

## Energy Situation Analysis Report

Last Updated: **March 26, 2003**

Next Update: **March 27, 2003**

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### Latest World Oil Market Developments

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\*The near-month (May) West Texas Intermediate (WTI) futures contract closed at \$27.97 per barrel on Tuesday on the NYMEX, down \$0.69 per barrel (2.4%) from Monday's closing price. Traders reacted to reports of a civilian uprising in the southern Iraq oil hub of Basra against forces of Iraqi President Saddam Hussein. This past Wednesday (3/19), WTI had dipped below \$30 per barrel for the first time since December 13, 2002. [more...](#)

### Production/Export/Infrastructure Developments

**IRAQ:** Iraqi oil exports are halted, with the last ship having loaded oil from storage tanks at Turkey's port of Ceyhan this past Thursday (3/20). With the departure of UN staff from Iraq, the UN "oil-for-food" program is effectively on hold. Also, no oil is leaving Iraq's Persian Gulf port of Mina al-Bakr, which reportedly has escaped sabotage and is ready to resume operations. Most of the oil production and pipeline infrastructure in the south is now under coalition control. A small number of oil well fires have been confirmed, but overall damage appears to have been minimal. The security situation at southern fields remains unstable, however, with the military preventing oilfield workers from entering the area to conduct repairs. The U.S. oil field services firm Kellogg Brown & Root planned Wednesday (3/26) to put out its first fire at a well head burning in Iraq's Rumaila South oil field.

**PERSIAN GULF COUNTRIES:** Oil operations in [Kuwait](#) are normal as of Tuesday morning, and no damage has been reported. Shell reportedly has halted production at Iran's 60,000-barrel-per-day Soroosh field in the northern Gulf due to safety fears. No other problems in the Persian Gulf have been reported, with tankers reported to be loading normally, although insurers are evaluating premiums for ships and cargoes on a case-by-case basis.

**Non-GULF SUPPLY:** On Friday (3/21), Shell Oil declared force majeure on up to 900,000 barrels per day of its Bonny Light and Forcados crude oil exports from [Nigeria](#), and on Monday (3/24) shut-in 370,000 barrels per day of production. On Sunday (3/23), Chevron Nigeria Limited closed most of its facilities in Nigeria due to the widening unrest, shutting-in 440,000 barrels per day of Escravos crude oil production. TotalFinaElf also has been forced to shut down some facilities in Nigeria. However, on Tuesday (3/25), Shell Oil stated that it had compensated for shut-in production of its Bonny Light in the east and west Niger Delta by increasing production of Bonny Light by more than 50,000 barrels per day elsewhere. Thus far, the total amount of production disrupted by these actions is around 800,000 barrels per day, taking Nigerian production down to 1.4 million barrels per day.

[Venezuelan](#) production is estimated at around 2.45 million barrels per day by striking oil workers. The Venezuelan government claims production actually has surpassed pre-strike levels, reaching 3.2 million barrels per day compared to 3.0-3.1 million barrels per day before unrest began in early December 2002.

[Latest OPEC Production Table](#)

### Middle East Oil Supply Disruption Summary

\*For the time being, EIA is assuming that the flow of legal Iraqi oil has halted.

\*Combined with other lost oil production from Iran's Soroosh field, the gross Middle Eastern oil supply disruption is estimated at 1.8 million barrels per day (MMBD). [more...](#)

### Latest U.S. Petroleum Information

\*U.S. commercial crude oil inventories (excluding those in the Strategic Petroleum Reserve) increased by 0.4 million barrels, and are barely above the lower operational inventory level (LOI). Despite an increase in crude oil refinery inputs, inventories for both major petroleum products fell last week.

\*The U.S. average retail price for regular gasoline fell last week after rising thirteen of the previous fourteen weeks. Prices dropped by 3.8 cents per gallon as of March 24 to hit 169.0 cents per gallon, which is still 34.8 cents per gallon higher than a year ago. This is the largest one-week price decrease since prices fell by 4.0 cents on November 26, 2001. [more...](#)

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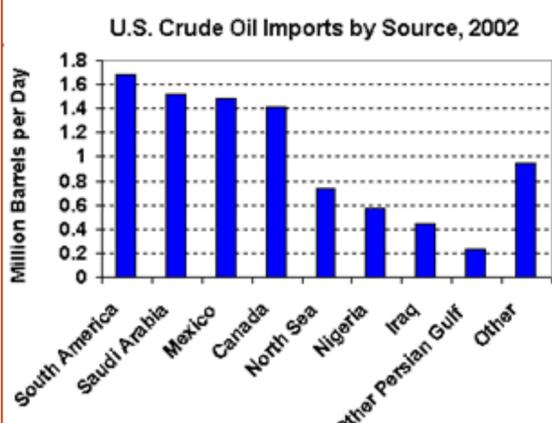
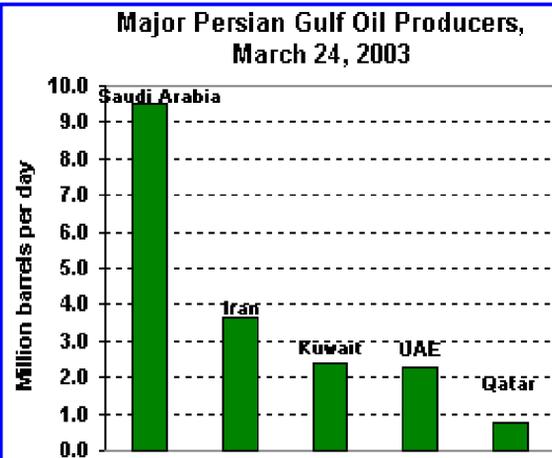
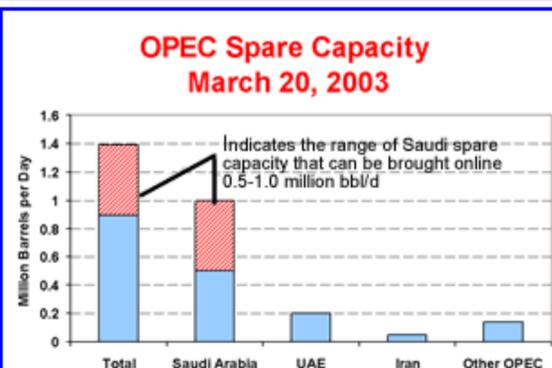
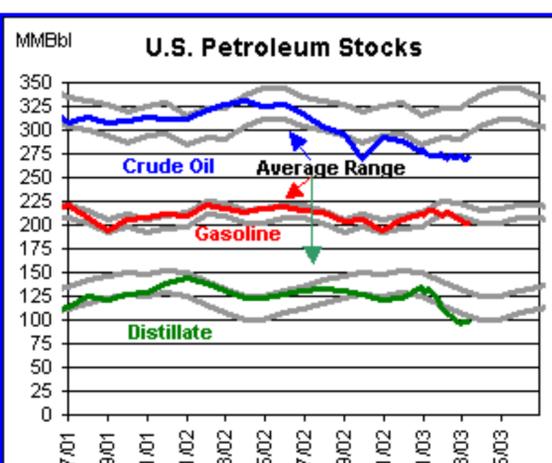
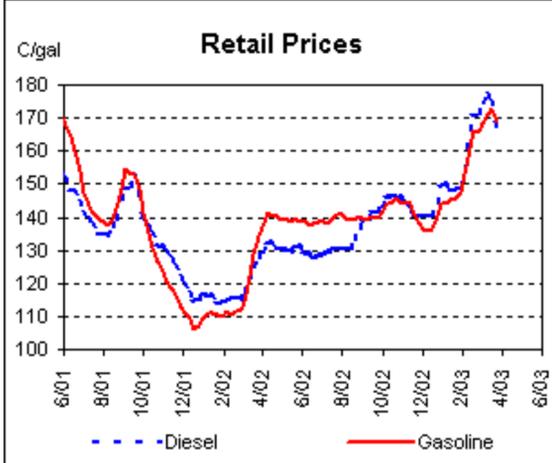
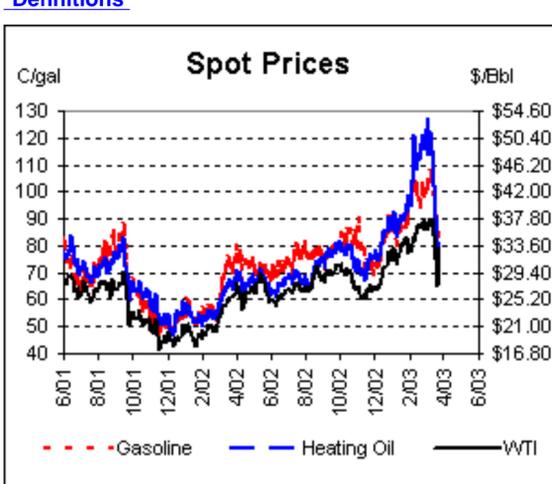
For background information concerning [previous oil supply disruptions](#), energy supply vulnerability, infrastructure, and more. The current featured "special topics" provides a discussion of [gasoline pricing behavior](#) and a summary of [Iraq's oil infrastructure](#).

