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# The Lies We've Been Told

**October 29, 2008**
**Role of Oil in US Energy Policy**
**University of Southern Maine**

*"Conversations at Muskie"*

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**Washington, DC**
**www.eprinc.org**

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# Introduction

Energy Policy Research Foundation Inc. (EPRINC), ***formerly the Petroleum Industry Research Foundation Inc. (PIRINC)***

Founded in NY in 1944

- Moved to Washington from NYC in Feb 2007
- EPRINC brings policy analysis and industry economics to bear on current energy issues

***Note: All data in this presentation are from EIA unless otherwise noted. Summary conclusions, comments, etc, are the sole responsibility of EPRINC.***

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# Alternative Titles

- High Cost of Pandering
- What Happens when you ask the wrong questions? (yes, you get the wrong answer)
- Everything you think you know about the oil market and US energy policy is wrong

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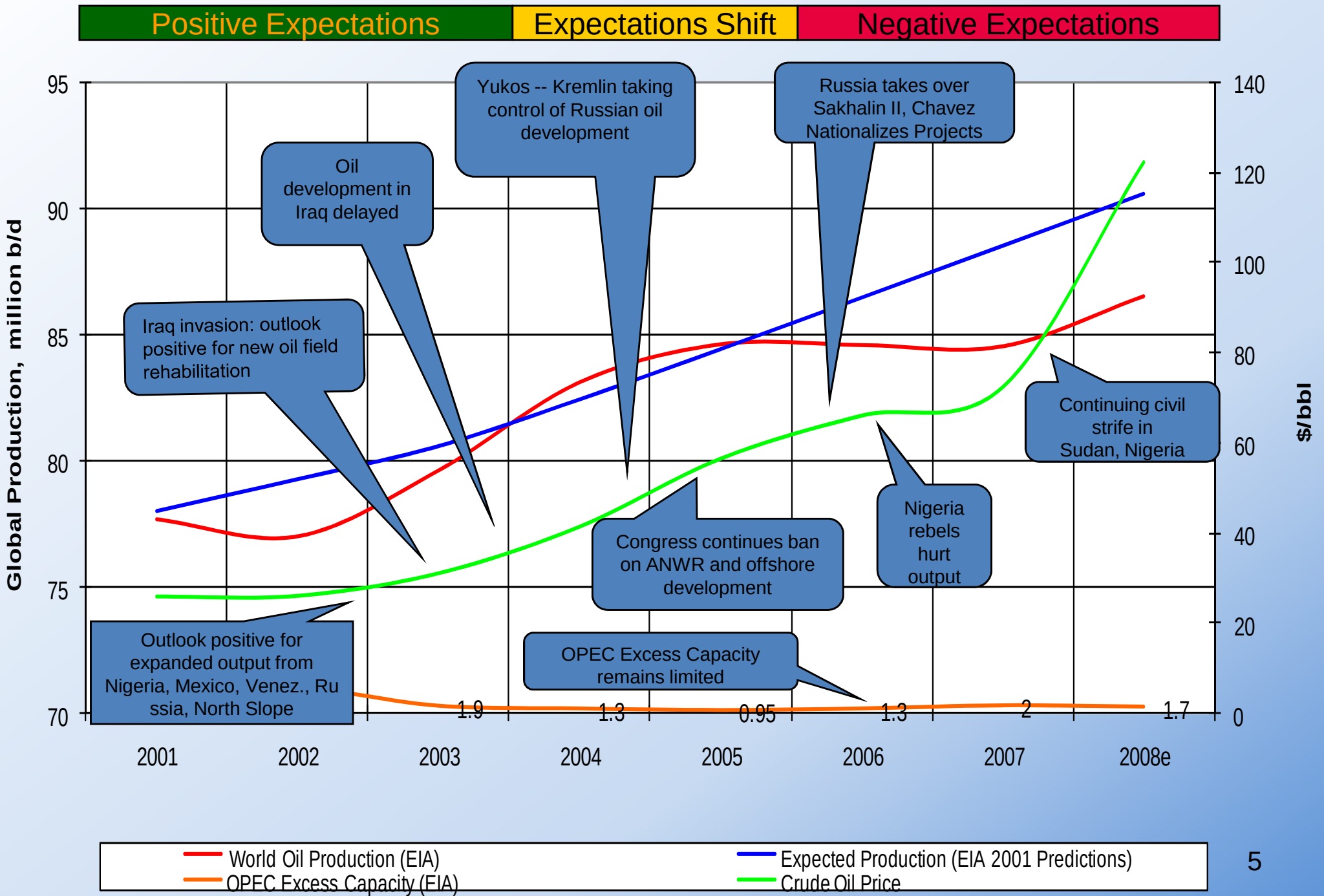
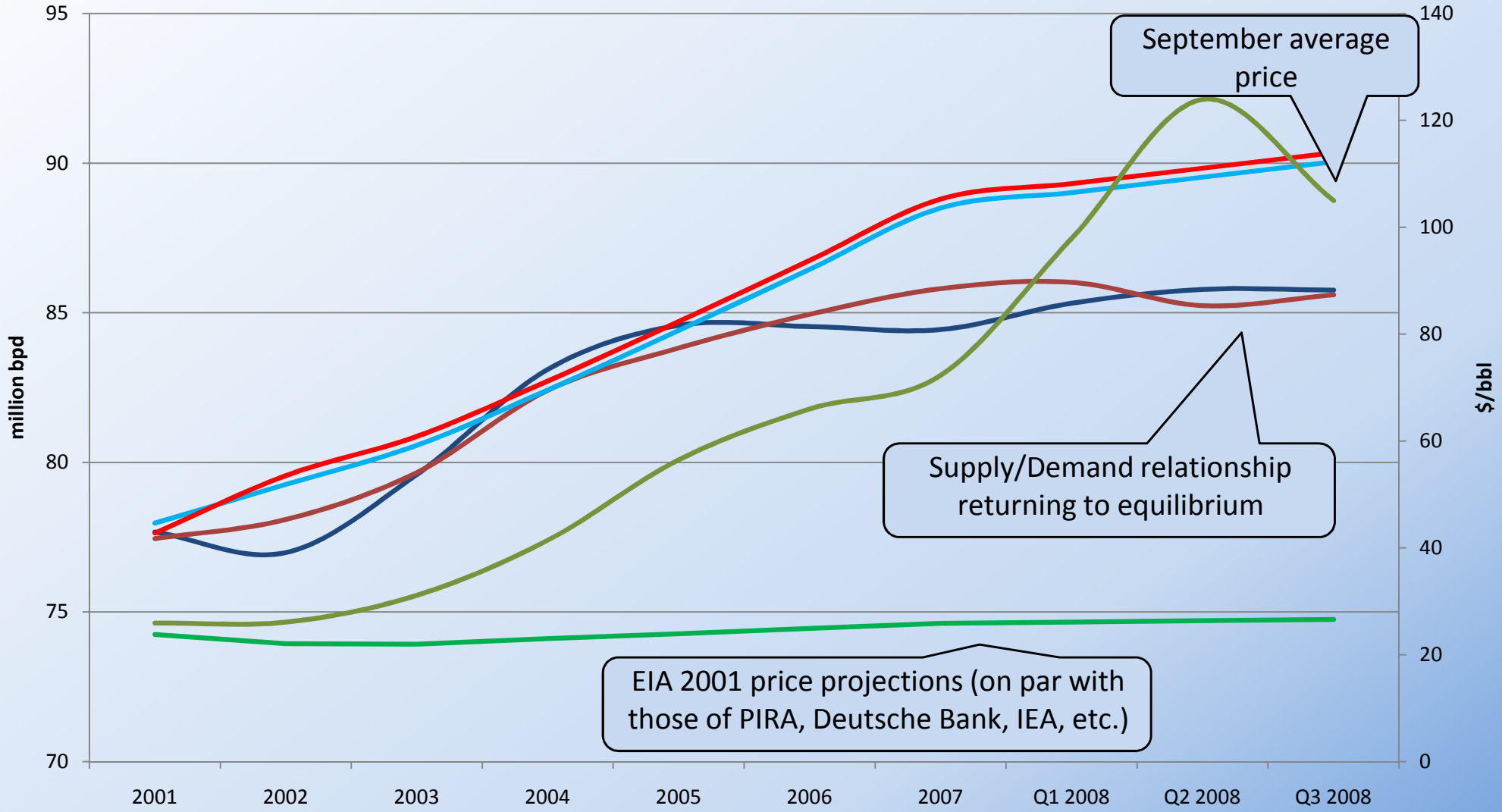
# Why Did Oil Prices Climb So High?

# A Series of Unfortunate Events Leading to New Expectations



# Expectations and Reality




Source: EIA Data and EPRINC Calculations

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# A Series of Unfortunate Events, by country:

| Country | Positive Expectations | Negative Events | Lost Production (bpd) |
|---|---|---|---|
| Iraq | Promise of investment in oil sector after war, increased production. | Sustained turmoil drops output below pre-war levels | 600,000 |
| Nigeria | 4 mbd expected by 2010 | Civil strive and attacks on infrastructure, 2005-2007 saw decline to 2.1 mbd | 500-700,000 |
| Venezueala | Potential for growth after stagnat production | Nationalization of oil industry, production nosedive | 800,000 |
| Russia | Projection seen at 12 mbd by 2010 after privitzation of industry brought western influence, $ and new production | Re-nationalization leads to decreased production and investment | 200,000 |
| Sudan | Additional proven reserves and access to new fields | Civil strife, attacks on infrastrucure, new fields remain inaccessable | 200-250,000 |

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# A Series of Unfortunate Events (cont.)

| | | | |
|---|---|---|---|
| Argentina | Huge production gains from 1991-2001 | Oil industry nationalized in 2004, production and investment dropped | 100,000 |
| Kazakhstan | Production from Kashagan was expected to begin in 2005 | Technical difficulties with some political disagreements | TBD |
| US | ANWR was part of Bush's energy policy when he took office in 2000 | Currently no access to ANWR or OCS | up to 1,000,000 |
| Canada (Alberta) | Oil sands contain 95% of Canada's 179 billion barrells of reserves | In 2007 new taxes and royalty rates helped to reduce lease sale revenues by 50% compared to 2006 | TBD |
| Mexico | Production expected to reach 4 mbd by 2005 | Production in decline since 2004. Cantarell declining and PEMEX needs funding. | 500,000 + |
| Estimated loss of supplies to the world market, 2005-2010: | | | 2.5-4.5 mbd |

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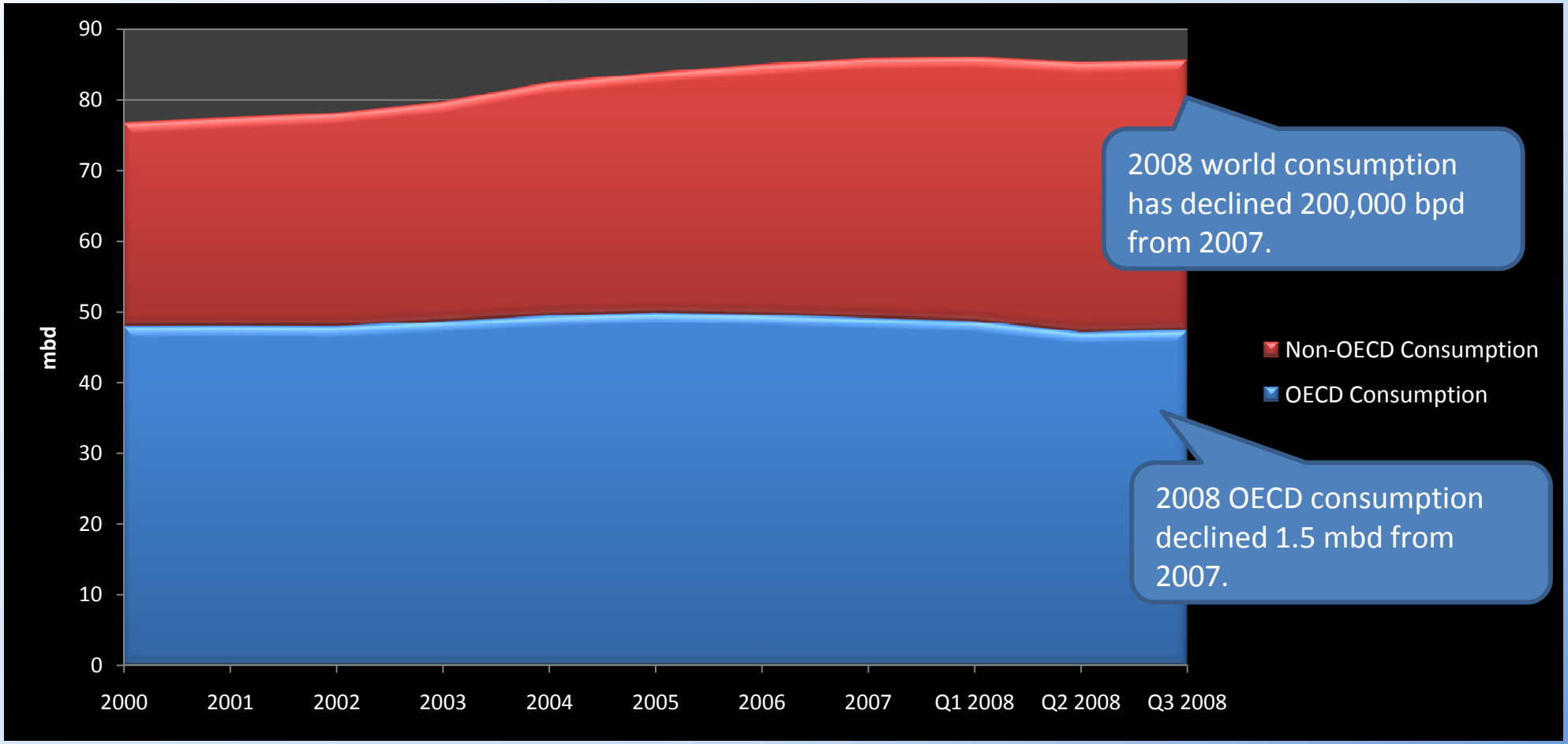
# Demand Destruction Worldwide

- Global demand down slightly so far this year, OECD decline has been greater than demand growth in non-OECD countries.



