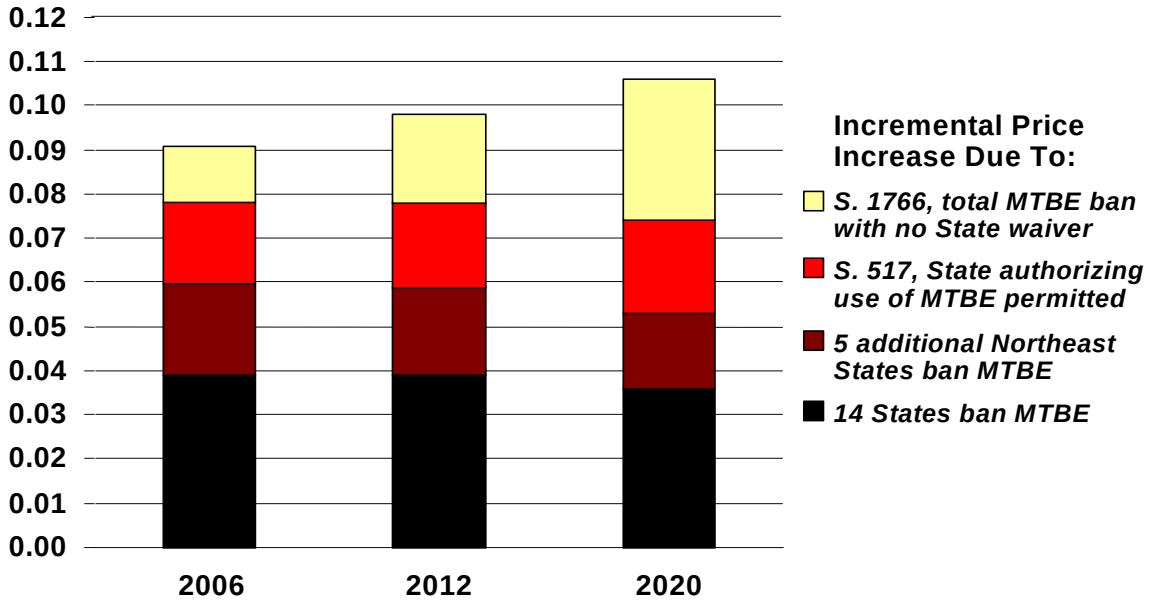
Figure 17.

Average National Gasoline Price Differentials Under Various MTBE Ban Cases, 2006, 2012, and 2020 (2000 dollars per gallon)



Source: Energy Information Administration, National Energy Modeling System runs R1aeo02z.d022702a, RFaeo02A.d041002b, RFaeo02B.d041002b, RFi1m0b0.d041102d, R1i1mobo.d022802b

Figure 18. Average RFG Price Differentials Under Various MTBE Ban Cases, 2006, 2012, and 2020 (2000 dollars per gallon)



Source: Energy Information Administration, National Energy Modeling System runs R1aeo02z.d022702a, RFaeo02A.d041002b, RFaeo02B.d041002b, RFi1m0b0.d041102d, R1i1mobo.d022802b

As requested by Senators Daschle and Murkowski, EIA also analyzed the incremental impact of assuming that additional Northeast States follow suit and ban MTBE. EIA developed a "19-State MTBE Ban" Case, assuming that the other Northeast States with RFG markets, including New Hampshire, Massachusetts, Rhode Island, Pennsylvania, and New Jersey, also ban MTBE in 2004. The average annual price of all gasoline is projected to be another half cent higher with the ban in these additional States, and another 2 cents per gallon higher for RFG. When the RFS and MTBE provisions of S. 517 are implemented, the price projections for 2006 are an additional half cent per gallon for all gasoline, and 2 cents per gallon for RFG compared to the restrictions in the 19-States. Relative to a price path without State bans, the S. 517 projections reflect a total price increase for all gasoline of about 3 to 3.5 cents per gallon, and an RFG price increase of 7.5 to 8 cents per gallon between 2006 and 2020. The higher gasoline prices projected in the S. 517 Case translate into a higher annual cost to consumers of $2.06 billion on average between 2006 and 2020, compared to the Reference Case.

EIA's analysis of S. 1766 resulted in price projections for all gasoline that are an additional 0.5 and 1 cent per gallon higher than the S. 517 between 2006 and 2020; and RFG prices that are 1 cent per gallon in 2006, growing to 3 cents per gallon in 2020 for RFG. The additional price increases in the S. 1766 Case can be mostly attributed to the requirement of a total MTBE ban, as compared to the 87 percent reduction that is assumed in S. 517. The widening RFG price impact in the S. 1766 reflects the difficulty of meeting growing RFG needs without any MTBE production or imports at all.

At the request of Senators Daschle and Murkowski, EIA's analysis isolated the impact of the RFS provision by developing an RFS/No MTBE Ban Case that reflects the RFS provision in the absence of an MTBE ban. This Case indicated that the RFS by itself is projected to raise prices of all gasoline by about a half cent per gallon and RFG prices by about 1 cent per gallon between 2006 and 2020.

