



Energy Situation and Outlook

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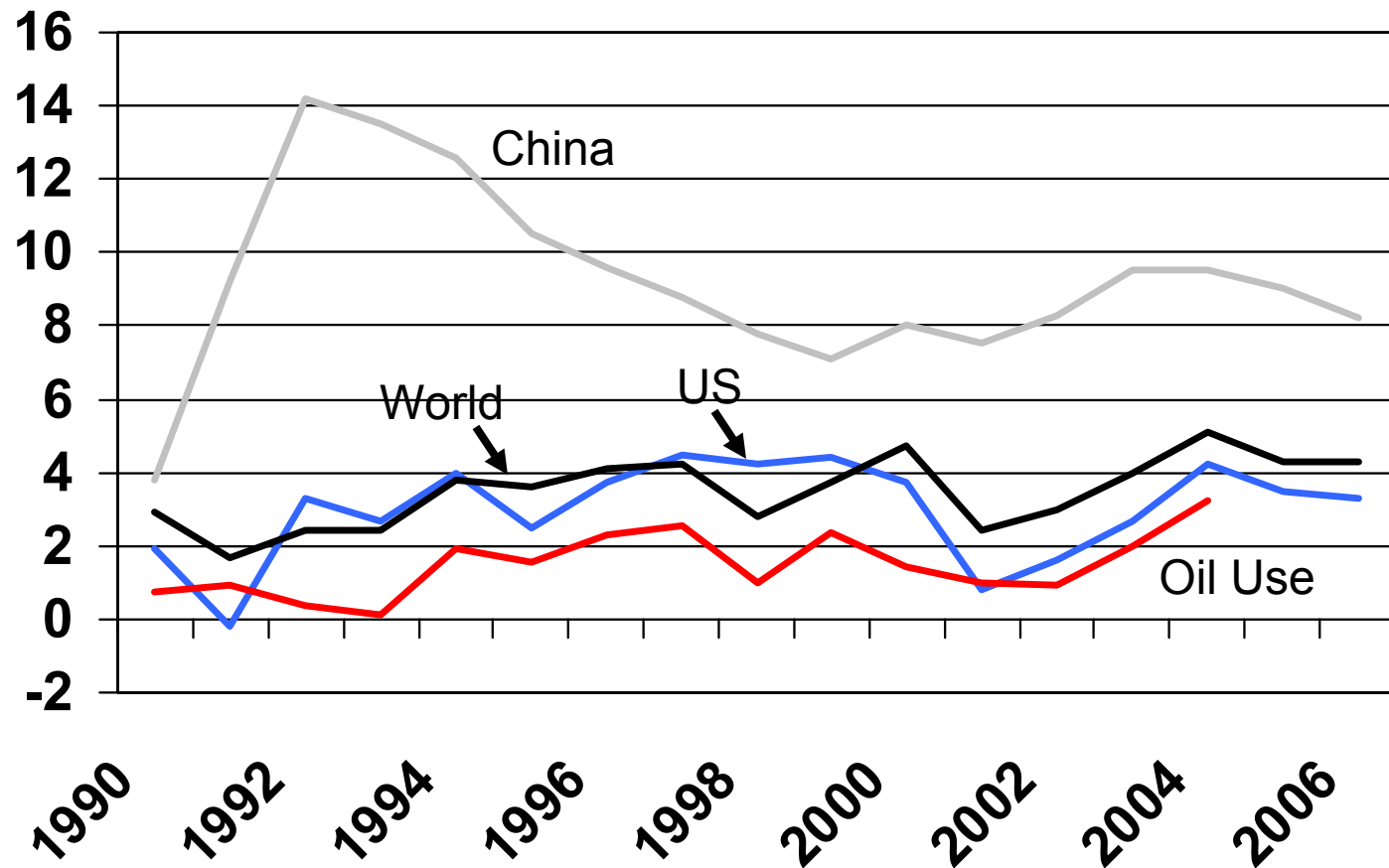
Overview