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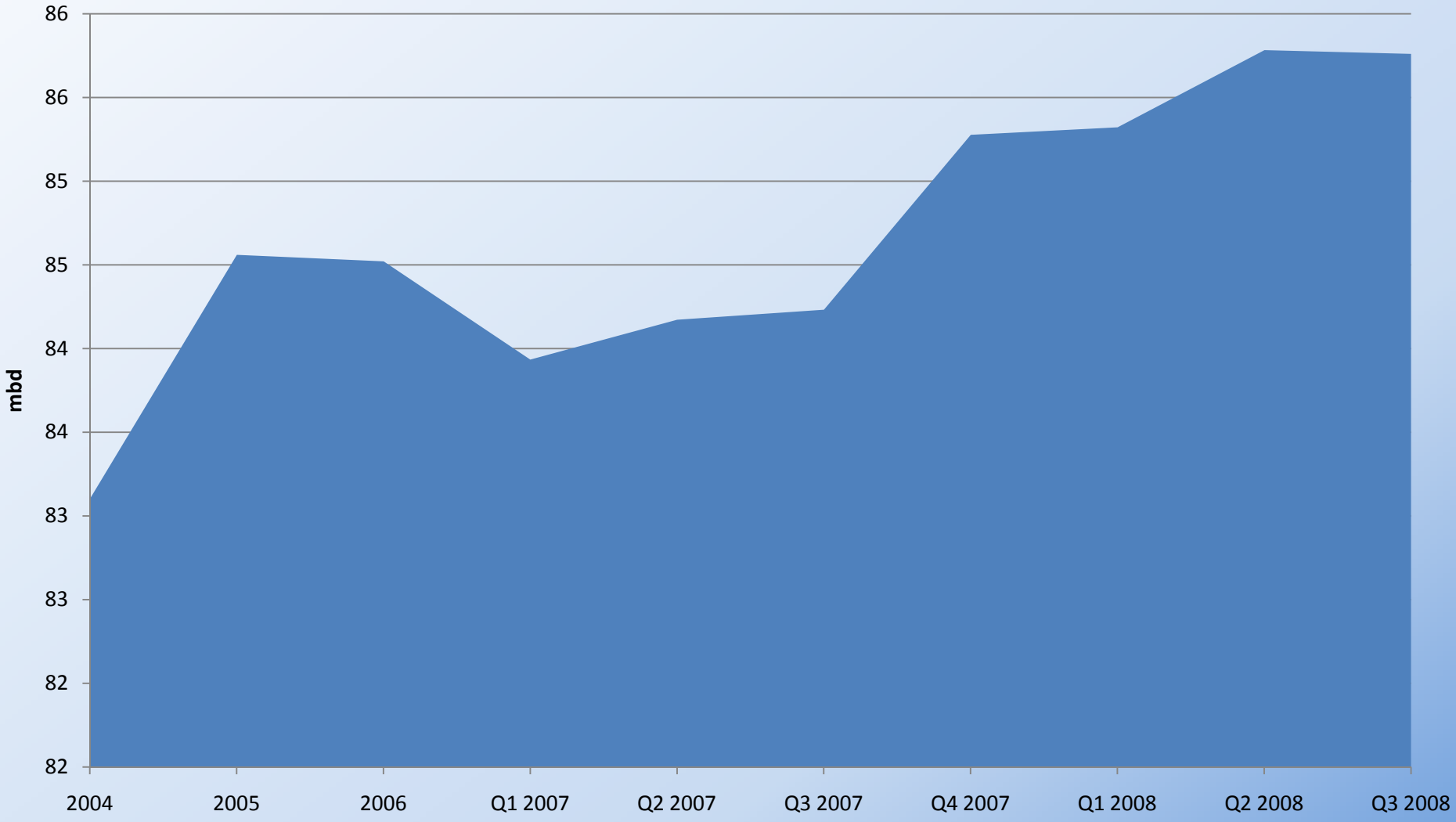
# World Oil Production - Significant Post-2006 Growth



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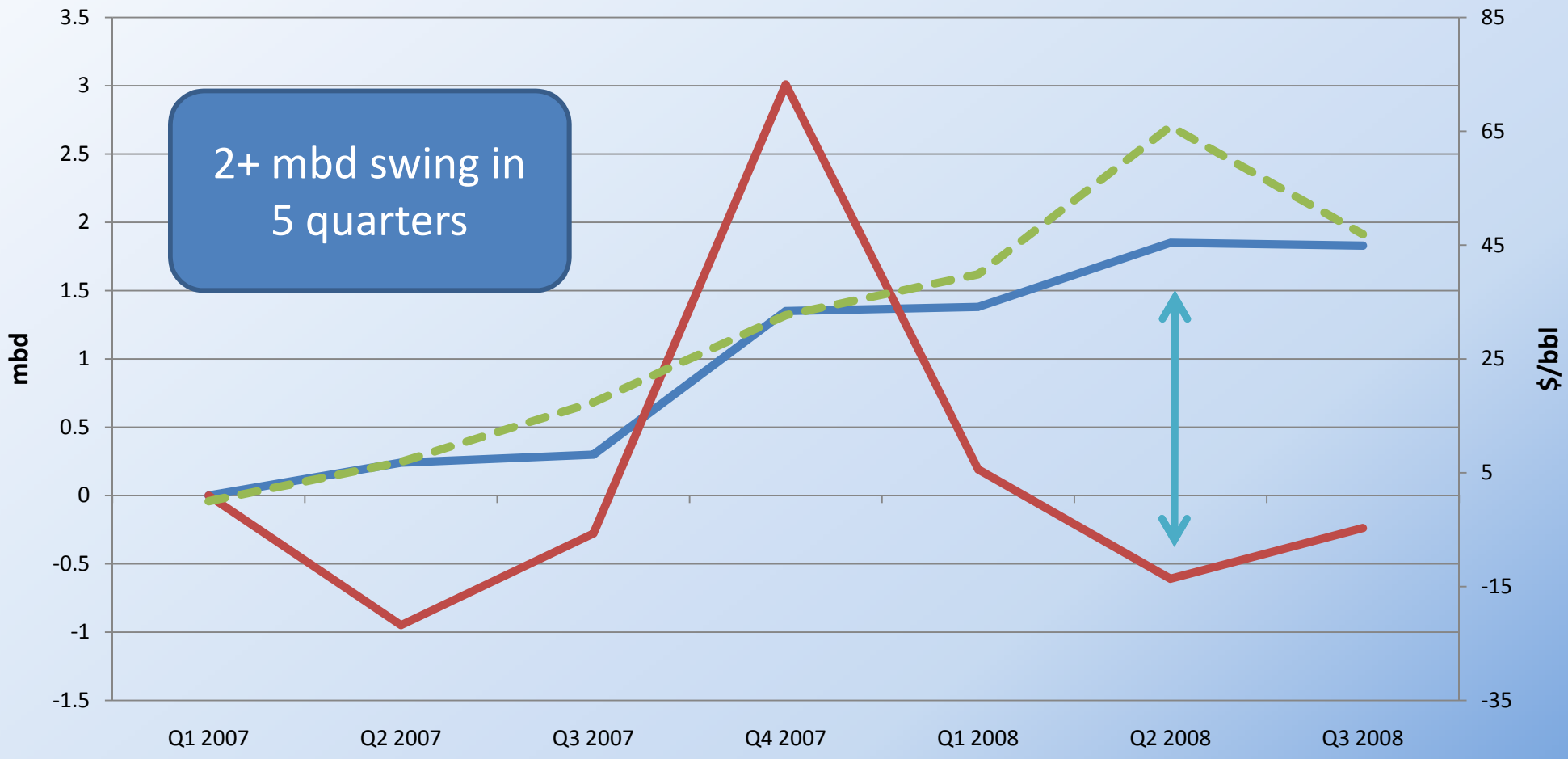
# What's Happened Since 2007?




Source: EIA Data, EPRINC Calculations: All Figures Indexed to 2007

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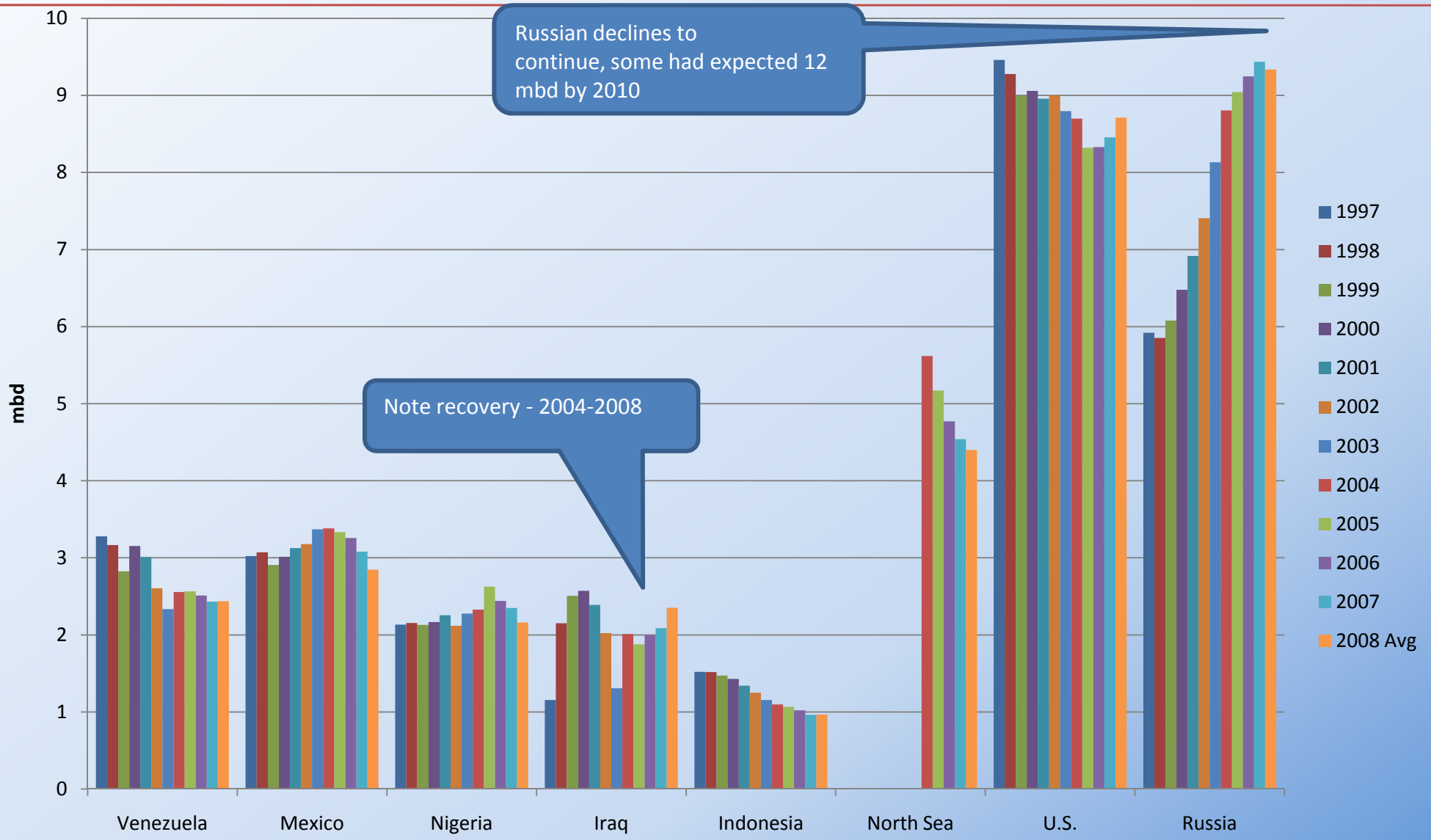
# Recent Production Declines - 1997-2008



