



Bureau of Economic Geology, The University of Texas at Austin

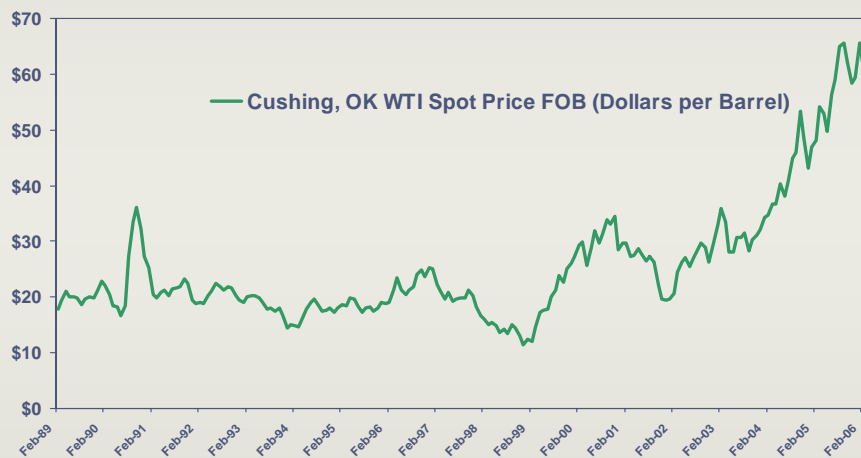


## Forward, Backward, Sideways: Global Energy Redux

*AICHE Fuels Keynote, Spring Conference 2006*

Dr. Michelle Michot Foss, CEE, BEG-UT Austin

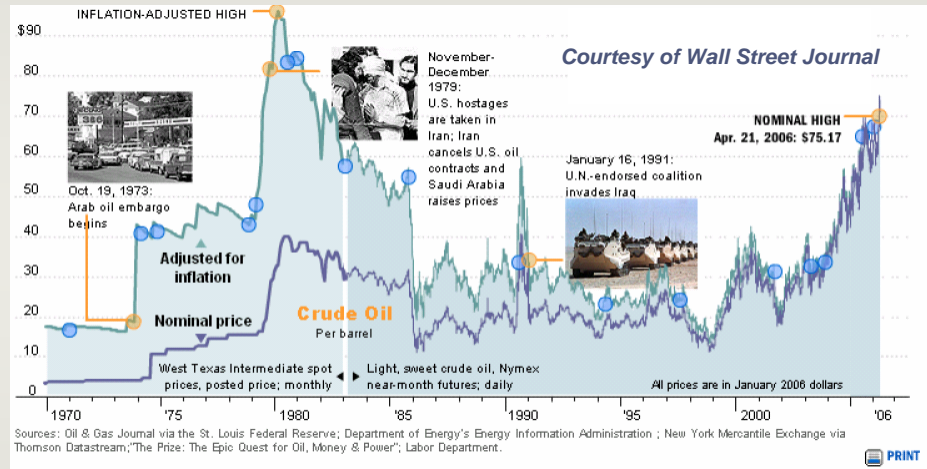
### Long Run Crude Oil Price



Source: NYMEX

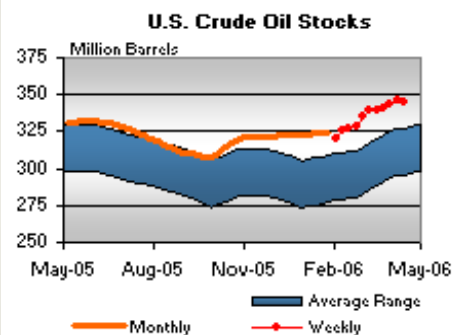
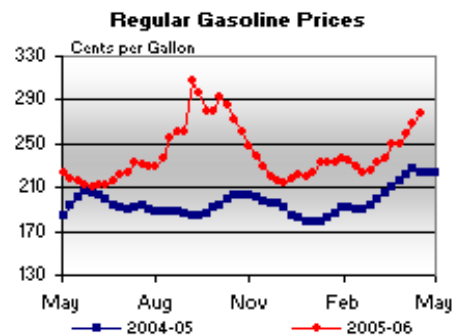
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## WSJ's Oil Price History



Note: inflation adjusted high is daily close.