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### Energy Prices\*

| NYMEX Futures           | 3/25/03 | 3/24/03 | Change | 3/12/03 |
|-------------------------|---------|---------|--------|---------|
| WTI (\$/Bbl)            | 27.97   | 28.66   | -0.69  | 37.83   |
| Gasoline (C/gal)        | 88.49   | 89.79   | -1.30  | 111.39  |
| Heating Oil (C/gal)     | 73.49   | 78.37   | -4.88  | 103.52  |
| Natural Gas (\$/MMBtu)  | 5.08    | 5.25    | -0.18  | 5.87    |
| Spot Prices             |         |         |        |         |
| WTI (Cushing, OK)       | 33.42   | 29.51   | +3.91  | 37.87   |
| Gasoline (NYH)          | 83.25   | 84.58   | -1.33  | 105.08  |
| Heating Oil (NYH)       | 75.85   | 80.45   | -4.60  | 115.45  |
| Jet Fuel (NYH)          | 76.85   | 82.70   | -5.85  | 112.45  |
| Natural Gas (Henry Hub) | 5.07    | 5.07    | 0.00   | 5.80    |

#### \*Definitions





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## Latest Oil Market Developments

(updated March 26, 2003)

The near-month (May) West Texas Intermediate (WTI) futures contract closed at \$27.97 per barrel on Tuesday on the NYMEX, down \$0.69 per barrel (2.4%) from Monday's closing price. Traders reacted to reports of a civilian uprising in the southern Iraq oil hub of Basra against forces of Iraqi President Saddam Hussein. This past Wednesday (3/19), WTI had dipped below \$30 per barrel for the first time since December 13, 2002.

As of 7:45 am Wednesday, the near-month WTI futures contract was at \$28.74 per barrel in overnight ACCESS trading, up \$0.77 per barrel from yesterday's closing price, gaining ground on supply disruption worries about Nigeria, and concerns the war in Iraq may last longer as U.S. and British forces' air raids targeted Baghdad.

In U.S. product markets overnight, as of 7:45 am Wednesday, the near-month gasoline futures contract was at 90.10 cents per gallon, up 1.61 cents per gallon from yesterday's closing price, while the near-month heating oil futures contract was at 75.55 cents per gallon, up 2.06 cents per gallon from yesterday's closing price. The decrease in available Nigerian sweet light crude hit the gasoline market in particular, as the U.S. market geared up for the summer driving season. The U.S. is the largest consumer of Nigerian crude, which has a high gasoline yield.

The WTI oil price remains down around 26% from the the \$37.83 per barrel level it reached on March 12. Oil prices tumbled following President Bush's speech on March 17 concerning Iraq, and in general on the removal of uncertainty (the so-called "war premium") regarding possible war with Iraq. This uncertainty had placed upward pressure on prices in recent months (see below). OPEC, for instance, has stated publicly its intentions to offset any supply disruptions that the market could face in the near future, as has the International Energy Agency (IEA).

Reports from [Venezuela](#), which has been beset by domestic unrest since December 2 when a general strike broke out, indicate that the country may be producing between 2.45 and 3.2 million barrels per day, according to recent estimates by fired Petroleos de Venezuela (PdVSA) executives and by Venezuelan Vice President Jose Vicente Rangel, respectively. These reports indicate that the country has increased its oil production significantly since December, when the strike began, and production fell to as low as 200,000 barrels per day. If Rangel is correct, Venezuelan crude oil production now is actually higher than it was prior to the start of the strike in December 2002, when it was estimated at almost 3 million barrels per day.

Prior to last week's abrupt decline, oil prices had been pushed sharply higher in recent months (up over 50% since mid-November) by unrest and oil supply disruptions in Venezuela, by generally falling commercial crude oil stocks in the United States, by a colder-than-normal winter in the U.S. Northeast, and by continued fears that a war with Iraq could adversely affect Middle Eastern oil supplies. Oil markets also worried that a war with Iraq, at the same time that Venezuelan oil exports remained below normal levels, could strain the world's existing spare oil output capacity (estimated at 0.9-1.4 million barrels per day as of 3/24) to its limit. Nearly all of this "excess capacity" is located in Persian Gulf OPEC member countries, particularly Saudi Arabia (0.5-1.0 million barrels per day) the UAE (0.2 million barrels per day), and Qatar (0.1 million barrels per day). During the past week, unrest in Nigeria has also resulted in a further drop in production. On the other hand, markets are also watching as oil supplies increase (from Venezuela, Saudi Arabia, and elsewhere), as world oil demand begins its normal decline coming out of the harsh winter months and into spring, and as uncertainty over possible war has now largely come to an end. These are all "bearish" factors, tending to push oil prices down.

Other issues related to **world oil markets** include:

- British military intelligence reported that there has been a civilian uprising in the southern Iraq oil hub of Basra against forces of Iraqi President Saddam Hussein.
- With the exception of a small number of oil well fires, there appears to have been little damage to oil facilities in Iraq. Kuwaiti firefighters put out the first of seven oil wells blazing in Iraq's vast southern Rumaila field on Monday (3/25), and are expecting the other six to be extinguished within four weeks. According to Kuwaiti firefighters, an additional 10-15 wells in the area have been mined. The U.S. oil field services firm Kellogg Brown & Root planned Wednesday (3/26) to put out its first fire at a well head burning in Iraq's Rumaila South oil field.
- Iraq's Gulf oil export terminal of Mina al-Bakr has escaped attempted sabotage and stands ready to resume operations, a U.S. navy spokesman said on Wednesday (3/26). Mina al-Bakr handled about one million barrels per day of crude sales before the war forced an end to exports.
- Unrest and oil supply reductions in Nigeria may force Asian refiners to look for alternative crude oil supplies. Oil traders estimated that up to six very large crude carriers (VLCC) of Nigerian crude for lifting each month in March and April were destined for Asia, some of which could face disruption as western oil producing firms in Nigeria shut down some operations. Traders noted that Indian Oil Corp and Taiwan's Chinese Petroleum Corp (CPC) were two of Asia's largest buyers of Nigerian crude and they were likely to be the most affected by the outage.
- Shell Oil noted that it is now pumping above its normal 530,000 barrels per day of Bonny Light crude oil in Nigeria, partly compensating for shut-in production in the east and west Niger Delta. As a result, the revised estimate for the total amount of production disrupted by these actions reportedly is roughly 800,000 barrels per day, about 40 percent of Nigerian exports. In addition, ExxonMobil said on Wednesday (3/26) that it was ready to increase its Nigerian oil output to help compensate for losses by other producers because of ethnic unrest. ExxonMobil said that any increase could only follow a request from the government, but that such a request has not yet been made.
- Saudi Arabia has booked 14 tankers to move 29.5 million barrels of crude to the U.S. Gulf for delivery in May to make up for losses from Iraq and Venezuela.
- Saudi Arabia and other Persian Gulf producers are stepping in to supply Jordan with its oil, replacing Iraqi supplies that ceased last week when the Iraqi war began. Saudi oil is expected in Jordan this week.
- The United States will provide security and take other steps to prevent disruption of shipping in the Gulf during the Iraq war, the State Department said on Tuesday (3/25). State Department spokesman Richard Boucher added that the U.S. Transportation Department would also continue to provide war risk insurance for vessels, including cargoes and crew entering the region, if commercial insurance was unavailable to keep shipping going.
- As of March 26, 2003, the [U.S. Strategic Petroleum Reserve \(SPR\)](#) contained 599.3 million barrels of oil. The SPR has a maximum drawdown capability of 4.3 million bbl/d for 90 days, with oil beginning to arrive in the marketplace 15 days after a presidential decision to initiate a drawdown. The SPR drawdown rate declines to 3.2 million bbl/d from days 91-120, to 2.2 million bbl/d for days 121-150, and to 1.3 million bbl/d for days 151-180.

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## Latest Oil Supply Disruption Information

(updated March 26, 2003)

For the time being, EIA is assuming that the flow of legal Iraqi oil exports (not counting illegal oil "smuggling") has been stopped. Combined with other lost oil production from Iran's Soroosh field, the gross Middle Eastern oil supply disruption is estimated at 1.8 million barrels per day (MMBD). Meanwhile, Nigeria is experiencing a gross oil supply disruption of about 800,000 barrels per day. In total, around 2.6 million barrels per day of oil production from Iraq and Nigeria is currently offline, with remaining OPEC spare production capacity estimated at 0.9-1.4 MMBD.

| Major Gross Oil Supply Disruptions (million barrels per day MMBD) |         |                  |
|---|---------|------------------|
|   | 3/19/03 | Latest (3/26/03) |
| Middle East*  | 1.8     | 1.8              |
| Nigeria   | 0.0     | 0.8              |
| <b>TOTAL</b>  | 1.8     | 2.6              |

\*Today's Middle Eastern gross oil supply disruption is based on the loss of Iraqi exports from the UN "oil-for-food" program, which averaged 1.73 MMBD in February 2003, plus the loss of 0.06 MMBD resulting from Shell's shutdown of its Soroosh oil field in Iran's northern Gulf.

| World Oil Supply          |   |                 |
|---------------------------|---|-----------------|
|                           | Prior to Disruption<br>March 2003 (Base Case) | Latest Estimate |
| OPEC-10 Production (MMBD) | 25.3  | 25.9            |
| Iraqi Production (MMBD)   | 2.3   | N.A.            |
| Surplus Capacity (MMBD)   | 1.5-2.0                                       | 0.9-1.4         |

Note: For a more detailed analysis of OPEC production prior to disruption, see EIA's [OPEC Fact Sheet](#). For an overview of the Iraqi oil sector, see EIA's [Iraq Country Analysis Brief](#).