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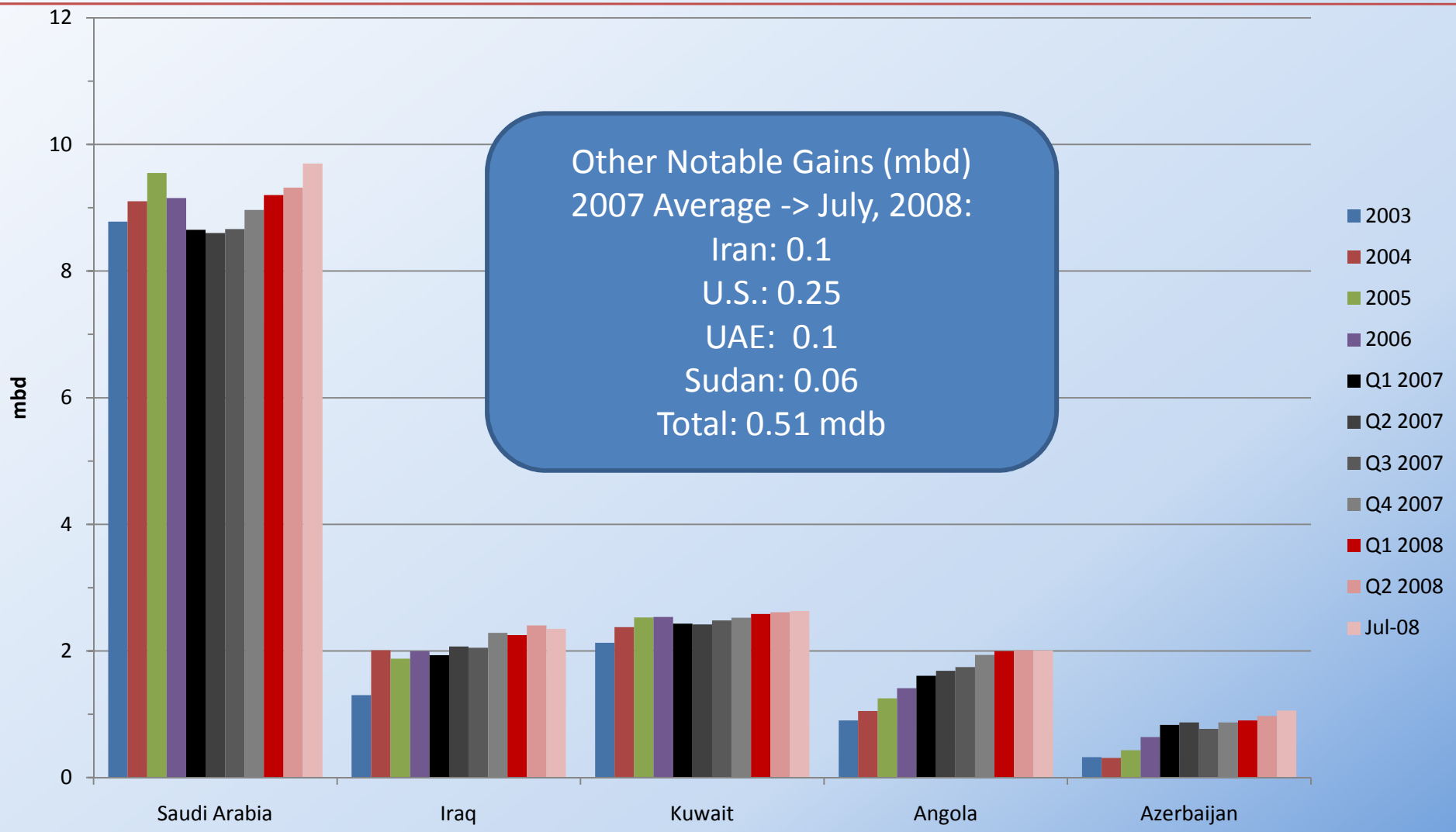
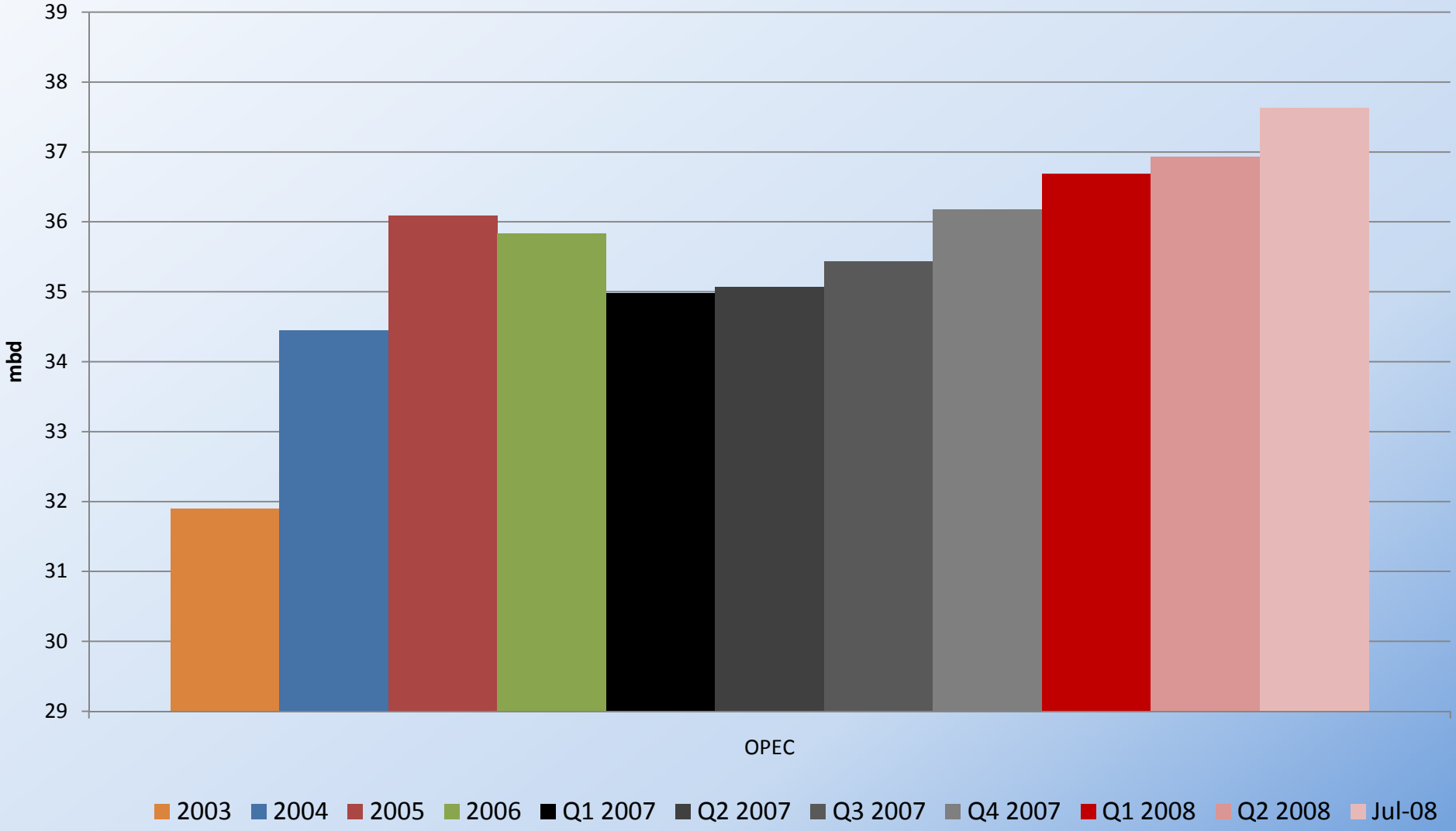
# Some Production Bright Spots



## …..Led by OPEC Production



# What About Peak Oil

## The Wrong Question!!!

# The Peak Oil Problem: New Supplies Will Be More Expensive, but We Are Not Running Out of Oil

# San Joaquin Valley

## Testing Hubbert-Method Predictions for Reserves and Production (Billions of Barrels)

| | 1964 | 1982 | 2000 |
|---|---|---|---|
| Cumulative Discoveries | 7.7 | 11.8 | 16.1 |
| Percent Attributable to 1915 | 49% | 69% | 76% |
| Cumulative production as of | 8.0-9.5 | 11.9-12.1 | 16.1-16.2 |
| Year 2000 production projected in: (mb/d) | 44-112 | 189 | 597(actual) |

Source: EPRINC, October 2006. *Does the Hubbert Method Provide a Reliable Means for Predicting Future Oil Production*, Richard Nehring, October 2006,

# Permian Basin

## Testing Hubbert-Method Predictions for Reserves and Production (Billions of Barrels)

| | 1964 | 1982 | 2000 |
|---|---|---|---|
| Cumulative Discoveries | 17.6 | 27.9 | 35.2 |
| Percent Attributable to 1950 | 85% | 86% | 84% |
| Cumulative production as of | 19-27.5 | 28.5-30.5 | 35.8-37.5 |
| Year 2000 production projected in: (mb/d) | 162-479 | 326-479 | 910(actual) |

Source: EPRINC, October 2006. *Does the Hubbert Method Provide a Reliable Means for Predicting Future Oil Production*, Richard Nehring, October 2006,

# How Not to Transition to the Fuels of the Future

## Big Oil, Ethanol and Offshore Leasing

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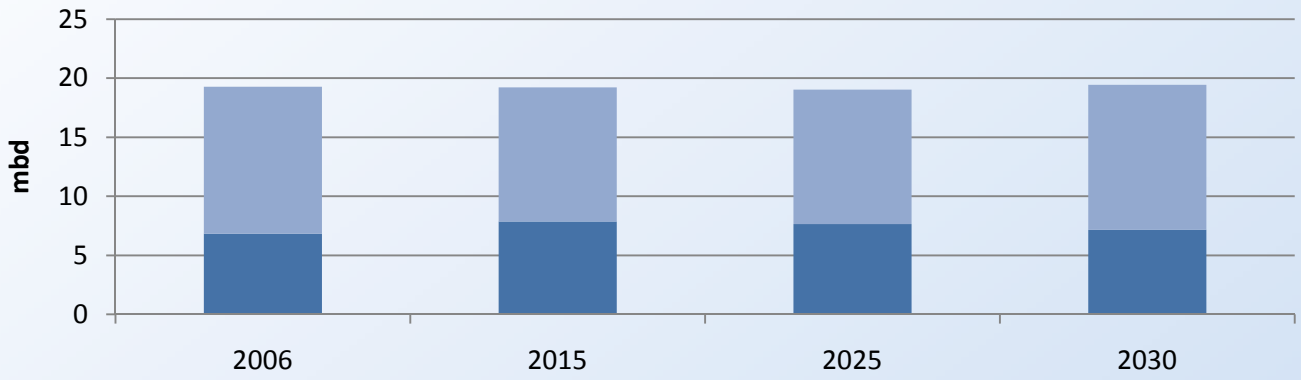
# U.S. Gov't Revenues from Leases

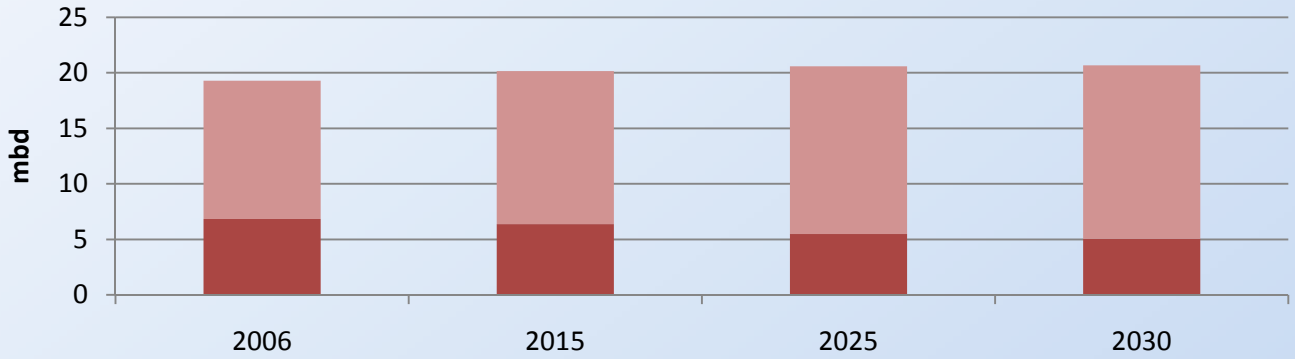
- In 2007 the Federal Government received $9.4 billion from oil and gas revenues royalties.
  - In 2008 royalties expected to be greater due to higher crude prices.
- FY 2007 lease sales raised over $3 billion.
  - MMS offshore lease sales thus far in 2008 have generated high bids of over $9 billion.
    - Does not include state revenues, delay rental fees, etc.