- Oil Prices
- Gasoline/Diesel Prices
- Natural Gas Prices
- Hurricane Impacts

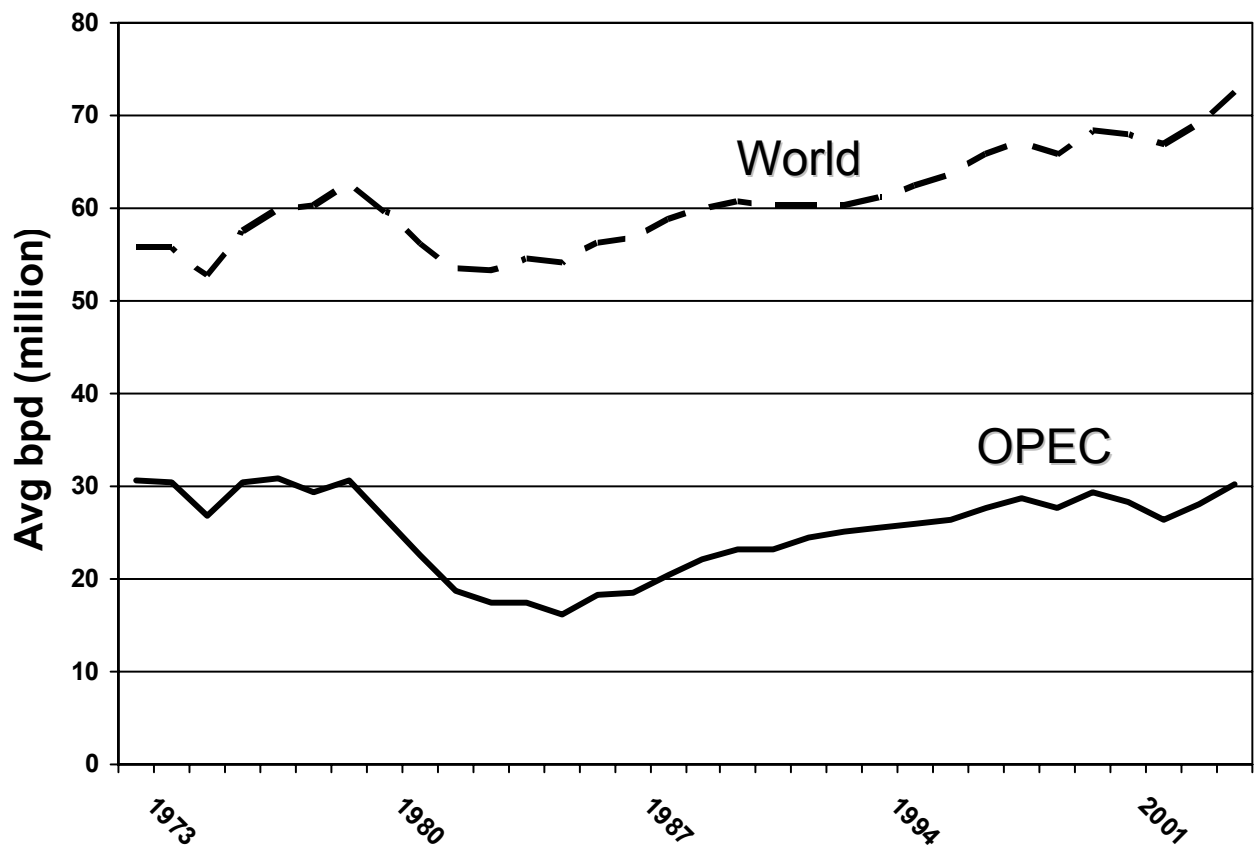
Crude Oil Demand

- China:
 - 9.1% GDP growth in '04; 9.3 in '05.
 - Averaged >5% since 1990.
 - In 1990, China was a net oil exporter, now the 2nd largest importer
- Global growth of 5.1% in '04, 4.3% in '05.
- Oil demand estimated 3.3% higher in 2004 than 2003, and 2.3% higher in 2005.

