

Oil or Not?

Do we know enough to make
decisions?

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How does a Rail Consultant get to know energy issues?



When YOUR customer says

- Either you know as much about how energy will affect our business decisions or you don't work for us



The Key Questions

- Will There be enough fuel?
- At what Price?
- And when will it get to that price?

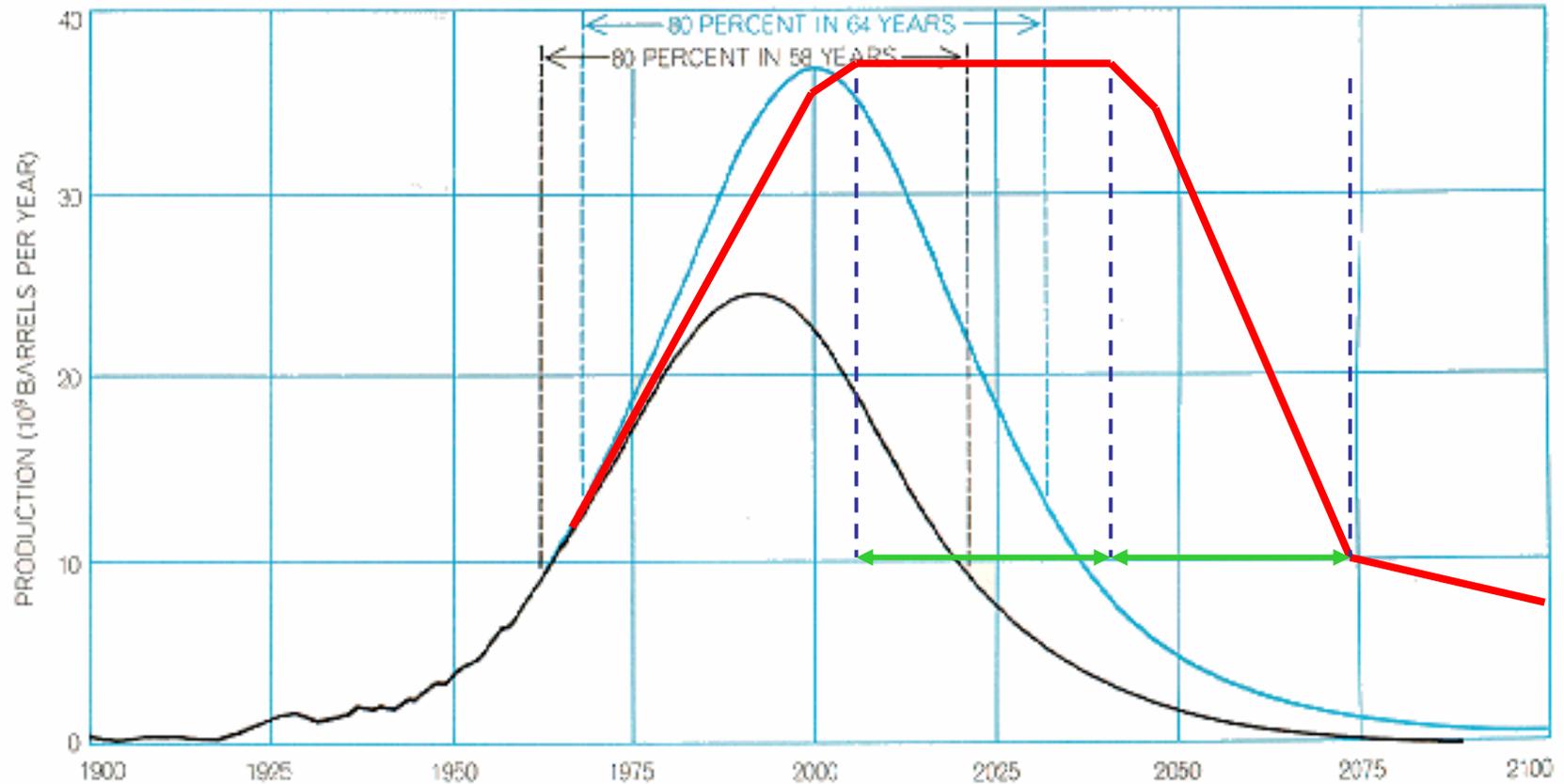


The Oil Resource 101

- Create a nutrient trap
 - Low oxygen sediments
 - Yielding organic rich deposits
- Cook at over 175 degrees for ten million years
- Keep in the oil window
- Above 7,500' – only half baked
- Below 15,000' too much pressure - lots of gas
- Place in rocks +5% porosity
- Collect under a leak-tight rock cap



Hubbert's Peak

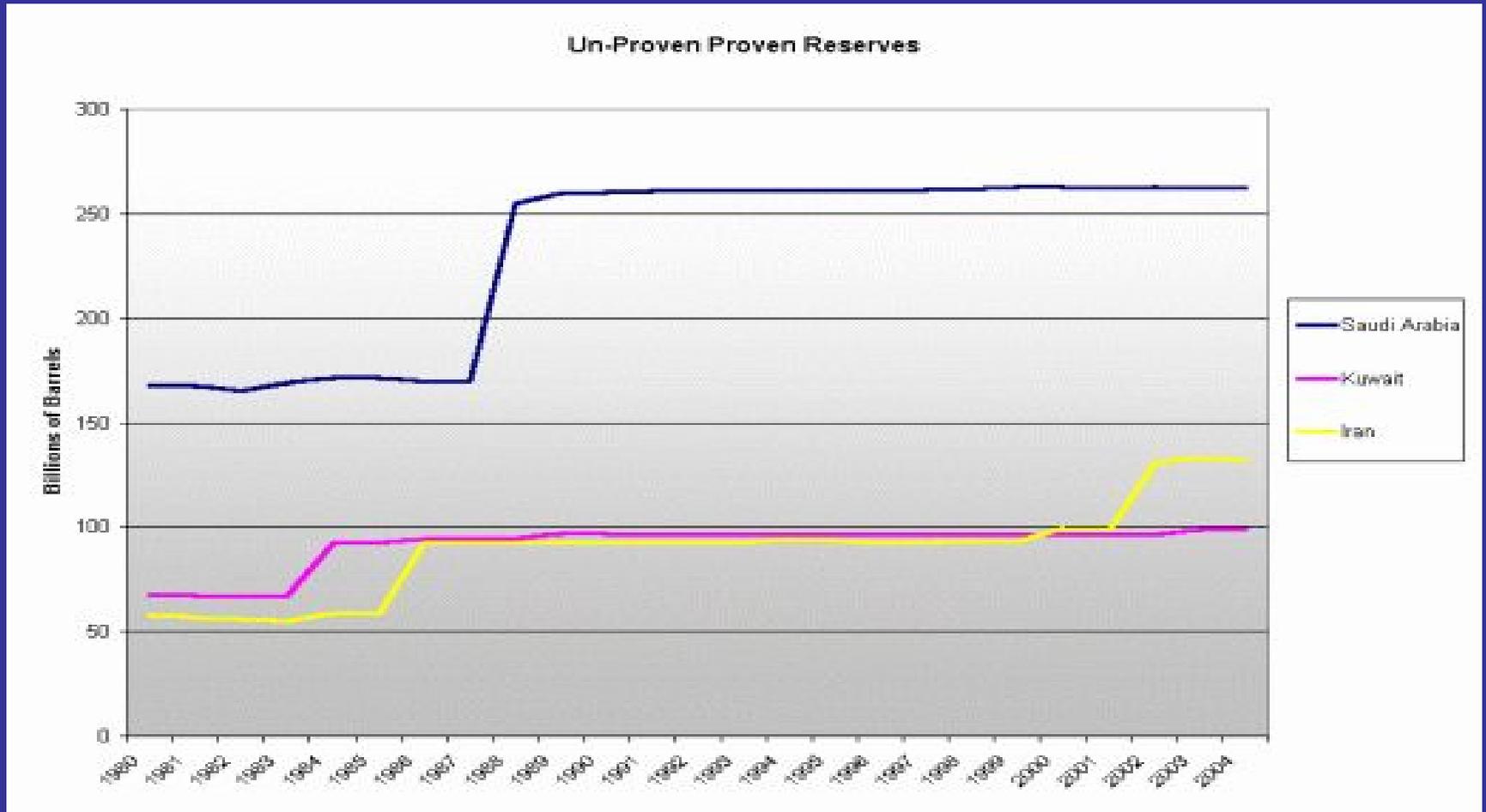


CYCLE OF WORLD OIL PRODUCTION is plotted on the basis of two estimates of the amount of oil that will ultimately be produced.

The colored curve reflects Ryman's estimate of $2,100 \times 10^9$ barrels and the black curve represents an estimate of $1,350 \times 10^9$ barrels.



How Much is Left?

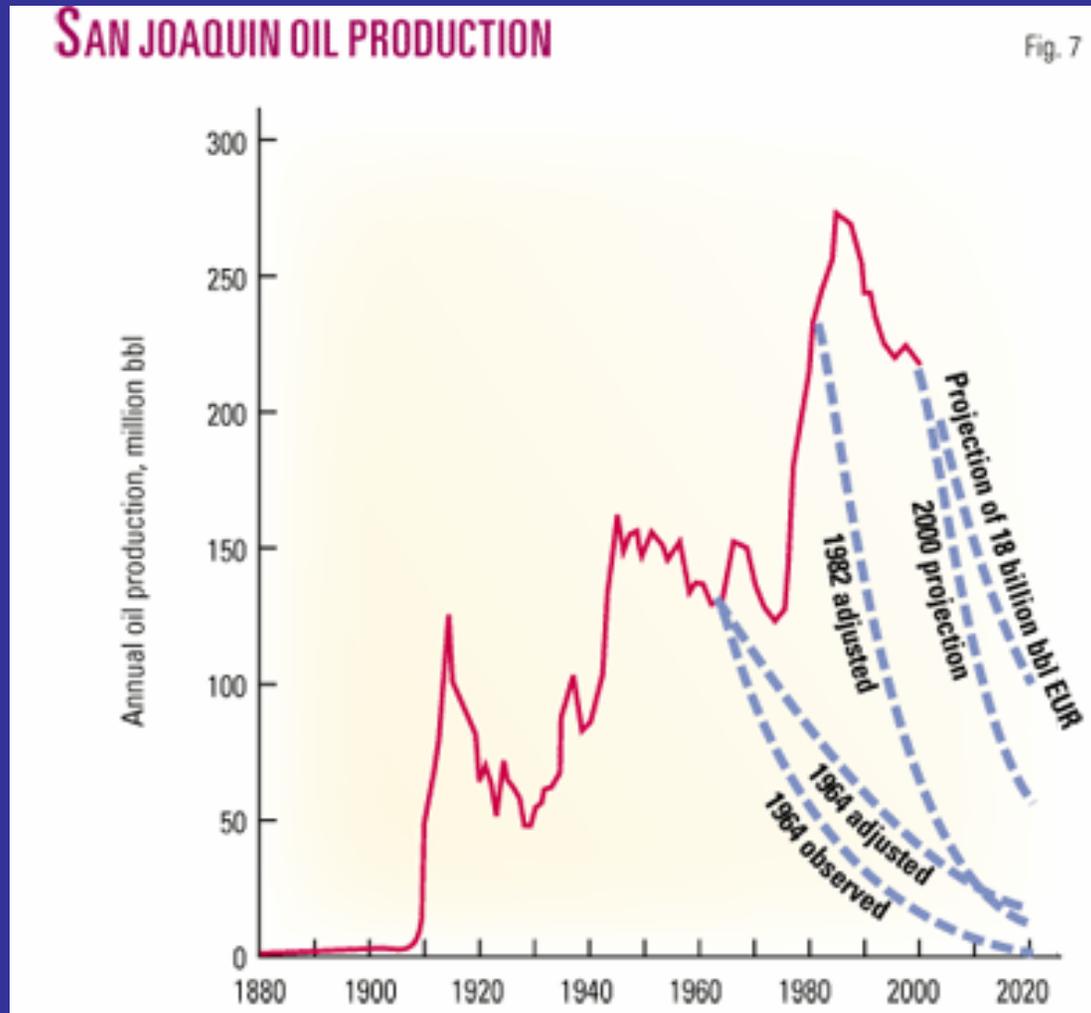


How Much is Left?

- "It's becoming unrealistic," he said. "The expectations are beyond what is achievable. This is a global problem . . ."

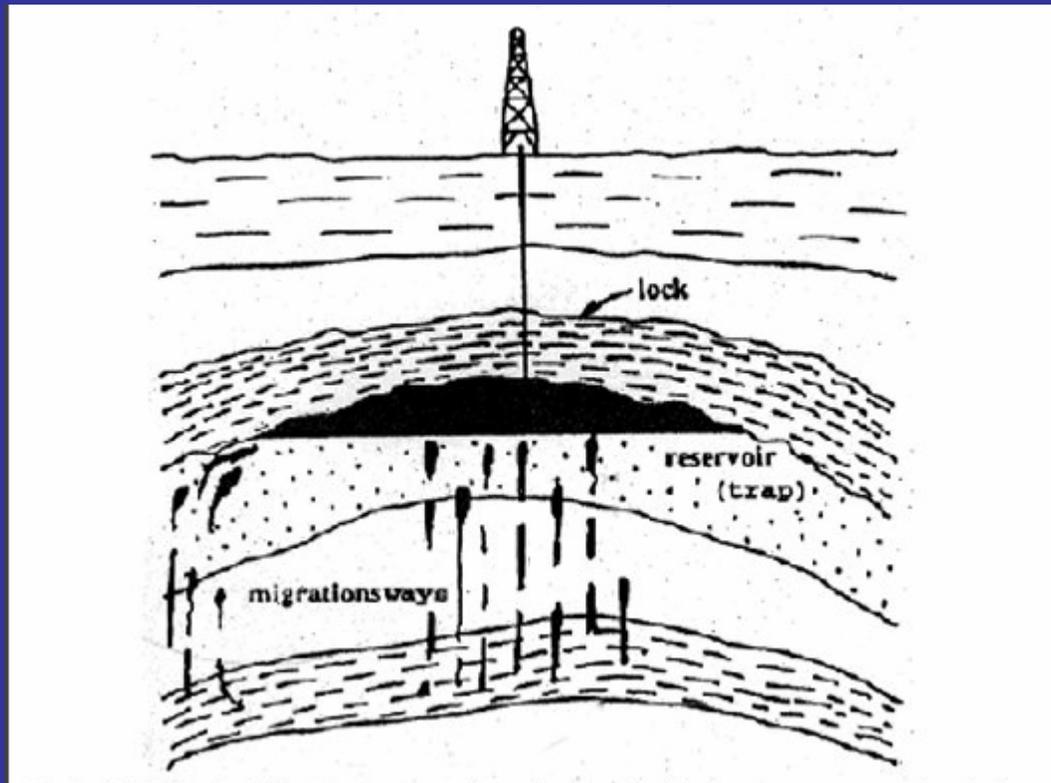


Individual Data is not as Simple

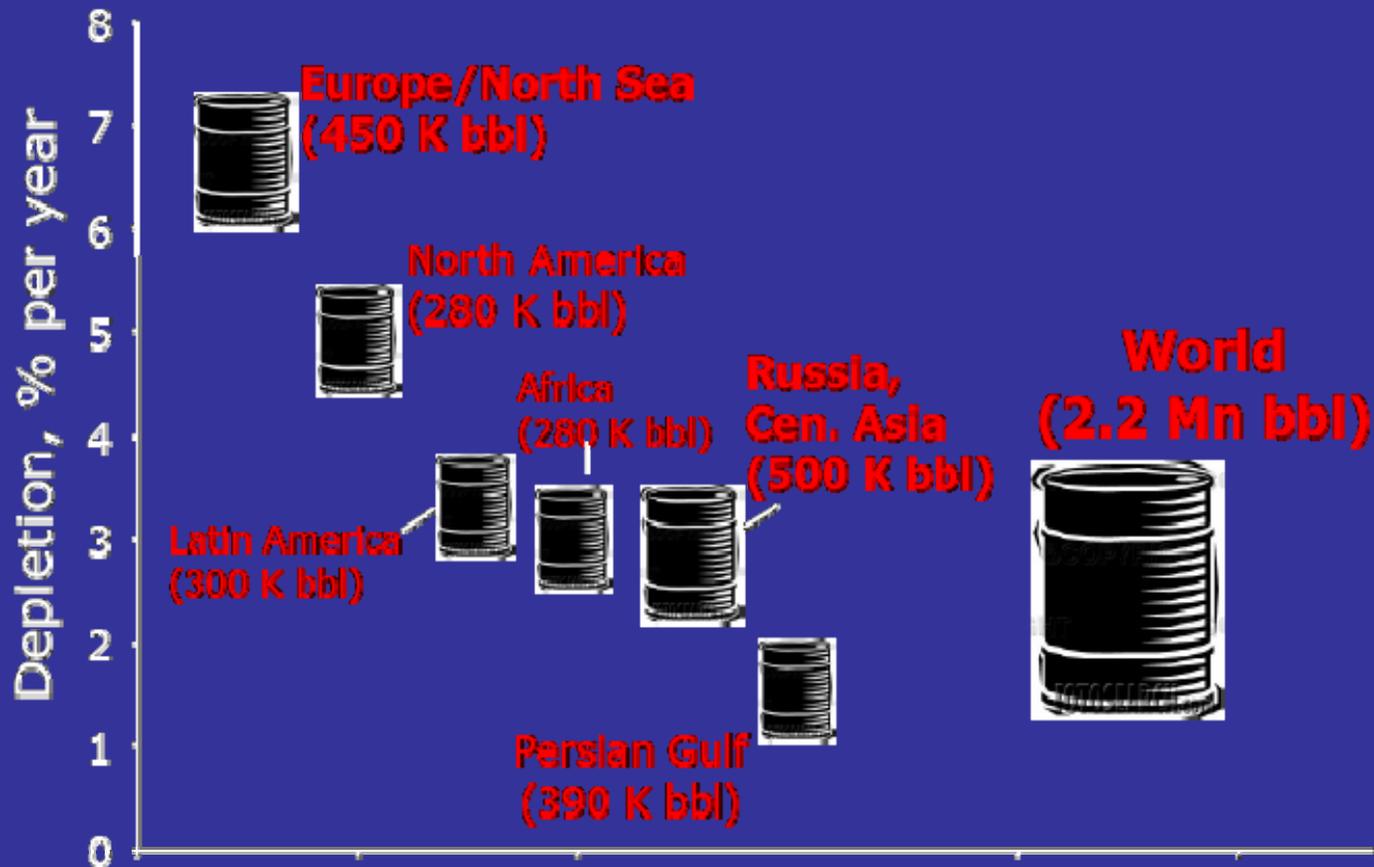


Russian Deep Well Secrets

- Is there a perpetual oil machine?
- Simplified plan of ultra deep oil



Regional Depletion Rates and Total Loss



Note: Left axis shows depletion rate; size of barrels absolute amount of capacity lost yearly. Depletion is the rate of decline of a field as it ages.

Source: CIBC WM Calculations, Colin Campbell/ODAC



Needed Demand Cuts to Balance the Market

Mn barrels/day

	2004	2005	2006	2007	2008
World Oil Demand (assuming 2.5% trend growth)	82.2	83.6	85.7	87.8	90.0
Maximum Supply	83.1	84	85.3	86.7	87.5
Required Reduction in Demand			0.4	1.2	2.5



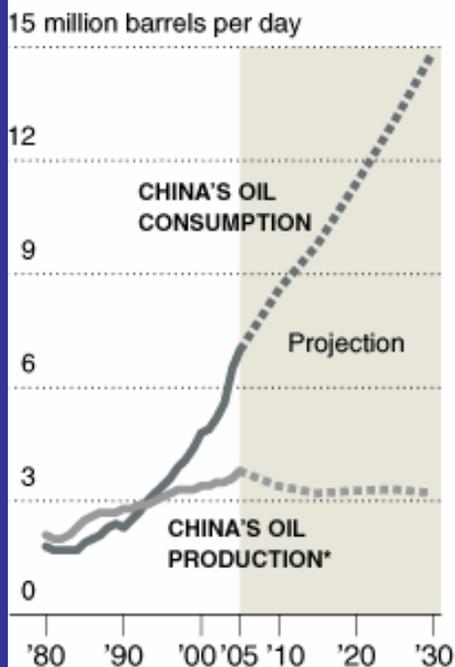
CIBC
World Markets



NY Times - April 19, 2006

A Growing Thirst for Oil

As China's economy has grown, the nation has been unable to meet its demand for oil domestically. The country's production capacity is not expected to increase, but the demand is projected to grow significantly.



*Includes natural gas liquids.

SOURCE OF TOTAL CRUDE OIL IMPORTED IN 2005

MIDDLE EAST	AFRICA	ASIA PACIFIC	EUROPE
47%	30	15	8

TEN LARGEST SUPPLIERS IN 2005

Saudi Arabia	17.5%
Angola	13.7
Iran	11.2
Russia	10.1
Oman	8.5
Yemen	5.5
Sudan	5.2
Congo	4.4
Indonesia	3.2
Equatorial Guinea	3.0

To meet its growing need, China has been acquiring interests in exploration and production abroad.

MAJOR NEW OIL DEALS ABROAD

Iran In November of 2004, the Chinese oil company Sinopec negotiated a \$70 billion deal for a 51% stake in Iran's Yadavaran oil field, which is eventually projected to produce about 300,000 barrels of oil per day.

Kazakhstan China National Petroleum Corporation bought Petrokazakhstan, a Canadian-run company that was the former Soviet Union's largest independent oil company last year. The company has also built a pipeline that will take the oil to the Chinese border.

Russia Last month, China and Russia announced a plan for two pipelines which could start supplying China in five years.

Sources: Energy Information Administration; Energy Intelligence Group

The New York Times



US Army Energy Report

- The doubling of oil prices from 2003-2005 is not an anomaly, but a picture of the future. Oil production is approaching its peak...
- As worldwide petroleum production peaks, geopolitics and market economics will cause even more significant price increases and security risks.

**Energy Trends and Their Implications for U.S. Army Installations,
September 2005**



Higher Prices Needed to Ration Demand

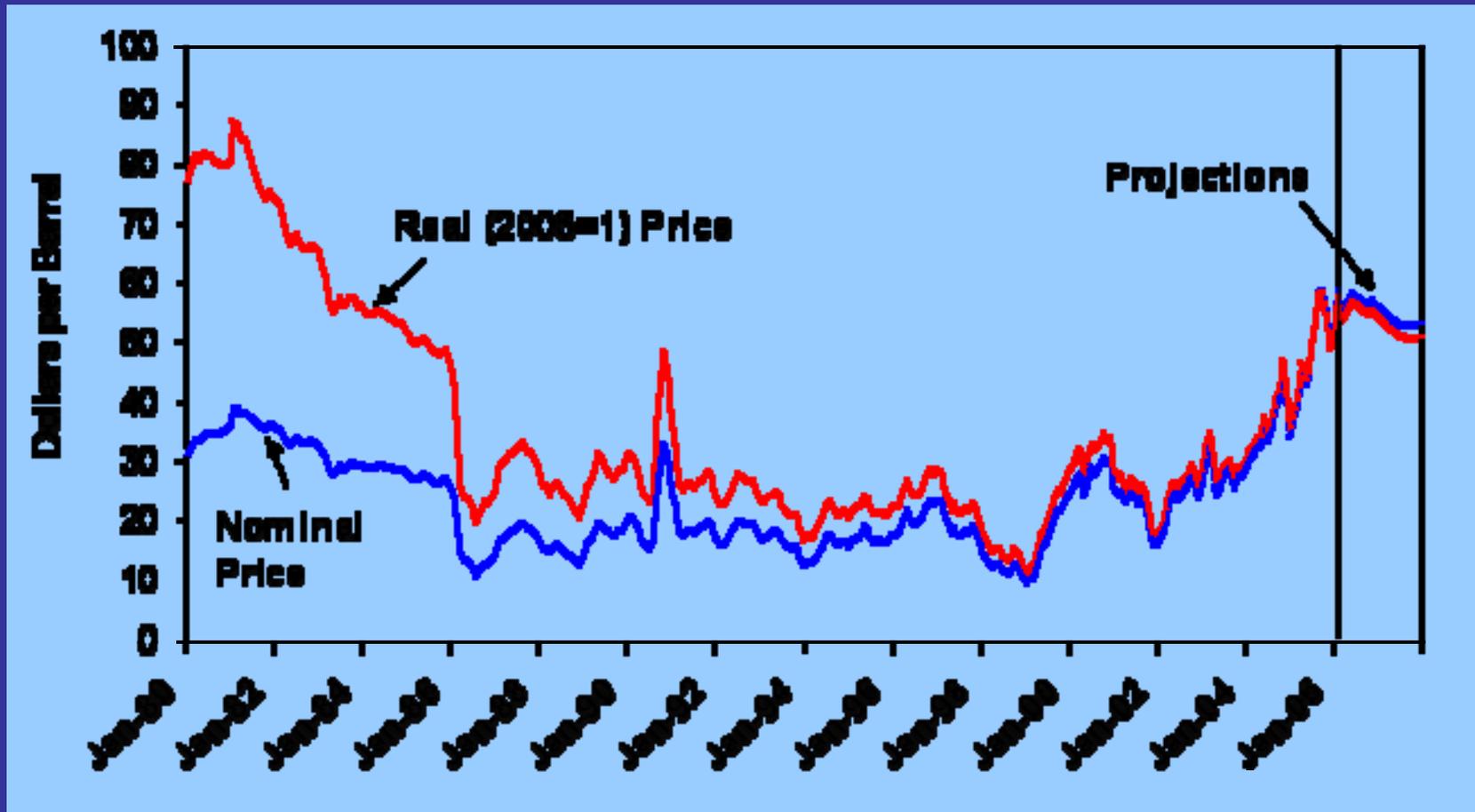


Higher Prices Needed to Ration Demand



Imported Crude Oil Prices: Nominal and Real

US DOE Projections



Can the Refineries keep up?

- Changing regulations will cause refinery constipation
 - Removal of MTBE
 - 2007 diesel sulfur removal
- "Will foreign refiners step up and meet this increased demand from the United States? That's really uncertain now," said Mr. Felmy Chief Economist, American Petroleum Institute.

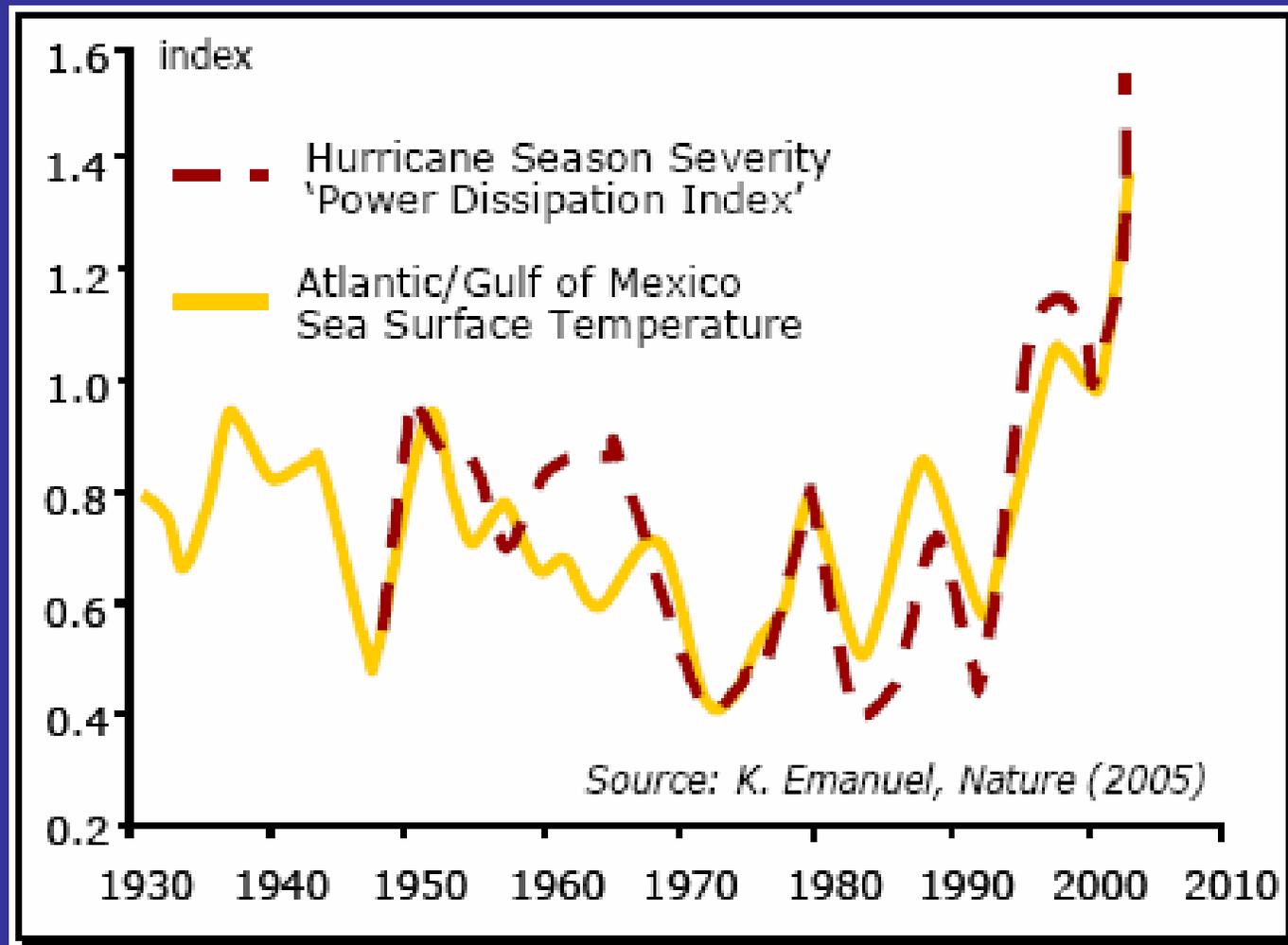


Can the Refineries keep up?

- US Department of Energy April 18, 2006
Gulf Coast refinery inputs
- April 8 2005 7.491 mbpd
- April 7, 2006 6.909 mbpd
- Katrina shortfall 0.582 mbpd
- September 1, 2006 7.507 mbpd

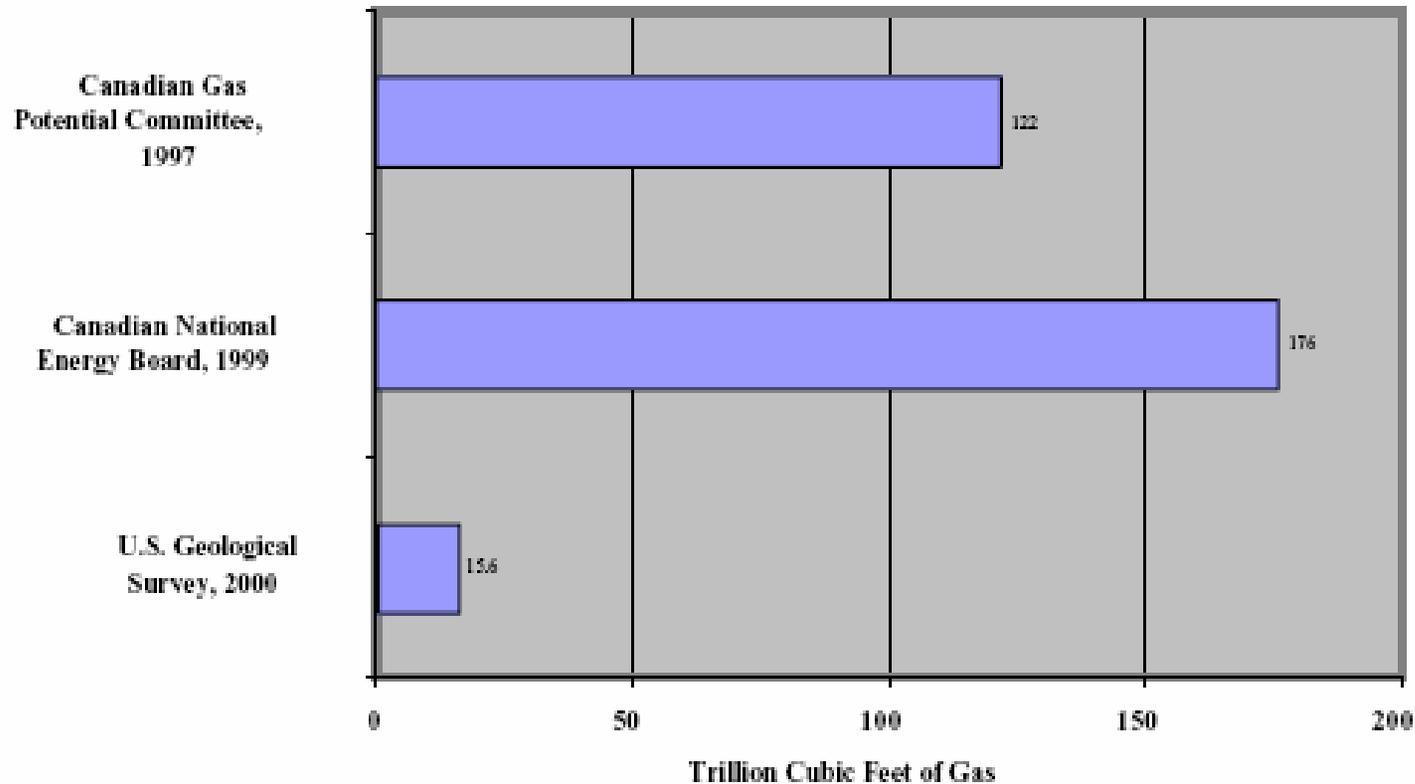


Hurricane Season Severity Rising with Sea Temperatures



Can Anyone Agree?

Estimates for Undiscovered Recoverable Gas
in the Western Canada Sedimentary Basin



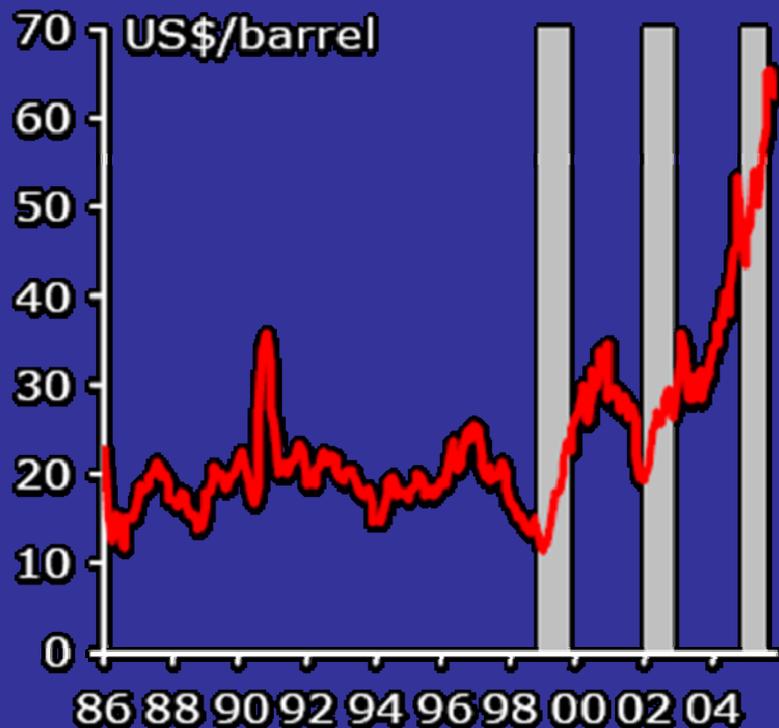
Insights Gained from Canadian Comparison

- Its not just how much resource is out there
- It is how deliverable it is –
 - Depends on detail of assessment – pool sizes – and not just the bottom line
 - Not all parts of the resource volume are of similar relevance

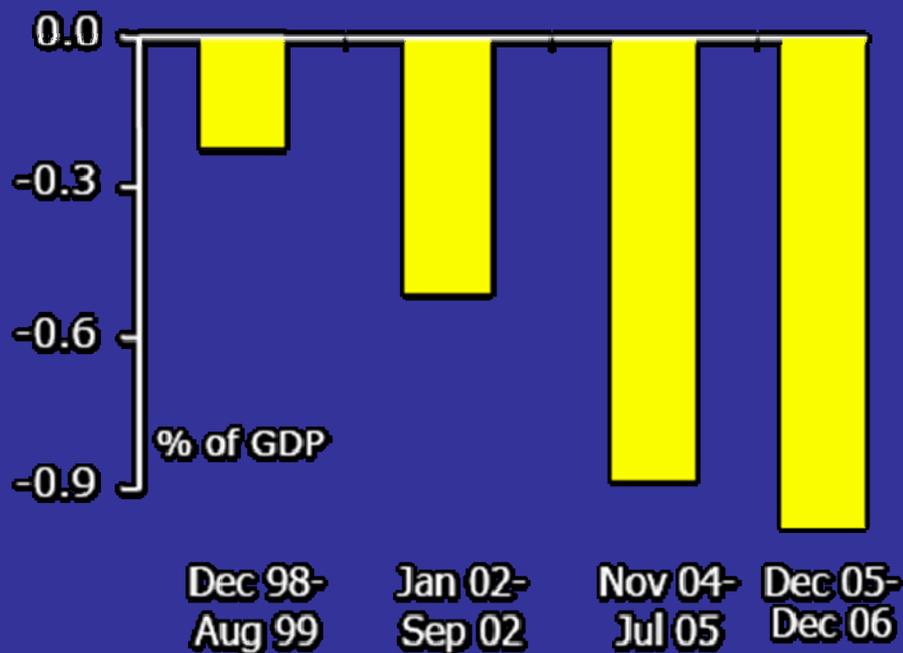


Energy Brake on US GDP Growth

Spot Oil Prices



Impact on the US economy of \$10 increase in oil prices during different periods (see shaded areas in left chart)



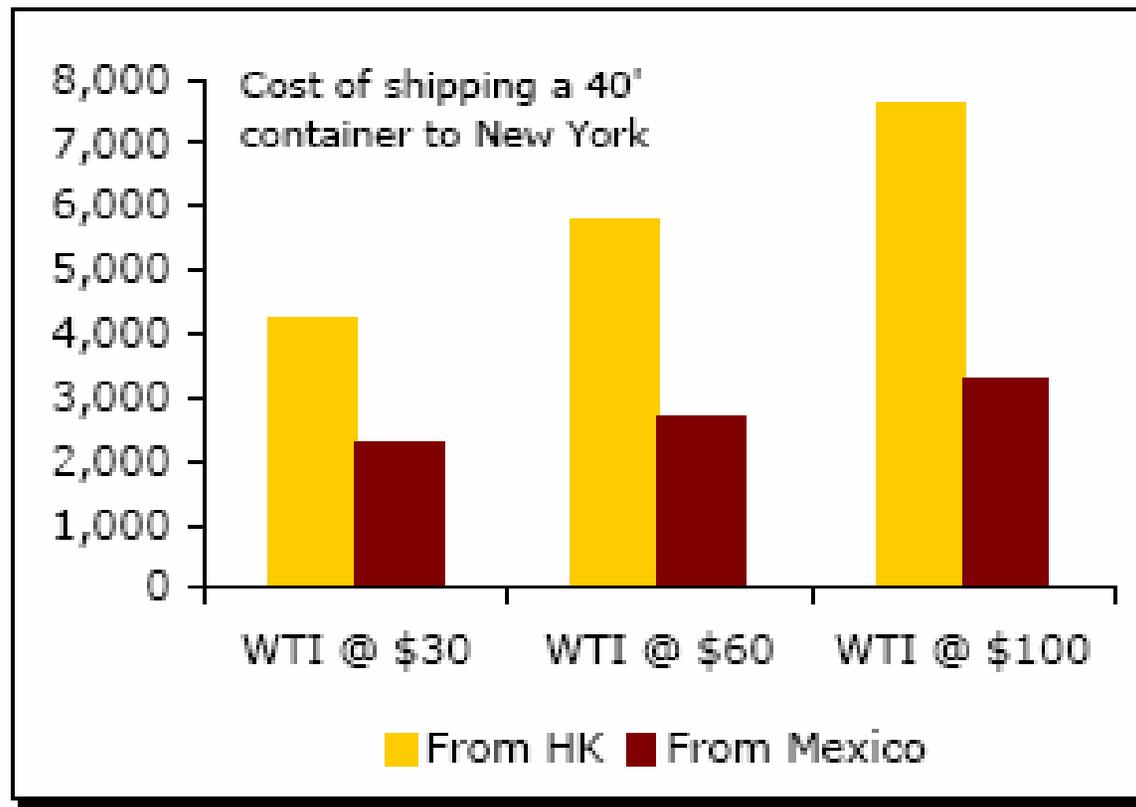
Source: CIBCWM, Based on Hamilton (2003)



The Earth gets Rounder

Chart 7

Mexico vs. China at Different Oil Prices



Global Shipping Impacts

- Shipping costs from China to the US east coast have already risen by more than 50%
- Price per day will change the competitive balances
- Proximity to major markets becomes far more important in determining comparative advantage.



If This is for Real?

- How will these events affect oil pricing?
- Who will win and who will lose?
- What does this mean to my company?



Who will win?

- The most energy efficient modes are bus and rail transit
- The people with the shortest commute
- Can your business teleconference and/or telecommute?



Who will lose?

- The most energy intensive modes are air and auto!
- Would you be buying airline stocks?
- Or investing in an SUV?
- Is your business future dependent on cheap air travel?



What is the Effect?

- As transportation costs rise as a percentage of the fixed income spent on mobility will rise.
- How will +\$100 crude affect my business?
- Or my life style?



What is the Effect?

- As transportation costs rise as a percentage of the fixed income spent on mobility will rise.
- How will +\$100 crude affect my business?
- Or my life style?
- Every \$10 per barrel = \$0.25 at the pump



Except you must add the market factor

- \$70 = \$3.00 becomes = \$3.25 - \$3.50
- \$100 = \$4.00 becomes = \$4.50 - \$5
- \$140 = \$5.00 becomes = \$5.50 - \$6



EPA X OIL

- Schneider National Reports EPA Level 2 compliant engines average 5 mpg



EPA X OIL

- Schneider National Reports EPA Level 2 compliant engines average 5 mpg
- \$100 per barrel fuel = \$5 per gallon diesel



EPA X OIL

- Schneider National Reports EPA Level 2 compliant engines average 5 mpg
- \$100 per barrel fuel = \$5 per gallon diesel
- Result \$1 per mile truck fuel costs