Source: MMS



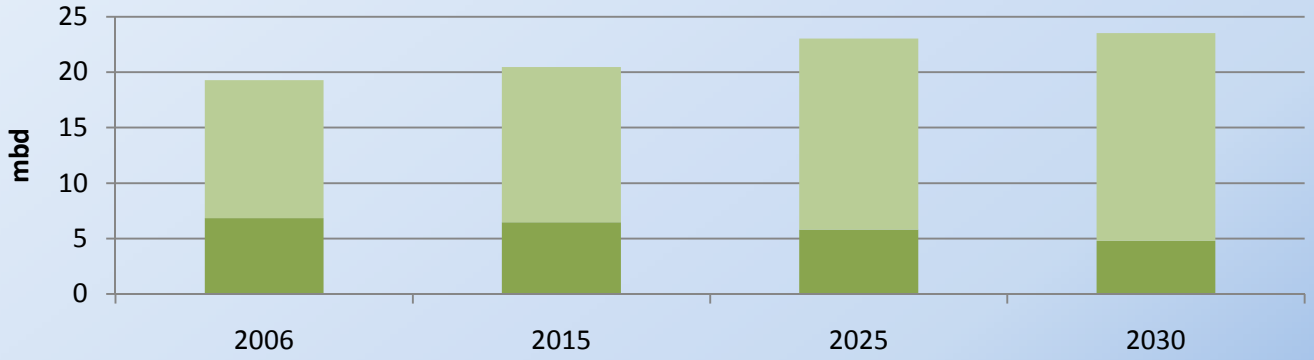

EIA Net Imports

EIA Crude/NGL Production




Global Insight, Inc. Net Imports

Global Insight, Inc. Crude/NGL Production




Deutsche Bank Net Imports

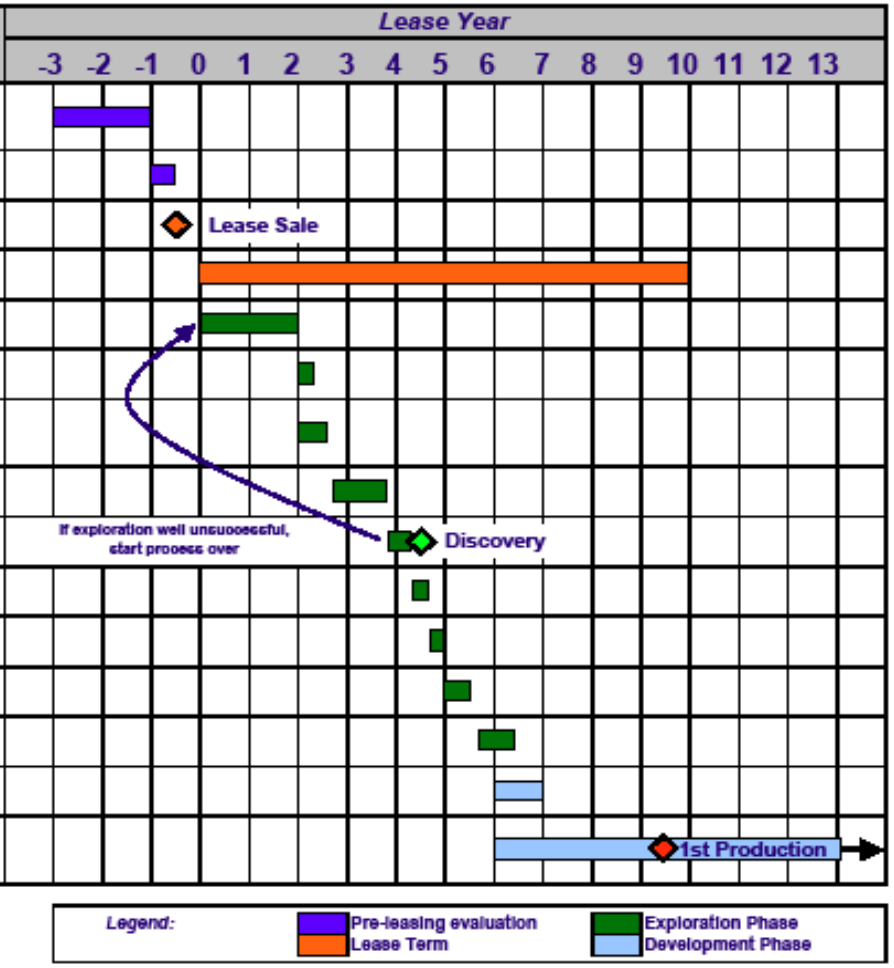
Deutsche Bank Crude/NGL Production

All estimates from the EIA's 2008 Annual Energy Outlook. EIA estimates assume EISA2007 biofuel production levels are met.

# Gulf of Mexico Deepwater Frontier Exploration and Production Timeline

## Individual Prospect: 5,000' Water Depth, 30,000' Drilling Depth

| Cost (millions) | Cumulative Cost (millions) | Activity |
|---|---|---|
| $1-5 | $1-5 | Acquire 2D and 3D seismic and evaluate geological, geophysical and engineering data to identify leads/drilling ideas. |
| | | Prepare bids for lease sale. |
| $10-200 | $11-205 | Lease sale - sealed competitive bidding process. |
| $1-2 | $12-207 | High bid leases awarded (10 year term). Cumulative annual lease rentals. |
| $5-10 | $17-217 | Acquire and interpret 3D and other data to turn ideas into drillable prospects. |
| | | Find partners to share costs to drill exploratory well. |
| | | Perform shallow hazard, archeological and other regulatory permitting requirements to obtain Federal approval to drill. |
| | | Contract a rig to drill. |
| $100-150 | $117-367 | Drill exploration well. |
| $40-60 | $157-427 | Drill sidetrack to exploration well. |
| | | Evaluate results. |
| $100-300 | $257-727 | If encouraging, drill appraisal/delineation well(s) and sidetrack(s). |
| | | Evaluate well results, formulate plan of development for discovery. |
| | | Prepare and file permits for development, wait for approvals. |
| $1,000-5,000 | $1,300-5,700 | Sanction commerciality, build and install facility, drill and complete producing wells to achieve production. |



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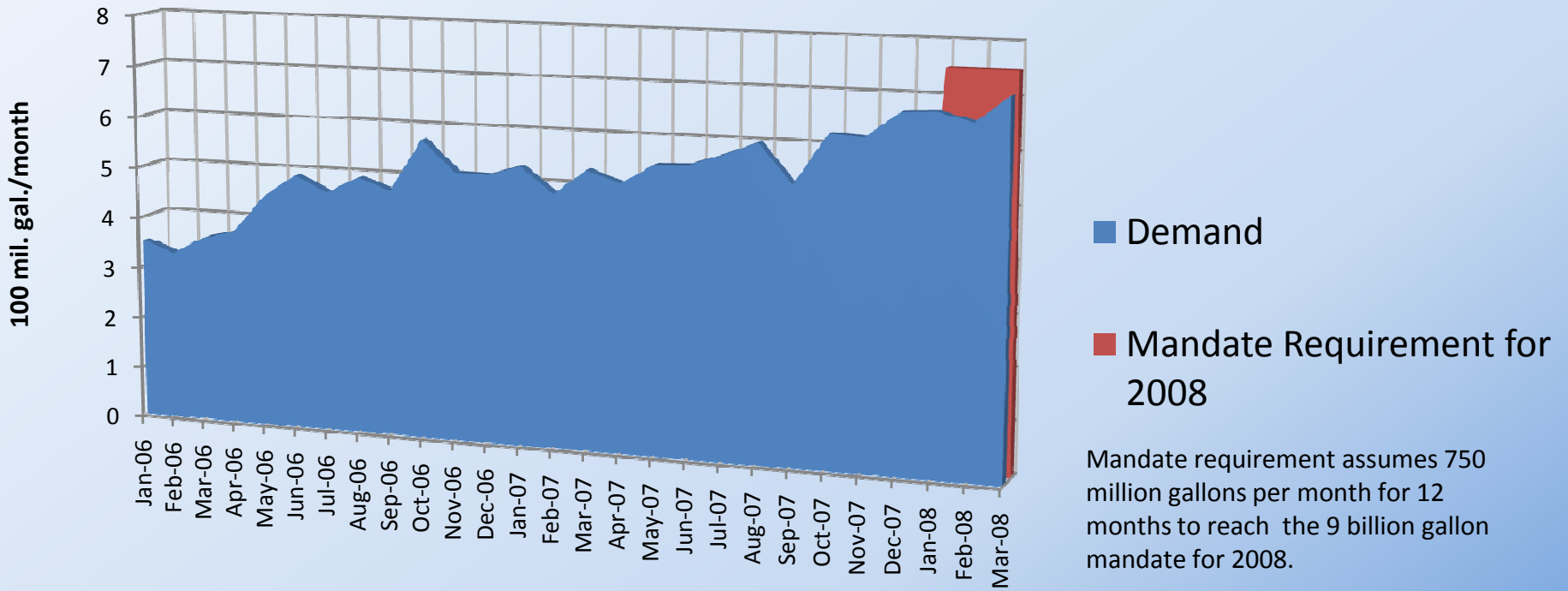
# US Ethanol Consumption: 2006 - Present




Mandate requirement assumes 750 million gallons per month for 12 months to reach the 9 billion gallon mandate for 2008.

Source: Renewable Fuels Association

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# Cost of Ethanol Subsidies

- $7 billion per year (Economist, 2007)
  - About $1.90/gallon.
  - More than 200 types of subsidies
    - $11.2bn+ since 2005 on tax breaks for companies that blend ethanol into petrol (Financial Times)
    - Billions of dollars of subsidies for ethanol producers
  - Tariff on ethanol imports
    - Aimed at preventing imports from Brazil
    - 54 cents/gallon

Source: The Economist, Financial TImes

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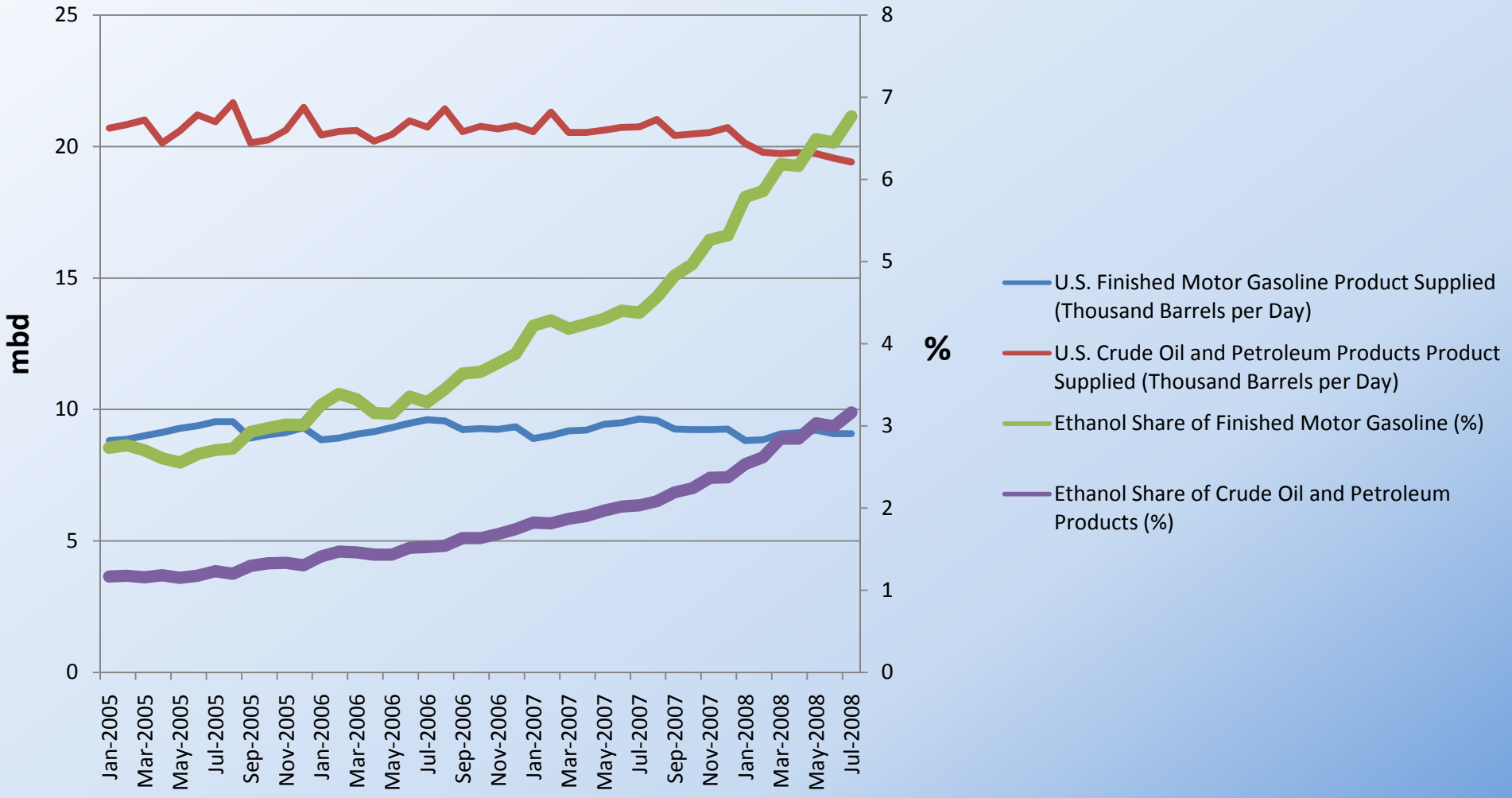
# Ethanol's Share of Crude Products and Gasoline



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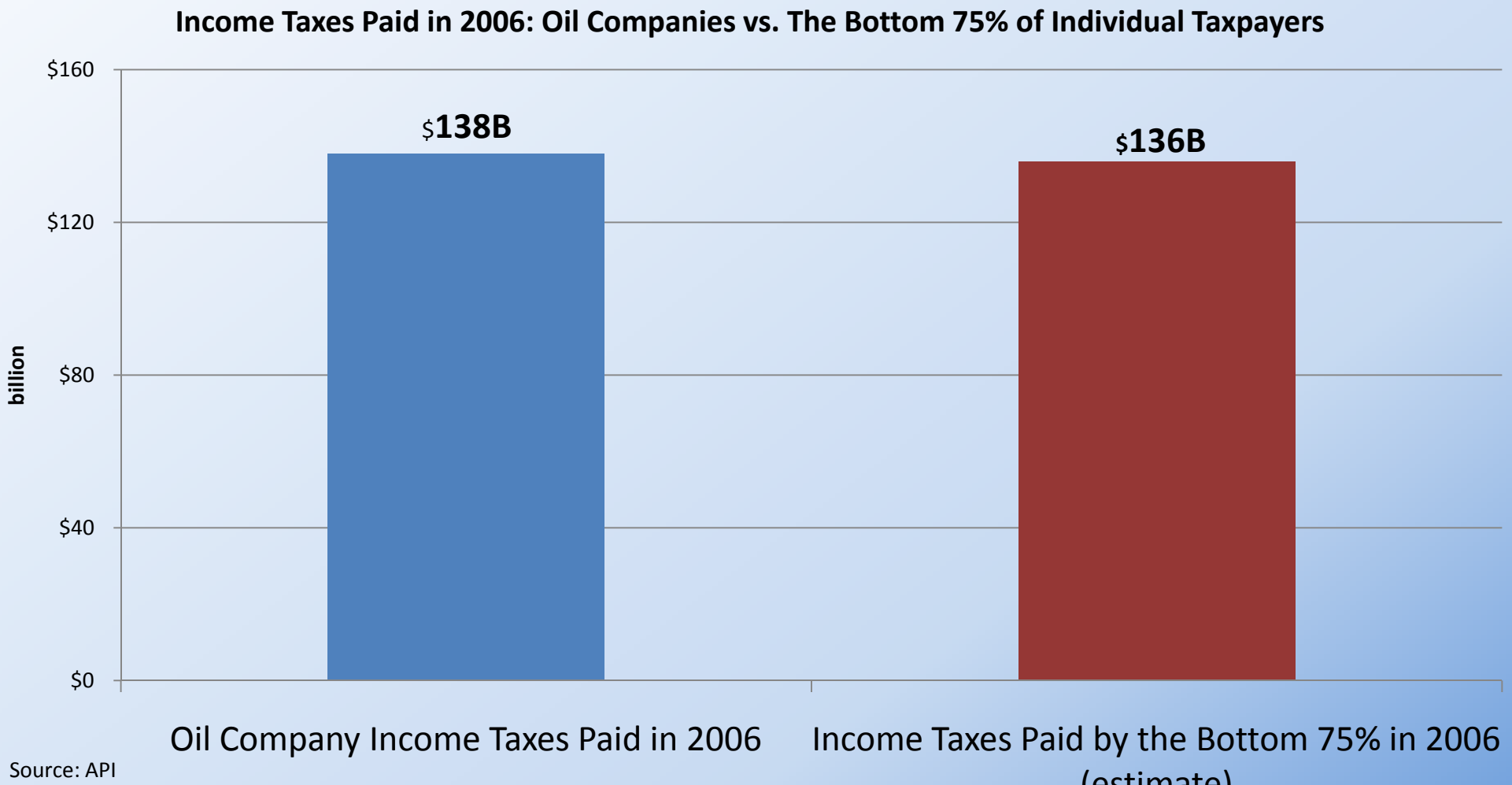
# Oil's Tax Bill




