

# Gasoline Prices

Presentation to Superior  
Refinery Community  
Advisory Panel

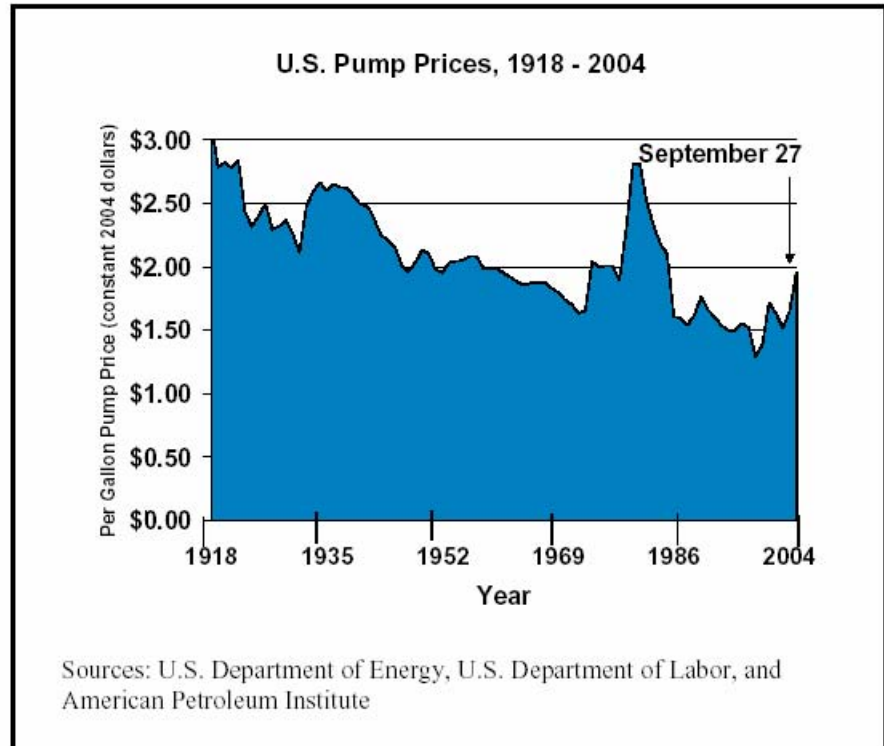
October 7, 2004

## September 27 Pump Price Update

The nationwide average retail price for all types of gasoline increased by 5.1 cents per gallon in the most recent week to \$1.96 per gallon as of September 27, 2004. The average price is now 14.5 cents per gallon less than at the May 24 high of \$2.10 per gallon, but 32.4 cents per gallon more than at this time a year ago.

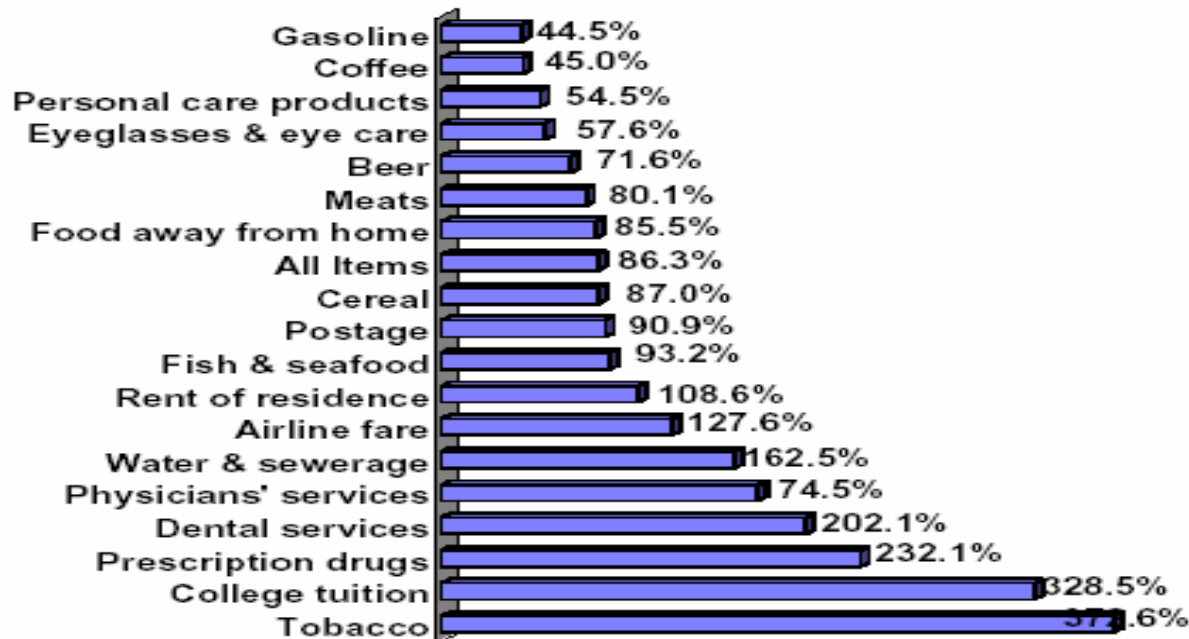
In inflation-adjusted\* 2004-dollar terms, today's price is low compared to the historical record of pump prices over the last 86 years. In fact, motor gasoline prices are 30 percent lower than the 1981 high of \$2.82 per gallon. Between then and now, the real cost of motor gasoline to consumers has fallen by \$0.86 per gallon.

This decline can be attributed largely to lower crude oil costs, but manufacturing, distribution, and marketing costs are lower as well.



# Gasoline prices have not gone up as fast as other consumer items

## Changes in the Price of Gasoline and Other Consumer Items Between 1982-84 and 2004



Source: Calculated from the U.S. Department of Labor, Bureau of Labor Statistics, Consumer Prices Indexes.

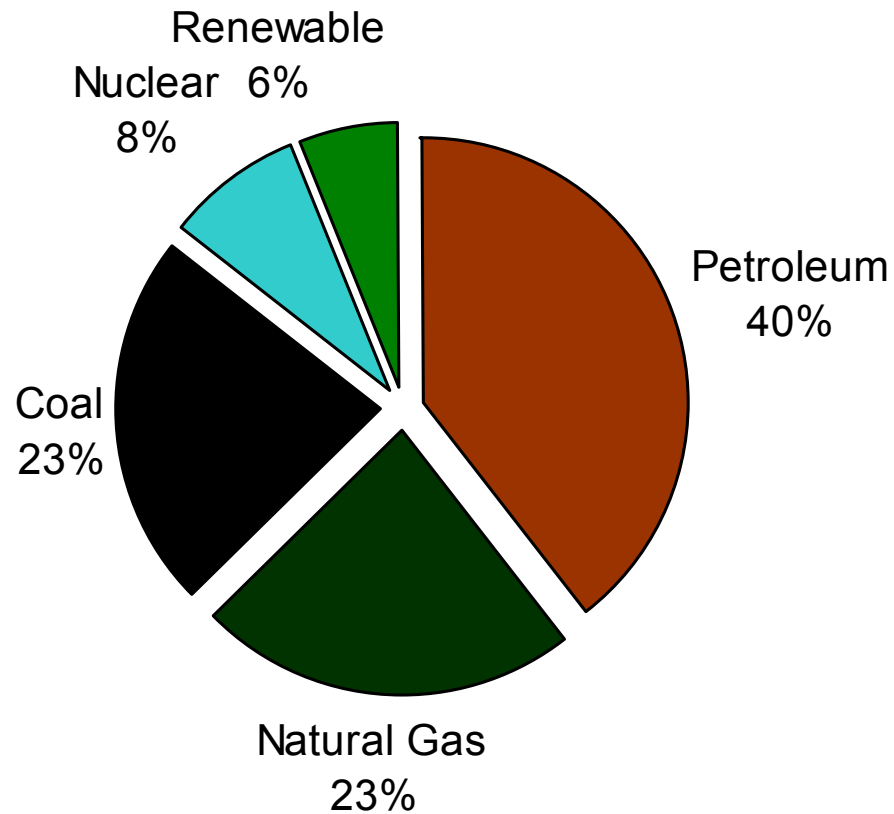
# Economics 101

- Supply and demand always balance
- This is true for oil and gasoline (although it is not always painless)
- Short term and long term supply / demand variables are different
  - I'll buy the gas for \$3.00 per gallon now rather than riding the bus, but next year I'm buying a smaller car
  - We can't produce more today, but at these high prices we can afford to drill more wells next year and build a refinery in 5 years.
- Inventory changes can have an impact in the short term

# Oil in the U.S. Energy Mix

- Recognize the difference between an energy source and an energy transport mechanism
  - For example, coal is an energy source – electricity is an transport mechanism
  - Petroleum is an energy source – hydrogen is an energy transport mechanism
- The U.S. is critically dependent on oil as an energy source!