| Price Movements                        |                        |                          |                         |
|--|------------------------|--------------------------|-------------------------|
| Daily Price Information                | Week Prior (3/12)      | Day #1 (3/19)            | Latest (3/25)           |
| WTI Futures Price (\$/bbl)             | 37.83                  | 29.88                    | 27.97                   |
| U.S. Weekly Price Survey               | Monday Prior<br>(3/17) | Week #1<br>(Monday 3/24) | Latest<br>(Monday 3/24) |
| Retail Regular Gasoline (cents/gallon) | 172.8                  | 169.0                    | 169.0                   |

Note: EIA collects a national survey of regular retail gasoline prices every Monday. The current oil supply disruption is not the only factor affecting prices. For more information concerning EIA price statistics and analysis, see: [This Week in Petroleum](#).

| OPEC Crude Oil Production (Thousand barrels per day) |                          |                          |                    |                             |                          |
|--|--------------------------|--------------------------|--------------------|-----------------------------|--------------------------|
| LAST UPDATED 3/25/03                                 | November 2002 Production | February 2003 Production | Current Production | Current Production Capacity | Current Surplus Capacity |
| Algeria  | 938                      | 1,050                    | 1,100              | 1,100                       | 0                        |
| Indonesia  | 1,100                    | 1,060                    | 1,050              | 1,050                       | 0                        |
| Iran   | 3,500                    | 3,700                    | 3,640              | 3,690                       | 50                       |
| Kuwait   | 1,940                    | 2,100                    | 2,400              | 2,400                       | 0                        |
| Libya  | 1,350                    | 1,370                    | 1,370              | 1,400                       | 30                       |
| Nigeria  | 2,000                    | 2,200                    | 1,400              | 1,400                       | 0                        |
| Qatar  | 695                      | 740                      | 740                | 850                         | 110                      |
| Saudi Arabia   | 8,100                    | 8,800                    | 9,500              | 10,000-10,500               | 500-1,000                |
| UAE  | 2,000                    | 2,150                    | 2,300              | 2,500                       | 200                      |
| Venezuela  | 2,922                    | 1,400                    | 2,400              | 2,400                       | 0                        |
| <b>OPEC 10 Crude Oil Total</b>                       | <b>24,545</b>            | <b>24,570</b>            | <b>25,900</b>      | <b>26,790-27,290*</b>       | <b>890-1,390</b>         |
| Iraq   | 2,390                    | 2,490                    | 0                  | 0                           | 0                        |
| <b>OPEC Crude Oil Total</b>                          | <b>26,935</b>            | <b>27,060</b>            | <b>25,900</b>      | <b>26,790-27,290*</b>       | <b>890-1,390</b>         |

NA: Not Applicable

1Crude oil does not include lease condensate or natural gas liquids.

2Quotas are based on crude oil production only.

3Maximum sustainable production capacity, defined as the maximum amount of production that: 1) could be brought online within a period of 30 days; and 2) sustained for at least 90 days.

4Kuwaiti and Saudi Arabian figures each include half of the production from the Neutral Zone between the two countries. Saudi Arabian production also includes oil produced from its offshore Abu Safa field on behalf of Bahrain.

5 Saudi Arabia is the only country with the capability to further increase its capacity significantly within 90 days. Saudi Arabia can increase its sustainable production capacity to 10 million barrels per day within 30 days and to 10.5 million barrels per day within 90 days. As a result, the estimates for Saudi Arabia are as shown as a range, with the lower figure using the 30 days' definition and the upper end reflecting Saudi Arabia's 90 days' capability. OPEC's surplus capacity estimates are also shown as a range for this reason.

6The UAE is a federation of seven emirates. The quota applies only to the emirate of Abu Dhabi, which controls the vast majority of the UAE's economic and resource wealth.

7Venezuelan capacity and production numbers exclude extra heavy crude oil used to produce Orimulsion. It has been estimated that it would take 4 months from the end of the current crisis for Venezuela to restore its pre-strike production capacity. Venezuelan production projections assume production remains at current levels.

8Iraqi oil exports are approved by the United Nations under the oil-for-food program for Iraq established by Security Council Resolution 986 (April 1995) and subsequent resolutions. As a result, Iraqi production and exports have not been a part of any recent OPEC agreements.

9Other liquids include lease condensate, natural gas liquids, and other liquids including volume gains from refinery processing.

| Top World Oil Net Exporters, 2002* |                      |                                       |
|------------------------------------|----------------------|---------------------------------------|
|                                    | Country              | Net Exports (million barrels per day) |
| 1)                                 | Saudi Arabia         | 6.76                                  |
| 2)                                 | Russia               | 5.03                                  |
| 3)                                 | Norway               | 3.14                                  |
| 4)                                 | Iran                 | 2.30                                  |
| 5)                                 | Venezuela            | 2.26                                  |
| 6)                                 | United Arab Emirates | 1.95                                  |
| 7)                                 | Nigeria              | 1.85                                  |
| 8)                                 | Kuwait               | 1.73                                  |
| 9)                                 | Mexico               | 1.69                                  |
| 10)                                | Iraq                 | 1.58                                  |
| 11)                                | Algeria              | 1.27                                  |
| 12)                                | Libya                | 1.16                                  |

\*Table includes all countries with net exports exceeding 1 million barrels per day in 2002.

During 2002, roughly half of U.S. crude oil imports came from the Western Hemisphere (18% from Canada, 16% from South America, 12% from Mexico, 1% from the Caribbean), while approximately one-fifth came from the Persian Gulf region (15% from Saudi Arabia, 4% from Iraq, 2% from Kuwait).

In general, OECD Europe depends far more heavily on the Persian Gulf and North Africa for oil imports than does the United States. Japan receives over three-quarters of its oil supplies from the Persian Gulf (mainly the UAE, Saudi Arabia, Kuwait, Iran, and Qatar) with the remainder coming from Indonesia, China, and other sources.

| Major Sources of U.S. Net Petroleum Imports, 2002* |                       |                       |                               |
|--|-----------------------|-----------------------|-------------------------------|
| (all volumes in million barrels per day)           |                       |                       |                               |
|  | Total Net Oil Imports | Net Crude Oil Imports | Net Petroleum Product Imports |
| Canada   | 1.83                  | 1.42                  | 0.41                          |
| Saudi Arabia                                       | 1.55                  | 1.52                  | 0.03                          |
| Venezuela  | 1.37                  | 1.20                  | 0.17                          |
| Mexico   | 1.28                  | 1.49                  | -0.21                         |
| Nigeria  | 0.60                  | 0.57                  | 0.03                          |
| United Kingdom                                     | 0.47                  | 0.41                  | 0.06                          |
| Iraq   | 0.44                  | 0.44                  | 0.00                          |
| Norway   | 0.38                  | 0.34                  | 0.04                          |
| Angola   | 0.33                  | 0.32                  | 0.01                          |
| <b>Net Imports</b>                                 | <b>10.38</b>          | <b>9.04</b>           | <b>1.34</b>                   |

\* Table includes all countries from which the U.S. imported more than 300,000 barrels per day of total oil in 2002.

Having provided this information, it is important to stress that oil is a "fungible" (interchangeable, traded on a world market) commodity, that a disruption of oil flows anywhere will affect the price of oil everywhere, and that the specific suppliers of oil to a particular country or region are not of enormous significance, at least from an economic point of view.

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## Latest U.S. Weekly EIA Petroleum Information

(last complete update: March 19, 2003)

Click [here](#) for the latest U.S. weekly data on petroleum supply and demand.

### Petroleum Inventories

U.S. commercial crude oil inventories (excluding those in the Strategic Petroleum Reserve) increased by 0.4 million barrels, and are just above the lower operational inventory level (LOI). Despite an increase in crude oil refinery inputs, inventories for both major petroleum products fell last week. Distillate fuel inventories decreased by 1.1 million barrels, with the decline split among high-sulfur distillate fuel (heating oil) and low-sulfur distillate fuel (diesel fuel). Motor gasoline inventories fell by 0.9 million barrels last week and remain below the low end of the normal range. As of March 14, total commercial petroleum inventories are 131.2 million barrels less than last year at this time.

### Propane Inventories Slip Below LOI

With the last vestiges of winter sweeping across the upper plains last week, U.S. inventories of propane fell nearly 0.7 million barrels, slipping about 0.3 million barrels below the Lower Operational Level (LOI) to end the week of March 14, 2003 at an estimated 18.2 million barrels. An inventory level below the LOI may be indicative of a situation where supply flexibility could be constrained, which some industry observers say is already occurring in some parts of the nation as inventories reach historically low levels. Reports of supply constraints were beginning to surface in the Mid-continent region in recent days as some storage operators and pipeline companies were in effect scrambling to maintain propane supplies to consumers in the region. Nevertheless, the Midwest region reported a 0.8 million-barrel stockdraw last week, indicating propane supplies are still flowing from primary storage. In contrast, East Coast inventories grew by more than 0.1 million barrels last week while Gulf Coast inventories remained unchanged during this same period.

### Petroleum Imports

U.S. crude oil imports (including imports going into the Strategic Petroleum Reserve) averaged 8.7 million barrels per day last week, a rise of 1.1 million barrels per day from the previous week, and continuing the up-and-down movements in recent weeks. Crude oil imports have averaged over 8.3 million barrels per day over the last four weeks, but this is still 300,000 barrels per day less than averaged during the same four-week period last year. Although the origins of weekly crude oil imports are very preliminary and thus not published, imports from Venezuela last week continued to be much above levels seen earlier in the year, although they were down some from the levels seen the last two weeks. Total motor gasoline imports (including both finished gasoline and gasoline blending components) averaged 1 million barrels per day last week, while distillate fuel imports averaged 500,000 barrels per day.