## Current Inventories, Prices



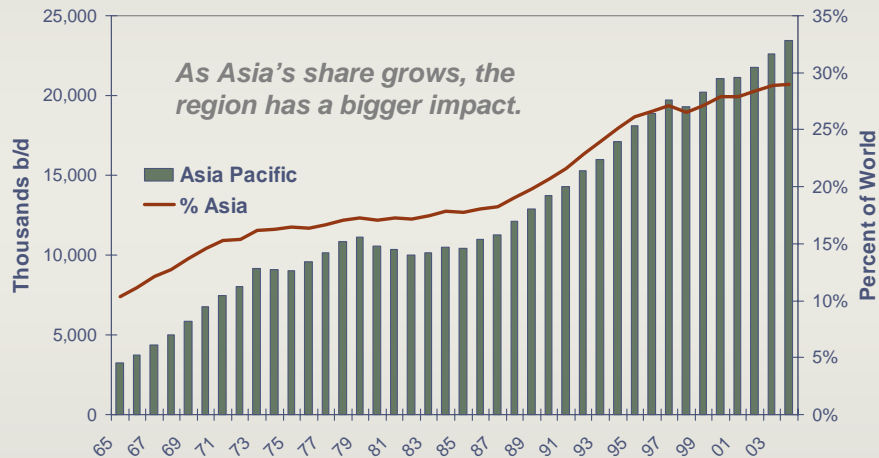
## Five Factors Impacting Oil

- MTBE conversion to the “E word”

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- Growth in actual demand

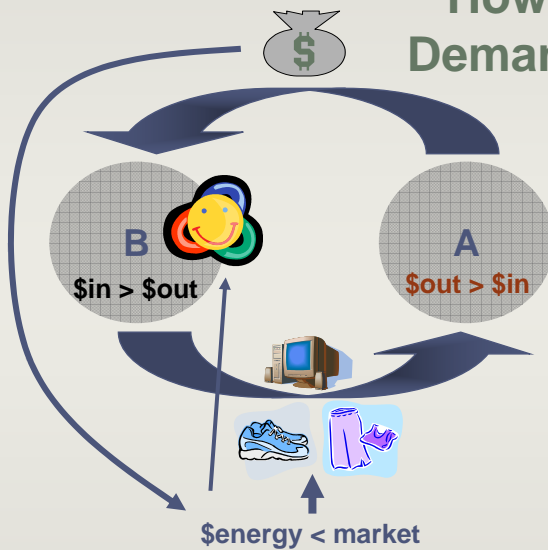
## The Asian “Gulp”



## Five Factors Impacting Oil

- MTBE conversion to the “E word”
- Growth in actual demand
- **Artificial** demand created by pricing policies

## How “Artificial” Demand is Created



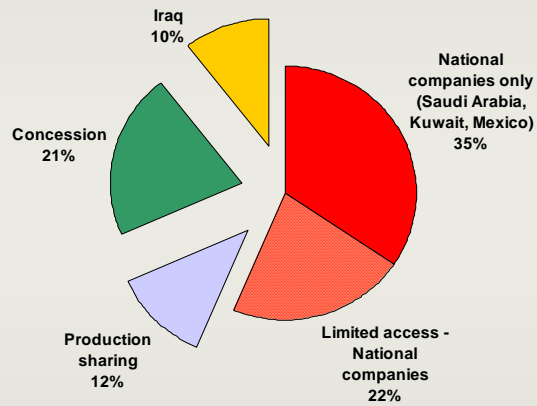
### RESULTS

- Apparent demand is overstated (“artificial”)
- Price subsidies support “artificial” demand but discourage investment on supply side

## Five Factors Impacting Oil

- MTBE conversion to the “E word”
- Growth in actual demand
- **Artificial** demand created by pricing policies
- Supply side problems

## Who's in Control?



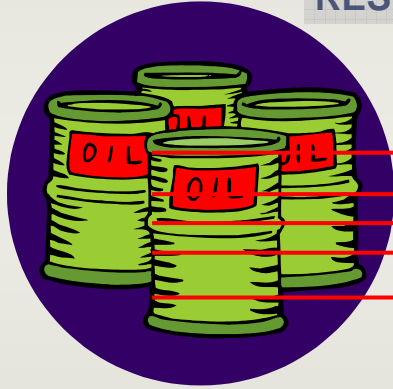
1,032 billion barrels

## Five Factors Impacting Oil

- MTBE conversion to the “E word”
- Growth in actual demand
- **Artificial** demand created by pricing policies
- Supply side problems
- Financial market speculation