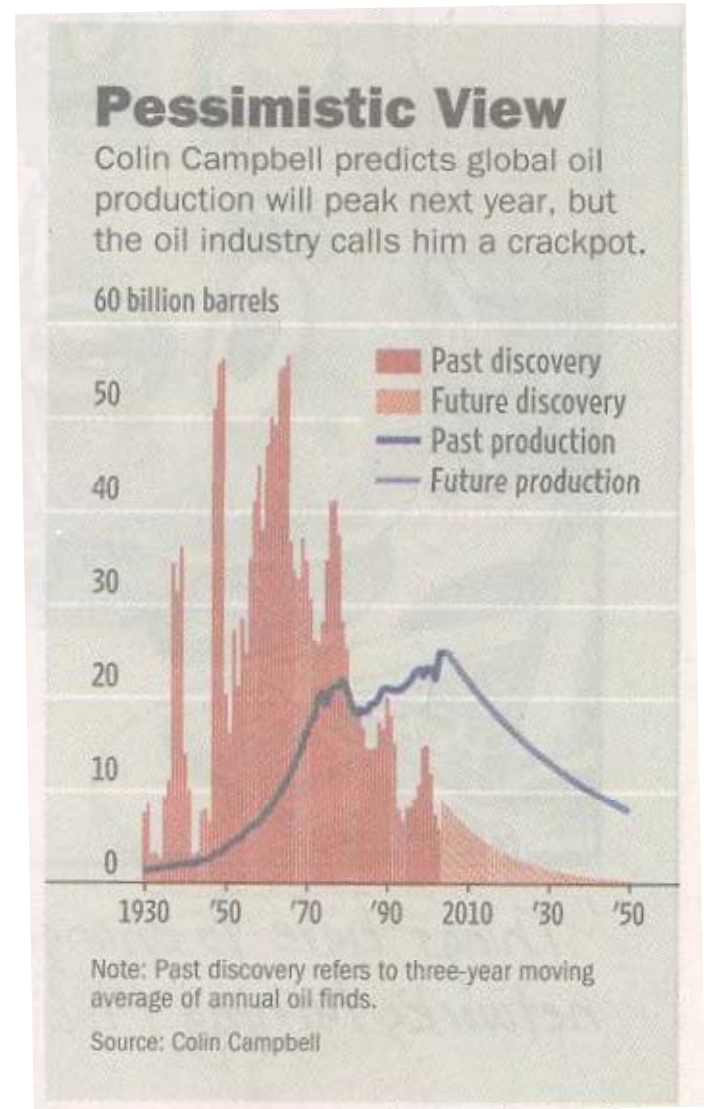
# The U.S Energy Mix 2002



Source: Energy Information Administration / Annual Energy Outlook 2004

# How Much Oil is There?

- Since the first oil well was drilled 150 years ago, about 900 billion barrels have been consumed (16 million barrels per day average)
- Current consumption is 82 million barrels per day (worldwide)
- By 2030, IEA projects 120 million barrels per day of consumption
- Estimates of recoverable oil range from another 900 billion barrels to 14 trillion barrels.
- **NO ONE KNOWS FOR SURE!**



# Global Oil Supply/Demand Balance

(In millions of b/d)

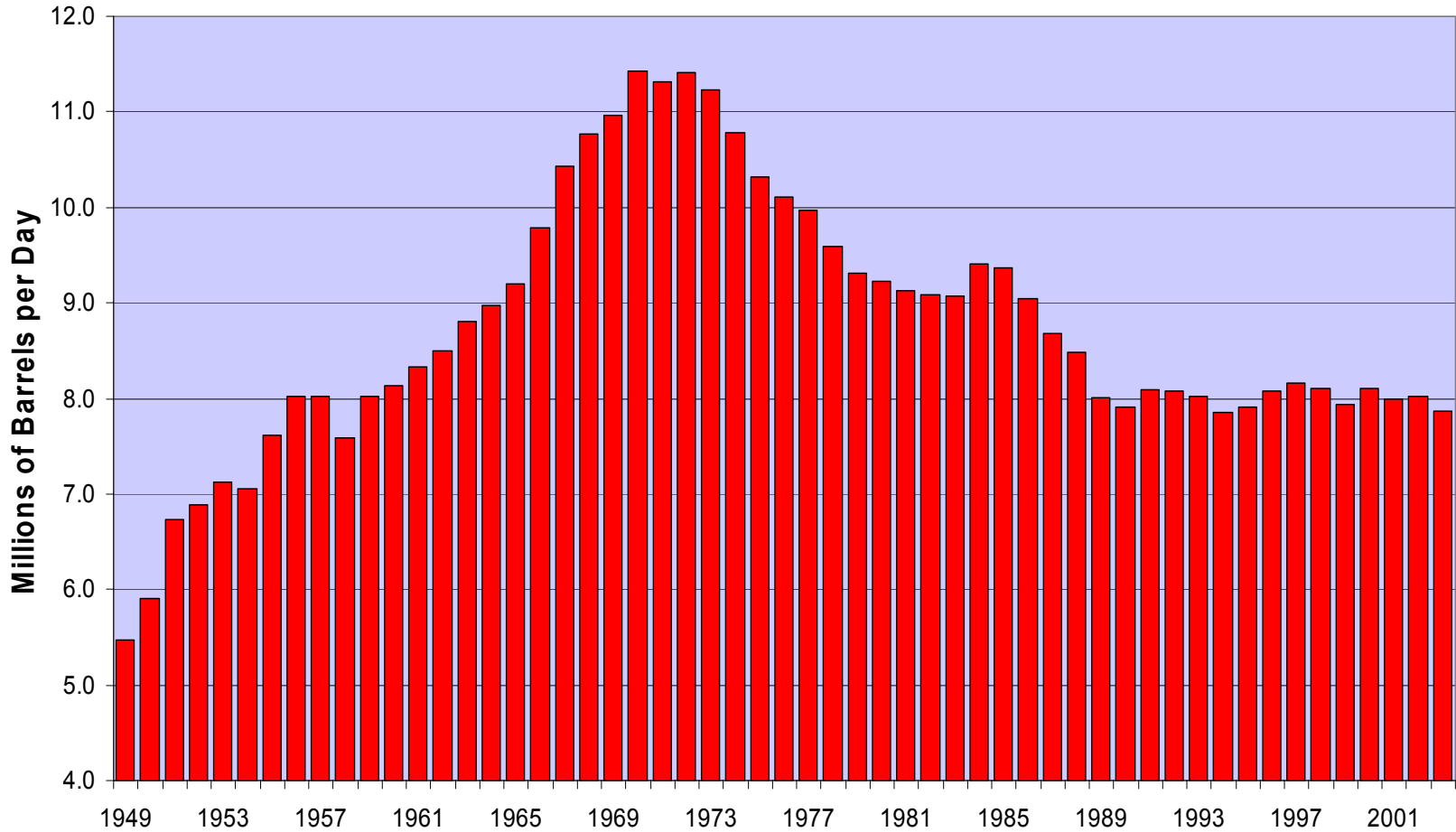
Demand	Sep.'04	Aug.'04	Jul.'04	Q3'04	Q2'04	2003	2002
OECD*	49.4	49.0	48.4	48.9	48.0	48.7	48.0
Rest Of World	33.6	33.2	33.0	33.2	33.1	31.6	29.8
<b>Total</b>	<b>83.0</b>	<b>82.2</b>	<b>81.3</b>	<b>82.2</b>	<b>81.1</b>	<b>80.3</b>	<b>77.8</b>
<b>Supply</b>							
<del>Opec Crude Oil</del>	<del>29.6</del>	<del>29.2</del>	<del>28.1</del>	<del>28.5</del>	<del>28.0</del>	<del>27.0</del>	<del>25.5</del>
Opec Crude Oil	30.3	30.2	29.7	30.1	28.0	27.0	25.5
Opec NGLs/Cond.	3.9	3.8	3.8	3.8	3.6	3.5	3.0
Non-Opec	47.7	47.3	47.9	47.7	47.8	46.8	45.9
Processing Gain	1.8	1.8	1.8	1.8	1.9	1.8	1.8
<b>Total</b>	<b>83.7</b>	<b>83.1</b>	<b>83.2</b>	<b>83.4</b>	<b>81.3</b>	<b>79.1</b>	<b>76.2</b>
<b>To Balance</b>	<b>0.7</b>	<b>0.9</b>	<b>1.9</b>	<b>-1.2</b>	<b>0.2</b>	<b>-1.2</b>	<b>-1.6</b>

Notes: Totals may not match subtotals due to rounding. \* All 29 OECD-member countries, including Mexico, South Korea, Poland, Hungary, and the Czech Republic.

Source: Energy Intelligence's Oil Market Intelligence

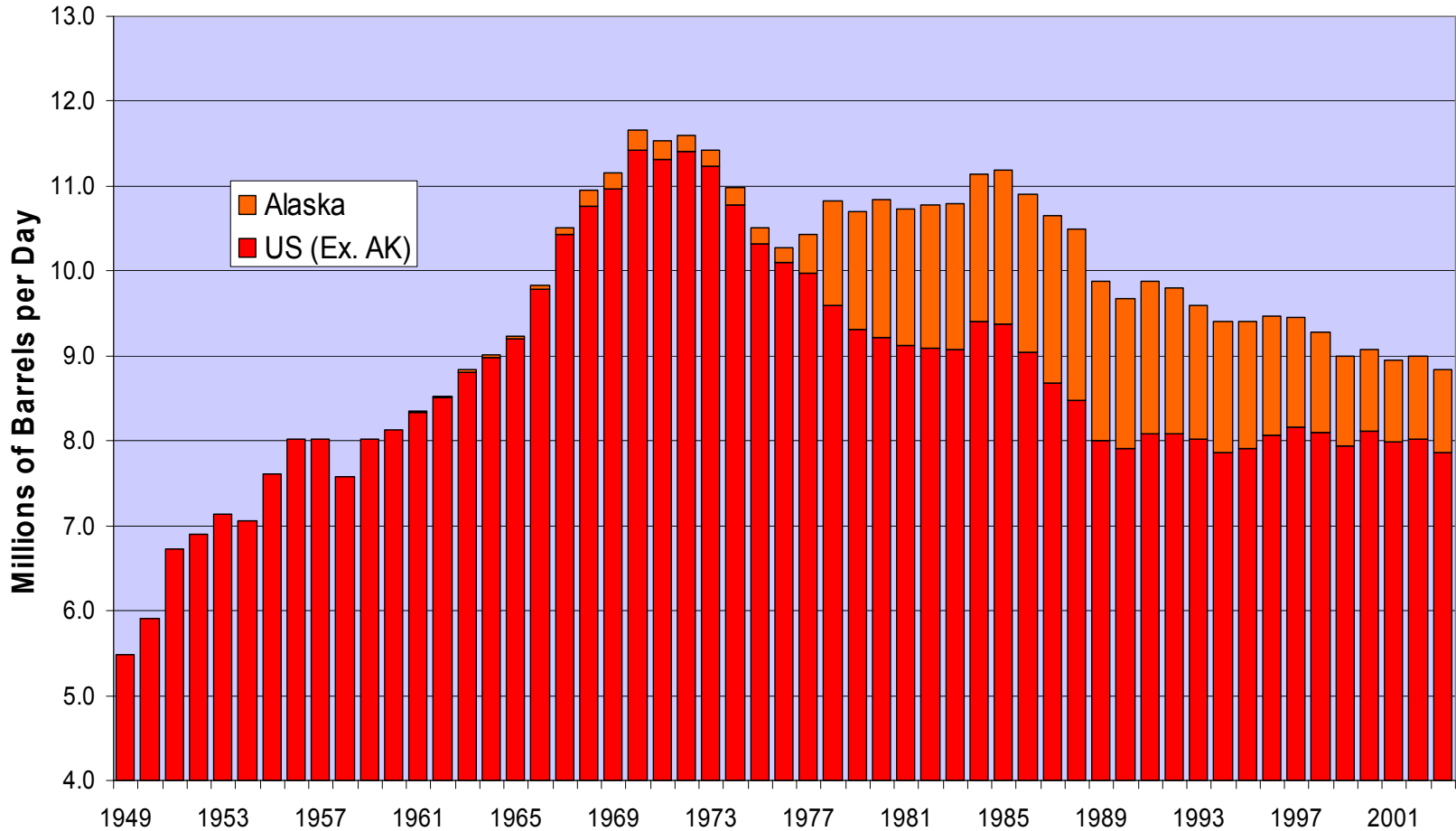
**Note: September 2004 demand is 10% higher than 2002 average!**