Preliminary monthly data on the origins of U.S. crude oil imports in January 2003 has been released and it shows that three countries each exported more than 1.5 million barrels per day of crude oil to the United States. The top sources of U.S. crude oil imports in January 2003 were: Saudi Arabia (1.820 million barrels per day), Canada (1.621 million barrels per day), and Mexico (1.566 million barrels per day). This is the largest monthly amount of crude oil imported from Saudi Arabia since August 2001. Rounding out the top ten sources, in order, were Nigeria (0.798 million barrels per day), Iraq (0.600 million barrels per day), United Kingdom (0.411 million barrels per day), Venezuela (0.390 million barrels per day), Angola (0.245 million barrels per day), Kuwait (0.134 million barrels per day), and Colombia (0.120 million barrels per day). Imports from Venezuela were at their lowest level since February 1989, as Venezuelan exports were severely curtailed for much of the month following the general strike in that country. Total crude oil imports averaged 8.538 million barrels per day in January, a decline of nearly 100,000 barrels per day from December, and represents the lowest level since February 2000. The top three origins accounted for 59 percent of these U.S. crude oil imports in January, while the top ten sources accounted for 90 percent of all U.S. crude oil imports. It should be noted that these numbers are preliminary and are subject to change when final data for the month is released on March 21, 2003.

### Refinery Inputs and Production

U.S. crude oil refinery inputs increased to 14.8 million barrels per day during the week ending March 14, the largest amount since the week ending January 10. Most of the increase in crude oil refinery inputs last week resulted in an increase in distillate fuel refinery output, while motor gasoline and jet fuel refinery production remained relatively flat.

### Petroleum Demand

Total product supplied over the last four-week period averaged 20.1 million barrels per day, or about 3.0 percent more than the same period last year. Over the last four weeks, motor gasoline demand is up 0.3 percent, and distillate fuel demand is up 16.4 percent compared to the same period last year. Kerosene-type jet fuel demand is 4.6 percent less than last year over the latest four-week period.

### U.S. Retail Gasoline Price Decreases by Almost 4 Cents (updated March 25, 2003)

The U.S. average retail price for regular gasoline fell last week after rising thirteen of the previous fourteen weeks. Prices dropped by 3.8 cents per gallon as of March 24 to hit 169.0 cents per gallon, which is still 34.8 cents per gallon higher than a year ago. This is the largest one-week price decrease since prices fell by 4.0 cents on November 26, 2001. The decline reflects, in part, the reduction in crude oil prices recently. Prices were down throughout most of the country, with the largest decrease occurring in the Midwest, where prices fell 8.5 cents to end at 159.8 cents per gallon. California prices remained above \$2 per gallon for the third week in a row, falling to 214.3 cents per gallon. Prices for the entire West Coast also stayed above the \$2 per gallon mark, at 203.7 cents per gallon on March 24.

Retail diesel fuel prices decreased for the second consecutive week, falling 9.0 cents per gallon to a national average of 166.2 cents per gallon as of March 24. This is the largest one-week price decrease that has occurred since EIA began collecting this data in March 1994. Recent price decreases can be largely attributed to increases in supply that have exceeded demand for diesel. Retail diesel prices were down throughout the country, with the largest price decrease occurring in the Midwest, where prices fell 11.2 cents per gallon to end at 159.6 cents per gallon. Prices in New England remained the highest in the nation, although they declined by 9.9 cents to 189.2 cents per gallon.

### Heating Oil Prices Continue to Decline

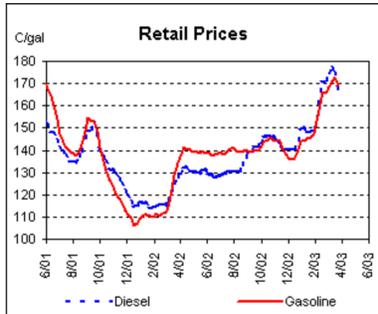
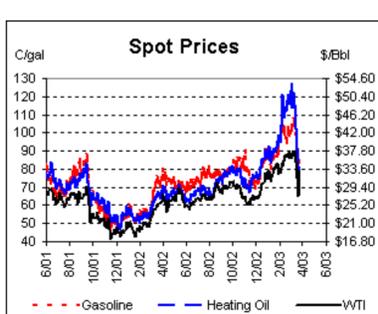
Residential heating oil prices decreased 5.1 cents per gallon for the week ending March 17, 2003, averaging 180.3 cents per gallon, but are 62.1 cents per gallon higher than last year at this time. Meanwhile, wholesale heating oil prices decreased 17.6 cents per gallon this past week, to 109.4 cents per gallon.

Residential propane prices decreased 7.2 cents per gallon to reach 158.2 cents per gallon, and are 46.2 cents higher than one year ago. Wholesale propane prices decreased 5.9 cents per gallon, from 80.4 cents per gallon to 74.5 cents per gallon during the week ending March 17.

These prices come from the last survey done for the 2002/03 winter season. Weekly retail and wholesale prices for heating oil and propane will restart for the 2003/04 winter season beginning in October 2003.

## U.S. Petroleum Prices

(updated March 26, 2003)



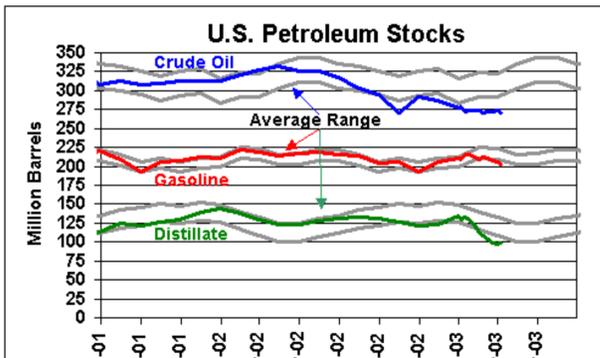
## Crude Oil and Oil Products Price Table

| Date      | WTI Crude Oil |         | Gasoline         |         | Heating Oil      |         | Kerojet | Propane          |        | EIA Weekly Retail US Average |        |
|-----------|---------------|---------|------------------|---------|------------------|---------|---------|------------------|--------|------------------------------|--------|
|           | Spot          | Futures | Spot             | Futures | Spot             | Futures |         | Spot             | Spot   | Gasoline                     | Diesel |
|           | Cushing       |         | NYH              |         | NYH              |         | c/gal   | Mt. Belvieu      | Conway |                              |        |
|           | \$/bbl        | \$/bbl  | cents per gallon |         | cents per gallon |         |         | cents per gallon |        | cents per gallon             |        |
| 2/5/2003  | \$33.91       | \$33.93 | 101.30           | 103.15  | 103.80           | 99.40   | 106.55  | 70.19            | 69.25  |                              |        |
| 2/6/2003  | \$34.36       | \$34.16 | 101.00           | 102.83  | 112.50           | 102.71  | 115.38  | 70.19            | 69.25  |                              |        |
| 2/7/2003  | \$35.05       | \$35.12 | 104.38           | 106.70  | 120.50           | 109.57  | 122.00  | 74.25            | 74.25  |                              |        |
| 2/10/2003 | \$34.46       | \$34.48 | 100.53           | 102.75  | 114.48           | 104.43  | 116.35  | 72.25            | 72.25  | 160.7                        | 166.2  |
| 2/11/2003 | \$35.43       | \$35.44 | 103.50           | 105.59  | 112.71           | 105.76  | 115.08  | 69.25            | 68.25  |                              |        |
| 2/12/2003 | \$35.83       | \$35.77 | 100.85           | 103.36  | 108.58           | 103.05  | 108.51  | 64.50            | 64.50  |                              |        |
| 2/13/2003 | \$36.63       | \$36.36 | 100.48           | 103.14  | 110.28           | 105.28  | 110.53  | 62.75            | 61.88  |                              |        |
| 2/14/2003 | \$36.61       | \$36.80 | 98.48            | 102.23  | 112.70           | 106.07  | 113.70  | 64.69            | 62.75  |                              |        |
| 2/17/2003 | NA            | NA      | NA               | NA      | NA               | NA      | NA      | NA               | NA     | 166.0                        | 170.4  |
| 2/18/2003 | \$36.88       | \$36.96 | 96.78            | 99.45   | 113.24           | 106.54  | 114.54  | 64.69            | 62.75  |                              |        |
| 2/19/2003 | \$37.02       | \$37.16 | 97.00            | 100.22  | 116.73           | 109.93  | 117.93  | 67.13            | 64.13  |                              |        |
| 2/20/2003 | \$36.45       | \$36.79 | 94.08            | 96.58   | 112.40           | 105.87  | 115.90  | 68.75            | 68.00  |                              |        |
| 2/21/2003 | \$36.76       | \$35.58 | 98.75            | 101.28  | 117.00           | 110.85  | 120.50  | 72.00            | 69.25  |                              |        |
| 2/24/2003 | \$37.29       | \$36.48 | 102.93           | 104.75  | 120.73           | 114.67  | 123.60  | 81.00            | 73.25  | 165.8                        | 170.9  |
| 2/25/2003 | \$36.06       | \$36.06 | 98.48            | 100.78  | 115.50           | 112.26  | 119.25  | 94.50            | 81.50  |                              |        |
| 2/26/2003 | \$37.96       | \$37.70 | 99.63            | 101.83  | 119.00           | 115.49  | 122.75  | 105.00           | 87.50  |                              |        |
| 2/27/2003 | \$36.83       | \$37.20 | 99.40            | 101.80  | 117.90           | 115.43  | 120.40  | 110.50           | 101.00 |                              |        |
| 2/28/2003 | \$36.76       | \$36.60 | 101.20           | 103.77  | 122.25           | 125.59  | 124.50  | 127.50           | 89.50  |                              |        |
| 3/3/2003  | \$36.10       | \$35.88 | 102.05           | 109.48  | 126.88           | 103.60  | 127.75  | 77.44            | 70.25  | 168.6                        | 175.3  |
| 3/4/2003  | \$36.95       | \$36.89 | 103.61           | 111.22  | 118.35           | 104.86  | 121.35  | 75.75            | 66.75  |                              |        |
| 3/5/2003  | \$36.86       | \$36.69 | 102.10           | 110.09  | 117.13           | 104.39  | 112.26  | 72.25            | 62.38  |                              |        |
| 3/6/2003  | \$37.21       | \$37.00 | 103.03           | 110.60  | 114.03           | 105.56  | 114.03  | 70.50            | 61.75  |                              |        |
| 3/7/2003  | \$37.76       | \$37.78 | 107.80           | 115.67  | 121.00           | 110.85  | 119.63  | 70.44            | 63.00  |                              |        |
| 3/10/2003 | \$37.18       | \$37.27 | 106.20           | 112.82  | 120.75           | 108.57  | 117.88  | 68.00            | 60.50  | 171.2                        | 177.1  |
| 3/11/2003 | \$36.81       | \$36.72 | 103.70           | 109.87  | 116.60           | 103.02  | 114.10  | 65.38            | 58.25  |                              |        |
| 3/12/2003 | \$37.87       | \$37.83 | 105.08           | 111.39  | 115.45           | 103.52  | 112.45  | 64.50            | 57.38  |                              |        |
| 3/13/2003 | \$36.05       | \$36.01 | 99.38            | 105.77  | 106.84           | 96.71   | 103.84  | 62.50            | 54.94  |                              |        |
| 3/14/2003 | \$35.41       | \$35.38 | 98.75            | 104.04  | 102.30           | 94.07   | 98.55   | 60.13            | 53.25  |                              |        |
| 3/17/2003 | \$34.92       | \$34.93 | 95.97            | 102.71  | 95.70            | 91.57   | 92.95   | 61.63            | 56.50  | 172.8                        | 175.2  |
| 3/18/2003 | \$31.55       | \$31.67 | 91.10            | 96.19   | 90.45            | 85.78   | 90.20   | 59.38            | 52.38  |                              |        |
| 3/19/2003 | \$30.01       | \$29.88 | 89.39            | 94.25   | 88.55            | 83.61   | 88.30   | 58.38            | 53.19  |                              |        |
| 3/20/2003 | \$28.62       | \$28.61 | 85.85            | 90.99   | 88.00            | 82.44   | 87.50   | 57.88            | 53.50  |                              |        |
| 3/21/2003 | \$27.18       | \$26.91 | 80.10            | 85.25   | 78.75            | 75.56   | 79.75   | 55.25            | 53.69  |                              |        |
| 3/24/2003 | \$29.51       | \$28.66 | 84.58            | 89.79   | 80.45            | 78.37   | 82.70   | 56.63            | 54.75  | 169.0                        | 166.2  |
| 3/25/2003 | \$33.42       | \$27.97 | 83.25            | 88.49   | 75.85            | 73.49   | 76.85   | 57.00            | 54.75  |                              |        |