Source: API

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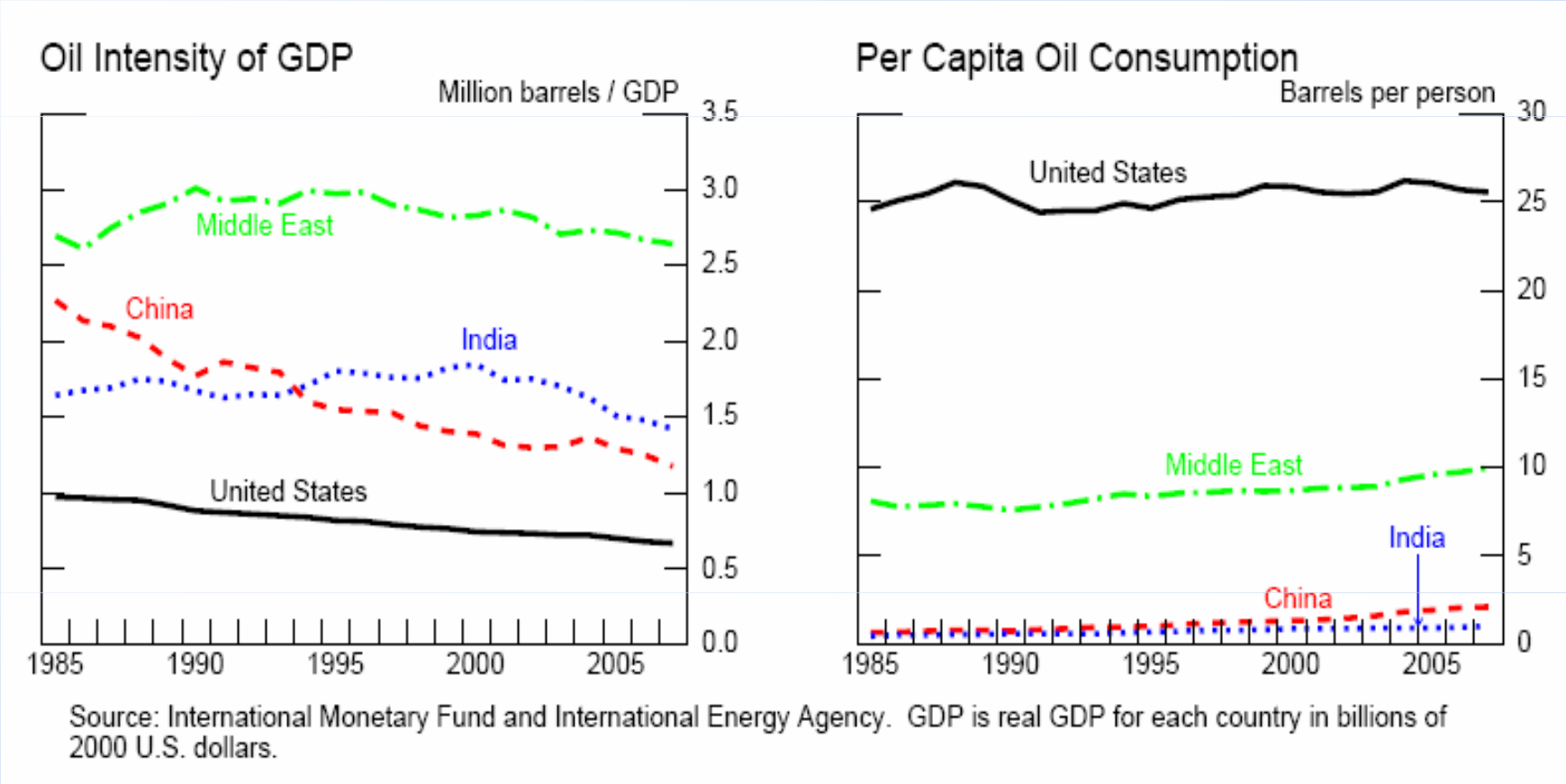
# Are We Using Too Much Oil?

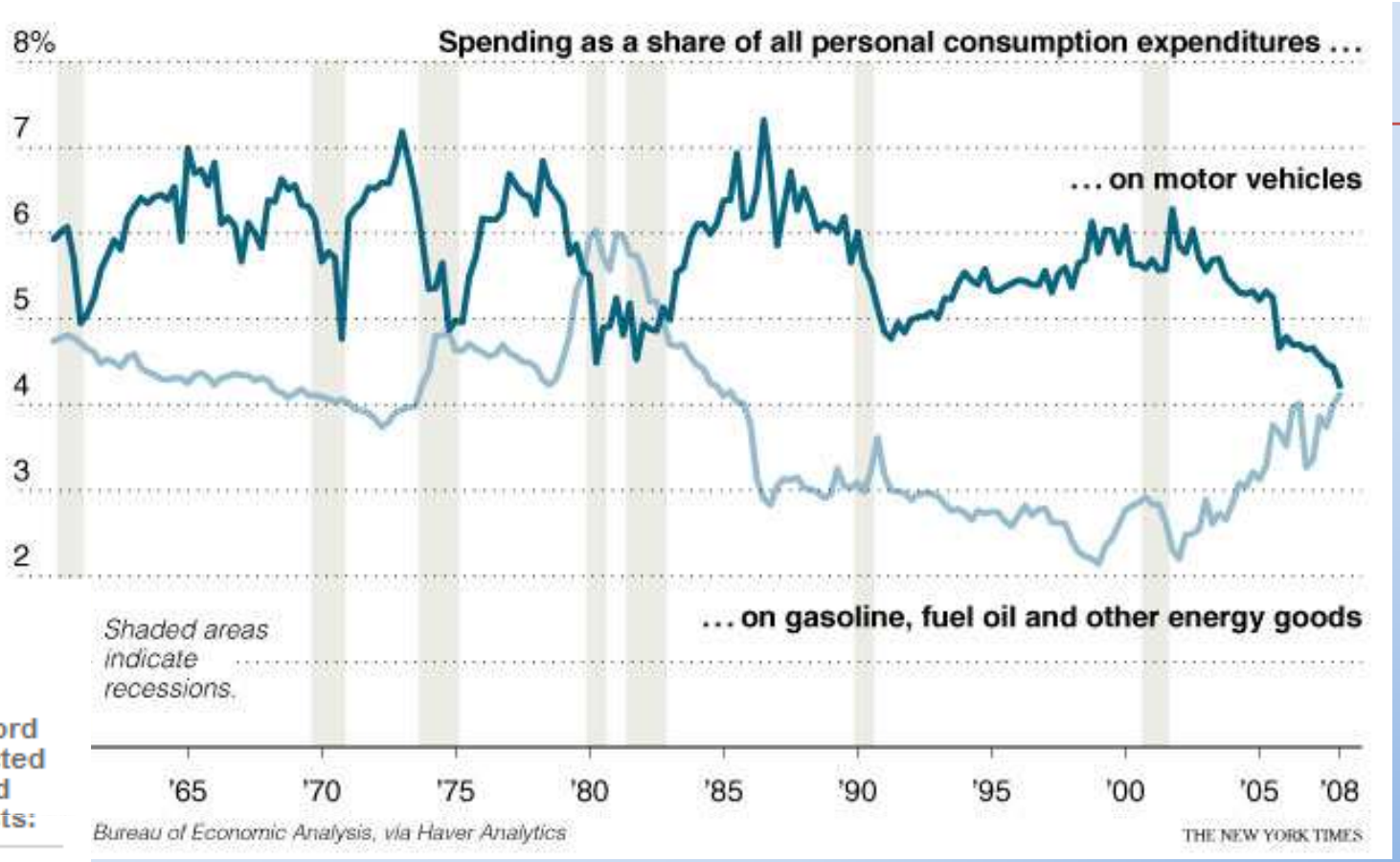
# Oil Intensity of GDP




Source: International Monetary Fund and International Energy Agency. GDP is real GDP for each country in billions of 2000 U.S. dollars.

Source: CFTC Interim Report on Crude Oil, June 2008

# Cost to consumers…..




## PAYING MORE FOR HEAT

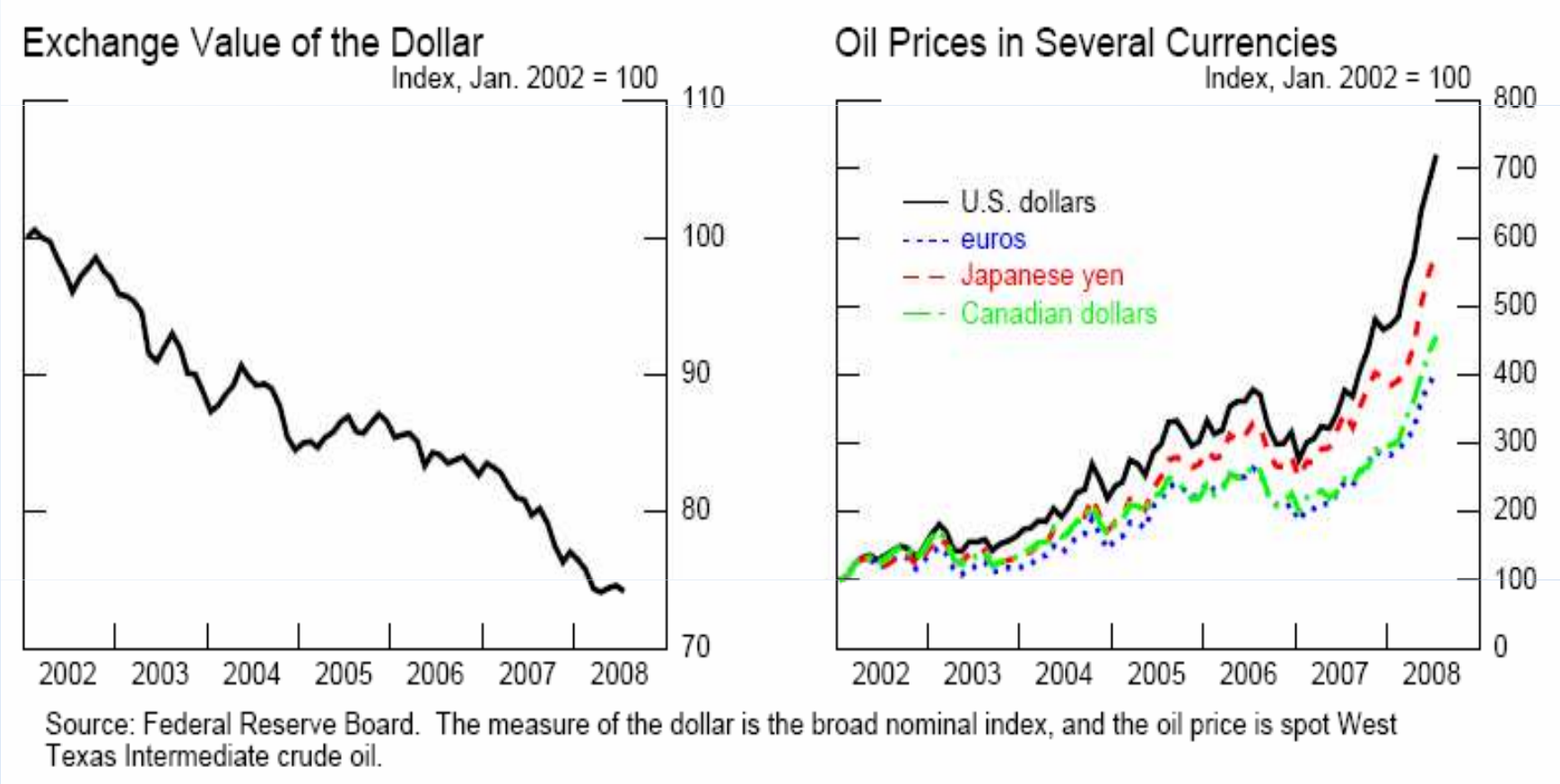
Consumers are expected to pay record prices for heating this winter. Projected average household expenditures and percentage change from 2007-08 costs:

| Expenditures | Change |
|---|---|
| Heating oil $2,644 | ▲ 36.3% |
| Natural gas $1,059 | ▲ 23.8% |
| Electricity $939 | ▲ 9.4% |

*Source: Energy Information Administration*

Source: New York Times, USA Today

# Oil Prices by Currency




Source: Federal Reserve Board. The measure of the dollar is the broad nominal index, and the oil price is spot West Texas Intermediate crude oil.