## US Domestic Crude Production (excluding Alaska)



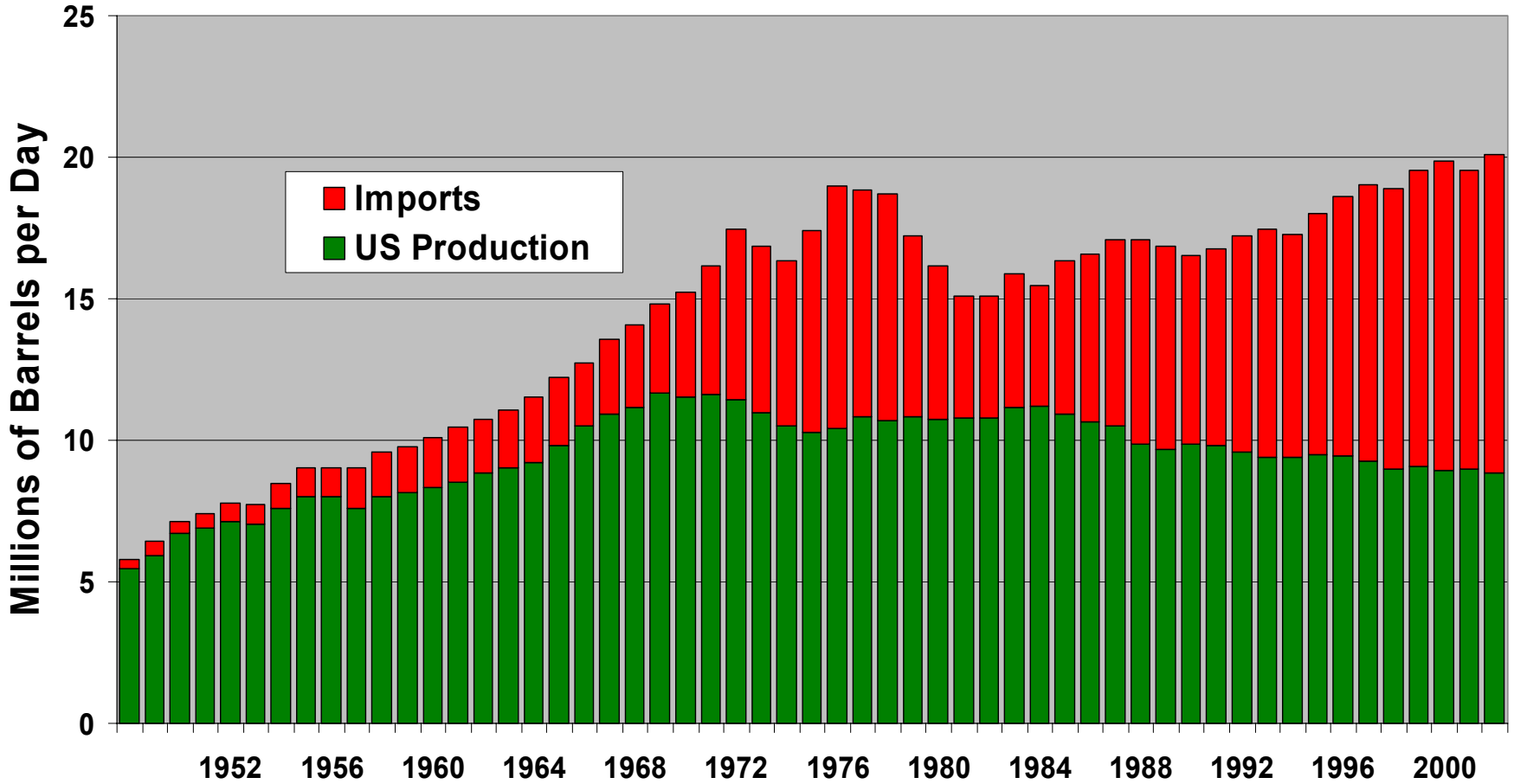
Source: Energy Information Administration / Annual Energy Review 2003