Source: Spot and futures closing quotes as reported by Reuters News Service, retail prices reported by EIA

## U.S. Petroleum Supply

|                                   | (Thousand Barrels per Day) |  | Four Weeks Ending |           | vs. Year Ago |         |
|-----------------------------------|----------------------------|--|-------------------|-----------|--------------|---------|
|                                   |                            |  | 3/14/2003         | 3/14/2002 | Diff.        | % Diff. |
| <b>Refinery Activity</b>          |                            |  |                   |           |              |         |
| Crude Oil Input                   |                            |  | 14,502            | 14,357    | 145          | 1.0%    |
| Operable Capacity                 |                            |  | 16,800            | 16,785    | 15           | 0.1%    |
| Operable Capacity Utilization (%) |                            |  | 87.3%             | 86.9%     | 0.4%         |         |
| <b>Production</b>                 |                            |  |                   |           |              |         |
| Motor Gasoline                    |                            |  | 7,979             | 8,107     | -128         | -1.6%   |
| Jet Fuel                          |                            |  | 1,416             | 1,474     | -58          | -3.9%   |
| Distillate Fuel Oil               |                            |  | 3,667             | 3,422     | 245          | 7.2%    |
| <b>Imports</b>                    |                            |  |                   |           |              |         |
| Crude Oil (incl. SPR)             |                            |  | 8,330             | 8,646     | -316         | -3.7%   |
| Motor Gasoline                    |                            |  | 769               | 767       | 2            | 0.2%    |
| Jet Fuel                          |                            |  | 112               | 97        | 15           | 15.8%   |
| Distillate Fuel Oil               |                            |  | 522               | 235       | 287          | 122.4%  |
| Total                             |                            |  | 10,901            | 10,856    | 45           | 0.4%    |
| <b>Exports</b>                    |                            |  |                   |           |              |         |
| Crude Oil                         |                            |  | 10                | 6         | 4            | 70.7%   |
| Products                          |                            |  | 933               | 991       | -58          | -5.9%   |
| Total                             |                            |  | 943               | 998       | -55          | -5.5%   |
| <b>Products Supplied</b>          |                            |  |                   |           |              |         |
| Motor Gasoline                    |                            |  | 8,664             | 8,642     | 22           | 0.3%    |
| Jet Fuel                          |                            |  | 1,472             | 1,544     | -72          | -4.7%   |
| Distillate Fuel Oil               |                            |  | 4,343             | 3,730     | 613          | 16.4%   |
| Total                             |                            |  | 20,083            | 19,494    | 589          | 3.0%    |
| <b>Stocks (Million Barrels)</b>   |                            |  |                   |           |              |         |
| Crude Oil (excl. SPR)             |                            |  | 270.2             | 328.8     | -58.6        | -17.8%  |
| Motor Gasoline                    |                            |  | 201.1             | 216.2     | -15.1        | -7.0%   |
| Jet Fuel                          |                            |  | 39.5              | 41.3      | -1.8         | -4.4%   |
| Distillate Fuel Oil               |                            |  | 97.2              | 127.1     | -29.9        | -23.5%  |
| Total (excl. SPR)                 |                            |  | 882.2             | 1,013.4   | -131.2       | -12.9%  |



Source: Energy Information Administration, Weekly Petroleum Status Report, Petroleum Supply Monthly.

File last modified: March 26, 2003

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● [Key Iraqi Oil Infrastructure Information](#) (*March 24, 2003*)

A summary of the most important information related to Iraq's oil reserves, oil fields, wells, production capacity, export infrastructure, refining sector, and post-war development plans.

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## Special Topics: The War's Impact on Gasoline Prices (March 25, 2003)

As of Monday, March 24, EIA's weekly survey of retail gasoline prices showed the U.S. average price for regular grade at \$1.690 per gallon, down from \$1.728 per gallon the previous week, the highest nominal (not inflation-adjusted) national average price on record. With prices this high, and months to go before the summer driving season (traditionally the time of highest gasoline demand and prices), many people are understandably concerned about the potential impact on gasoline prices of the war in Iraq. Some also note the wide variations in crude oil and wholesale gasoline prices from week to week, or even day to day, and wonder how quickly increases (or reductions) can be expected to show up at the pump.

The effect of the war on prices for crude oil and petroleum products, including gasoline, is likely to depend mostly on how events unfold, particularly in terms of the scope and duration of any interruption to world oil supplies. The commencement of military action has to date affected oil production only in and near the combat region. For the time being, EIA is assuming that the flow of legal Iraqi oil exports has been effectively stopped. Kuwait has reportedly reduced production at certain northern oil facilities, but offset this with increases elsewhere, yielding no net change. Iran has reportedly shut in production from its offshore Soroosh field in the Persian Gulf. In total, the gross Middle Eastern oil supply disruption is estimated at 1.8 million barrels per day (MMBD). (This estimate is prior to excess production capacity being brought online by other countries). At present, promises of increased supplies from OPEC, especially Saudi Arabia, appear to be perceived by markets as sufficient to offset the temporary loss of Iraqi (and some Kuwaiti and Iranian) production, as evidenced by price movements to date. In fact, after rising nearly 50 percent since mid-November 2002, reflecting both tight global supplies and uncertainty over the possibility of war, prices fell as much as \$10 per barrel in just over a week leading up to, and including, the first few days of battle.

In addition to the war in Iraq, other events continue to have substantial impact on world oil markets. Oil exports from Venezuela, a major exporter and OPEC member, remain at reduced levels as that country continues to recover from a general strike that began in early December 2002. Though official and unofficial estimates vary, Venezuelan production continues to run as much as 600,000 barrels per day lower than pre-strike levels. More recently, civil unrest in portions of Nigeria has reduced crude oil production from that OPEC member country by about 900,000 barrels per day. Problems in both of these countries have disproportionate effects on the United States, because they are among the relatively "short-haul" Atlantic Basin crude oil sources favored by refiners on the U.S. East and Gulf Coasts.

Higher crude oil prices exert upward influence on gasoline prices in two ways: a direct pass-through to all petroleum products, because crude oil is the primary feedstock to refineries; and inflation of refinery margins, because of the secondary effects of crude oil prices on refinery economics. Increases or decreases in crude oil prices, which are dependent on global supply and demand, translate almost instantly into changes in wholesale petroleum product prices, particularly in the spot and futures markets. (Each \$1-per-barrel change in crude oil prices equates to a change in product prices of about 2.4 cents per gallon).