Source: CFTC Interim Report on Crude Oil, June 2008

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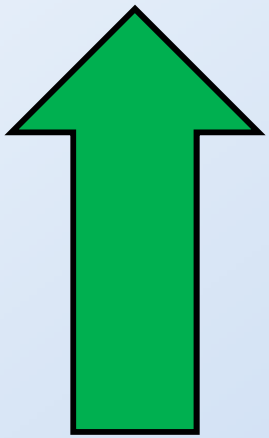
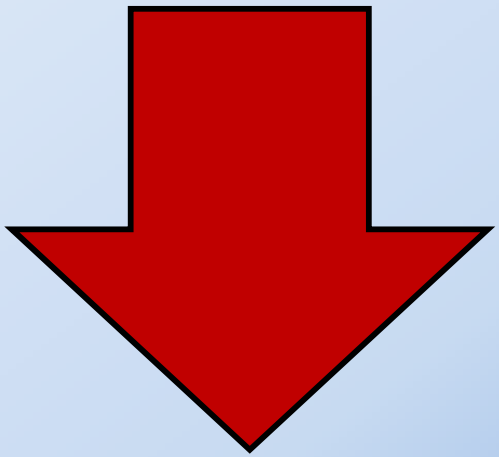
# Role of the $

## July 1, 2008 – October 8, 2008:

| Dollar | Crude Oil |
| --- | --- |
|  |  |
| + 7.4% | - 36.9% |

Sources: Federal Reserve, EIA
Prices for WTI

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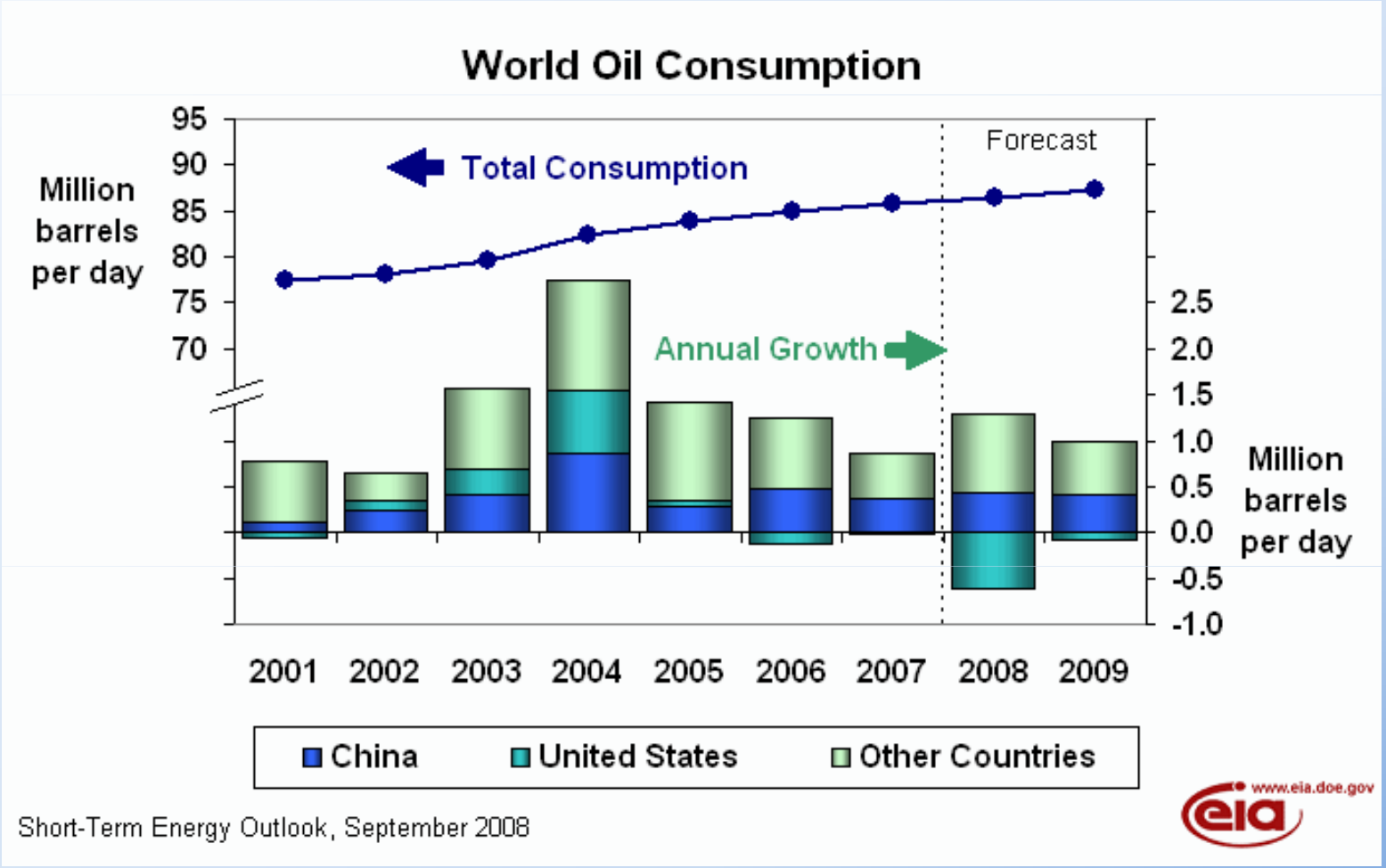
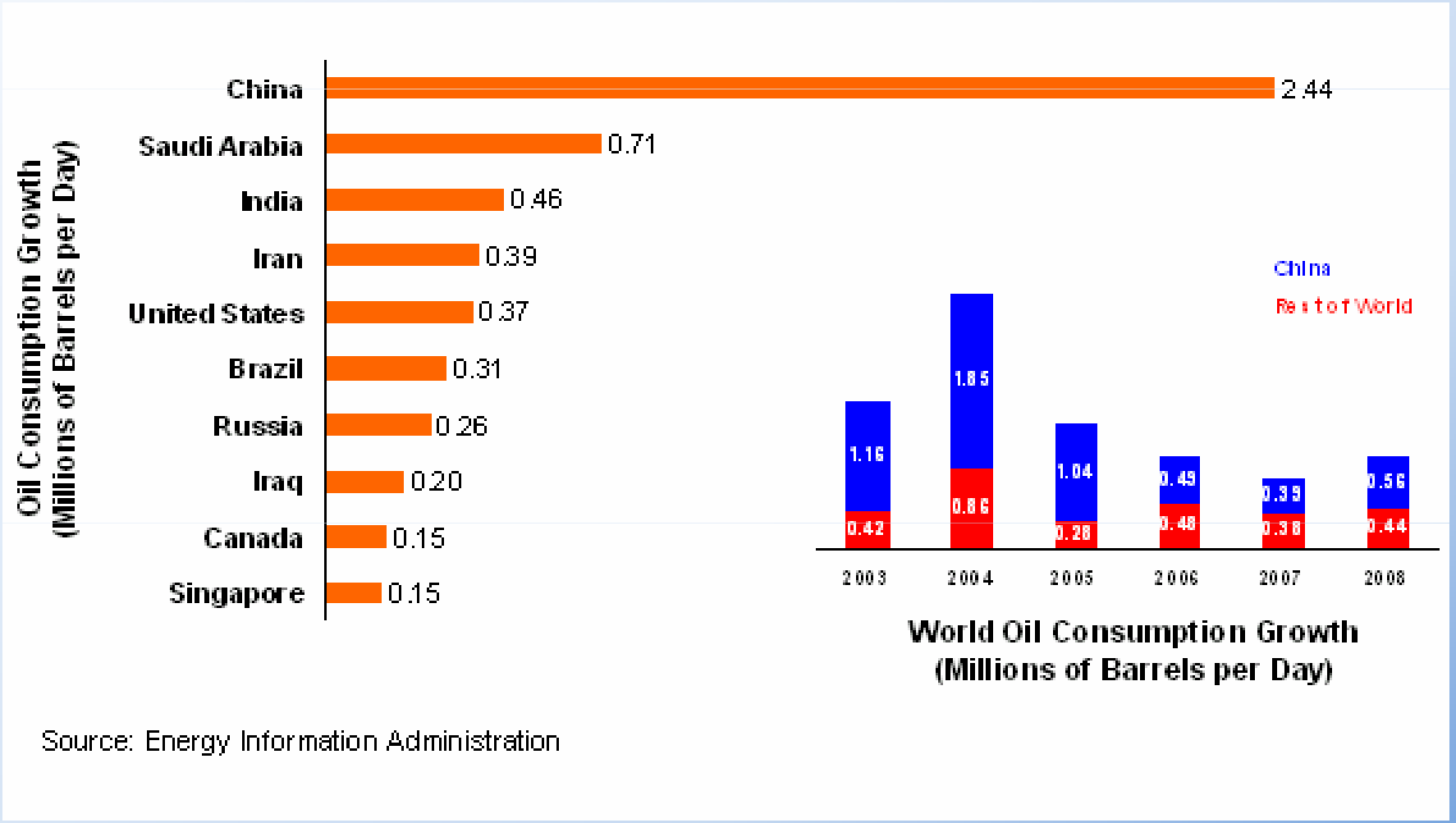
# Slides for Q's and A's

# World Oil Consumption



# World Oil Consumption




Source: Energy Information Administration

Source: CFTC Interim Report on Crude Oil, June 2008

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# Why You Should Stop Worrying About Peak Oil

- You'll never get the right answer
- Put your effort into something useful, such as the backstop price
- Congress has already decided that any alternative fuel, no matter how expensive, is worth supporting as an alternative to petroleum

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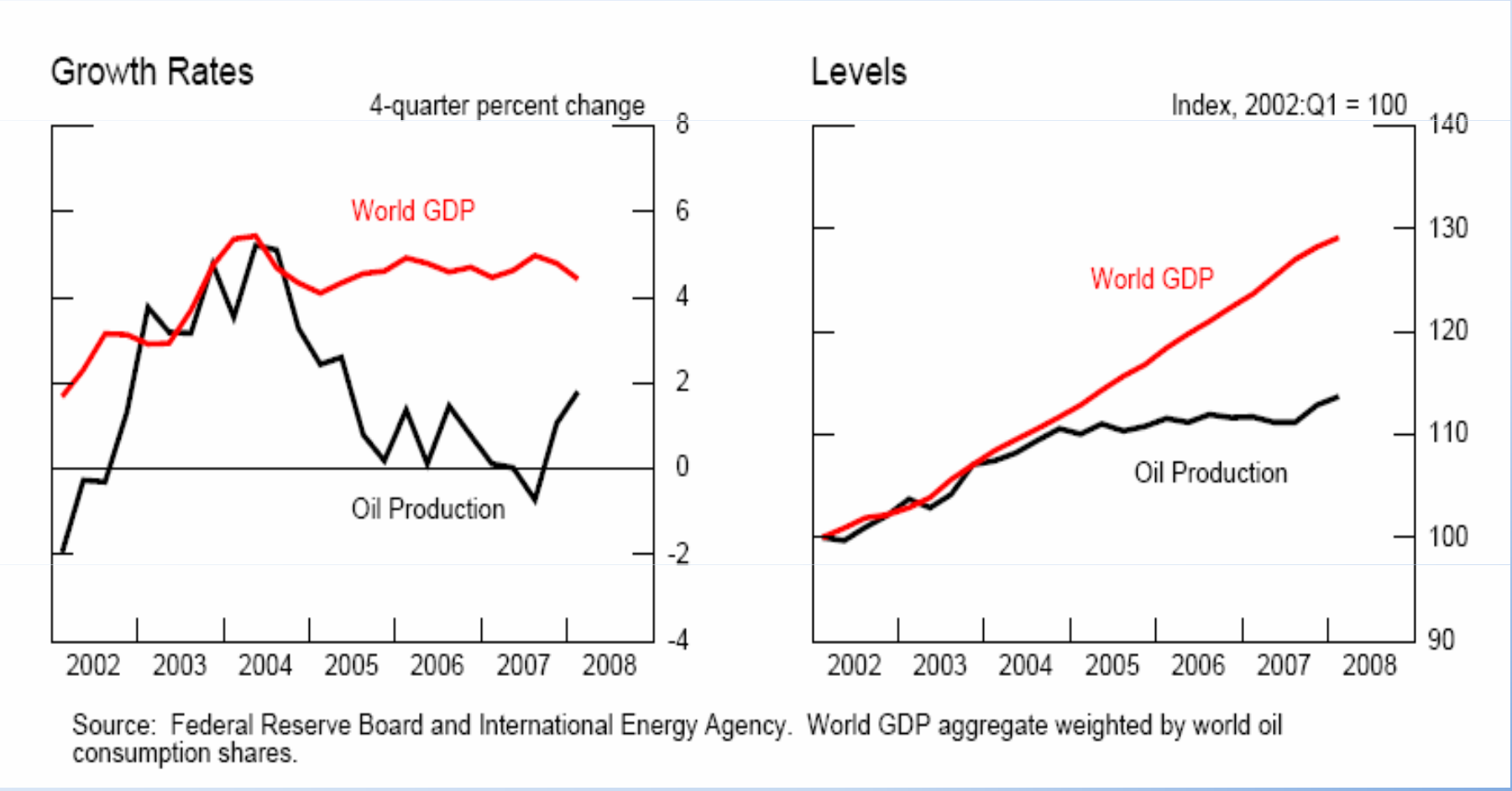
# Global Crude Demand – EIA October STEO

- After summer price rally, demand is currently off, in part due to worldwide economic difficulties.
  - Worldwide economic downturn has removed some crude demand from the market
  - EIA has again revised down 2008 crude demand growth – now only +300,000 bbl/d in 2008 over 2007, which is 350,000 bpd lower than last month's forecast, which itself was a downward revision of earlier estimates.
  - OECD Consumption to decline 1.1 mmbbl/d in 2008.
- However, though some crude supply has rebounded, supply will remain tight.
  - OPEC has cut production in hopes of maintaining high prices

# World GDP vs. Oil Production




Source: Federal Reserve Board and International Energy Agency. World GDP aggregate weighted by world oil consumption shares.