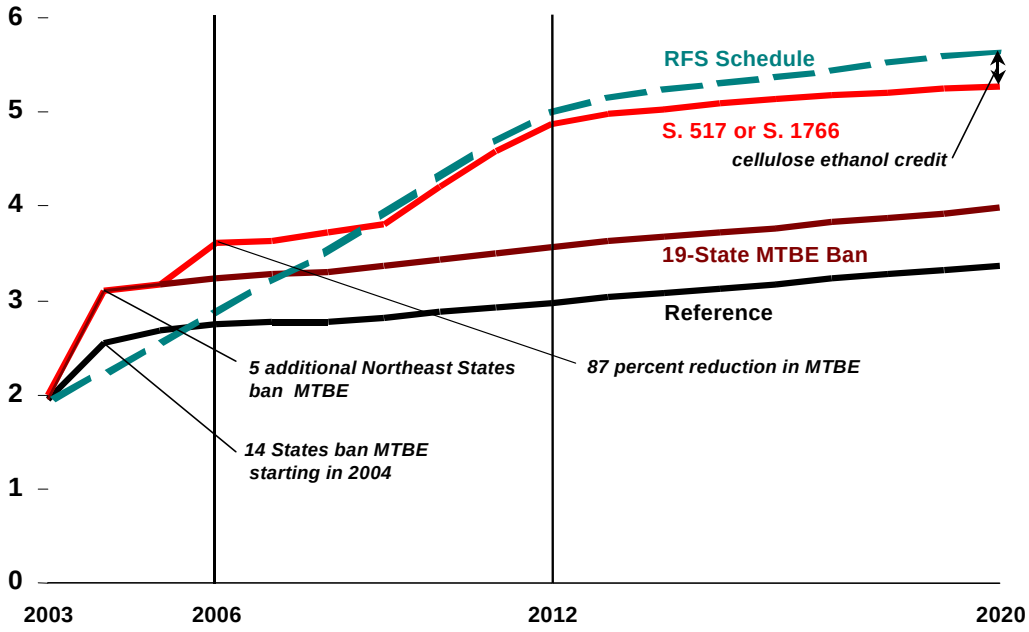
The higher prices projected in the other cases are largely attributable to the volume and octane loss associated with the MTBE ban. Ethanol can only partially compensate for these blending qualities and often is more expensive to use than MTBE when taking into account the blending characteristics and transportation costs. There is a greater price impact in areas of the country required to use RFG than for areas that can use conventional gasoline. The price impact of the RFS/No MTBE Ban Case is mitigated by the shift of ethanol blending into conventional gasoline and away from RFG blending. The S. 517 and S. 1766 price differentials are higher than those in the RFS/No MTBE Ban Case because the MTBE ban would result in more ethanol blending into RFG to partially offset the loss of MTBE, which is relatively less expensive to blend because of ethanol's adverse impact on vapor pressure. In the RFS/No MTBE Case additional ethanol for RFG blending is not required, and the RFS standard can be met by blending ethanol into conventional gasoline.

These cases only assess changes in the average annual prices of gasoline at the national level and do not analyze any localized or seasonal price changes that could result from such policy changes, which would likely result in some higher price differentials. Given that concerns over the rise in the price of gasoline have occurred primarily with each year's summer season, this is an important issue. On the other hand, the annual average price impacts are likely to be overstated since this analysis does not incorporate the impact of the ethanol credit trading and banking provision. Credit trading and banking was not included in EIA's analysis, due to the requirement for rapid delivery of this analysis. Based on EIA's experience with electric industry analysis that incorporated credit trading and banking for sulfur, credit trading reduced the impact on consumer prices and banking provided greater flexibility for the timing of implementation. Generally speaking, a credit trading and banking program would be expected to facilitate greater market efficiency and probably lower costs of compliance, such as reducing overall transportation and blending costs.

The RFS provision of S. 517 includes an RFS schedule that requires 2.3 billion gallons of renewable fuels by 2004, increasing to 5.0 billion gallons by 2012. After 2012, S. 517 requires renewable fuels to maintain the same percentage of transportation fuels that was achieved in 2012. This analysis projects that the Reference Case market demand for ethanol would be 260 million gallons greater than the amount specified by the RFS schedule in 2004 due to the implementation of State-level MTBE restrictions in 14 States (Figure 19). The 19-State MTBE Ban Case indicates that if other Northeastern States with RFG markets followed suit and banned MTBE in the same year, an additional 540 million gallons of ethanol would be required in 2004, assuming the oxygen requirement were maintained. This analysis projects that the RFS and

MTBE provisions of S. 517 Case, assuming an 87 percent reduction in MTBE blending, would result in ethanol blending that is 390 million gallons per year higher than the 19-State MTBE Ban Case and 880 million gallons per year higher than the Reference Case in 2006. The projected level of ethanol blending in the S. 517 Case is 3.62 billion gallons, 720 million gallons above the specified RFS target for 2006. Ethanol blending requirements in excess of the RFS targets disappear by 2009, due to incremental growth of the specified RFS targets. The use of renewable fuels is projected to be below the RFS targets after 2009 due to an S. 517 provision that provides a 1.5 gallon credit for every gallon of cellulose (biomass) ethanol.

Figure 19. Total Renewable Fuels Consumption For Transportation In Three Cases, 2003-2020 (billion gallons per year)



Source: Energy Information Administration, National Energy Modeling System runs RFaeo02A.d041002b, RFaeo02B.d041002b, RFi1m0b0.d041102d

Thank you, Mr. Chairman and members of the Subcommittee. I will be happy to answer any questions you may have.