# US Domestic Crude Production



Source: Energy Information Administration / Annual Energy Review 2003

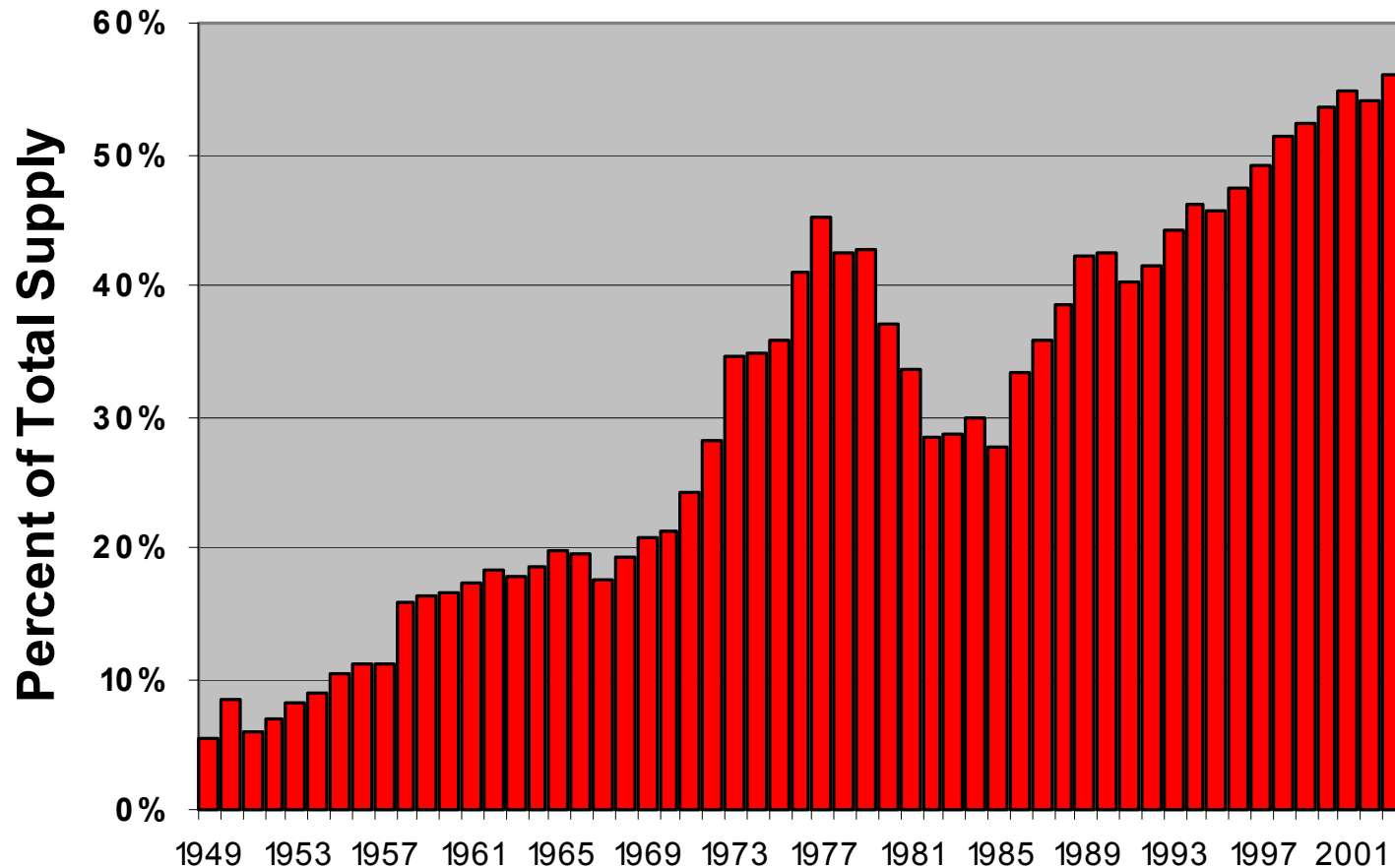
# US Petroleum Supply Summary



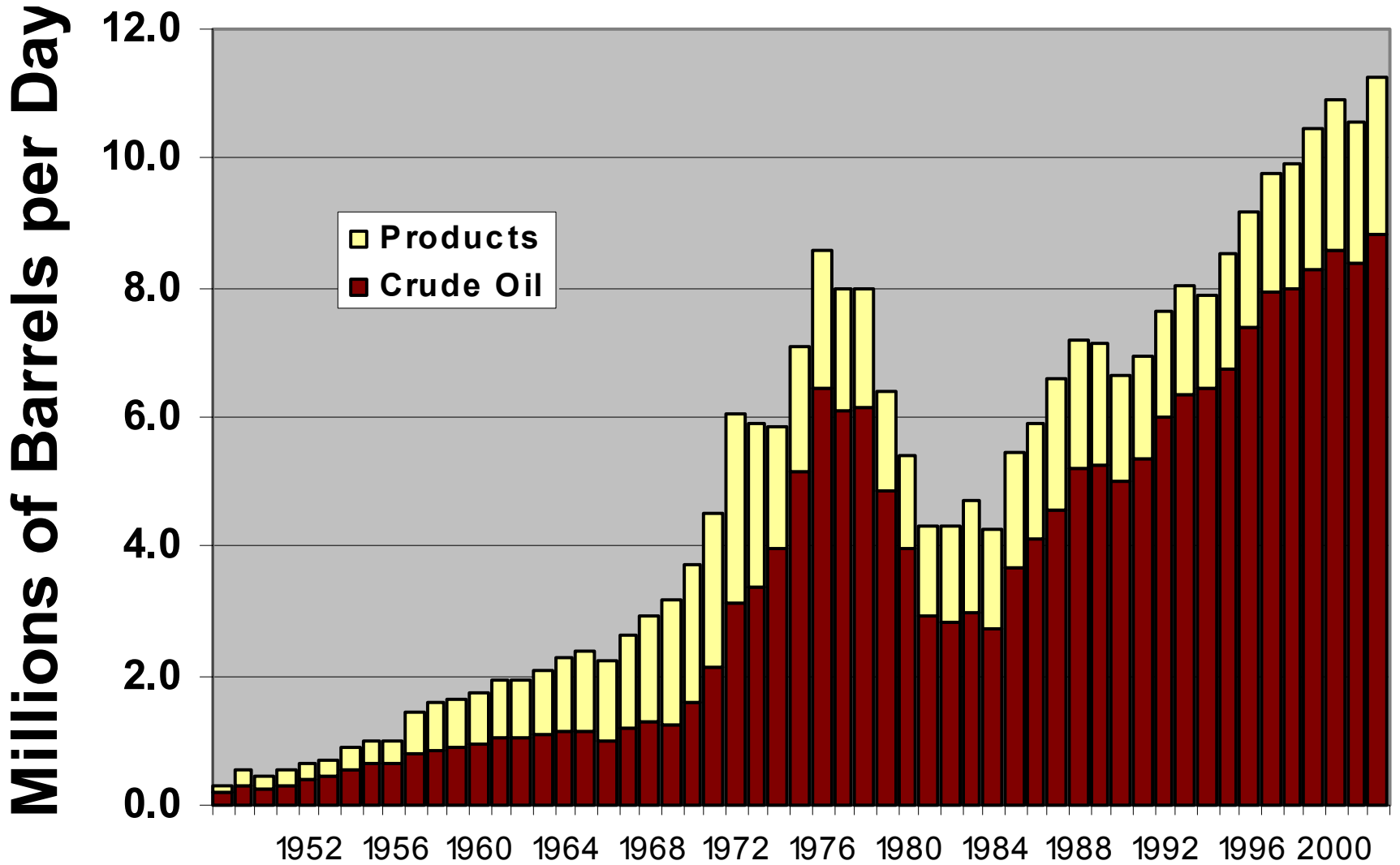
Source: Energy Information Administration / Annual Energy Review 2003

In 2003, 56% of U.S. petroleum was imported

## US Petroleum Imports



# US Petroleum Imports



# Where does U.S. get imported crude oil?

## July US Crude Imports

### By Company and Country

(thousands of b/d)

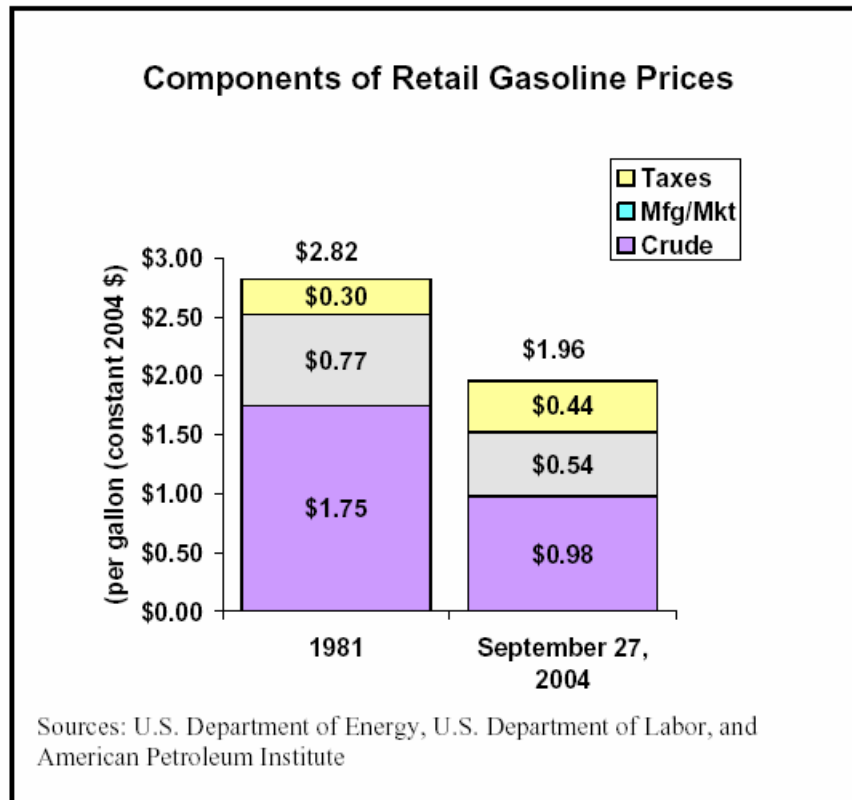
	Top 5 Suppliers											
	Canada		Saudi Arabia		Mexico		Venezuela		Nigeria		Total	
	'04	'03	'04	'03	'04	'03	'04	'03	'04	'03	'04	'03
ConocoPhillips	240	209	70	70	130	131	223	175	169	208	1,241	1,224
Exxon Mobil	204	264	145	289	371	377	81	132	0	0	1,226	1,367
ChevronTexaco	21	17	230	332	314	360	16	32	33	15	913	899
Valero	0	83	198	179	227	154	122	179	15	17	886	967
Sunoco	87	40	0	0	0	0	0	0	429	283	741	549
Motiva	0	0	577	563	0	16	0	0	80	17	674	679
BP	154	143	100	194	33	68	0	0	134	63	654	773
Citgo	153	132	0	0	0	11	318	280	0	0	619	572
Marathon	116	120	141	161	132	121	25	43	0	16	568	543
Premcor	0	0	82	0	134	193	52	19	30	16	515	336
Flint Hills	263	269	0	0	0	18	0	38	47	30	499	460
Shell	22	9	0	0	236	223	34	0	77	90	474	446
Lyondell	0	0	0	0	0	0	253	206	0	0	281	223
Tesoro	73	60	33	0	0	0	0	0	0	0	191	246
Atofina	0	0	0	0	0	0	18	18	0	16	158	143
<b>Total 15</b>	<b>1,333</b>	<b>1,348</b>	<b>1,575</b>	<b>1,788</b>	<b>1,577</b>	<b>1,671</b>	<b>1,142</b>	<b>1,122</b>	<b>1,013</b>	<b>770</b>	<b>9,643</b>	<b>9,425</b>
<b>Grand Total</b>	<b>1,650</b>	<b>1,594</b>	<b>1,622</b>	<b>1,835</b>	<b>1,603</b>	<b>1,689</b>	<b>1,228</b>	<b>1,220</b>	<b>1,020</b>	<b>804</b>	<b>10,288</b>	<b>10,059</b>

Notes: Data are preliminary and subject to revision by the EIA. Total is for gross imports and excludes imports to the US Virgin Islands and Puerto Rico.

\* Total US imports from all suppliers.

# What are the components of gasoline costs?

## #1 – Crude Oil

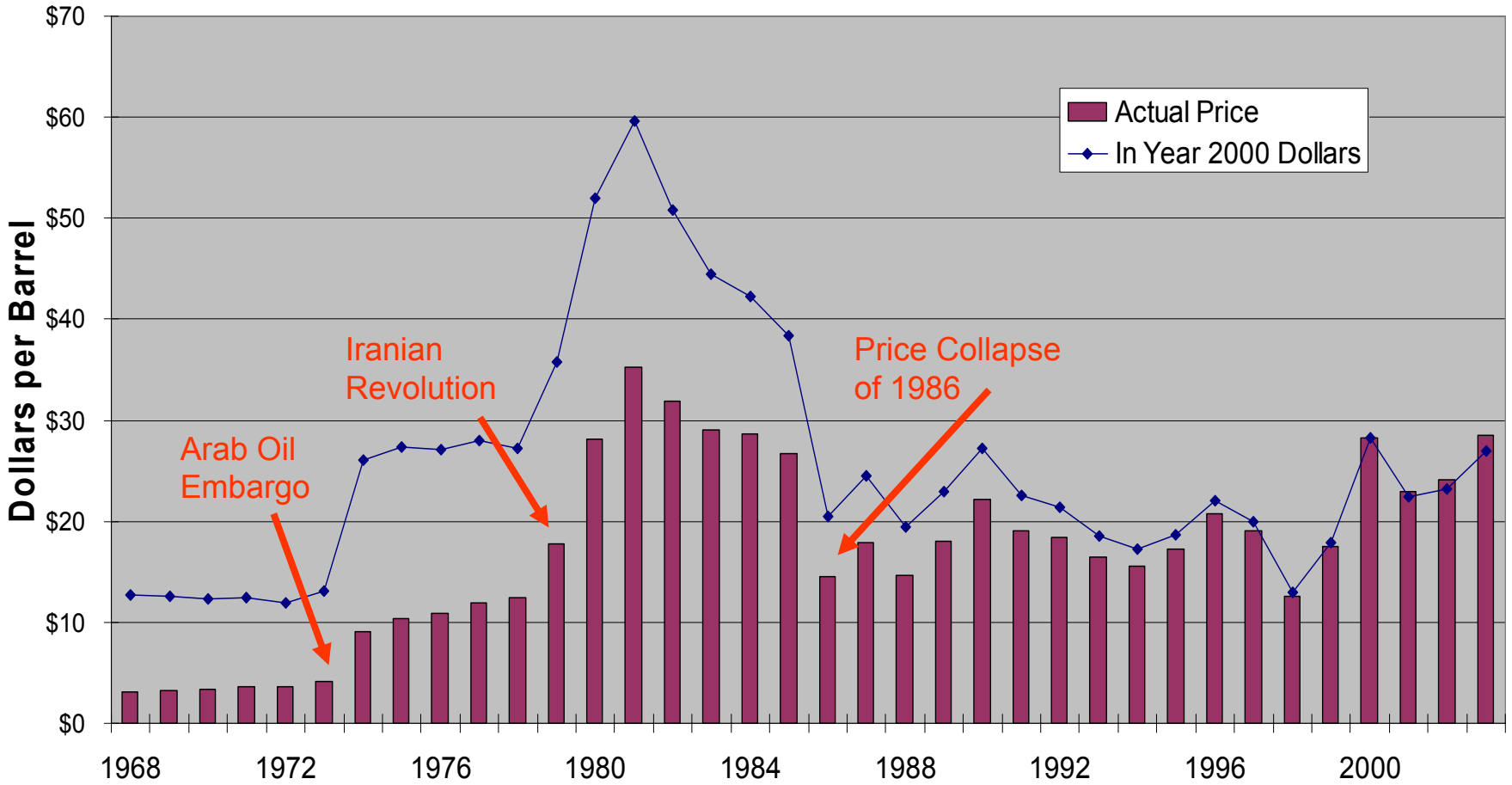


Crude oil costs have declined by \$0.77 per gallon from \$1.75 per gallon in 1981 to \$0.98 per gallon by September 2004. The combined cost to manufacture, distribute, and market gasoline is 23 cents per gallon less today than it was two decades ago, averaging \$0.54 per gallon.

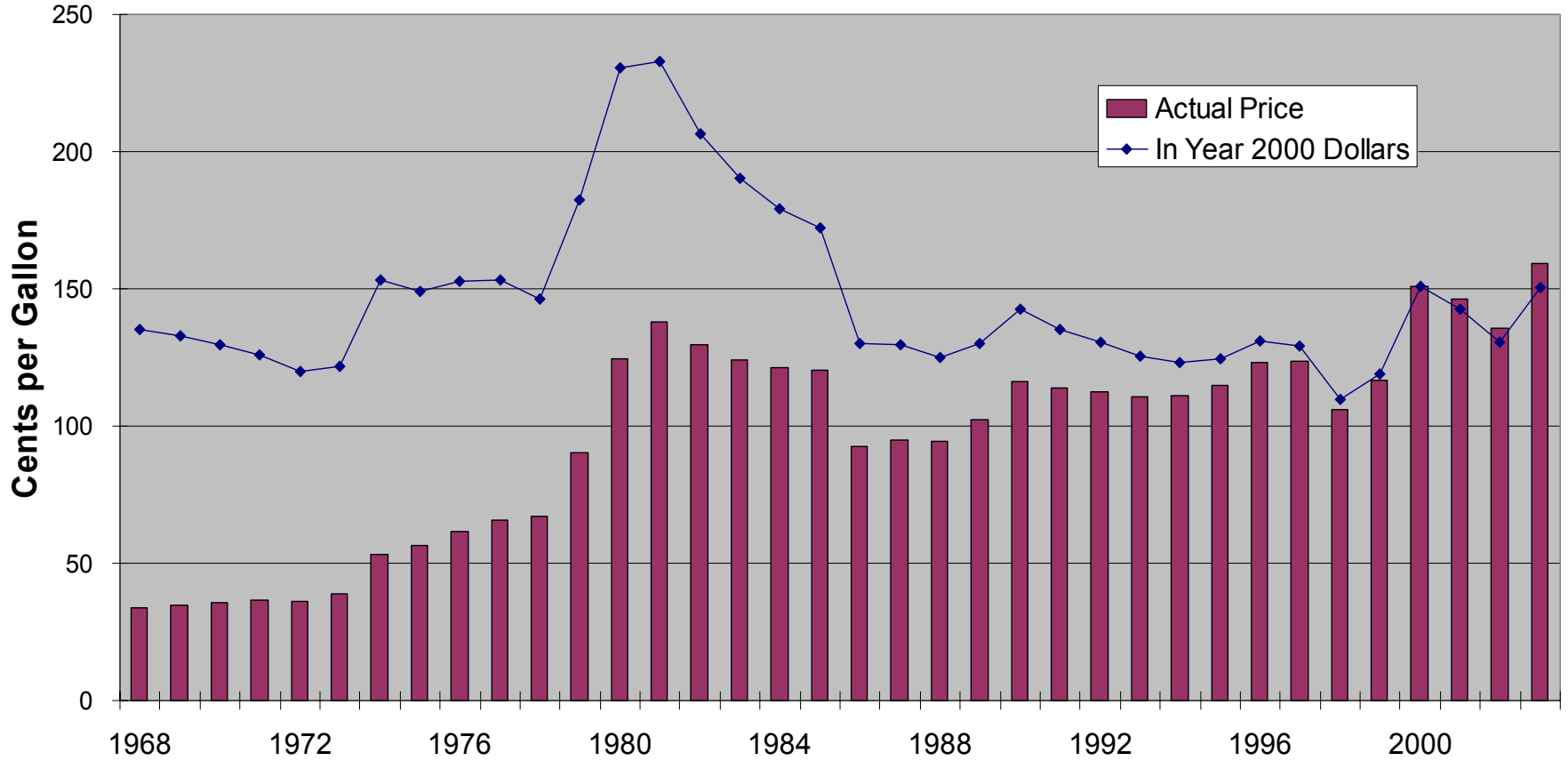
The most significant increase has been in taxes. In September 2004 the taxes collected on a gallon of gasoline amounted to 43.7 cents, including 18.4 cents per gallon in federal taxes, and 25.3 cents per gallon in volume-weighted average state taxes. In comparison, when real pump prices were at their high in 1981, combined federal and state taxes were just 30 cents per gallon.

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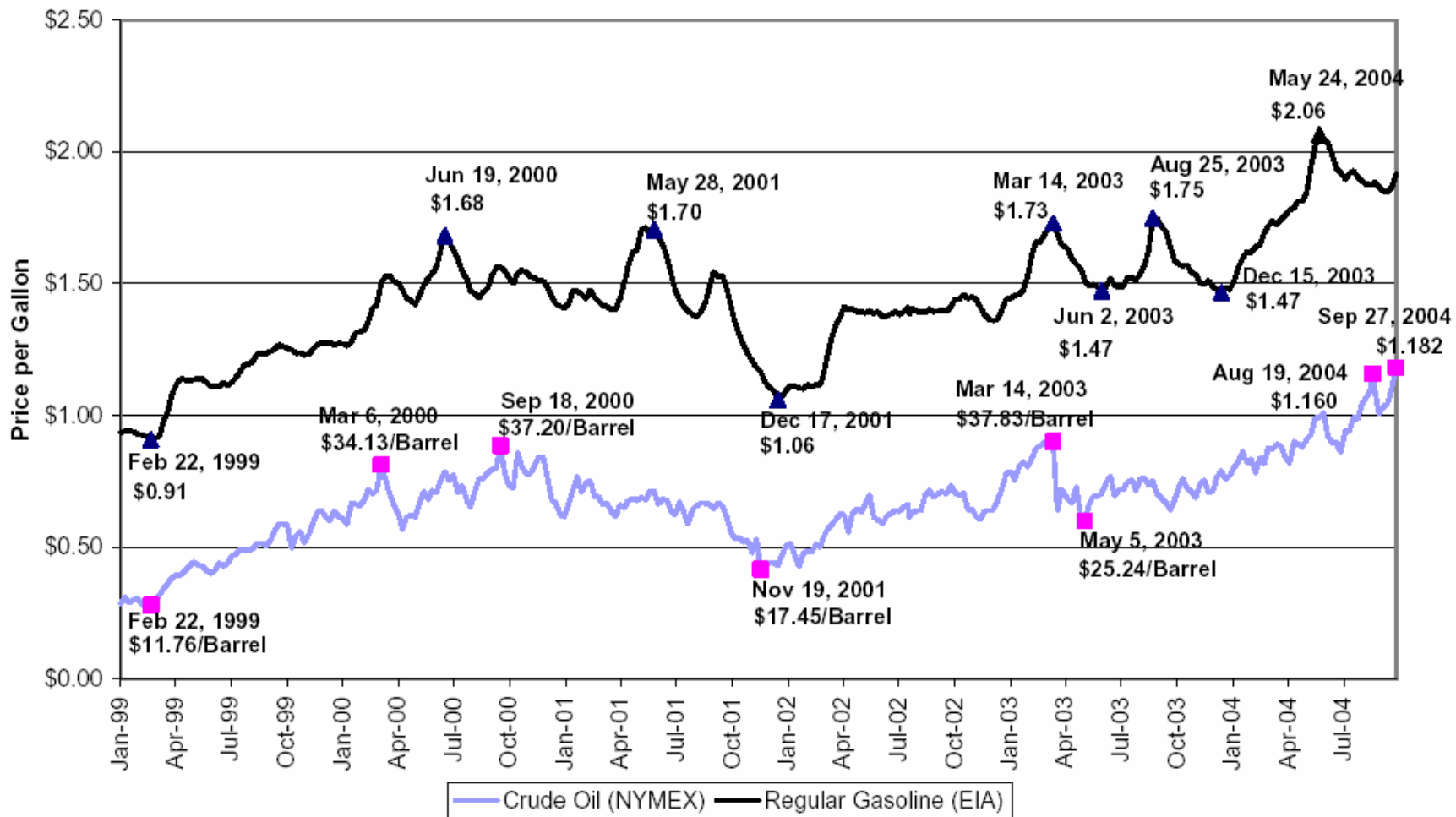
# Crude Oil Costs (average U.S. Refinery)

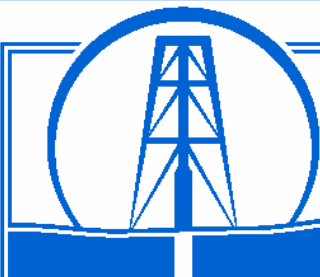


## U.S. Average Gasoline Cost (Pump Price)



## MOTOR GASOLINE AND CRUDE OIL PRICES: 1999 TO PRESENT<sup>2</sup>





# OIL DAILY

*Today's complete oil and gas news briefing*

## Oil Flirts With \$50; Next Stop \$60?

US crude oil prices breached the \$50 per barrel mark on fierce rhetoric from a Nigerian militia leader threatening an "all-out war" in the country's onshore oil producing region, adding to fears that the world will not have enough crude oil and products to meet runaway demand — although some said on Tuesday that high oil prices could slow demand growth and take the heat out of the market.

Nigerian militia leader Dokubo Asari helped crude oil futures on the New York Mercantile Exchange (Nymex) breach \$50 in Access trading Monday night, with the November contract hitting an all-time high of \$50.47. Nymex light, sweet crude set a record close Tuesday at \$49.90/bbl, up 26¢ from the previous day's close. In London, Brent crude added 52¢ to close Tuesday at \$46.45/bbl.

Some analysts argued that the market was using Nigeria, which has shut in only 30,000 barrels per day out of its 2.5 million b/d output, as an excuse to rally, as a myriad of factors — such as ongoing tensions in the Mideast, soaring global demand, little spare capacity and plenty of speculative money in

the energy market — had set the scene.

"It's an excuse because all lost output in Nigeria can be made up from other sources," said Monica Enfield, an analyst at PFC Energy.

"This is a market that has spiraled higher all year long based on potential outages and failing to acknowledge actual production increases," said Tim Evans of IFR Energy Services.

Some analysts argued the focus is now shifting to oil hitting \$60. Higher prices could be the result of a deteriorating situation in Nigeria, affecting crude supply, or a crunch in the availability of winter fuels, as demand for middle distillates is high in the US, Europe as well as Asia, and refiners are struggling to build stocks.

Analysts said that the only way to bring prices down is to build more refining capacity, increase crude oil output capacity and build product stocks — tasks which would take years to complete. Without these cushions to dampen any supply disruption, the market will remain nervous.

But some economists believe that high crude prices at one point must bring

## News in Review

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down demand, which would cool the current market. And that could happen sooner rather than later, they argue. Preliminary data show that demand might be slowing down in some key areas, such as the US and Western Europe.

Yet, prices are still going up. The US spot market was already bidding up sweets, even before Asari's war threat. Nigerian crude grades such as Bonny Light and Qua Iboe delivered to the US Gulf Coast were talked at a \$1 premium over West Texas Intermediate (WTI) on Tuesday, up more than 50¢ from Monday, as potential buyers could not find

**(See Oil, page 2)**

# From “The Oil Daily” .....

## **Economist Sees Possible Recession, Crude Oil at \$80**

Circumstances are ripe for a global recession because of record-high oil prices, and those prices could be “higher than anyone has ever dreamed” in the next two years unless the US government and oil-producing countries come up with both near- and long-term solutions, a renowned oil economist told a Washington, DC, audience Thursday.

In a gloomy prognostication, Philip K. Verleger said increasing demand in both China and India, along with supply shortage conditions, could send crude oil prices to perhaps \$60 a barrel by mid-2005 and as high as \$80 in 2006, spurring a recession similar to the three the world has seen over the past 30 years.

In fact, Verleger said, US GDP could contract by 1% next year and possibly 2% after that.

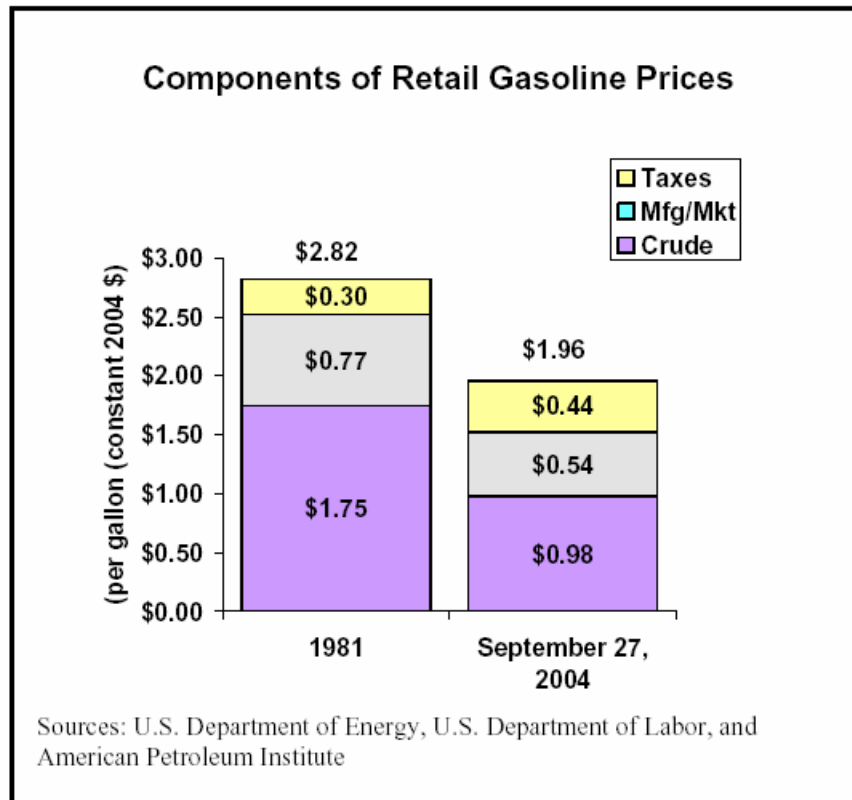
Speaking at the Institute for International Economics in Washington, Verleger — in a presentation entitled “Energy: The Gathering Storm” — said it is still possible to avoid or moderate the impending world energy crisis.

In the short run, environmental regulations that mandate low-sulfur gasoline should be modified. The inflexible regulations have discouraged investment in US refining and reduced imports of refined products that do not meet the new sulfur standards.

He also blasted the Federal Trade Commission for forcing majors to sell refineries, saying this has also impeded investment in expanded capacity.

# What are the components of gasoline costs?

## #2 – Taxes



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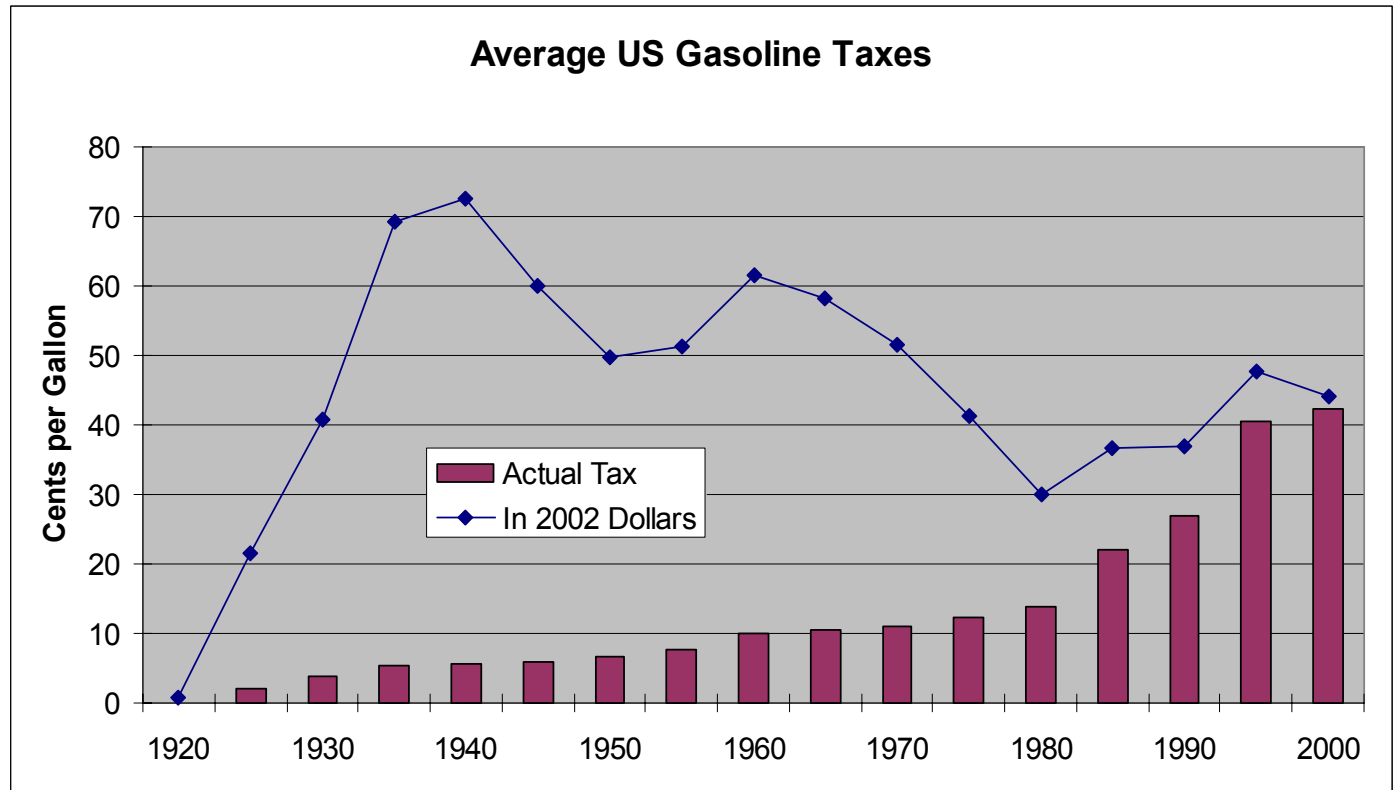
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# Gasoline Taxes

July 2004  
U.S. Gasoline Taxes  
Cents per Gallon

Alaska	26.4
Georgia	32.7
Iowa	39.9
Minnesota	40.4
<b>U.S. Average</b>	<b>43.7</b>
Illinois	46.2
Michigan	47.5
<b>Wisconsin</b>	<b>50.5</b>
California	54.3

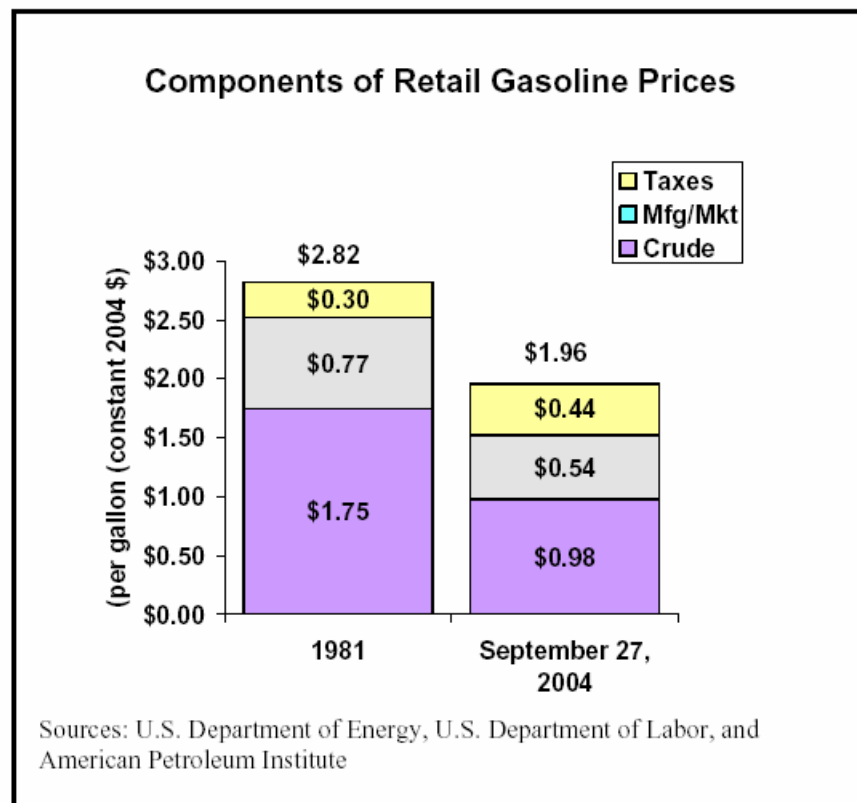


Wisconsin has one of the highest minimum markup requirements in the country this also adds to the pump price

In 2000, gasoline tax in the U.K. was \$2.80 per gallon and they were paying \$4.70 per gallon at the pump.

# What are the components of gasoline costs?

## #3 – Manufacturing and Marketing



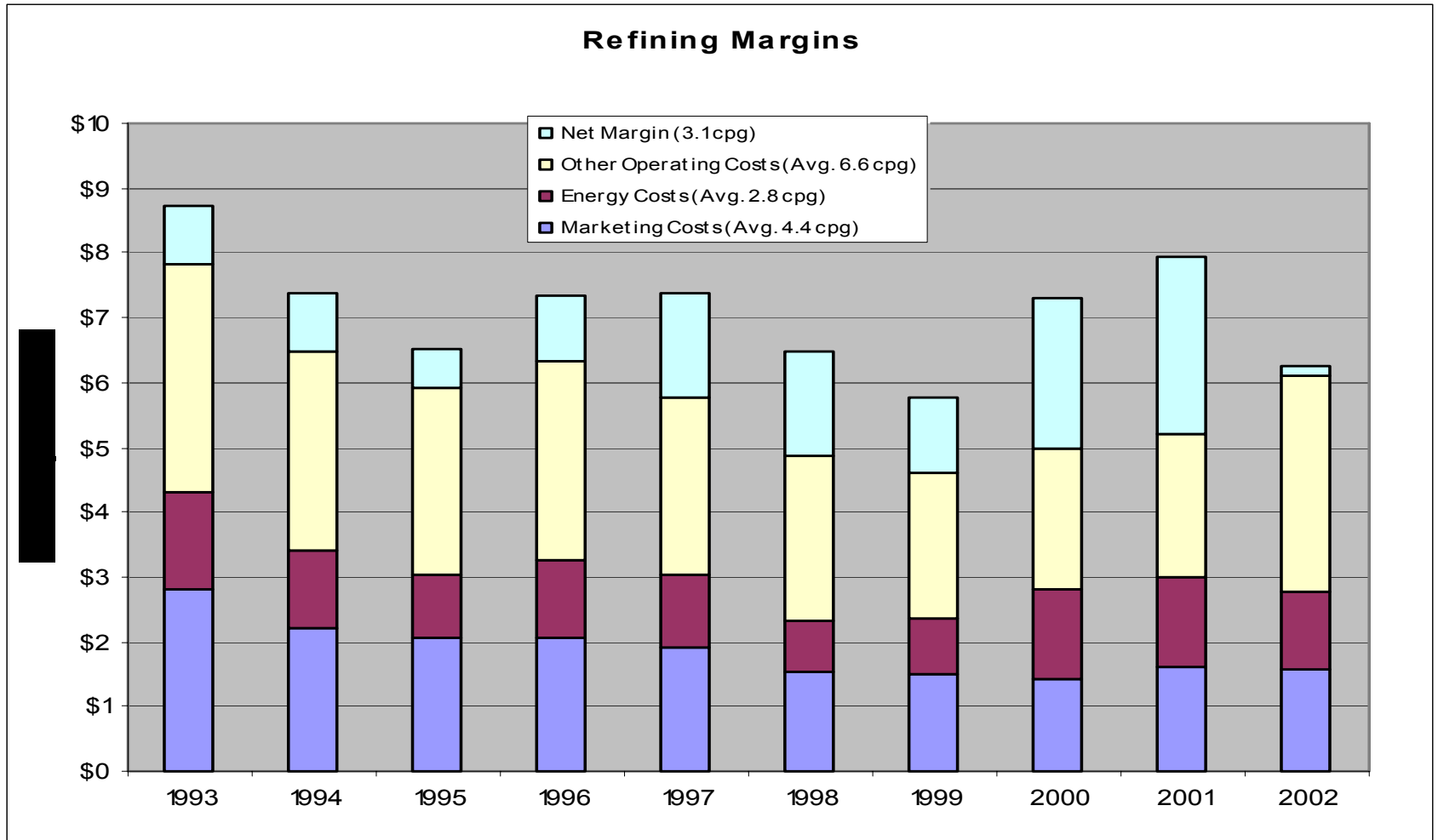
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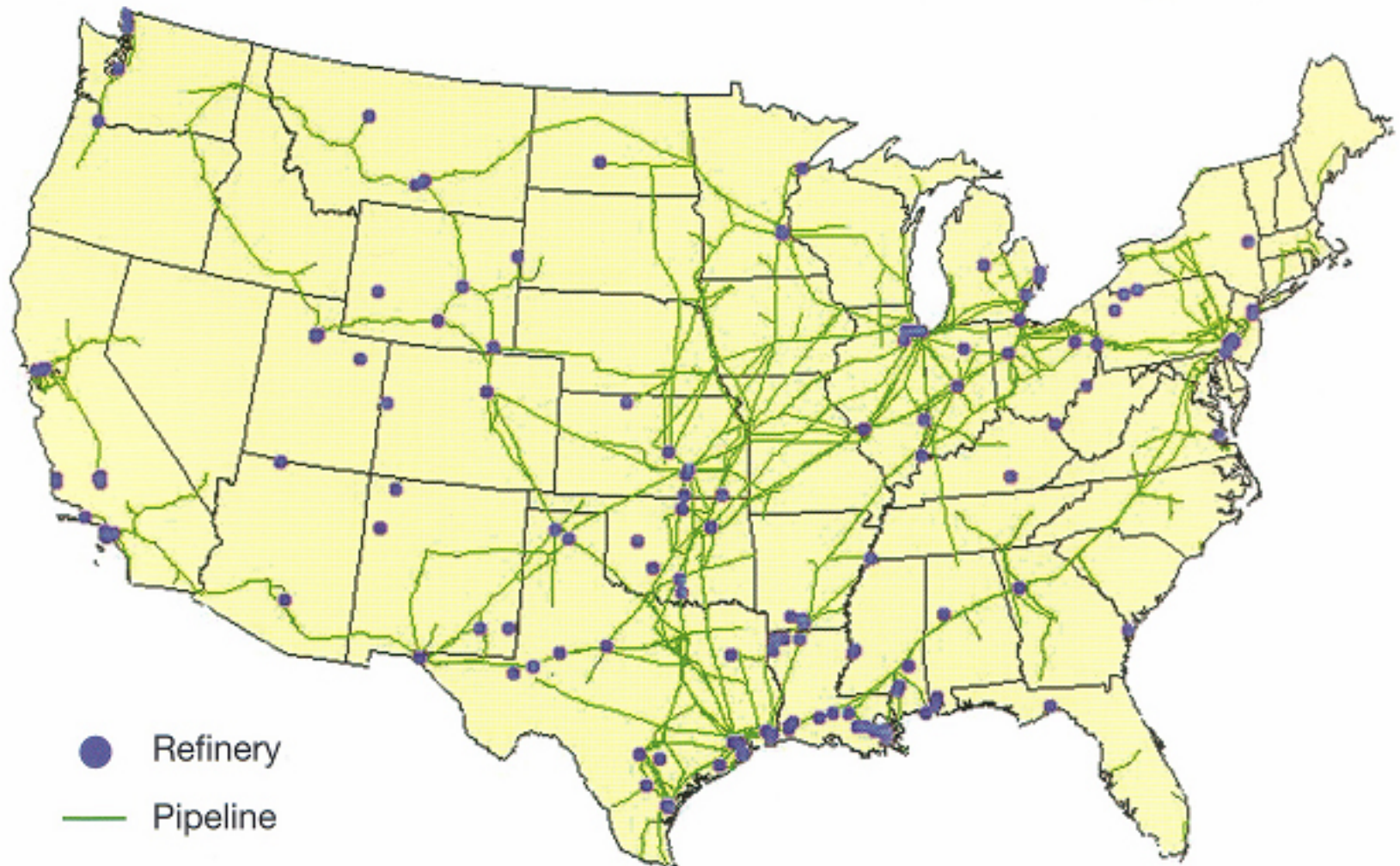
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# Refining and Marketing Economics

(Source EIA)

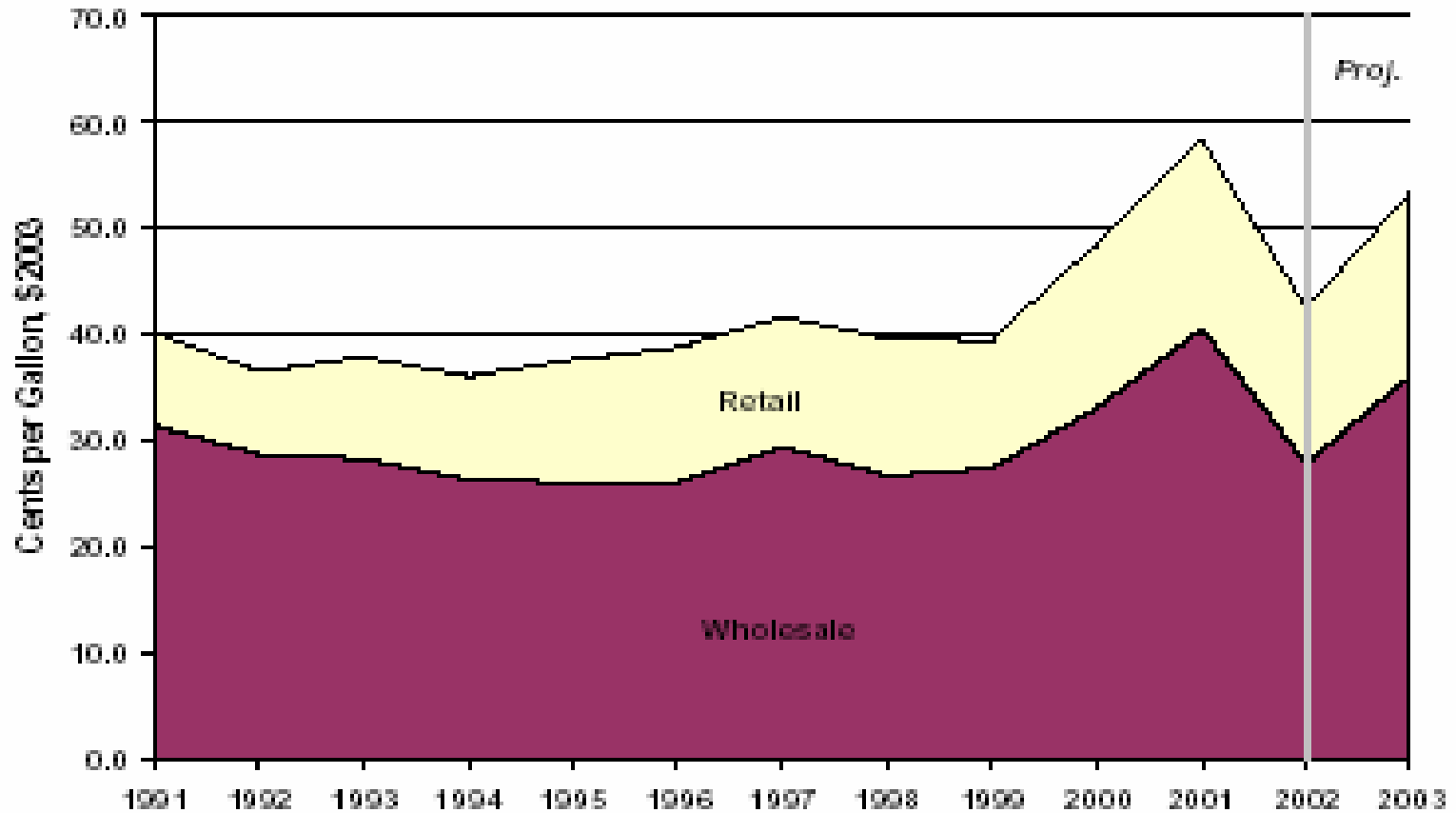


# U.S. Gasoline Distribution System



Graphic: Courtesy of NACS, National Association of Convenience Stores  
© Copyright 2000 PennWell MAPSearch (used with permission)

Figure MG4. Real\* Summer Motor Gasoline Spreads

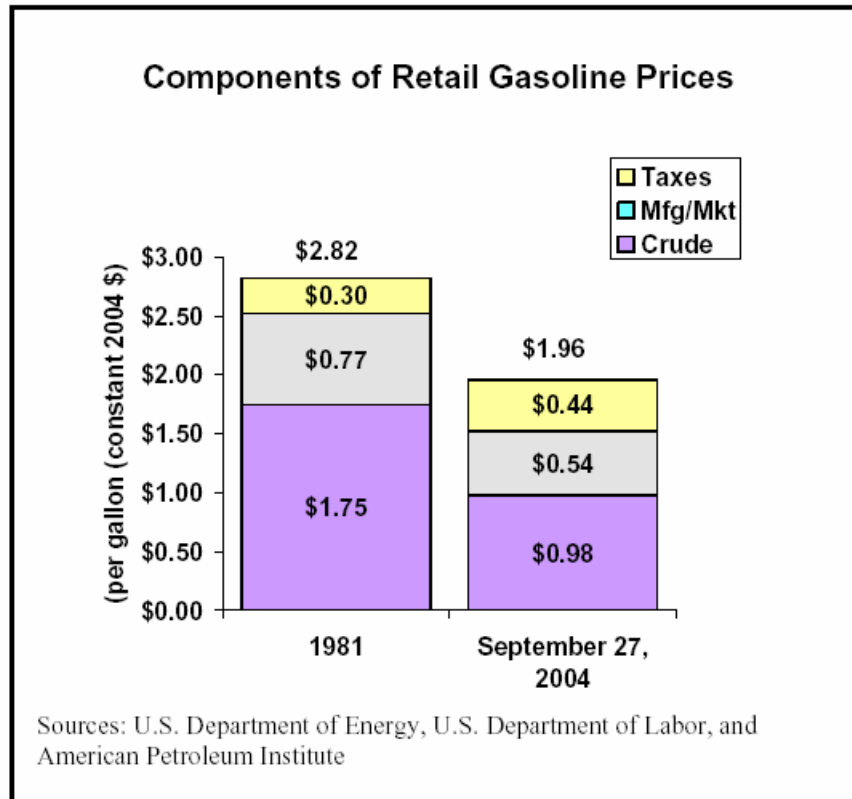


Source: EIA Summer 2003 Motor Gasoline Outlook

# Retail Margins

- A typical “corner” station moves 50,000 - 100,000 gallons per month. At 12 cents per gallon this comes to receipts of \$12,000 out of which salaries, leases, insurance, etc. must be paid. More money is made selling cigarettes and beer than gasoline at many of these stations.
- A large station (e.g. Murphy USA) moves about 200,000 gallons per month although typically at a lower margin (about 5 - 10 cpg). Construction and operating costs are also lower.
- Retail margins are slim – gasoline is often used to attract customer traffic.

# Components of Gasoline Costs



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# What's behind gasoline prices

## 1 High crude oil prices

2 Restricted world supplies

3 OPEC

4 Political instability in oil-rich nations

5 Limited capacity

6 Strong global demand

7 China

8 US



## Where does your gasoline \$ go?



## 9 Tight gasoline markets

10 Supply growth straining to keep up with demand

11 US gasoline imports down sharply

12 New US fuel specifications

13 High transport rates

14 Low European inventories

15 Political instability: Venezuela

16 Record refinery production but constrained capacity growth

Environmental 17  
New government-mandated fuel specifications

Political 18  
'Not in my backyard'

Economic 19  
Low rates of return for refiners

20 Strong demand growth

21 SUV growth

22 Growing US economy



For more details, see the text next to the corresponding numbers, on the back of this page.

# Factors affecting the price of gasoline

## 1 High crude oil prices

Prices have gone from \$31 to over \$43 a barrel (about 29 cents a gallon) since August 2003.

### 2 Restricted world supplies

3 Although OPEC has increased production, it had cut production by 4 percent since December.

4 **Political instability** in oil-rich nations has added uncertainty in the marketplace.

5 The world's spare capacity to pump more petroleum is limited to some 2 percent of total demand.

### 6 Strong global demand

Crude oil supplies are tight while rapid global economic expansion fuels record worldwide demand for oil. Significant growth has occurred in two segments of the worldwide economy:

7 **China:** China's crude oil imports grew 36 percent in 2003.

8 **United States:** The U.S. economy has continued to grow steadily in the last year, increasing the demand for energy.

## 9 Tight gasoline markets for most of the year

### 10 Supply growth straining to keep up with demand

Gasoline production this year is running at record high levels, but inventories are low, in part because imports are down.

11 **Gasoline imports down:** Imports are 1 percent lower than last year's level.

### 12 **New U.S. fuel specifications:**

Exporters to U.S. markets may not have made investments necessary to provide new fuels required this season and may instead be selling gasoline elsewhere.

13 **High transport rates:** Transport rates have increased, making it more costly to sell further from home.

### 14 **Low European inventories:**

European inventories are also at low levels and European refiners are filling their own tanks first.

15 **Political instability:** Turmoil in Venezuela, a leading oil and gasoline exporter, has cut down the amount of fuel available for the U.S. market.

16 **Record refinery production but constrained capacity growth:** Gasoline production is running at 3 percent above last year's level.

17 **Environmental:** Numerous and changing fuel specifications require massive environmental investments – \$47 billion in the last 10 years.

18 **Political:** Because of the not-in-my-backyard syndrome, refiners are finding it increasingly difficult to build new refineries, pipelines or other facilities to increase production.

19 **Economical:** Refiners have seen 10-year average rates of return of 5.5 percent, compared to S&P Industrials' 12.7 percent.

### 20 Strong demand growth

21 **SUV growth:** Sales of SUVs were up 18 percent last year, while car sales were down 4 percent.

22 **Growing U.S. economy:** According to the latest estimates, growth in gasoline demand this year is averaging 1.8 percent above last year's levels.