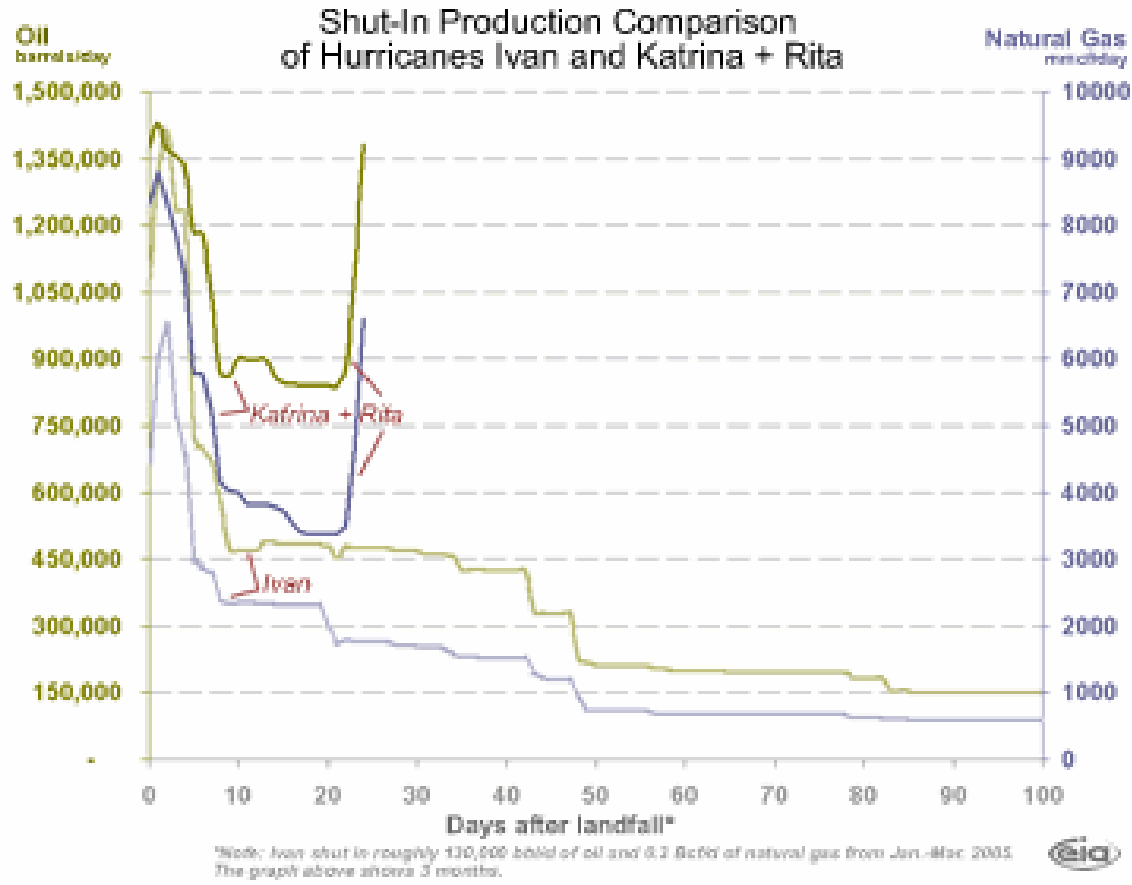
Global Economic Growth, 1990-2005



Crude Oil Production