The other major component of gasoline price changes impacted by crude oil is refining margins, the difference between product prices and crude oil prices. When the supply/demand balance for a product is tighter than that for crude oil, refining margins are pushed higher. The balance can tighten because of rising demand, reduced production or imports, or a combination of these. This has recently been the case due to low U.S. crude oil inventories, which have begun to constrain refinery runs, in addition to reduced gasoline imports related to the Venezuelan strike. Additionally, high crude oil prices are often accompanied by "backwardation" in futures markets, where prices for commodities to be delivered in later months are lower than those for immediate delivery. Such a situation provides a disincentive for refiners to purchase and refine high-priced crude oil now, to be delivered as lower-priced products later.

The two components discussed above, crude oil prices and refining margins, add up to the spot market price of gasoline. Changes in spot prices are passed through to retail prices over a period of weeks, with about two-thirds of the impact of spot price changes arriving at the retail level within two weeks. Thus, unless counteracted by other influences more specific to gasoline, changes in crude oil prices can be expected to show up in retail gasoline prices, at the rate of about 2½ cents per gallon of gasoline for each \$1 per barrel in crude oil price, within a matter of weeks. Because this "pass-through" of price changes from crude oil to wholesale and then retail gasoline markets is relatively consistent, EIA has found that near-term retail gasoline prices can be predicted with accuracy using recent spot price data.

When will last week's \$10-per-barrel drop in crude oil prices show up at the gasoline pump? The answer lies in the lagging nature of price pass-through, and is not as simple as it may sound. Because the impact of a sudden change in spot prices is passed through to retail markets over a period of weeks, there can often be conflicting influences being passed through at the same time, especially when wholesale prices have quickly reversed direction. The current situation is a perfect case in point: gasoline spot prices had only peaked two weeks ago, so a portion of last week's sharp spot price decline, along with a lagging part of the previous increase, were both contributing to retail price movements this week. As a result, the downward movement was partially offset by the upward, yielding a net retail price decline of 3.8 cents per gallon for the week (note: this refers to the national average retail price for regular gasoline; prices can vary considerably on a regional basis because of differing logistical costs and product specifications).

Although it is impossible to predict spot market behavior over the coming weeks, it is likely that we will continue to see some conflicting influences on retail gasoline prices as the spring proceeds.

File last modified: March 25, 2003

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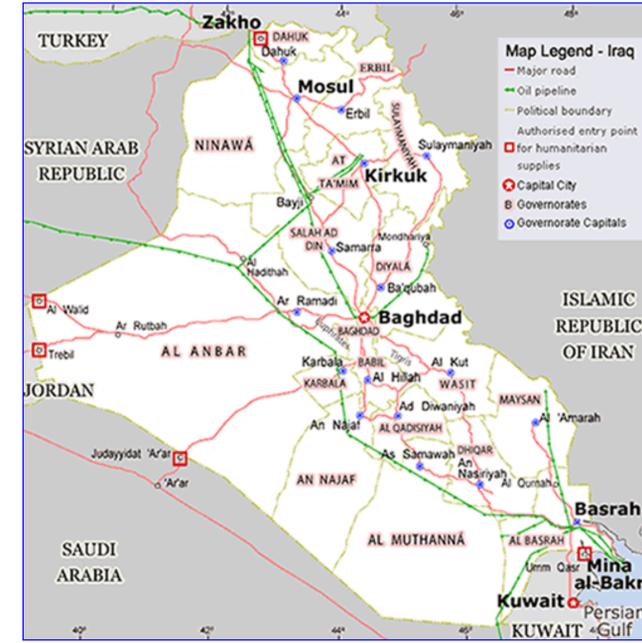
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**Special Topics: Key Iraqi Oil Infrastructure Information  
 (March 23, 2003)**



**Iraq's Oil Reserves, Fields, Wells**

Iraq contains 112 billion barrels of proven oil reserves, the second largest in the world (behind Saudi Arabia). Iraq's true resource potential may be far greater than this, however, as the country is largely (90% or so) unexplored due to years of war and sanctions. Deep oil-bearing formations located mainly in the vast Western Desert region, for instance, could yield large additional oil resources (possibly another 100 billion barrels), but have not been explored. Iraq's oil production costs are amongst the lowest in the world, making it a highly attractive oil prospect. However, only 15 of 73 discovered fields have been developed, while few deep wells have been drilled compared to Iraq's neighbors.

Overall, only about 2,000 wells reportedly have been drilled in Iraq (of which about 1,500-1,700 are actually producing oil), compared to around 1 million wells in Texas for instance. In addition, Iraq generally has not had access to the latest, state-of-the-art oil industry technology (i.e., 3D seismic), sufficient spare parts, and investment in general throughout most of the 1990s, but has instead reportedly been utilizing questionable engineering techniques (i.e., overpumping, water injection/"flooding") and old technology to maintain production.

Iraqi oil reserves vary widely in quality, with API gravities in the 24o to 42o range. Iraq's main export crudes come from the country's two largest active fields: Rumaila and Kirkuk. The southern Rumaila field, which extends a short distance into Kuwaiti territory, has around 663 wells and produces three streams: Basra Regular; Basra Medium (normally 30° API, 2.6% sulfur); and Basra Heavy (normally 22°-24° API, 3.4% sulfur). Basrah Blend normally averages around 32° API, 1.95% sulfur, but reportedly is worse currently at around 29-30° API and 2%+ sulfur content. As of March 23, 2003, around 9 oil wells at Rumaila reportedly were on fire, with firefighters reportedly dispatched to deal with the problem, and outside analysts describing the problem as "minor" in nature.

The northern Kirkuk field, first discovered in 1927, has around 337 wells and normally produces 35° API, 1.97% sulfur crude, although the API gravity and sulfur content both are reported to have deteriorated sharply in recent months. Kirkuk's gravity, for instance, has declined to around 32-33° API, while sulfur content has risen above 2%. Declining crude oil qualities -- and an increased "water cut" as well -- could be the result of overpumping as Iraq attempts to sell as much oil as possible. An additional export crude, known as "Fao Blend," is heavier and more sour, with a 27° API and 2.9% sulfur. As of March 23, 2003, no oil well fires or other damage had been reported at Kirkuk.

**Iraq's Pre-War Production and Export Capacity**

Oil industry experts generally assess Iraq's sustainable production capacity at no higher than about 2.8-2.9 million bbl/d, with net export potential of around 2.3-2.5 million bbl/d (including smuggled oil). In comparison, Iraq produced 3.5 million bbl/d in July 1990. Approximately 2 million bbl/d of Iraq's production capacity comes from oil fields in the southern part of the country, particularly North and South Rumaylah (1.3 million bbl/d), West Qurnah (225,000 bbl/d), Az Zubair (220,000 bbl/d), Majnoon (50,000 bbl/d), Jabal Fauqi (50,000 bbl/d), Abu Ghurab (40,000 bbl/d), Buzurgan (40,000 bbl/d) and Luhais (30,000 bbl/d). Iraq's remaining oil production capacity is located in the northern and central fields of Kirkuk (720,000 bbl/d), Bai Hassan (100,000 bbl/d), Jambur (50,000 bbl/d), Khabbaz (40,000 bbl/d), Saddam (30,000 bbl/d), East Baghdad (20,000 bbl/d), and 'Ayn Zalah (10,000 bbl/d).

**Iraq's Oil Export Pipelines/Terminals**

Iraq's oil export infrastructure (pipelines, ports, pumping stations, etc.) were damaged in both the Iran-Iraq War as well as Operation Desert Storm (1991). Currently, the 600-mile, 40-inch Kirkuk-Ceyhan pipeline is Iraq's largest operable crude export pipeline. This Iraq-Turkey link consists of a fully-operational capacity of 1.1 million bbl/d, but reportedly can handle only around 900,000 bbl/d currently. A second, parallel, 46-inch line has an optimal capacity of 500,000 bbl/d and was designed to carry Basra Regular exports, but at last report was inoperable. Combined, the two parallel lines have an optimal capacity of 1.5-1.6 million bbl/d. According to Reuters, as of March 23, 2003, the Kirkuk-Ceyhan pipeline was operational and still pumping oil, but storage tanks at Ceyhan were nearly full and no tankers were scheduled to load.

On August 20, 1998, Iraq and Syria (which reopened their border in June 1997 -- after a 17-year closure -- for trade and official visits) signed a memorandum of understanding for the possible reopening of the 50-year-old, rusting Banias oil pipeline from Iraq's northern Kirkuk oil fields to Syria's Mediterranean port of Banias (and Tripoli, Lebanon). As of October 2002, the pipeline reportedly was being used (see above), and there also was talk of building a new, parallel pipeline as a replacement.

In order to optimize export capabilities (i.e., to allow oil shipments to the north or south), Iraq constructed a reversible, 1.4-million bbl/d "Strategic Pipeline" in 1975. This pipeline consists of two parallel 700,000-bbl/d lines. The North-South system allows for export of northern Kirkuk crude from the Persian Gulf and for southern Rumaila crudes to be shipped through Turkey. During the Gulf War, the Strategic Pipeline was disabled after the K-3 pumping station at Haditha as well as four additional southern pumping stations were destroyed.