## Determining the Price of Oil

**RESULT: Crude oil is overpriced**



- Financial Speculation = \$15-20
- "Artificial" demand = 10-20%
- Growth in demand
- \*Political premium
- Finding and lifting cost (role of marginal producer)

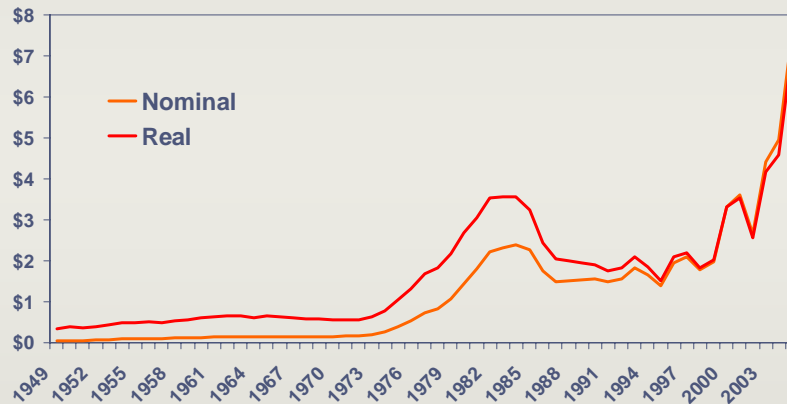
\* Oil for economic development

## Epilogue, Post AIChE (through May 28)

- International Energy Agency (IEA) adjusted global demand downward based on demand side response in reaction to prices
- China announced it is trying to remove barriers that prevent price signals from flowing through its economy
- Emerging market funds suffered significant declines – combination of high commodity prices and inflation fears
- Gold prices increased significantly on inflation fears and US monetary policy reactions

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## Historical Natural Gas Prices



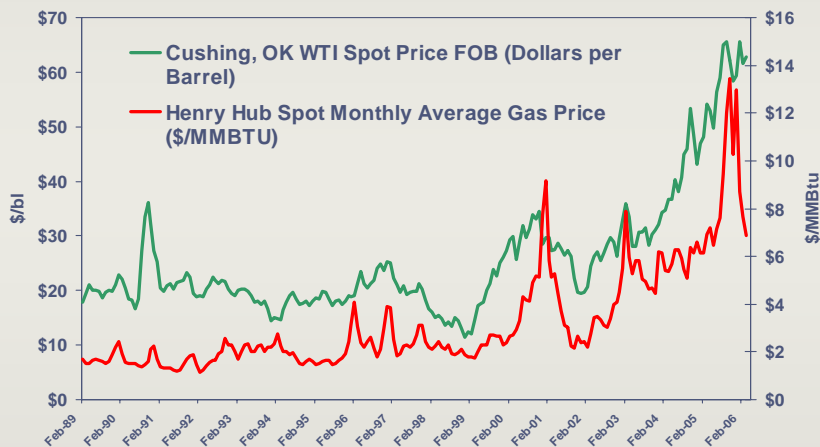
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Source: USEIA

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## Long Run Oil, Nat Gas Prices



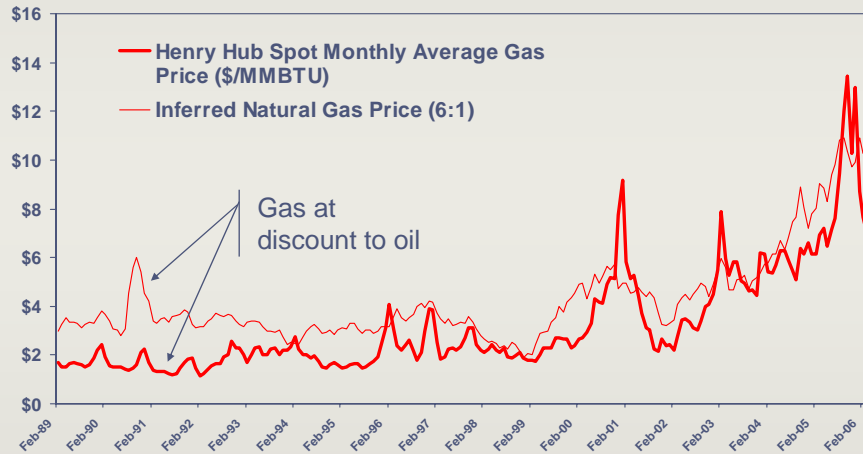
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## Long Run Nat Gas Price