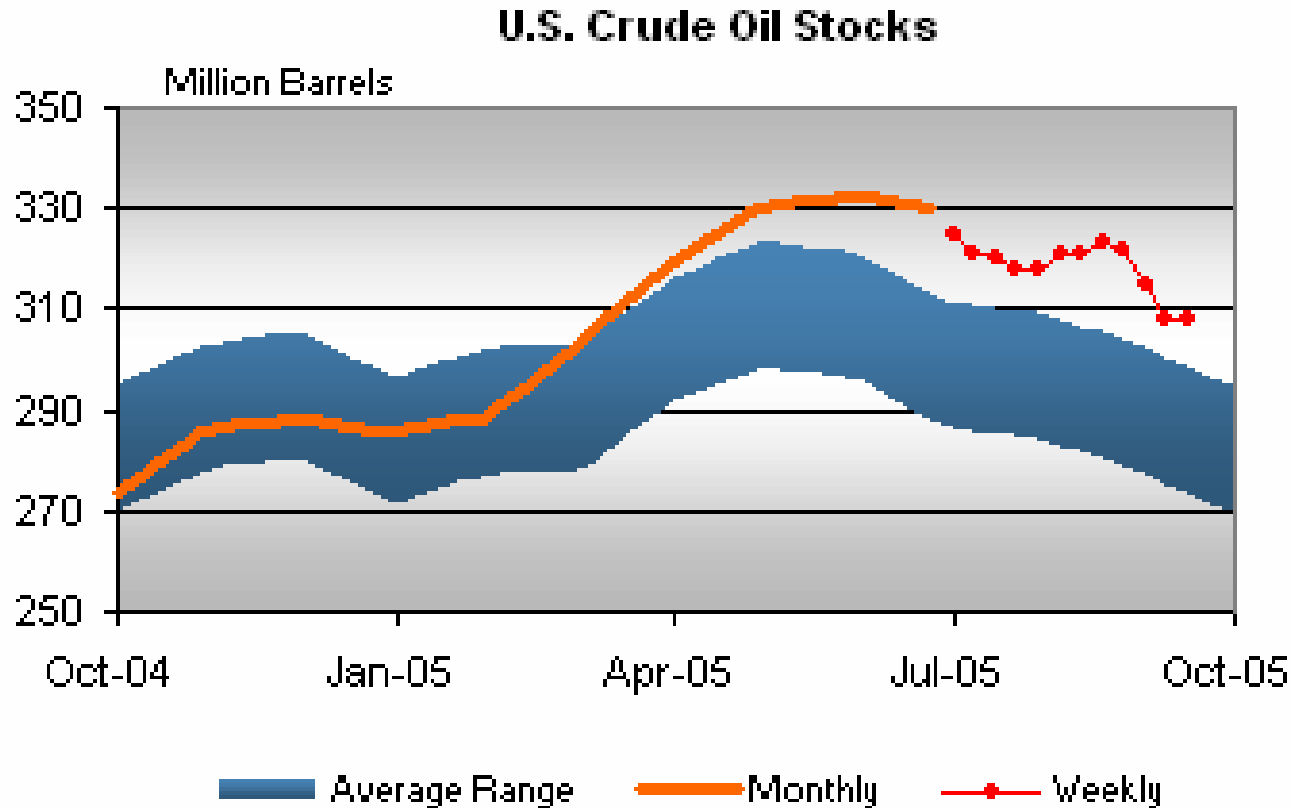
Crude Oil Supply



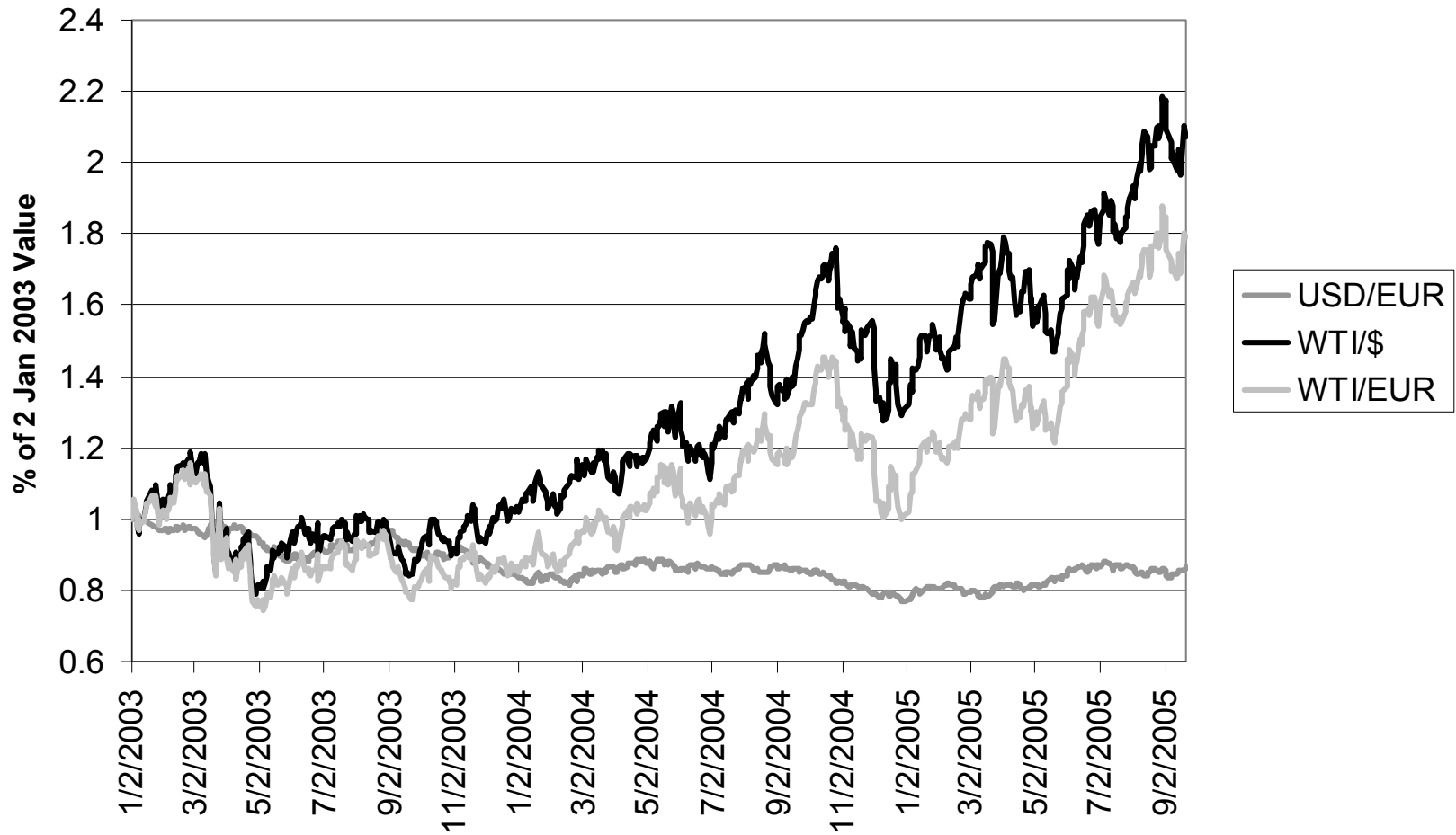
Has Global Production 'Peaked'?

- IT DOESN'T MATTER...
 - There's no reason to expect rapid decline in production.
- Even if so...
 - New technology will make additional reserves available
 - Higher prices will spur conservation and alternatives
- 'Hubbert's Peak' Makes No Sense on a Global Scale.

Crude Oil Situation



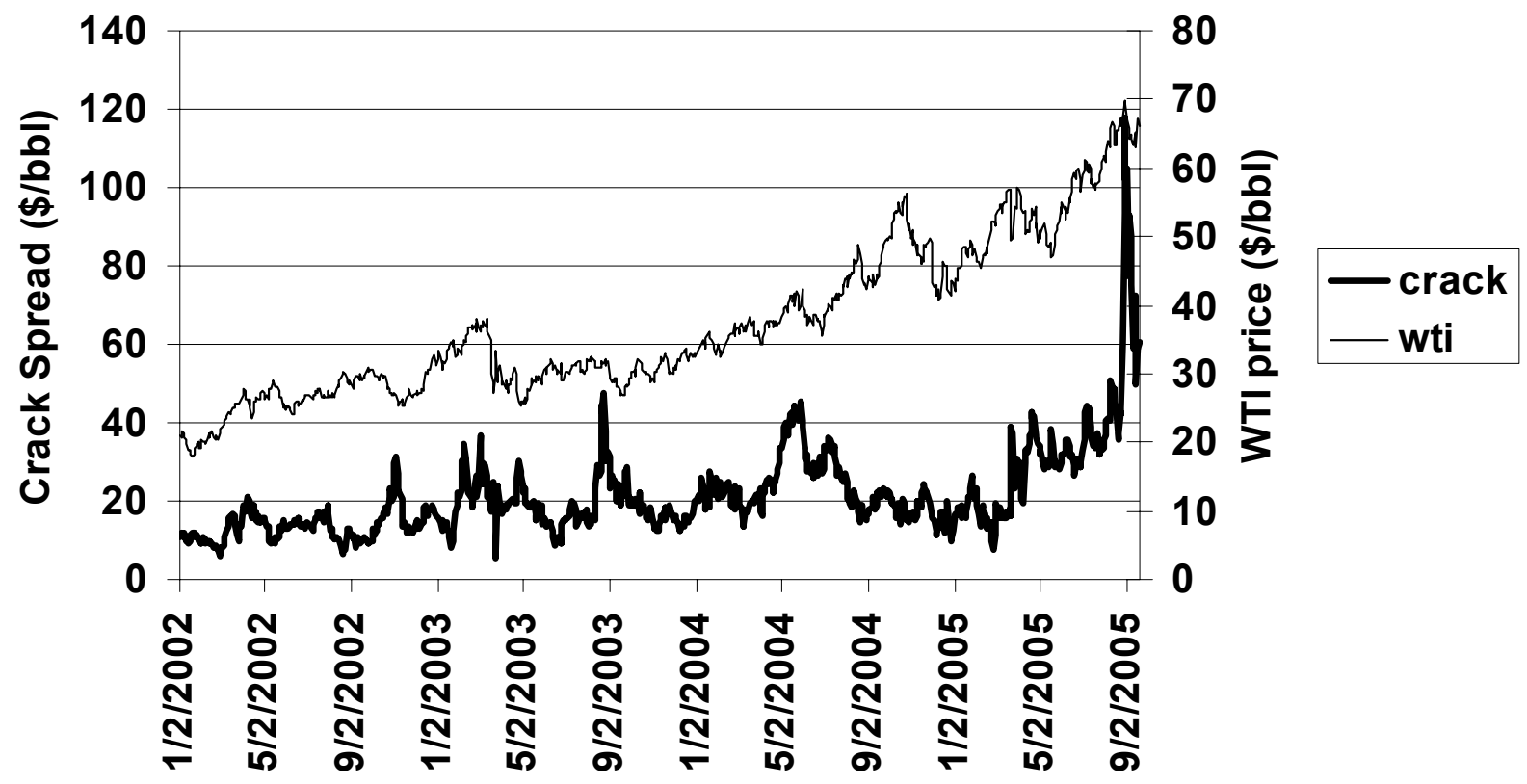
Currency Impact on Oil Prices



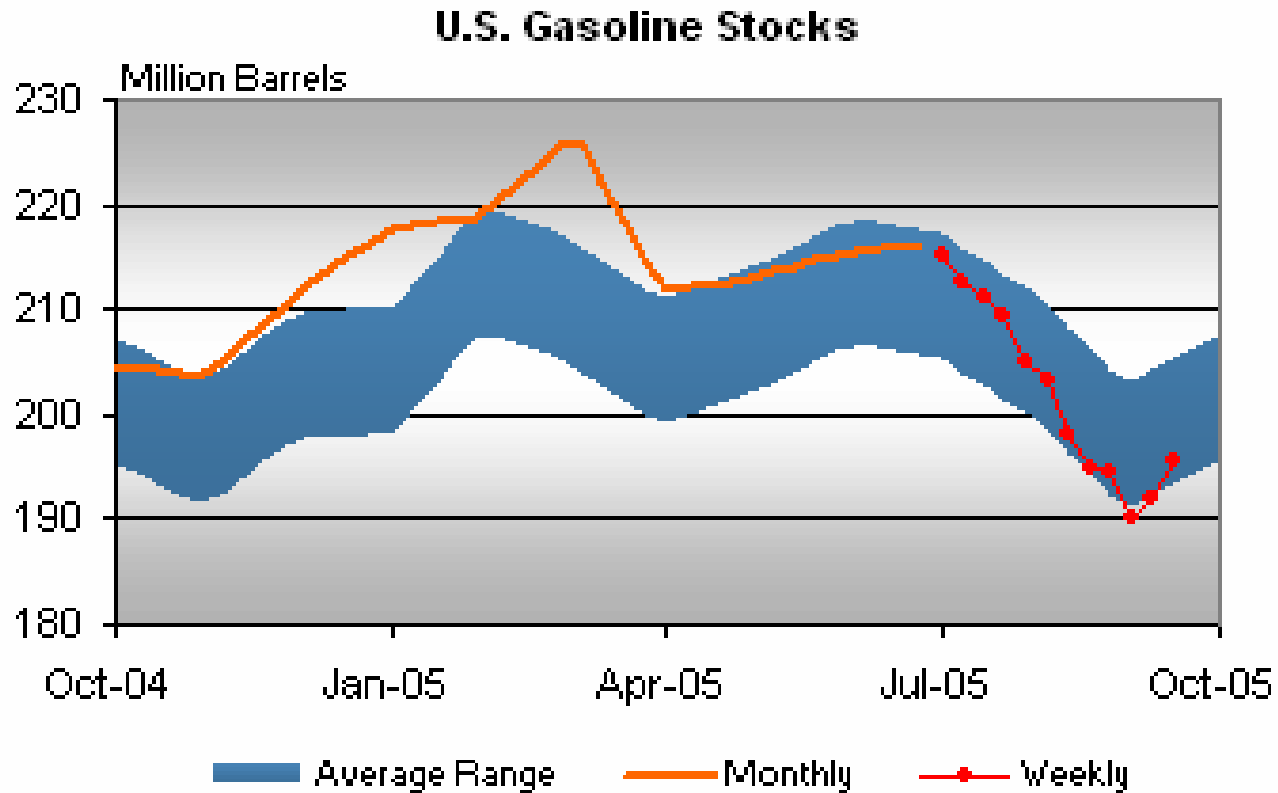
Outlook:

- Two factors pushed prices up, only they can push them down in the long term:
 - Weaker global growth—but is this a good thing?
 - Stronger USD—will only exacerbate trade deficit.
- In the next year, oil prices will be determined by:
 - Restoration of Gulf Production (0.9m bpd offline; 18% of US production)
 - Foreign supply disruptions:
 - Nigeria
 - Venezuela
 - Iraq
- It is unlikely that additional production can significantly affect prices in the next 1-2 years.