Source: CFTC Interim Report on Crude Oil, June 2008

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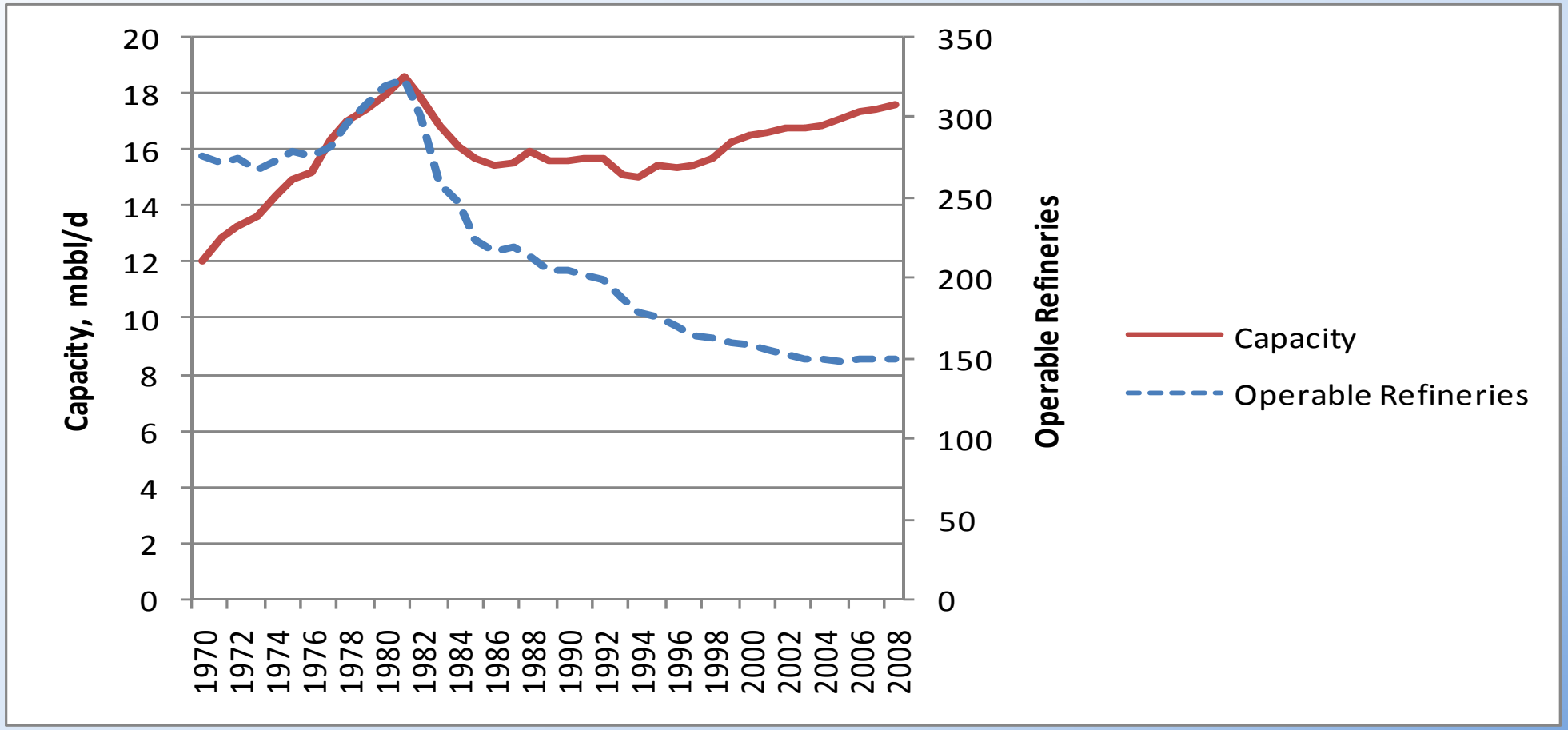
# Operable Refiners and Capacity




Source: EIA Data

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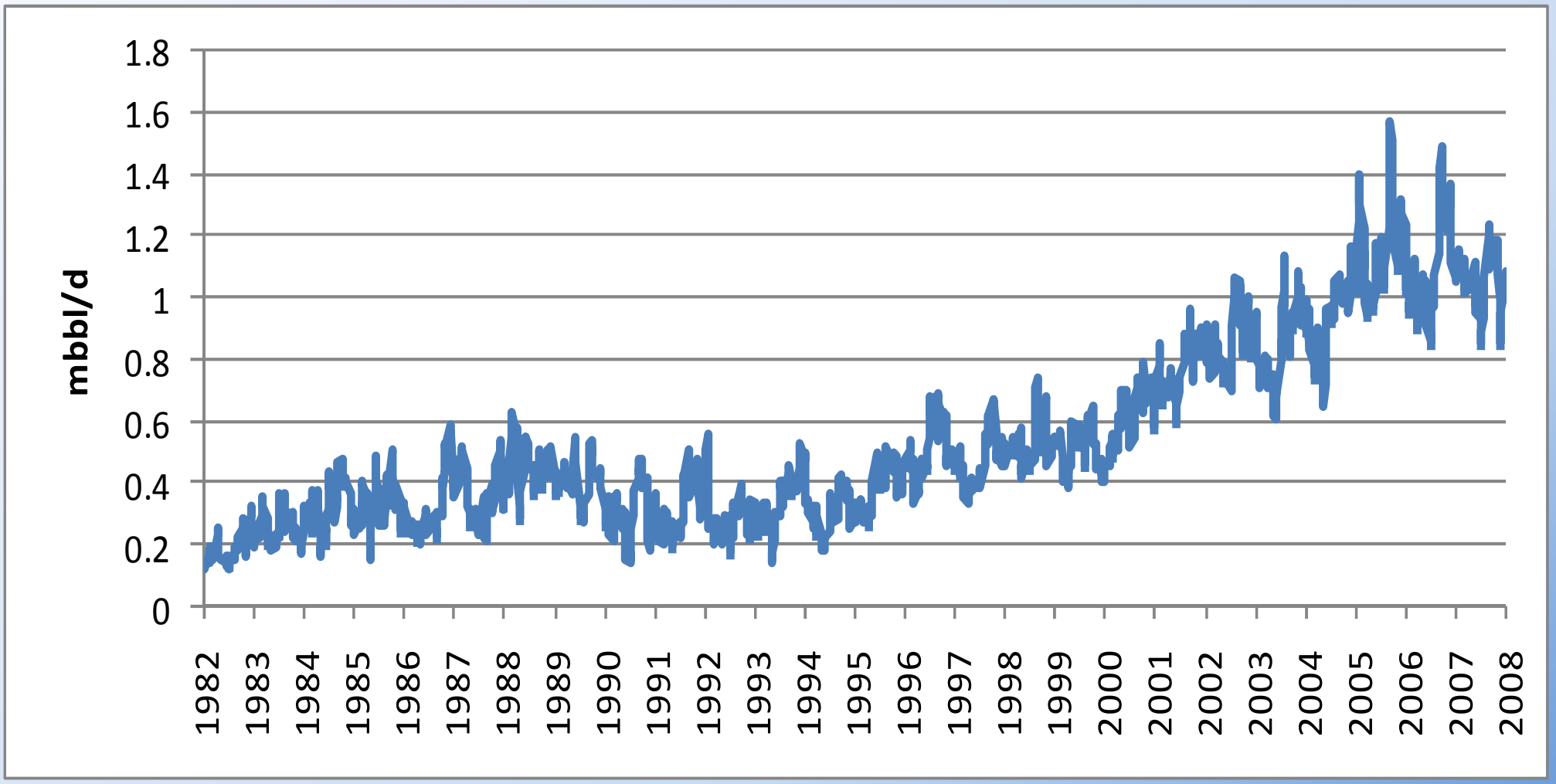
# U.S. Total Gasoline Imports




Source: EIA Data

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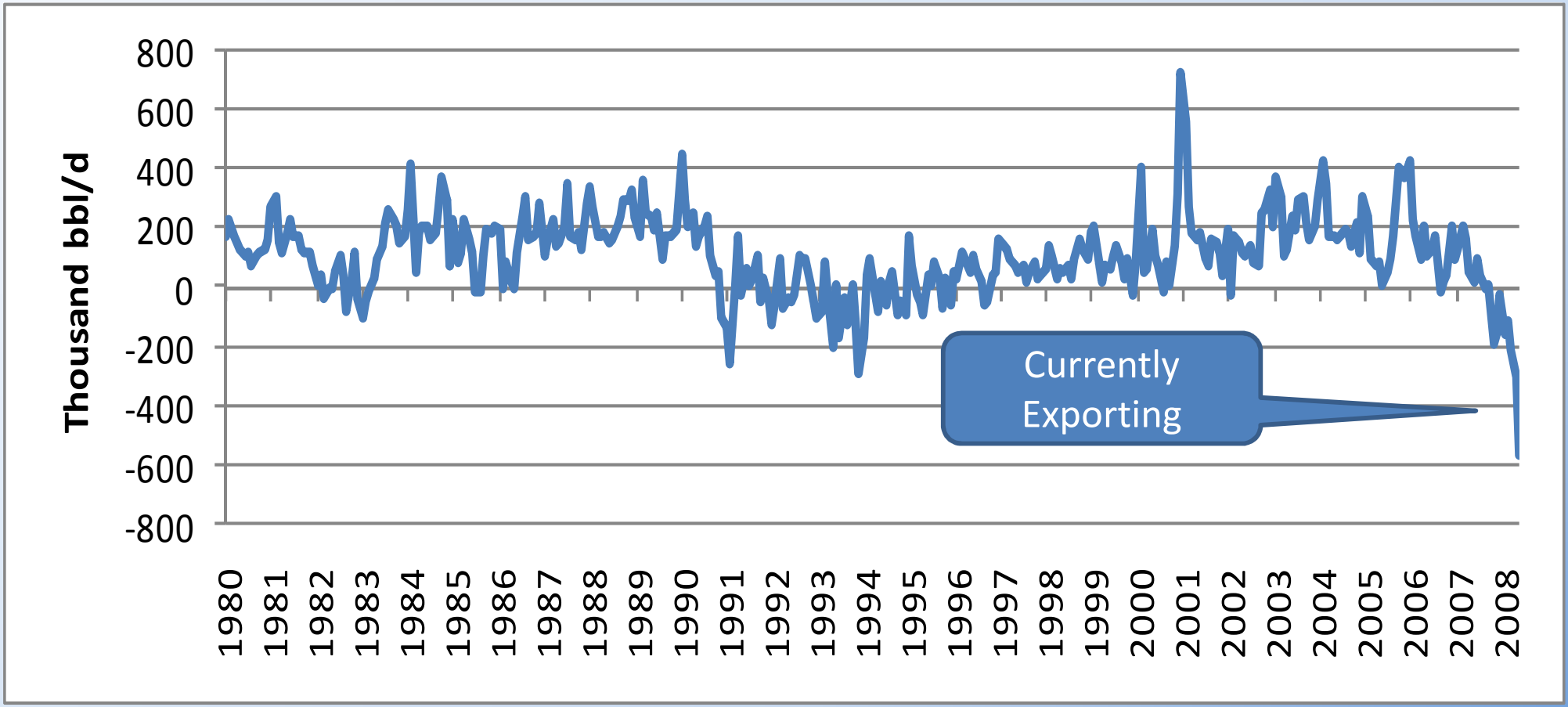
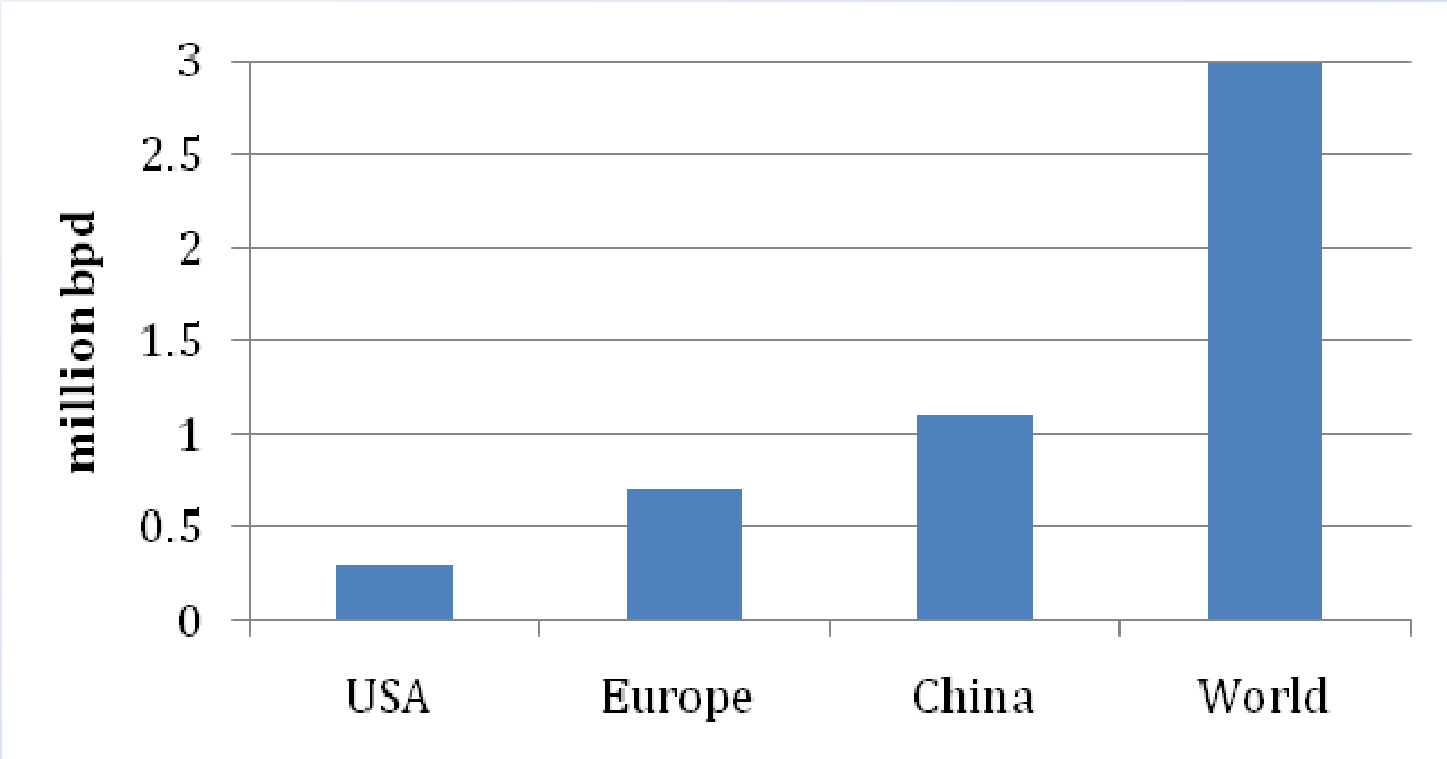
# U.S. Distillate Fuel Oil Net Imports