In the Persian Gulf, Iraq has three tanker terminals: at Mina al-Bakr; Khor al-Amaya; and Khor az-Zubair (which mainly handles dry goods and minimal oil volumes). All of these ports, as well as other oil infrastructure (tanks, pipelines, etc.) in the area, reportedly were undamaged and under the control of coalition forces within the first few days of war in late March 2003. Mina al-Bakr is Iraq's largest oil terminal, with four 400,000-bbl/d-capacity, offshore berths capable of handling very large crude carriers (VLCCs). Gulf War damage to Mina al-Bakr appears to have been repaired in large part and the terminal currently can handle up to 1.2-1.3 million bbl/d. A full return to Mina al-Bakr's nameplate capacity apparently would require extensive infrastructure repairs. Mina al-Bakr also is constrained by a shortage of storage and oil processing facilities, most of which were destroyed in the Gulf War.

Iraq's Khor al-Amaya terminal was heavily damaged during the Iran-Iraq War (and completely destroyed during Operation Desert Storm in 1991) and has been out of commission since then. As of March 2001, reports indicated that Iraq had largely completed repairing two berths at Khor al-Amaya. Upon full completion of repairs, Iraq projects Khor al-Amaya's capacity will rise to 1.2 million bbl/d, and will help prevent delays at Mina al-Bakr while repairs are conducted there.

**Post-War Oil Development Plans, Pre-War Oil Deals with International Oil Companies**

In December 2002, the Council of Foreign Relations and the Baker Institute released a report on Iraq's oil sector. Among other things, the report concluded that: 1) Iraq's oil sector infrastructure is in bad shape at the moment, being held together by "band-aids," and with a production decline rate of 100,000 bbl/d per year; 2) increasing Iraqi oil production will require "massive repairs and reconstruction...costing several billions of dollars and taking months if not years;" 3) costs of repairing existing oil export installations alone would be around \$5 billion, while restoring Iraqi oil production to pre-1990 levels would cost an additional \$5 billion, plus \$3 billion per year in annual operating costs; 4) outside funds and large-scale investment by international oil companies will be needed; 5) existing oil contracts will need to be clarified and resolved in order to rebuild Iraq's oil industry, with any "prolonged legal conflicts over contracts" possibly "delay[ing] the development of important fields in Iraq;" and 6) any "sudden or prolonged shut-down" of Iraq's oil industry could result in long-term reservoir damage; 7) Iraq's oil facilities could easily be damaged during any domestic unrest or military operations (in early February 2003, the Patriotic Union of Kurdistan claimed that Iraqi soldiers were mining oil wells in the north of the country in anticipation of war); and 8) given all this, a "bonanza" of oil is not expected in the near future.

According to the Middle East Economic Survey (MEES), problems at Iraqi oil fields include: years of poor oil reservoir management; corrosion problems at various oil facilities; deterioration of water injection facilities; lack of spare parts, materials, equipment, etc.; damage to oil storage and pumping facilities; and more. MEES estimates that Iraq could reach production capacity of 4.2 million bbl/d within three years at a cost of \$3.5 billion, and 4.5-6.0 million bbl/d within seven years.

As of October 2002, Iraq reportedly had signed several multi-billion dollar deals with international oil companies (IOCs), mainly from China, France, and Russia. Deutsche Bank estimates \$38 billion total on new fields -- "greenfield" development -- with potential production capacity of 4.7 million bbl/d if all the deals come to fruition (which Deutsche Bank believes is highly unlikely). Iraq reportedly has become increasingly frustrated at the failure of these companies actually to begin work on the ground, and has threatened to no longer sign deals unless firms agreed to do so without delay. Iraqi upstream oil contracts generally require that companies start work immediately, but U.N. sanctions overwhelmingly have dissuaded companies from doing so. In 1992, Iraq announced plans to increase its oil production capacity to over 6.3 million bbl/d following the lifting of U.N. sanctions. This plan, which was to be accomplished in three phases over a five-year period, assumed billions of dollars worth of foreign investment. Much of the production was to come from giant fields in the south (Halfaya, Majnoon, Bin Umar, West Qurna), plus the Mishrif reservoir (Luhais, North and South Rumaila, Zubair, etc.), East Baghdad, and others.

Russia, which is owed billions of dollars by Iraq for past arms deliveries, has a strong interest in Iraqi oil development. This includes a \$3.7 billion, 23-year deal to rehabilitate Iraqi oilfields, particularly the 11-15 billion barrel West Qurna field (located west of Basra near the Rumaila field). West Qurna is believed to have production potential of 800,000-1 million bbl/d. In a surprising and somewhat puzzling development, in mid-December 2002 the Iraqi Oil Ministry announced that it was severing its contract with the Lukoil consortium on West Qurna due to "fail[ure] to comply" with contract stipulations. Specifically, the Iraqis cited Lukoil's failure to invest a required \$200 million over three years. Two other, smaller, stakes in West Qurna by Russian companies Zarubezhneft and Mashinoimport reportedly were left intact. In addition, three exploration and production deals were signed between Iraq and Russian companies (Soyuzneftegaz, Stroytransgas-Oil, and Tatneft, to develop the 100,000-bbl/d Rafidain field, the Western Desert's Block 4, and the Western Desert's Block 9, respectively). Despite all this, Russia's Foreign Ministry said that it viewed the Iraqi decision on Lukoil and West Qurna "with regret." In mid-February 2003, following a month of talks between the two sides aimed at reversing Iraq's decision, the Iraqis announced that its decision to cancel the Lukoil deal was "finished and the contract has been scrapped."

In October 2001, a joint Russian-Belarus oil company, Slavneft, signed a \$52 million service contract with Iraq on the 2-billion-barrel, Suba-Luhais field in southern Iraq. Full development of Suba-Luhais could result in production of 100,000 bbl/d (35° API) at a cost of \$300 million over three years. As of March 2002, Slavneft reportedly was awaiting approval from the United Nations to drill 25 wells as Luhais.

The Saddam field contains 3 billion barrels of oil and 5 trillion cubic feet (Tcf) of associated gas. Iraq is seeking foreign assistance for a second-phase Saddam development, which would raise oil production capacity to 50,000 bbl/d, as well as 300 Mmcf/d of gas. In early April 2001, Russia's Zarubezhneft received U.N. approval to drill 45 wells in the Saddam field, plus Kirkuk and Bai Hassan, as part of an effort to reduce water incursion into the fields.

The largest of Iraq's oilfields slated for post-sanctions development is Majnoon, with reserves of 12-30 billion barrels of 28-35° API oil, and located 30 miles north of Basra on the Iranian border. The oil major Total reportedly has a deal with Iraq on development rights for Majnoon. Majnoon was reportedly brought onstream (under a "national effort" program begun in 1999) in May 2002 at 50,000 bbl/d, with output originally projected to reach 100,000 bbl/d by the end of 2002 (according to Oil Minister Rashid). Future development on Majnoon ultimately could lead to production of 450,000 bbl/d within two years or so at an estimated (according to Deutsche Bank) cost of \$4 billion. Eventually, Majnoon could produce significantly more oil than that, possibly well above 1 million bbl/d.

In July 2001, angered by France's perceived support for the U.S. "smart sanctions" plan, Iraq announced that it would no longer give French companies priority in awarding oil contracts, and would reconsider existing contracts as well. Iraq also announced that it was inclined to favor Russia, which has been supporting Iraq at the U.N. Security Council, on awarding rights to Majnoon and another large southern oil field, Bin Umar. As of February 2003, Russian company Zarubezhneft reportedly was negotiating a contract to develop Bin Umar. The status of TotalFinaElf, which had previously expressed interest in the field, was not clear. In February 2003, TotalFinaElf said that it was confident regarding its Majnoon contract, regardless of the Iraqi government in power.

The 2.5-5 billion-barrel Halfaya project is the final large field development in southern Iraq. Several companies (BHP, CNPC, Agip) reportedly have shown interest in Halfaya, which ultimately could yield 200,000-300,000 bbl/d in output at a possible cost of \$2 billion.

Smaller fields with under 2 billion barrels in reserves also are receiving interest from foreign oil companies. These fields include Nasiriya (Eni, Repsol), Tuba (ONGC, Sonatrach, Pertamina), Ratawi (Shell, Petronas, CanOxy), Gharaf (Mashinoimport, Rosneftegasexport), Amara (PetroVietnam), Noor (Syria), and more. Italy's Eni and Spain's Repsol appear to be strong possibilities to develop Nasiriya

**Iraq's Refining Sector**

Iraq's refining capacity as of January 2003 was believed to be over 417,000 bbl/d, compared to a pre-Gulf War, nameplate capacity of 700,000 bbl/d. Iraq has 10 refineries and topping units. The largest are the 150,000-bbl/d Baiji North, 140,000-bbl/d (or higher) Basra, and 100,000-bbl/d Daura plants. During the Gulf War, both Baiji in northern Iraq as well as the refineries at Basra, Daura, and Nasiriya were severely damaged. Today, a lack of light-end products, low quality gasoline, and rising pollution levels because of a lack of water treatment facilities are some problems faced by Iraq's refining sector. Post-sanction plans had included attracting hundreds of millions of dollars worth of foreign investment in order to upgrade dozens of downstream (refining, pipelines, natural gas processing) facilities. Also, Iraq had planned to build a new \$1 billion, 290,000-bbl/d "Central" refinery near Babylon.

File last modified: March 23, 2003

For EIA's full report on Iraq, please click [here](#).

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## Definitions

### Petroleum

**WTI** – West Texas Intermediate (for the purposes of this table, prices provided are near month futures price) Cushing OK.

**Bbl** – Barrel (42 gallons).

**C's** – cents.

### Natural Gas

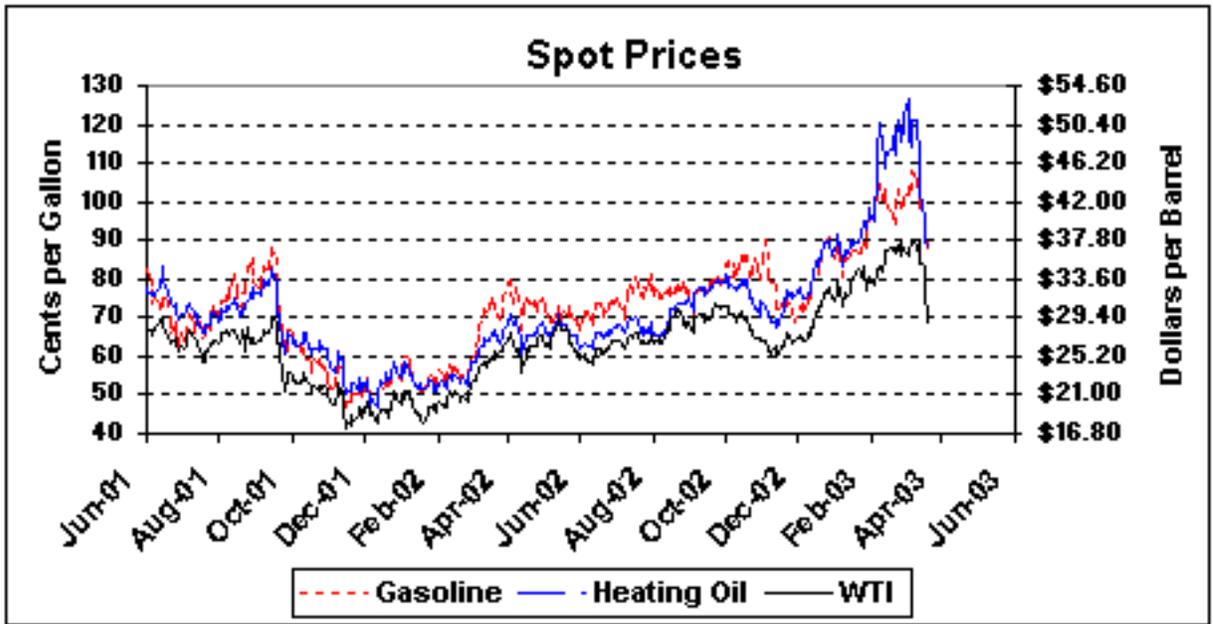
**Henry Hub** – A pipeline hub on the Louisiana Gulf coast. It is the delivery point for the natural gas futures contract on the New York Mercantile Exchange (NYMEX).

### Electricity

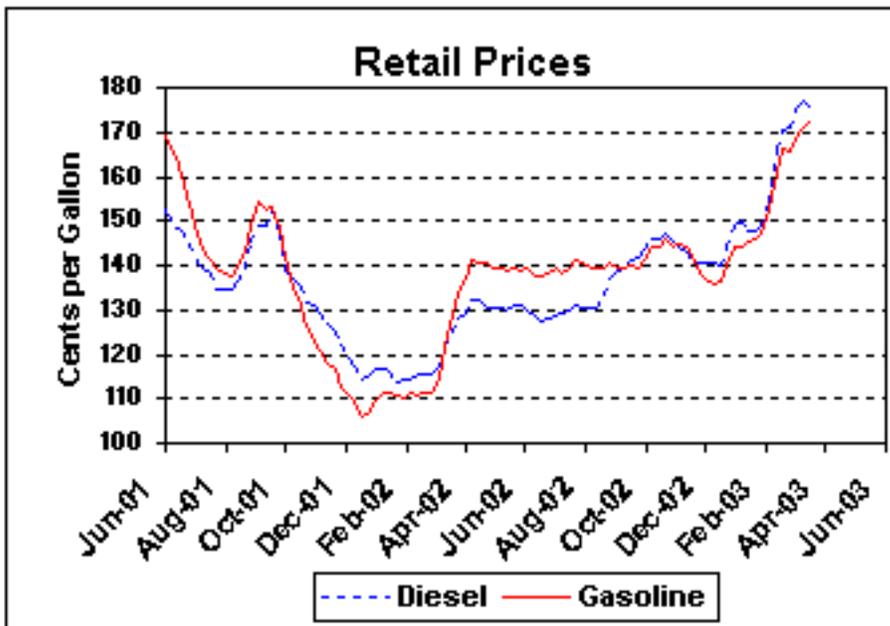
**COB** – average price of electricity traded at the California-Oregon and Nevada-Oregon border.

**Palo Verde** - average price of electricity traded at Palo Verde and West Wing Arizona.

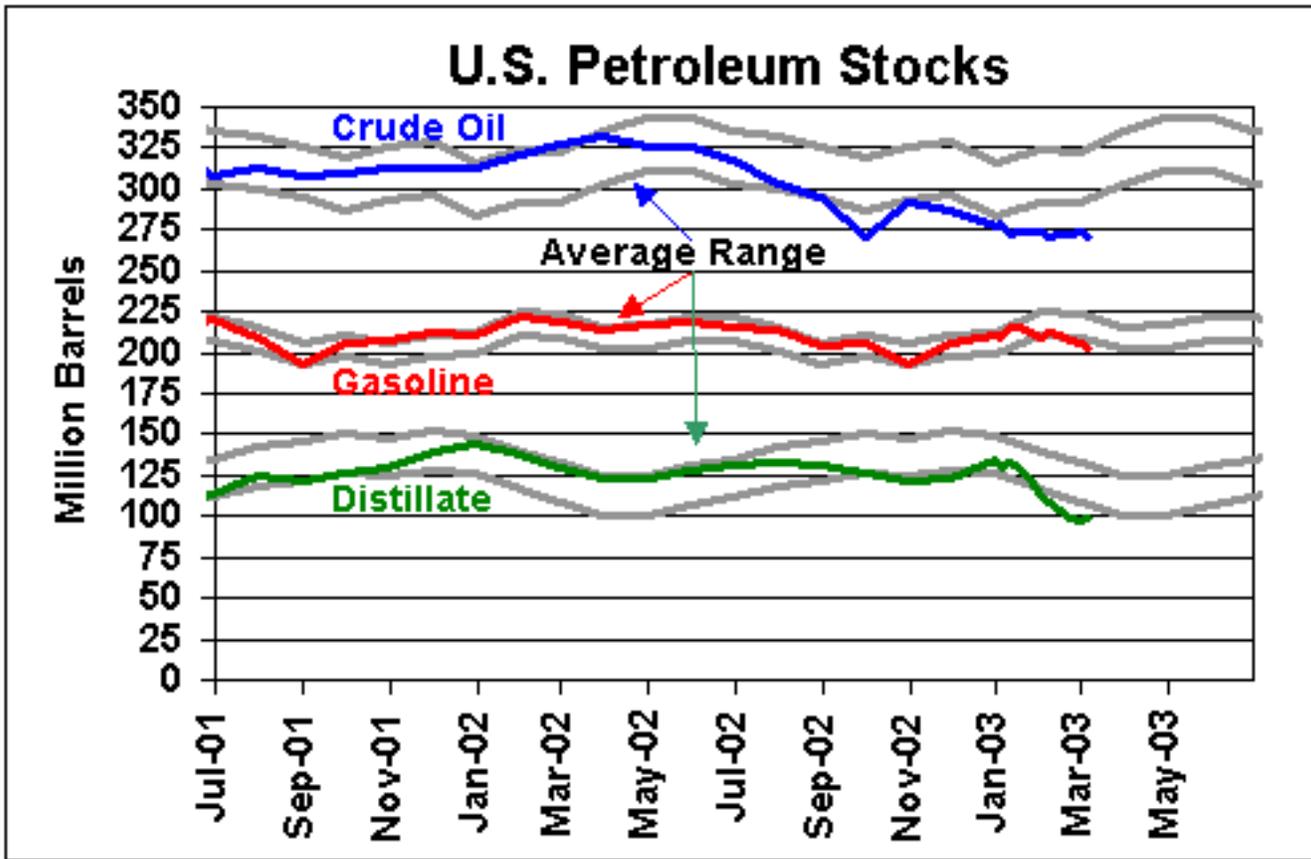
**Average** - average price of electricity traded at all locations.



Source: Closing quote as reported by Reuters News Service

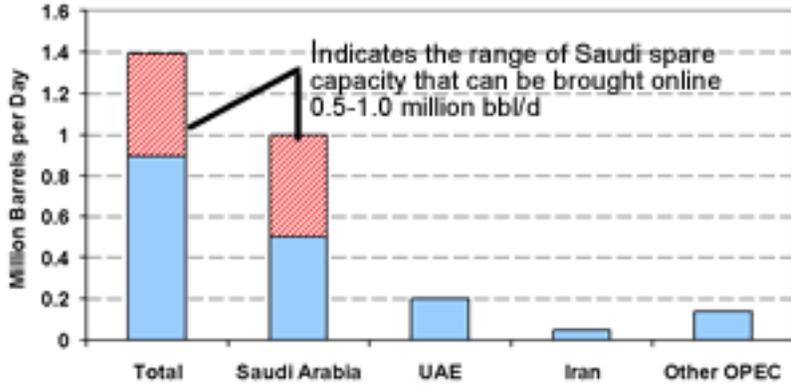


Source: Energy Information Administration (EIA)



Source: Energy Information Administration, Weekly Petroleum Status Report, Petroleum Supply Monthly.

## OPEC Spare Capacity March 20, 2003



### Major Persian Gulf Oil Producers, March 24, 2003