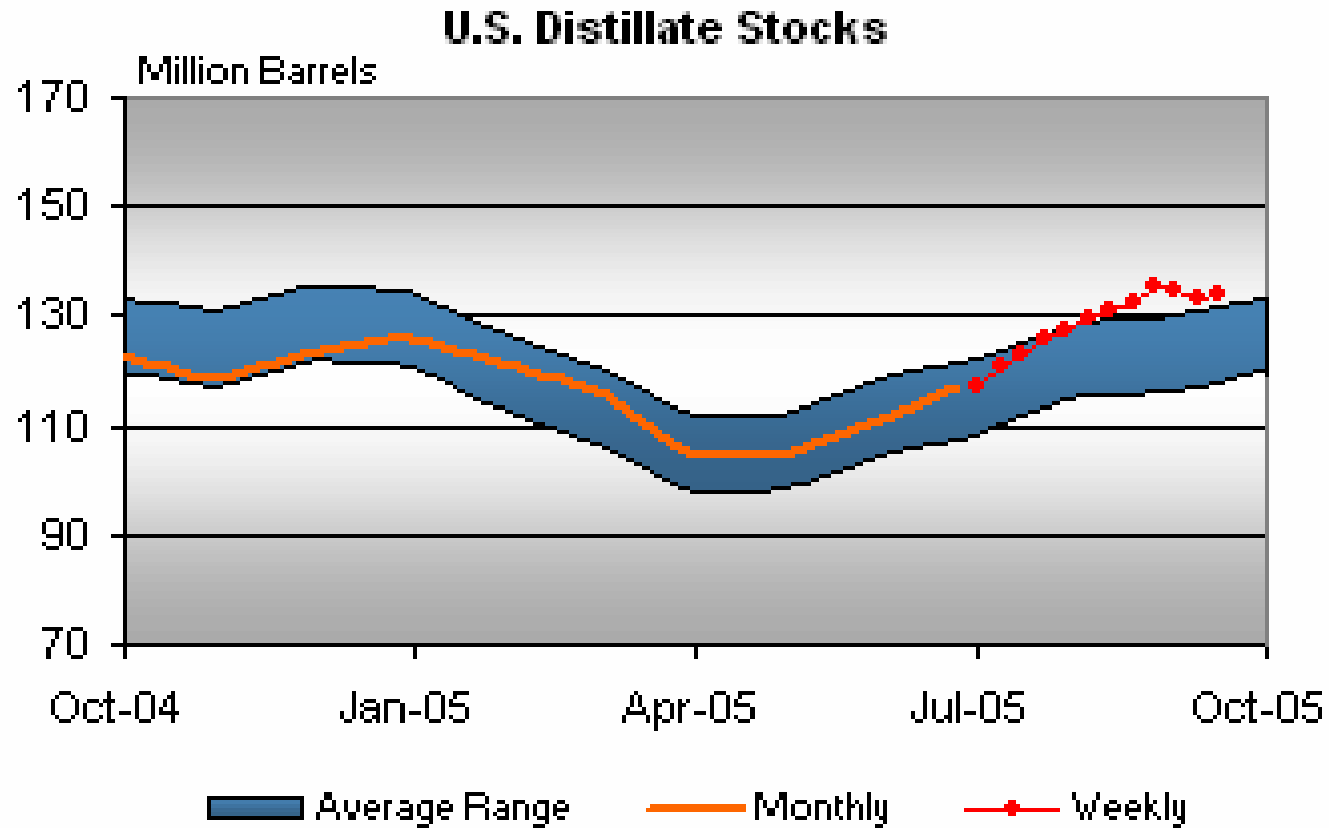
Refining Margin



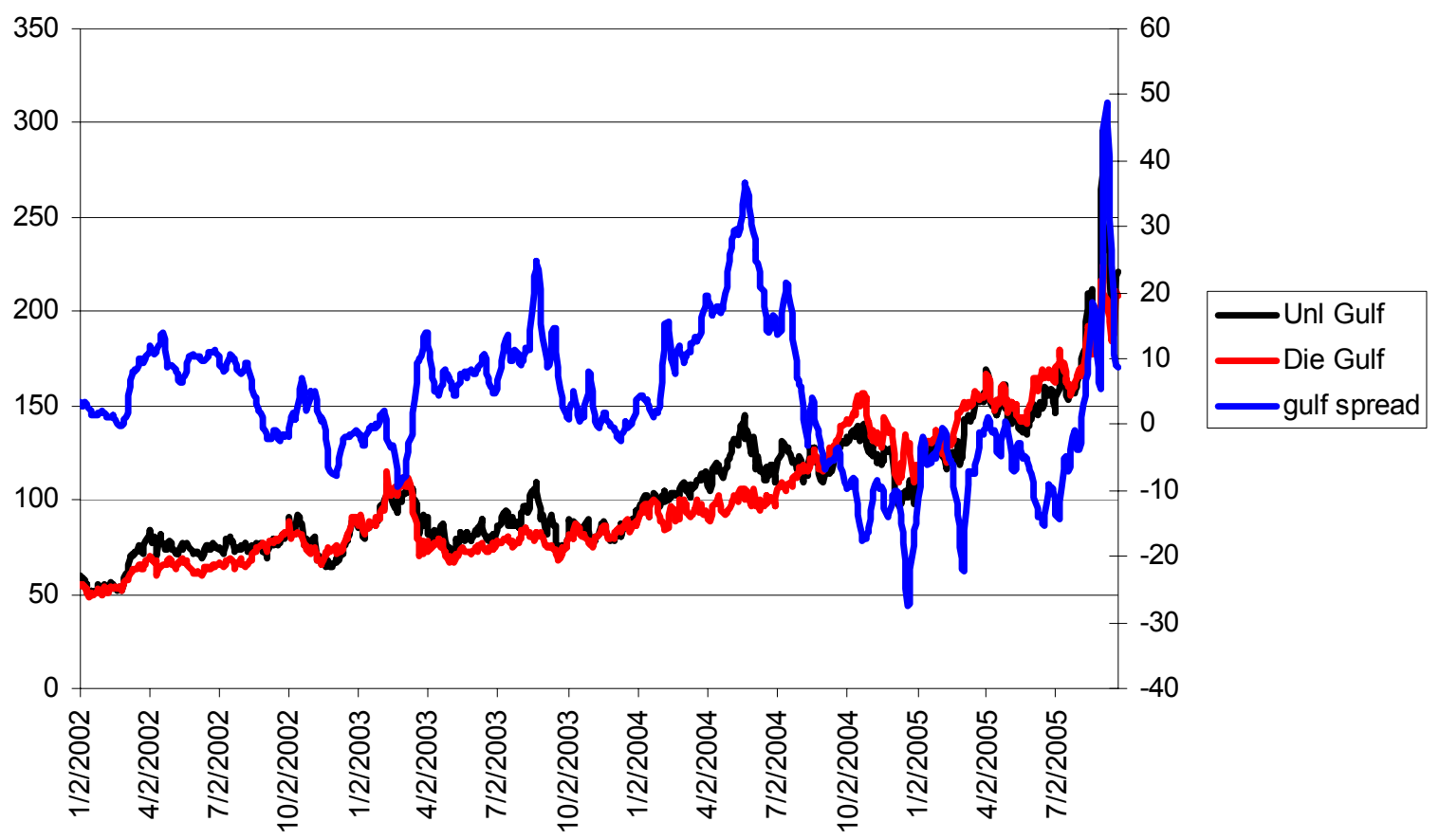
Gasoline Stocks



Diesel Stocks



Gasoline/Diesel Spread



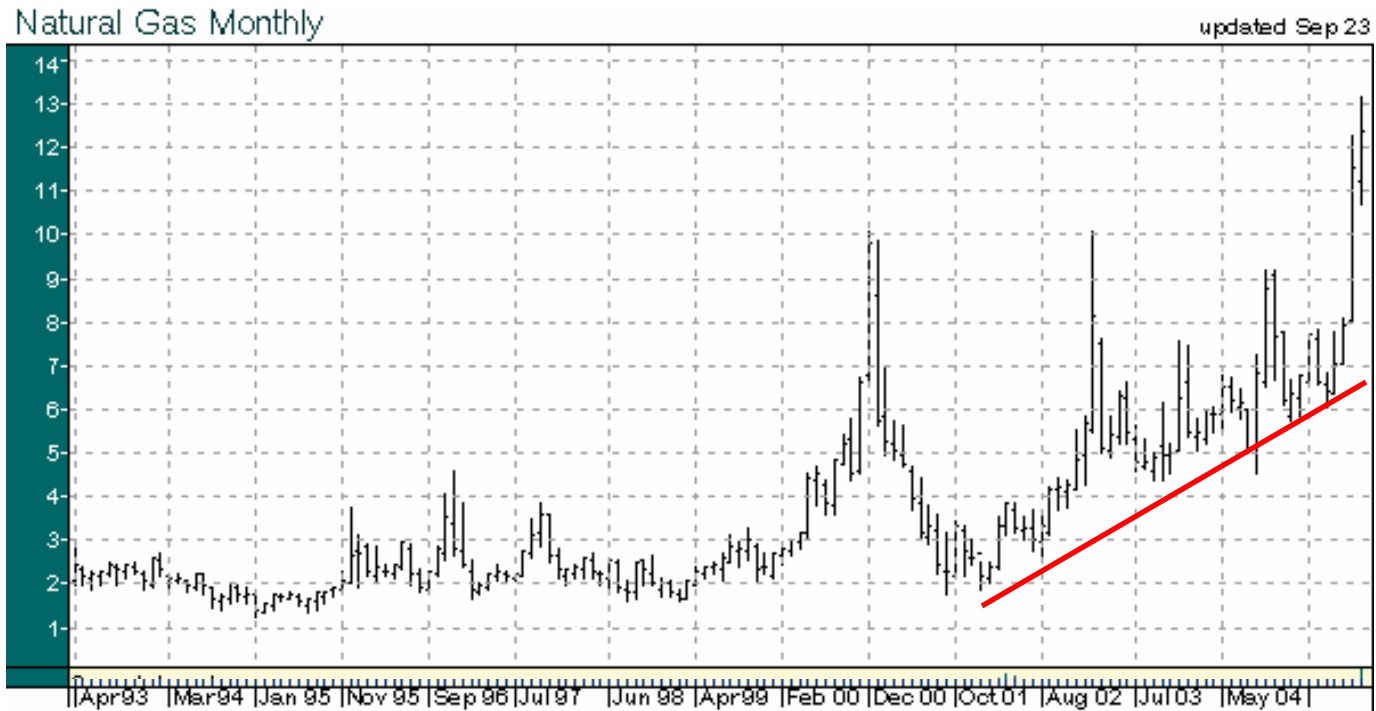
Current Fuels Situation:

- Gasoline demand very inelastic:
 - Consumption up 3% summer '05 vs. '04
- Diesel demand also firm.
- Katrina has disabled ~7% of US refining capacity.
 - As of Friday, 23 Sept, ~35% of capacity closed.
- Diesel in much better state than gasoline stocks.
- Winter temps biggest driver for diesel.

Fuels Outlook

- Refining capacity not as limiting as portrayed
 - We have to import *something*.
 - Refining capacity has increased by 30% since 1980 w/ fewer refineries.
 - When does ‘the long run’ occur w.r.t. gasoline elasticity?

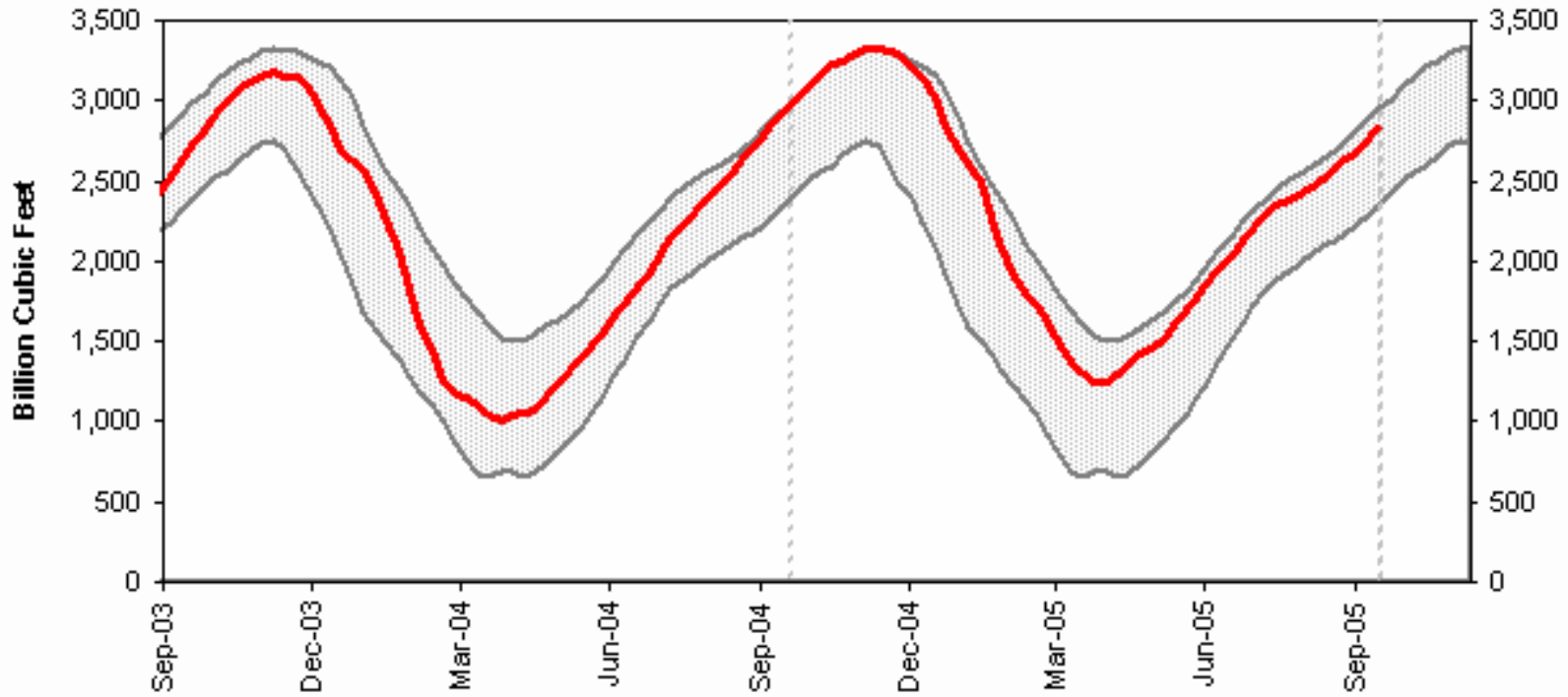
NYMEX Natural Gas



Long-Run Natural Gas Outlook

- Consumption is growing ~3%/year
 - Peak power plants will continue to be built w/ NG
- Production is growing ~1%/year
 - Additional reserves in Alaska & Canada, but pipelines must be built—5-7 years lag.
 - DOE projects higher imports to close the gap
 - LNG costly, dangerous to transport
 - Will need to build many more import terminals.
- Good News: Globally, lots of extra NG.
- Bad News: It's expensive to move around.

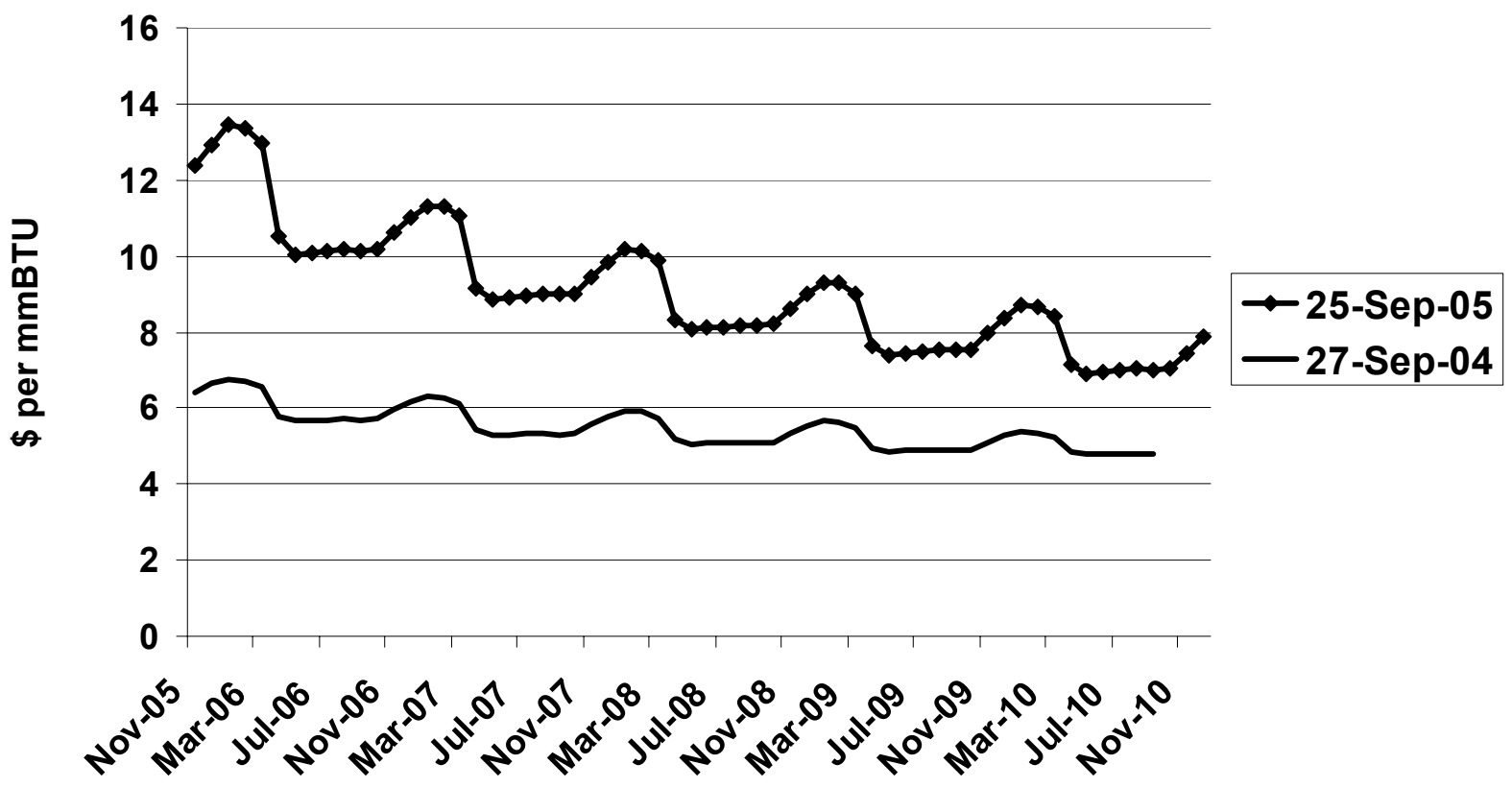
Natural Gas Storage



Short-Run Natural Gas Outlook

- Hurricanes have damaged US production:
 - 6% of US production is off-line from Katrina
 - Add'l 9% was closed in advance of Rita
- Temperatures remain moderate...
- Inventories increased 9/9->9/16
- Much will depend on Fall weather.
- With some luck, NGG6 prices may move back to \$11

Term Structure of NYMEX Natural Gas



Summary:

- Energy prices have recently spiked due to short-run shocks from Katrina & Rita
- The long-run energy picture is still unbalanced, however.
- Stronger demand is driving the current surge in prices, both for crude and NG, and there is little relief in sight.



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Nitrogen Fertilizer:

- Primary feedstock is Natural Gas...
- Each \$1 increase in NG results in a ~\$35 increase in NH₃
- Transport costs make up rest of price
- Current NG prices imply NH₃ about \$60-\$80 more than last year.