Source: EIA Data

# Distillate Consumption Growth: 2003 - 2007




Source: EIA Data

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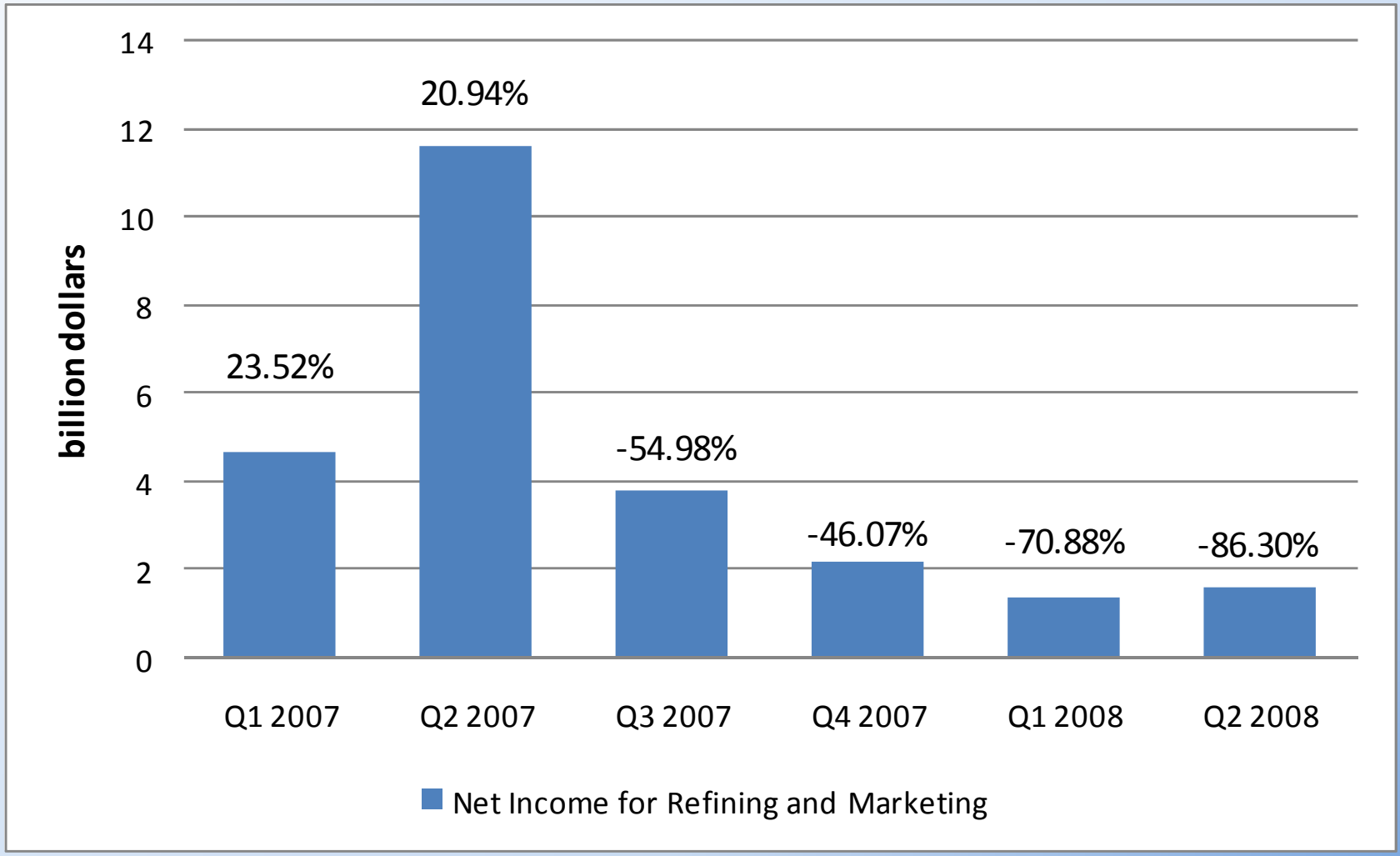
# Profitability in Refining and Marketing – 2007-2008
(with year-over-year change)




Source: EIA Data and EPRINC Calculations

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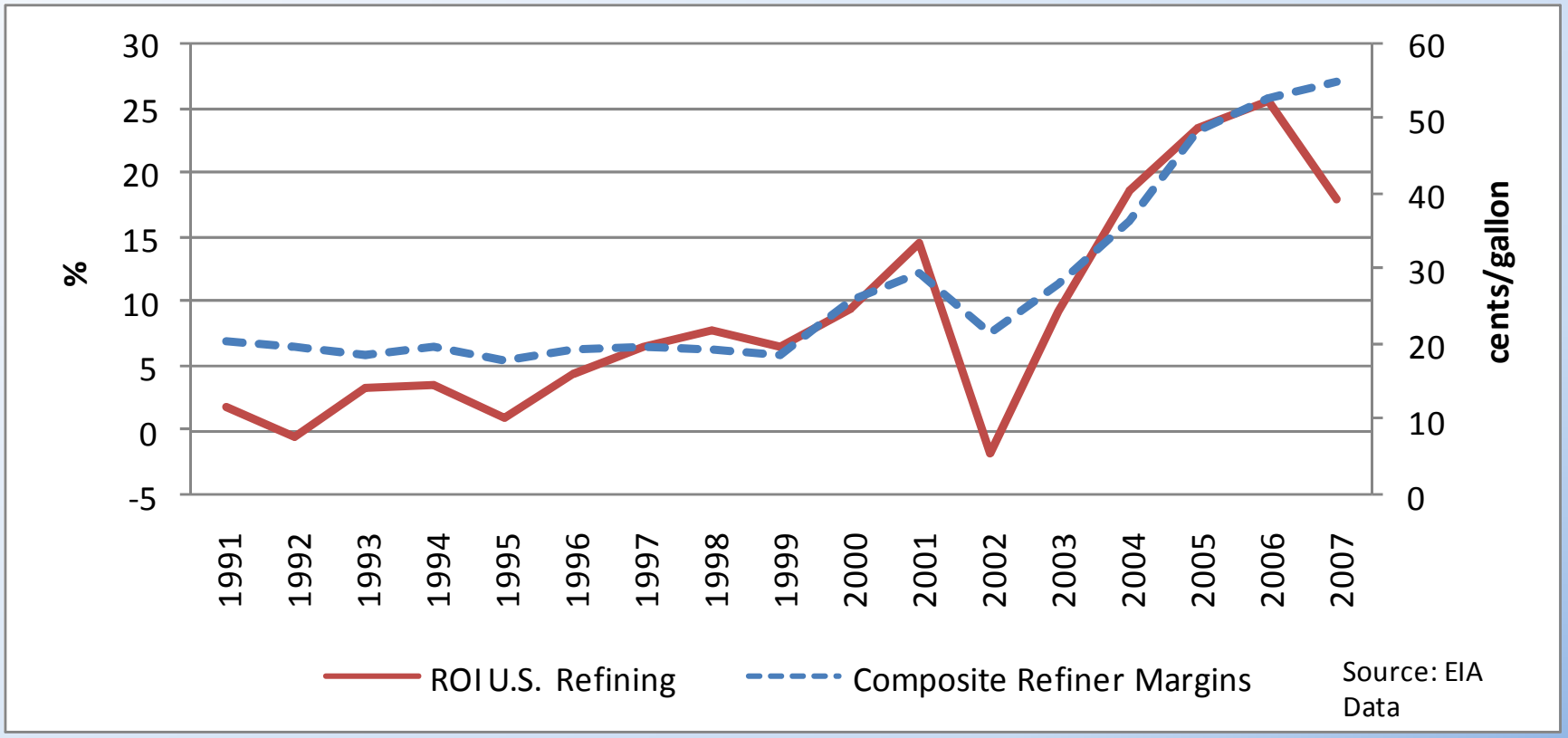
# Refiner Margins vs. ROI



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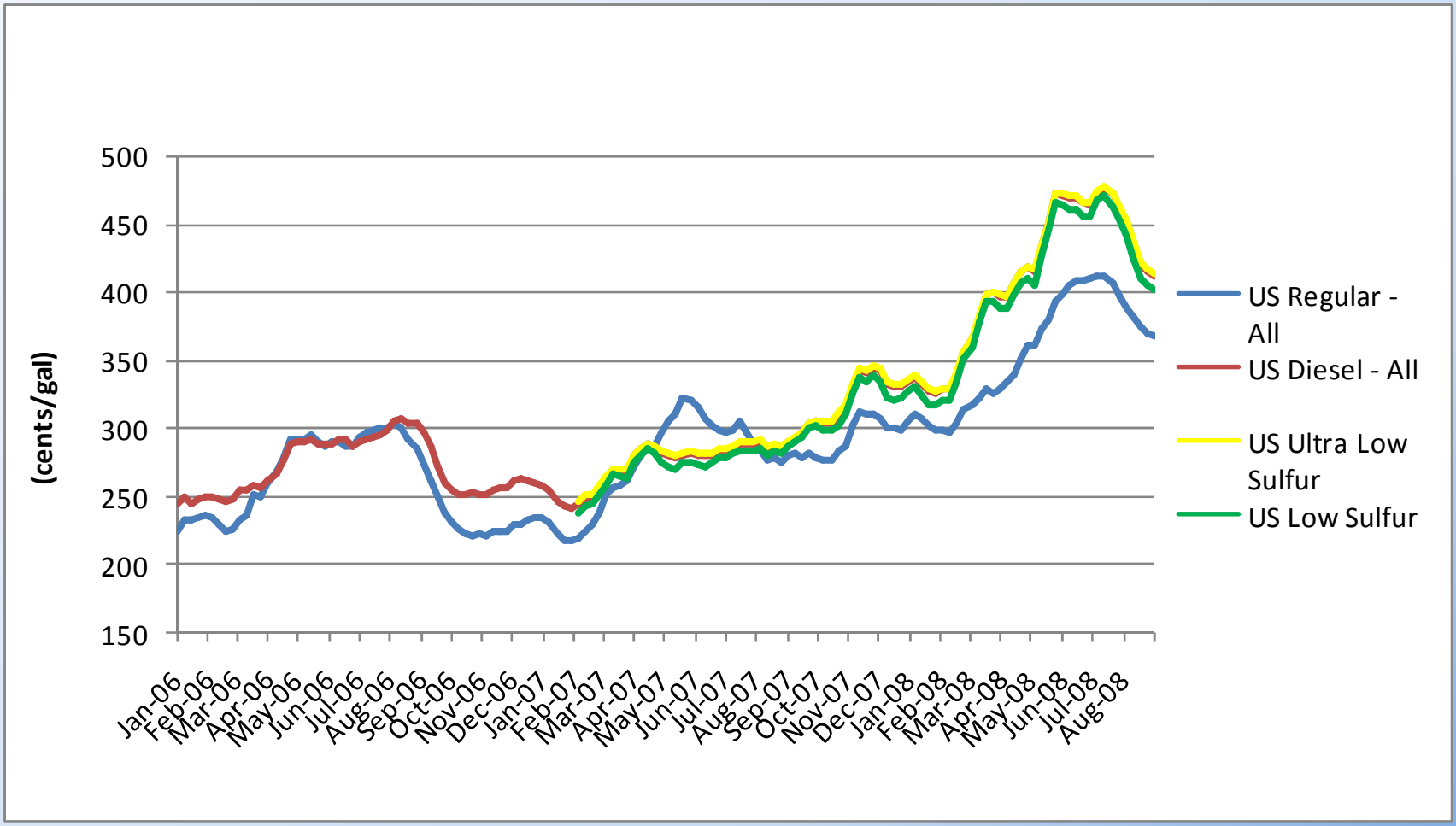
# U.S. Retail Prices: Gasoline vs. Diesel 2006 - 2008




Source: http://tonto.eia.doe.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm