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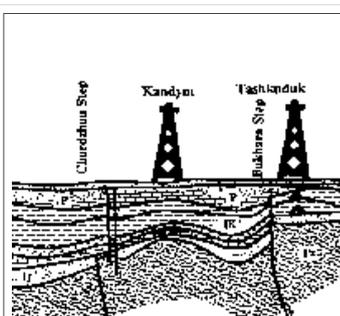
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Some interesting oil industry statistics

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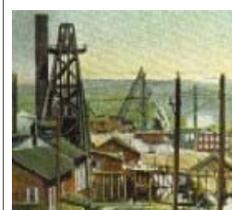
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OIL IMPORT QUIZ

What country provides the single largest volume of the US's oil imports (2001-2007)?

Click the down arrow to select answer -->

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How many refineries in the US? According to [EIA](#), 149 - but they vary greatly in terms of capacity. See also [this EIA page](#).
[List of refinery capacity](#)

Does the U.S. export oil? Surprisingly, yes - but the amount is trivial, about 20,000 barrels per day vs. our 10,000,000 and more b/d imports. All exported crude goes to Canada, where it is likely refined and sent back as gasoline. [More info.](#)

Essay: [What's the Deal With Oil?](#)

Why don't I have everything updated using the most recent data? Because I have to make a

[by state.](#)

living, and with all the changes going on I'd do nothing but update this page. All the data are out there for anyone to find - I don't have a secret source. Explore the [EIA Web Site](#).

In the time it takes most people to read this sentence, the world will have used up (forever) about 8,000 barrels - 336,000 gallons - of oil. At 1000 barrels per second, it's going fast.

[Great Article](#)

MOST FREQUENTLY ASKED QUESTION:

I want to buy my gas from companies that don't import from the Middle East. Which ones are they?

Answer: There are essentially NO major-brand retail gas stations whose product derives from US sources only, and basically all of them have Middle East oil as a significant proportion of their source crude - because if refineries used only American oil, they would be incapable of making the volumes that we demand - a 60% shortfall. A few small regional refiner-producers may use MOSTLY American oil, but even they likely use purchased oil - with imported origins - to produce the volumes of gasoline that are demanded by the American public. In addition to all the crude imported, the U.S. must import about 66 million gallons of refined gasoline because our refineries can't make enough

[MORE.](#)

[EIA information.](#) • [Further information and opinion here \(including the bogus e-mail list that circulates\).](#)

Most frequent question #2: How many gallons of gasoline in a barrel of oil? Answer: a 42-gallon barrel of oil makes about 19.5 gallons of gasoline. Details elsewhere on these pages.

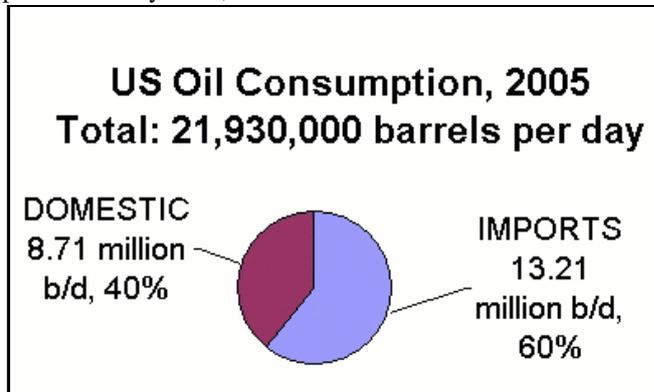
Q: Who controls the price of oil - OPEC or the Big Oil companies?

A: NEITHER. It's you and me. [More](#) • [More](#) • [Gibson's opinion](#)

Q: What can the average American do about it?

A: Conserve. Use less. Conserve. That's the only thing that will, in the long run, have any chance for significant reduction in the price of oil.

✘ **US OIL DEMAND, 2004: Over 20 million barrels per day**, up from January 2002, when demand was about 18.5 million barrels per day, = 777 million gallons. If lined up in 1-gallon cans, **they would encircle the earth at the equator almost 6 times (about 147,000 miles of cans) — every day.** Here's another image: **EVERY DAY**, the US consumes enough oil to cover a football field with a column of oil 2500 feet tall. That's 121 million cubic feet. 55-60% of US consumption is imported at a cost of \$50 billion+ per year, amounting to **the largest single element of our trade deficit.** In summer 2004, thanks to higher prices, increased demand, and lower production, record trade deficits of more than \$50 billion per month were recorded, with approximately **30% of that attributable to imported energy costs.** In September 2004, the US reported its **lowest monthly oil production in 55 years**, at an average of 4.85 million barrels per day.



U.S. gasoline consumption of 320,500,000 gallons per day (March 2005) works out to about 3700 gallons per second.

In **March 2004**, the total trade deficit was about \$46 billion for the month, and oil imports were about 11 million barrels per day x \$40 per barrel x 30 days per month = \$13.2 billion, or about a **quarter of the total trade deficit for the month.** If March served as an average for the year, the total value of oil imports for 2004 would be about \$156 billion — but this number depends on volume of imports (which is unlikely to decrease) and price of oil (which is likely to fluctuate). **UPDATE 2005: For November 2005, oil imports cost the US \$24 billion, and amounted to more than one-third of the trade deficit.** [Source](#)

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✘ US demand for natural gas is increasing, and production in many long-time prime producing areas (e.g. the Gulf Coast) is diminishing to the point of **near-total depletion.** Without significant increases in drilling (well beyond anticipated levels), demand is predicted to significantly exceed supply soon. **By 2000, US demand (22.2 tcf/year)**

Data from the Energy Info Administration: The best source of accurate information

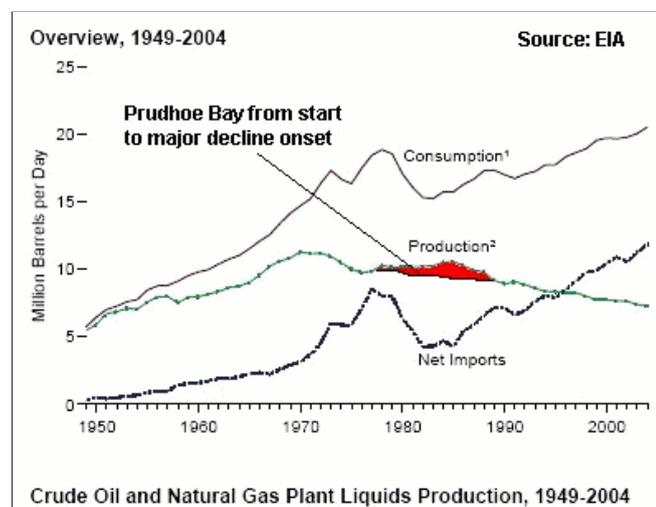
Leading suppliers of US imports
Top exporting countries
Top consuming countries

[CLICK HERE](#)

exceeded production (18.7 tcf/year) enough that about 14% of our natural gas was being imported from Canada. This may provide a window of opportunity for explorationists and producers (especially smaller operators), and may improve the domestic market for geoscientists. Note that it is currently impossible (without complex liquification) to transport natural gas across oceans -- so huge gas reserves in the Nile Delta, for example, are irrelevant to US needs.

UPDATE: Hiring of newly graduated geoscientists has increased dramatically in Fall 1996. FURTHER UPDATE: The "boomlet" of 1996-97 became the bust of 1998, when the price of oil fell to below \$10.00 per barrel, and thousands were laid off. By late 1999, things were looking up again. The short-term of the cycle swings is taking many people by surprise. For much of 2000-2002, prices have been fairly stable in the \$20s per barrel. 2005: Companies are once again using creative means to keep their personnel; with high prices, experienced geoscientists and engineers can, to some extent, write their own tickets.

Top producing countries US Refining capacity US Production by state and much much more	
Companies that import oil Sources of gasoline How gasoline is priced Sources of US oil imports	Company-level import data Where does gasoline come from Import sources Crude Oil Data page Largest Oil & Gas Fields (PDF) Top 50 US Oil & Gas Producing Companies (PDF - go to Table 6A, near the bottom)



US PRODUCTION, early 2002: About 5.9 million barrels of oil per day, plus about 2 million barrels of natural gas liquids and condensate; and 55 billion cubic feet of gas per day. Oil production is a decline from 8-9 million b/d in 1986. **Update, 2005: at the end of 2005, US crude oil production stood at 4.86 million b/d, the lowest value in more than 50 years. Imports (10.01 million b/d) amounted to 67% of consumption.** As shown in the figure at left, even when US production was at its peak in 1970 (and accounted for more than 40% of all the oil produced in the world), it could not keep up with consumption. Today's 21 million barrels per day consumption FAR outpaces our domestic production of 4.86 million barrels per day. **Prudhoe Bay's** contribution is shown in red. **US oil consumption exceeds the total of the next 5 largest consumers - China, Japan, Russia, Germany, and India COMBINED.** [Source](#) • From 1990 to 2007, US production decreased by 31% at the same time as consumption increased by 24%.

World's other largest producers: **Former USSR** (once the world's largest producer) production has declined more than 30% since 1988, from more than 12 to about 8 million barrels per day. In the early 2000s, production in Russia is recovering, and new production in Kazakhstan is coming onstream. **Saudi Arabia** produces about 5 to 9 million barrels per day (7.3 million in early 2002; production depends more on OPEC quotas and prices than on real capability).

US crude-oil production capacity, about 5 million barrels per day, is accomplished with about **510,000 oil wells, averaging 10.5 barrels per well per day.** (That's more than half of all the producing oil wells in the world. [World Oil list of wells by country in 2000.](#) The country with the most wells, after the US, is Russia at about 110,000; then China with around 80,000, and Canada with 68,000. World total producing oil wells is about 880,000.) **Saudi capacity**, at about 8-9 million barrels per day, is from **1500 wells** — averaging more than 5,000 barrels per well per day. The best well in the onshore 48 states is in Grant Canyon Field, Nevada, producing about 4000 barrels per day from sucrosic Devonian dolomites in a small fault block. **UPDATE:** 1997 discoveries in the Williston Basin are producing up to 6,000 barrels per day from Mississippian Lodgepole carbonate mounds. **These are the best wells in the onshore 48 states in decades -- but the Gulf of Mexico is the US hot spot for current exploration and production. THE FACT THAT THE US ALREADY HAS 510,000 wells is just one reason why we cannot simply "drill more wells" to achieve a fictional energy independence, as many Americans naively suggest. Most of the oil in the US has already been found and produced - the peak of US oil production happened in 1970, and it can NOT be achieved again.**

In 2003 the four largest U.S. refining companies [\[Click here for an Informative Quiz\]](#) controlled a little more than 40 percent of the nation's refining capacity. In contrast, the top four companies in the auto manufacturing, brewing, tobacco, floor coverings and breakfast cereals industries controlled between 80 percent and 90 percent of the market. [\[Source\]](#)

How many gallons of gasoline come from a barrel of oil?
Each 42-gallon barrel makes about 19½ gallons of gasoline.

Oil and Gas are used for much more than fuel. Every time you brush your teeth (nylon bristles), drink milk or soda from a plastic container, or play a plastic CD, **THANK A GEOLOGIST!** 
And let's not forget that 52% of the US's electricity is still generated by burning coal. The rest of our electricity (January 2005) is produced by nuclear plants (20%), burning natural gas (15%), burning oil (3%), hydropower (7%), and other such as burning

The US uses up to 10 calories of fossil fuels to produce one calorie of food. Ponder the impact on our

[MORE](#)

wood, geothermal, solar, wind, and miscellaneous (2%). In contrast to US usage, France obtains about 75% of its electricity supply from nuclear energy sources. The US produces twice as much electricity from nuclear sources as France, although that is only 20% of the US total.

food supply of a declining oil supply. [Source](#)

In terms of total US energy usage, the breakdown by source is given in the following table (for late 2001):

Energy Source	Percentage of total
Petroleum	42%
Coal	24%
Natural Gas	20%
Nuclear	8%
Hydro power	2%
Solar, Wind, etc.	2%

✘ The US oil industry lost more than 1,000,000 jobs from 1986-92, more than the more-publicized auto and steel industries combined.

Seven Sisters & Standard Oil

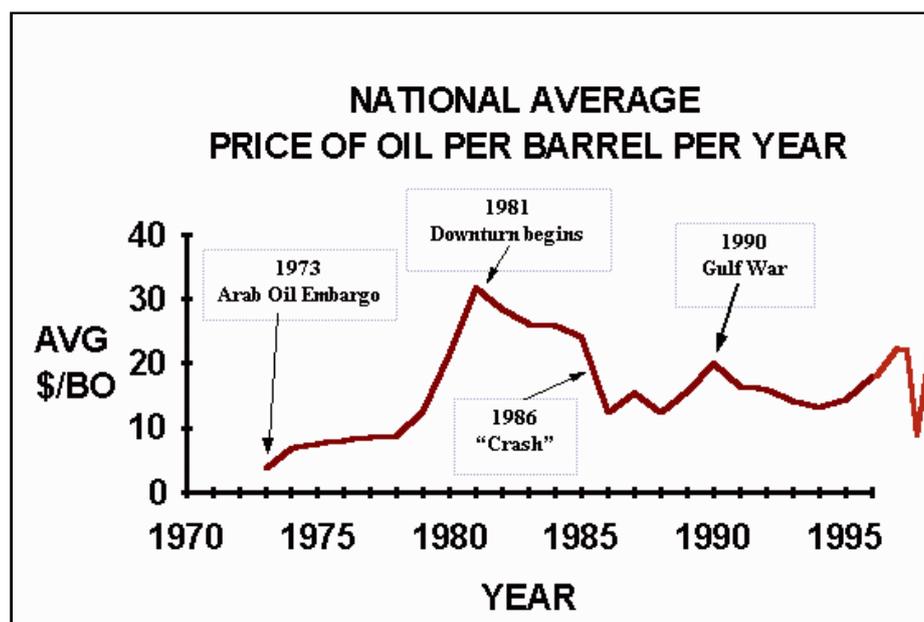
✘ The original **Seven Sisters** were **Exxon** (or Esso, Humble, Standard of NJ), **Shell**, **BP** (British Petroleum, originally Burmah Oil + Anglo-Iranian), **Gulf**, **Texaco**, **Mobil** (Standard of NY, or Socony-Vacuum), and **Chevron** (Standard of California). Since Gulf Oil no longer exists (acquired by Chevron in 1984) except as Gulf Canada and a marketing company in the northeast US, **Amoco** (Standard of Indiana) was often added to the list of six; but in 1998, Amoco was acquired by BP to form BP Amoco, while Exxon was acquiring Mobil; and Chevron and Texaco merged in 2001-2002.

[Click here for a graphical representation of the Standard Oil heritage of several multi-national oil companies, following the 1911 break-up of the Standard Oil Trust.](#)

LARGEST OIL COMPANIES

As noted above, Exxon and Mobil have merged, and BP Amoco acquired ARCO. If I have counted correctly, **three companies, BP Amoco, ExxonMobil, and ChevronTexaco, combine within them no fewer than 14** of the 35 Standard Oil Trust companies that were divested from Standard in 1911. For much more, and more authoritative, information about Standard Oil and its history, visit ["Whatever Happened to Standard Oil."](#)

★ A 28-year oil price chart is given below. ★
(data from [Energy Information Administration](#), chart by Gibson Consulting)
[Much more and better information here](#)



OIL

In the history of the world, according to AAPG presidential address, April 1993,

750 billion barrels have been produced.
 1000 billion barrels are known in the ground
 1000 billion barrels are estimated undiscovered
[World proved reserves: 1,081 to 1,293 billion barrels](#)

2 trillion is a common number you see for unproduced oil - but by no means does everyone agree on that number. "Peak Oil" people say half of all that can be produced has been produced (or soon will be) and half remains - maybe 1 trillion produced, 1 trillion remaining. [A "Peak Oil" site](#). • [One more](#) • [And another](#).

A note about numbers:

You'll see statistics like those posted here that may be substantially different. You need to be aware of what you are comparing. Is it just crude oil production, importation, or consumption? Or is it crude + "natural gas liquids"? Or maybe it includes petroleum products, such as refined gasoline. Numbers do change from month to month and year to year, of course. Are you looking at Russia, or the Former Soviet Union (which includes Russia, Kazakhstan, Azerbaijan, and other independent nations)? Is the percentage you find the percentage of consumption, or the percentage of imports? There are many, many different ways of looking at data. Just be aware.

Personal note about bias: When this page started, in 1996, it really was mostly "interesting oil statistics" - largest fields and so on. It has evolved, as my personal interests and those of the page's viewers have evolved, to be a hodgepodge of information about a lot of complex things. I have tried **VERY HARD** to make this page be objective and free of bias - but it is done by a human being, and it is impossible to remove all my bias, even though as a scientist (geologist) I try to do that.

By way of background, in the late 1990s I really thought the "peak oil" people were crazy, or at least "doomsayers" and pessimists. Oil exploration people (like me) tend to be optimistic - you have to be, since you fail so often. But in the past 5 to 7 years, I've come to feel, largely through creating this compilation, that the "peak oil" people are a lot closer to right than are the "sweetness-and-light-and-nothing-is-really-wrong" crowd. I don't KNOW that - but based on what I can see and read with my own eyes, there is little question that Americans' oil guzzling will bring us to a fall, likely sooner rather than later. So, there, now you know my bias. Read this page with that in mind - but please also know that I still am trying very hard to keep it as objective as possible.

—Dick Gibson

☒ **WORLD PRODUCTION/CONSUMPTION:** Production in 2004 averaged about **83.02 million barrels per day**, about equal to the world consumption at **82.46 million barrels per day in 2004 (up from about 74 million b/d in 2002)** [Source](#). Consumption is increasing at a faster rate than the increase in production. And at the end of 2005, World demand was expected to exceed world refinery capacity for the first time - demand of 84 million barrels per day vs 83.5 million barrels per day refinery capacity.

20 largest oil producers, in million barrels per day:
 (source: mostly Oil & Gas Journal, World Oil, and EIA)

20 largest oil producers

Country and 2004 rank	Estimated Reserves (billion barrels, 2006) Source	2004 Production Includes Crude Oil, NGL, Condensate, Refinery Gain
1. Saudi Arabia	267 billion bbl	10.4 mb/d
2. Russia	60	9.3 mb/d
3. USA	21	8.7 mb/d Crude oil = <5.2 mb/d
4. Iran	132	4.1 mb/d
5. Mexico	13	3.8 mb/d
6. China	18	3.6 mb/d
7. Norway	8	3.2 mb/d
8. Canada	179 (includes tar sands)	3.1 mb/d
9. Venezuela	79	2.9 mb/d
10. United Arab Emirates	98	2.8 mb/d
11. Kuwait	104 (some sources say 48 billion - the difference is 5% of world reserves)	2.5 mb/d
12. Nigeria	36	2.5 mb/d
13. United Kingdom	4	2.1 mb/d
14. Iraq	115	2.0 mb/d
15. Other FSU Mostly Kazakhstan + Azerbaijan	47	1.9 mb/d
16. Algeria	12	1.7 mb/d
17. Brazil	11	1.5 mb/d
18. Libya	39	1.5 mb/d
19. Indonesia	4	1.1 mb/d
20. Angola	6	0.9 mb/d

In 1996, the USA was the world's leading producer, with about 7.5 million barrels per day.

Note: Former Soviet Union production has dropped from the **highest in the world**, at around 12 million b/d in the late 1980s, but it has stabilized since 1993 and began to increase significantly by 1998. "Other Former Soviet Union" production is mostly Kazakhstan and Azerbaijan.

The 20 countries on this list produce about 57 million b/d, about **87% of world production**. OPEC countries account for about 24 million b/d, or 40% of world production.

Are you surprised to see **Norway** so high on this list? There are very few sedimentary rocks onshore Norway. All of this production comes from offshore, in the **North Sea**.

For 2005, Oman, Egypt, and Colombia dropped out of the top 20, replaced by "other FSU", Algeria, and Angola.

☒ Texas contains/contained about **15 billion barrels** (East Texas Field, at about 5 billion, is the largest field in the 48 states. It is a regional stratigraphic trap in Upper Cretaceous fluvio-deltaic sandstones.)

☒ **Prudhoe Bay** = 13+ billion barrels. It is a broad culmination on the Barrow Arch, and the reservoirs are transgressive marine to non-marine conglomerates and sandstones of Triassic age. The reservoir contains a lot of gas, too - about 25 trillion cubic feet.

The following table is based on various sources and is as accurate as I could make it. It represents **CUMULATIVE** production, not current production, PLUS estimated reserves, so it is a measure of all the recoverable oil that was/is contained in the fields. Some, such as East Texas and most of the California fields, have been producing since the 1930s and are significantly depleted. Most (more than 10 billion barrels) of Prudhoe Bay's oil has been produced. SEE ALSO [this EIA PDF](#) which ranks oil and gas fields by different criteria. Other compilations will rank fields differently - for example, according to the California Department of Conservation, Midway-Sunset Field will have an ultimate recoverable resource of about 3.5 billion barrels, moving it to #3, while Belridge South may have 1.9 billion barrels, moving it onto the list below. [Thanks to Mr. Greg Hodson for those data, indicated below in brackets. [Click here](#) to go to the PDF of these data; go to page 4.] I'm unable to evaluate the various estimators, so use this list as a starting point.

12 largest oil fields in the US

Field, State	Cumulative Production + Est. Reserves
1. Prudhoe Bay, Alaska	13+ billion barrels
2. East Texas	5.1-6.0 billion barrels
3. Wilmington, California	2.8 billion barrels [or up to 3.0]
4. Midway-Sunset, California	2.8 billion barrels [or up to 3.5]
5. Kuparuk River, Alaska	2.6 billion barrels
6. Thunder Horse, Gulf of Mexico	1.5-2.0 billion barrels
7. Kern River, California	1.95 billion barrels [or up to 2.5]
8. Yates, West Texas	1.95 billion barrels
9. Belridge South, California	1.9 billion barrels
10. Wasson, West Texas	1.8 billion barrels
11. Elk Hills, California	1.5 billion barrels [or 1.3]
12. Panhandle, Texas	1.4 billion barrels

☒ The largest oil field in the world (**Ghawar in Saudi Arabia**) contains an estimated ultimate recoverable **75-85 billion barrels of oil**, or nearly 6 times Prudhoe Bay, in Upper Jurassic shallow-water carbonates in a broad anticline.

☒ Chevron is working with Kazakhstan and others to develop the huge **Tengiz field** near the Caspian Sea (estimates run from 15 to 26 billion barrels recoverable, from what amounts to an oil-filled paleo-atoll, or reef) with a goal of producing about **700,000 barrels per day from this one field** -- equal to more than 10% of the oil production of the entire United States.

Numbers in the following table are mostly ranges for estimated ultimate recoverable reserves, **NOT** oil remaining. Sometimes you see larger numbers that represent original oil in place (OOIP) -- all of which cannot be produced. Some of the fields in this list are essentially completely depleted (e.g., Romashkino and Prudhoe Bay). "In decline" in the table means the field has passed its peak by most reliable sources I found. Others are uncertain, but except for Tengiz and Kashagan all these fields are pretty old and have had a large proportion of their oil produced. **Reserve estimates and the methods to obtain them are sometimes controversial or tainted by political considerations, and are sometimes re-stated with dramatic changes - so don't believe everything you see here (or anywhere else).** SEE ALSO [this PDF from Matthew Simmons](#), which includes a list of giant fields ranked by current production rather than total size. Simmons indicates that, in addition to the "in decline" fields listed below, Ghawar, Kirkuk, Rumailia, Abqaiq, Safaniya, Marun, Gachsaran, and Berri, at least, are also past their peaks and in decline - some, such as Gachsaran (discovered in the 1920s) in severe decline.

24 largest oil fields in the World

Field, Country	Size estimate
1. Ghawar, Saudi Arabia Saudi fields overall are in decline at 2% to 8% a year. Source	75-83 billion barrels
2. Burgan, Kuwait • <i>in decline</i>	66-72 billion barrels
2a. Cantarell, Mexico • <i>in decline</i> (often listed as a large complex of multiple smaller fields)	35 billion barrels OOIP 18 billion recoverable
3. Bolivar Coastal, Venezuela	30-32 billion barrels
4. Safaniya-Khafji, Saudi Arabia/Neutral Zone	30 billion barrels
5. Rumailia, Iraq	20 billion barrels
6. Tengiz, Kazakhstan • <i>significant production to come</i>	15-26 billion barrels
7. Ahwaz, Iran • <i>in decline</i>	17 billion barrels
8. Kirkuk, Iraq	16 billion barrels
9. Marun, Iran	16 billion barrels
9a. Daqing, China • <i>in decline</i>	16 billion barrels
10. Gachsaran, Iran	15 billion barrels
11. Aghajari, Iran	14 billion barrels
12. Samotlor, West Siberia, Russia • <i>in decline</i>	14-16 billion barrels
13. Prudhoe Bay, Alaska, USA • <i>in decline</i>	13 billion barrels
13a. Kashagan, Kazakhstan • <i>significant production to come</i>	13 billion barrels
14. Abqaiq, Saudi Arabia	12 billion barrels
15. Romashkino, Volga-Ural, Russia • <i>in decline</i>	12-14 billion barrels
16. Chicontepec, Mexico	12 billion barrels
17. Berri, Saudi Arabia	12 billion barrels
18. Zakum, Abu Dhabi, UAE	12 billion barrels
19. Manifa, Saudi Arabia	11 billion barrels
20. Faroozan-Marjan, Saudi Arabia/Iran	10 billion barrels
21. Marlim, Campos, Brazil • <i>in decline</i>	10-14 billion barrels

Natural Gas

✘ The largest gas fields in the world are in the **West Siberian Basin** (including Urengoy, Yamburg, Zapolyarnoye), and contain more gas (**well over 1200 trillion cubic feet** for the whole basin) than in all the known gas fields in the US, including Alaska (the US has a lot of additional gas associated with oil fields). The Siberian gas reservoirs are Cretaceous fluvial clastics in drape anticlines above Triassic-Jurassic horsts.

The following table shows **estimated proved gas reserves** for the top 16 countries. Numbers for gas reserves may be misleading, as they may or may not include "associated" gas (as in associated with oil fields). Source for both of the following tables is mostly the US [Energy Information Administration](#), which has a very useful web site for statistics.

12 top natural gas countries (by reserves, 2005)

Country	Reserve estimate
World	6,300 trillion cubic feet
1. Russia	1,680 trillion cubic feet (some say 2,300 tcf)
2. Iran	940 trillion cubic feet
3. Qatar	910 trillion cubic feet
4. USA	265 trillion cubic feet
5. Saudi Arabia	235 trillion cubic feet
6. United Arab Emirates	212 trillion cubic feet
7. Nigeria	176 trillion cubic feet
8. Algeria	161 trillion cubic feet
9. Venezuela	151 trillion cubic feet
10. Iraq	110 trillion cubic feet
11. Kazakstan	106 trillion cubic feet
12. Turkmenistan	102 (maybe 535) trillion cubic feet
13. Indonesia	90 trillion cubic feet
14. Malaysia	87 trillion cubic feet
15. Norway	84 trillion cubic feet
16. China	79 trillion cubic feet

Specific values for gas field sizes are even harder to pin down. The following list is not necessarily in exact order and would change with other estimators; it is not perfectly clear in each case whether cumulative production or estimated remaining reserves is meant. There are some 20 fields in West Siberia that exceed 35 TCF each. Many reporters list Qatar's North Dome as the largest gas accumulation in the world (especially when combined with adjacent South Pars field in the Persian Gulf). **Use this table as a starting point.** Numbers are in trillion cubic feet (TCF) and should be viewed as ball-park figures. SEE ALSO [this EIA PDF](#) which ranks US oil and gas fields by remaining reserves and by current production level.

22 largest natural gas fields in the World

Field, Country	Size estimate
1. North Dome - South Pars, Qatar-Iran	up to 1,200 trillion cubic feet (950 in Qatar)
2. Urengoy, West Siberia, Russia	>275 trillion cubic feet
3. Yamburg, West Siberia, Russia	prob. >200 trillion cubic feet
4. Orenburg, Volga Region, Russia	prob. >200 trillion cubic feet
5. Shtockmanov, Barents Sea, Russia	prob. >200 trillion cubic feet
6. Umm Shaif + Abu el-Bukush, Abu Dhabi	175 trillion cubic feet
7. Zapolyarnoye, West Siberia, Russia	150+ trillion cubic feet
8. Kharasevey, West Siberia, Russia	150+ trillion cubic feet
9. Bovanenko, West Siberia, Russia	125 trillion cubic feet
10. Medvezh'ye, West Siberia, Russia	100+ trillion cubic feet
11. Hassi R'Mel, Algeria	100 trillion cubic feet
12. South Pars, Iran	100 trillion cubic feet
13. Panhandle-Hugoton, USA (TX-OK-KS)	80 trillion cubic feet
14. Groningen, Netherlands	66 trillion cubic feet
15. Ghawar Oil Field, Saudi Arabia	60 trillion cubic feet
16. North Pars, Iran	48 trillion cubic feet
17. Dauletabad-Donmez, Turkmenistan	47 trillion cubic feet
18. Karachaganak, Kazakstan	46 trillion cubic feet
19. Shatlyk, Turkmenistan	35 trillion cubic feet
20. Yashlar, Turkmenistan	27 trillion cubic feet
21. Blanco (San Juan), USA (NM)	23 trillion cubic feet
22. Gazli, Uzbekistan	20 trillion cubic feet

USA

✘ In the U.S., about **35%** of oil and gas production comes from reservoirs of Tertiary age (largely in the Gulf Coast and California); about **25%** is from reservoirs of Pennsylvanian age (West Texas, Rockies, Midcontinent), and about **12%** is from reservoirs of Cretaceous age. Sandstone reservoirs account for **70%** of fields; limestone = **16%**; dolomite = **11%**.

✘ The **Offshore US Gulf of Mexico** has become one of the "hottest" exploration areas in the world, just a few years after many had declared it the "Dead Sea" for exploration potential. Dramatic improvements in **3-D Seismic technology** (increasing success rates to as much as **80%**, up from less than 40%) and deepwater drilling methodology are largely the basis for this resurgence. And several very nice discoveries have not hurt one bit. Reserves in discovered deep-water (>500 meters) fields alone are estimated at nearly **1.5 billion barrels**, with two fields (Shell's Mars and BP's Crazy Horse, renamed Thunder Horse) at about 100,000,000 barrels or more. [Where does oil enter the US? \(external link\)](#)

US Petroleum Consumption and Production changes (data from EIA)		
Year	Consumption change from previous	Production change from previous
1990		
2001	+16%	-22%
2002	+0.6%	-0.8%
2003	+1.4%	-1.3%
2004	+3.5%	-4.6%
2005	+0.6%	-4.4%
2006	-0.5%	-1.5%
2007 (9 mo.)	+0.5%	-0.05
2008		

Leading Oil Producing States (barrels/day in 2005 and % change from 2004)

Louisiana: 1,463,000	-1.6%
Texas: 1,331,000	-6.7%
Alaska: 894,000	-5.1%
California: 723,000	-2.0%
Oklahoma: 177,000	0.0%
New Mexico: 171,000	-4.5%
Wyoming: 144,000	+2.1%
North Dakota: 91,000	+12.3%
Kansas: 88,000	-5.4%
Montana: 73,000	+14.1%

✘ The top ten producing states by current daily production are given in the table at left. Illinois is not a present-day big producer, but until about 1970, Illinois was the 4th largest cumulative producer of oil (after TX, LA, and OK). The dramatic percentage increases in [North Dakota](#) and [Montana](#) reflect very active exploration and new discoveries in the Williston Basin, which will likely push these two states to significantly higher levels of production within a few years.

✘ **IN 1994, U.S. OIL IMPORTS EXCEEDED 50% OF CONSUMPTION FOR THE FIRST TIME. In 1999, US imports were about 11 million barrels per day, compared to our domestic production of 6 million barrels per day. You do the math.**

Dick Gibson is available to speak on the topics on this page.
Visit our [Speaker's Bureau](#) for details.

SOURCES OF US OIL IMPORTS

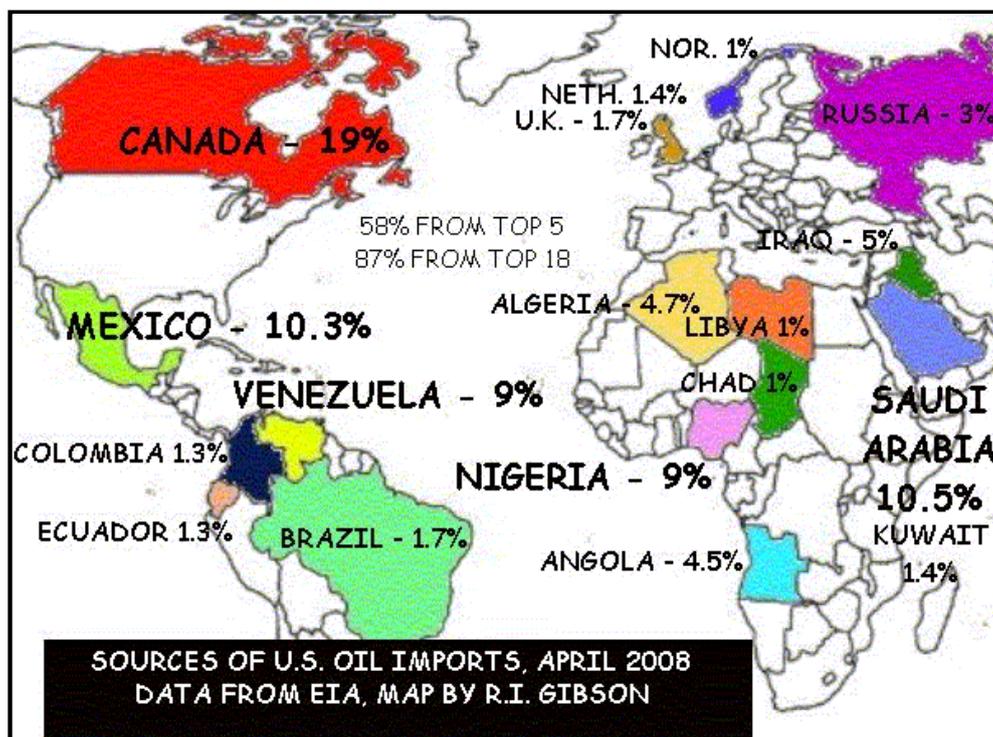
The Map below is based on data from Energy Information Administration for 2003, and includes both imported crude and petroleum products (see note and table below the map for 2001-2002). Canada, Saudi Arabia, Mexico, and Venezuela are the leading suppliers. The map shows all countries that supply 1% or more of our imports, and the countries shown total about 85% of all imports.

2004 UPDATE: US Imports total about 61% of consumption: 13.12 million barrels per day in July 2004, out of total consumption of 21.4 million barrels per day. At the end of 2005, US production was at the lowest point since the late 1940s (4.86 million b/d) and imports accounted for 67% of total consumption.

Which companies import oil?

ANSWER: [Read this](#) and [this](#) and [this](#) and [this](#).

NOTE ON IMPORTS FROM IRAQ: US oil imports from Iraq have fluctuated greatly over the past 15 years. In 1990, imports from Iraq accounted for about **6.4%** of our imports. From 1991 to 1996, due to sanctions, Iraq provided **NO** exports to the US. In 1999 (average **6.7%**), 2000 (**5.4%**), 2001 (**6.7%**), and 2002 (**3.9%** - **yes, less than four percent**), amounts varied a lot from month to month. More data at [Energy Info. Administration](#)



In 2002, Canada led the world in our sources of imports, at 17%, with Saudi Arabia (13.7%), Mexico (13.5%), and Venezuela (12%) in a virtual three-way tie for second. The year before the percentages were Canada - 15.4%, Saudi Arabia - 14%, Venezuela - 13%, and Mexico - 12.1%. Canada has been the leader since at least 2001. In 2002, US imports from the Persian Gulf region amounted to 19.8 percent of our total imports. The same year, a total of 40% came from OPEC member nations -- which include countries such as Venezuela and Indonesia that are outside the Persian Gulf.

[More Information](#)

While the countries on the map above supply the greatest proportion of US crude and products imports, in January to March 2006, the US also imported crude oil and/or refined products from Argentina, Australia, Azerbaijan, Bahrain, Belarus, Belgium, Bolivia, Brazil, Brunei, Cameroon, Chad, Chile, China (both mainland and Taiwan), Congo (Brazzaville), Costa Rica, Denmark, Egypt, El Salvador, Estonia, Finland, France, Gabon, Germany, Guatemala, Hungary, India, Indonesia, Italy, Ivory Coast, Jamaica, Japan, Kazakhstan, Latvia, Libya, Lithuania, Malaysia, Midway Islands, Netherlands, Netherlands Antilles, Oman, Peru, Poland, Portugal, Qatar, Romania, Russia, Senegal, Singapore, South Africa, Spain, Sweden, Syria, Thailand, Tonga, Trinidad and Tobago, Turkey, Turkmenistan, Ukraine, United Arab Emirates, Uruguay, Viet Nam, and Yemen. [Source](#)

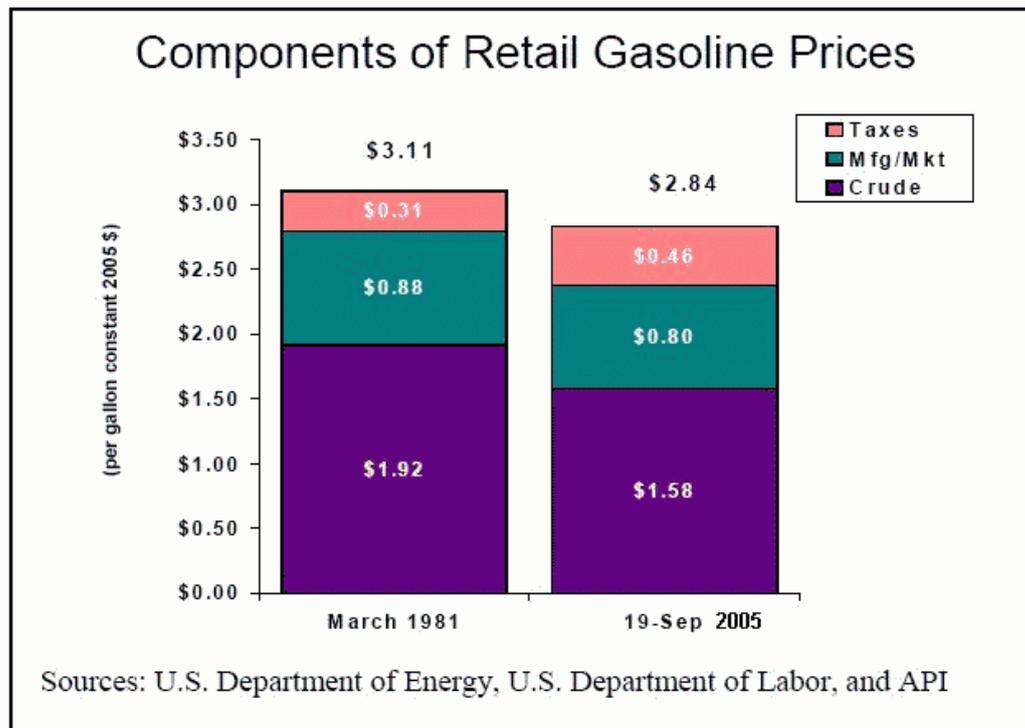
World Consumers and Importers 2003: see [EIA here](#) for more info.

Leading Oil Consumers	Leading Oil Importers	Leading sources of US imports
USA (20 million barrels per day)	USA (11.1 million b/d)	Canada (17%)
China (5.6)	Japan (5.3)	Saudi Arabia (14.5%)
Japan (5.5)	Germany (2.5)	Mexico (13%)
Germany	South Korea (2.2)	Venezuela (11%)

Why are gasoline prices so high?

THEY AREN'T.

Compared to 1981, inflation adjusted-prices today are 27 cents CHEAPER than the \$3.11 all-time high (inflation-adjusted) gasoline cost in March 1981. [SOURCE](#). For one example of a 1979-2005 inflation-adjusted and nominal price chart for gasoline, [click here](#). And [here](#) is another version.



Some Factors in the cost of gasoline in the US

For an alternative view of costs that go into oil and gasoline, including things that are difficult to quantify, such as the cost to the environment and costs of military and political defense of oil reserves, visit [Greenpeace](#). [This article](#) will show some of the hidden oil you use in having breakfast. For the realistic perspective of a "Peak Oil" believer, [Click Here](#). • © 2007 Gibson Consulting.

[A useful essay about how oil prices come about](#)

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The price of Crude is up - approaching \$100 per barrel.

This is because worldwide supply is tight and 1) gasoline **demand in the US is up** despite high prices - 4.3% more than 2003. Americans simply refuse to conserve. This is not trivial considering that the US, with 5% of the world's population, consumes 45% of the gasoline produced on earth. 2) **Gasoline demand is surging in China**, where crude oil imports increased 30% in 2003.

Refinery capacity in the US (and in the world) is near its maximum. Hurricanes Katrina and Rita impacted some refineries. Even before Katrina, average US refinery capacity was much less than US gasoline consumption [More info](#). **Oil tanker capacity** for trans-oceanic shipping is also 100% reserved for the foreseeable future, and shipping costs have nearly tripled [more info](#).

The **US deficit, around \$500 billion in 2004, causes the value of the dollar to decline**. Because oil is priced in dollars, no matter where in the world it comes from, producers want higher prices in order to maintain their income.

The US Government is buying at these high prices supplies for the **strategic petroleum reserve**. A minor impact, but some.

Local requirements for special gasoline blends to meet environmental regulations result in smaller batches, which are more expensive for refineries to produce. Applies especially to California.

Costs reflect **distance from refineries (transportation cost)**. In the US, 50% of gasoline is refined in the Gulf Coast.

Variations reflect local taxes. Federal excise tax on gasoline is about 19¢ per gallon; state tax averages about 23¢ per gallon; in California there is an additional 7.5% sales tax.

Economic woes in Venezuela are impacting US imports more than problems in the Middle East. US imports from Venezuela were down 19% in 2003, and Venezuela, Mexico, Canada, and Saudi Arabia are the US's main suppliers, normally at about 15% each — but Venezuela in 2003 only provided about 12% of our imports (see table above).

Any time there is a problem with a **pipeline or refinery**, it can impact the supply of gasoline at least in local markets, and the price can spike.

Credit card fees paid by retailers amount to about 3.5%, or 7 cents a gallon at \$2.00 per gallon. This is more than enough to eliminate all profit for the retailer, and in many cases results in an actual loss of several cents per gallon -- absorbed either through increased pump prices or in other elements of a retailer's business. Retailers with no other sources of profit may go out of business, further restricting ability to deliver gasoline. So don't blame the corner gas station -- even the company-owned ones. The latter may absorb such losses through profits elsewhere in the system, but a loss is still a loss.

Even with all of this, the true price of gasoline has **fallen more than 40%** from its inflation-adjusted price of \$3.11 per gallon in 1980-81. And in the US, at \$2.50 per gallon (2005), we pay about **one-half to one-third of the price** western Europeans and others have paid for many years. Icelanders pay about \$6.12 per gallon (2004). Much of that cost is in national taxes that support health care and other programs.

Although the price of oil is ultimately governed by **supply and demand** -- with the greatest demand in the US (25% of world oil consumption; 45% of world gasoline consumption) and two-thirds of US demand in the **transportation sector** -- nervousness on the part of oil traders also impacts the short-term price. For example, in early 2006 **real** (e.g., Nigeria's shut-in 500,000 barrels per day of production) and **perceived possible** (e.g., jitters over Iran and political issues in Venezuela and elsewhere) supply problems DO result in increased prices, as buyers are willing to pay higher prices for something that they think may soon be in shorter supply.

See also the EIA page, [Primer on Gasoline Prices](#).

Costs to produce and sell a gallon of gasoline in the US

One barrel of crude oil makes about 19½ gallons of gasoline, 9 gallons of fuel oil, 4 gallons of jet fuel, and 11 gallons of other products, including lubricants, kerosene, asphalt, and petrochemical feedstocks to make plastics. [More, plus a graphic](#). The ultimate cost of a gallon of gas at the service station depends mostly on the price of crude oil, and most of the profit after expenses goes to the owner-producers of the oil, whether they are governments or oil producing companies. The following table shows an approximate breakdown of the costs that go into a gallon of gas in the US. Almost everywhere in the world outside the US, people pay MUCH more for gasoline, largely because of much larger government taxes, which amount to around \$3 to \$4 per gallon in many European countries (and which support government-subsidized health care and other programs). [Graphic comparison](#). Naturally, all the values in the table below vary from place to place; these are general estimates. "Producer" generally means the country that owns the oil - companies like Exxon and Shell and Conoco must purchase much of the oil they refine and market, more or less at the going price of crude on the world market. Long-term contracts may reduce their cost by a bit, but when the price of oil is \$60, Exxon is probably buying such oil from Saudi Arabia for something like \$58 or more.

Oil company profits: A perspective			
Earnings, Revenues, Profits (Billions) for selected companies, recent quarter, 2005			
Source: Bloomberg News, reported in AAPG Explorer Dec. 2005			
Company	Net Profit	Revenue	Profit Margin
Citigroup (banking)	\$7.1	\$21.5	33%
Microsoft	\$3.1	\$9.7	32%
Coca-Cola	\$1.3	\$6.0	21%
Procter & Gamble	\$2.0	\$14.8	14%
General Electric	\$4.7	\$41.6	11%
ExxonMobil	\$9.9	\$92.6	11%
ConocoPhillips	\$3.8	\$48.7	8%
IBM	\$1.5	\$21.5	7%
Chevron	\$3.6	\$51.1	7%
Wal-Mart	\$2.8	\$76.8	4%
Oil industry average profit margin is about 8.2%; (3rd Q. '05) for all US industry, the average is about 6.8%.			
Profits in the oil industry were easily outpaced by those of the Pharmaceuticals, Banks, Household Products, Software, Telecommunications, Semiconductors, Consumer Services, and Food, Beverage and Tobacco sectors.			

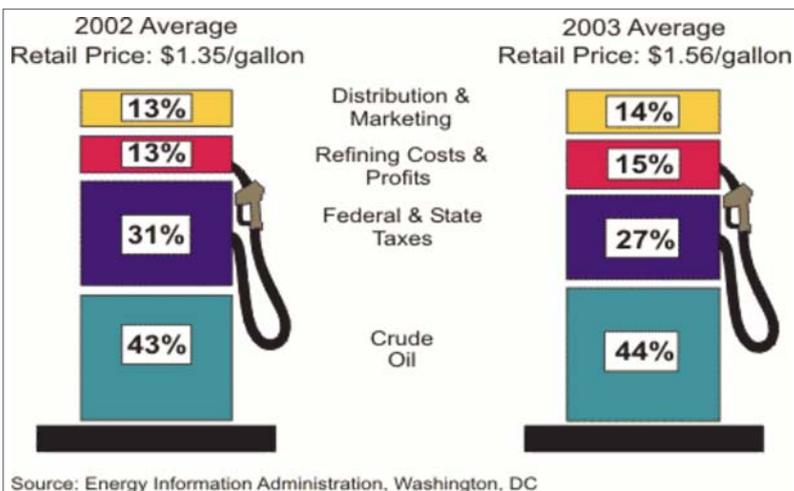
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"Production cost" includes a world-wide average of US \$7.35 per barrel in finding costs, \$3.57 per barrel in lifting cost (what it takes to operate a producing well), and \$1.00 in production taxes per barrel. 2003 numbers from [EIA](#). It is difficult to find separate figures for refining cost and profit, and the other cost/profit breakdowns, so the numbers are guesses but the totals for each category reflect percentages determined by the EIA (percentages for previous years shown in the graphic from EIA - I based the numbers in the table on \$2.70 a gallon and percentages based on the most recent information I could find - 18% refining, 16% distribution, marketing, and retailing). **If anyone has a good breakdown of transportation, marketing, and retailing costs and profits, or other data sources, please let me know.** See also the [EIA Primer on Gasoline Prices](#) and [this article](#) and this [GAO report](#) and [This One](#) and [another](#). And [Gas Q&A](#). • [See also Who](#)

sets the price of oil?

[This page](#) offers an April 2006 breakdown of the components of the price of a gallon of gasoline: 54% is the price of crude; 21% is the cost of refining; 2% is the cost of transportation; 17% is taxes; they don't list a cost for retailing and marketing; and profit to refiner, transporter, and retailer is 6%. [This page](#) shows a breakdown of the price of a gallon of gasoline in California - and makes very clear that transporters, marketers, and retailers are making very little. When transportation costs (AND profit) + marketing cost (AND profit) + retailer cost (AND profit) adds up to three cents a gallon, you know they are not making much.

Expense	Amount per gallon
Production costs	33¢
Producer profit	95¢
Refining costs	40¢
Refining profit	10¢
Transportation costs	12¢
Transportation profit	9¢
Marketing costs	4¢
Marketing profit	4¢
Retailer costs	8¢
Retailer profit	8¢
US Taxes	19¢
State taxes (avg. 23¢)	6¢ to 39¢ details
Local taxes	0 to 20¢
TOTAL	\$2.65



For a comparison of the profit margins in the oil industry to other US businesses, [click here](#) for a PDF file from the American Petroleum Institute.

World oil export leaders and their reliance on the U.S. consumer market
(numbers are in million barrels per day, 2004 data from EIA)
chart ©2006 Gibson Consulting

Country	Net Oil Exports	U.S. Imports	Reliance on U.S. Market
Saudi Arabia	8.7	1.27	15%
Russia	6.6	0.047	<1%
Norway	2.9	0.1	3%
Iran	2.5	0	0%
Venezuela	2.3	1.01	44%
UAE	2.3	0.021	<1%
Kuwait	2.2	0.27	12%
Nigeria	2.1	1.16	55%
Mexico	1.8	1.66	92%
Canada	1.8	1.8	99+%
Algeria	1.6	0.26	16%
Iraq	1.4	0.57	41%
Libya	1.3	0.051	4%
Kazakhstan	1.0	0	0%
Qatar	1.0	0	0%

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[E-mail your questions and comments](#)

Want to know more?

Gibson Consulting recommends: Read *The Prize*, by Daniel Yergin.



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Background image of drilling well in Utah in 1981 © 2000 by Dick Gibson