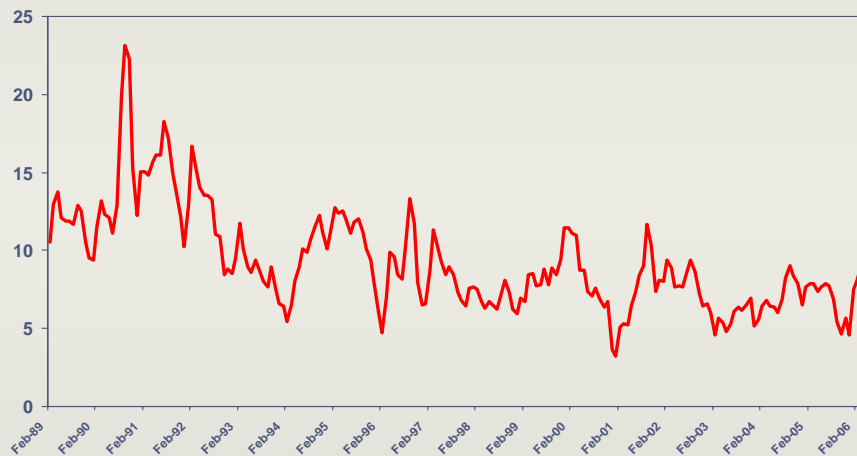
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## Long Run, Actual Oil:Gas Price Ratio



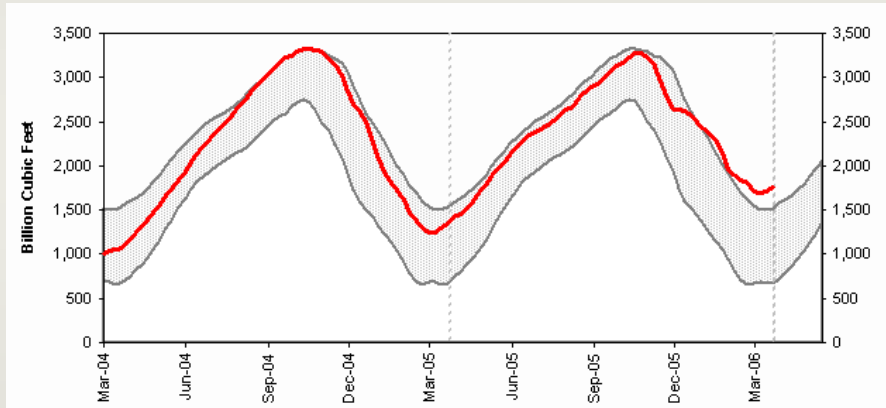
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Source: NYMEX

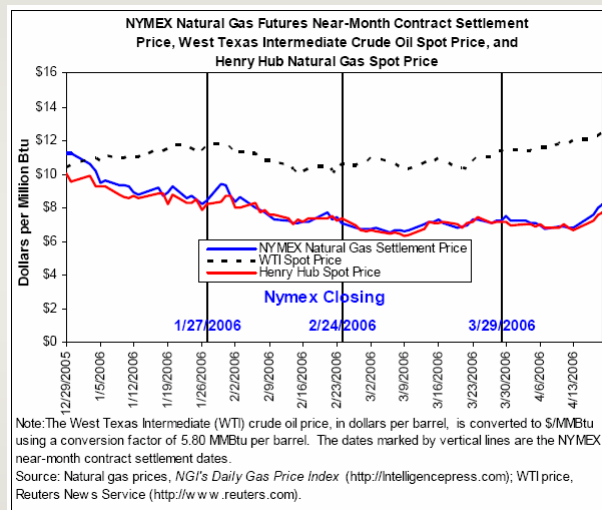
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## Natural Gas Storage

Total L48 Stocks: 4/14/06 1,761 Bcf vs. 1,336 Year Ago

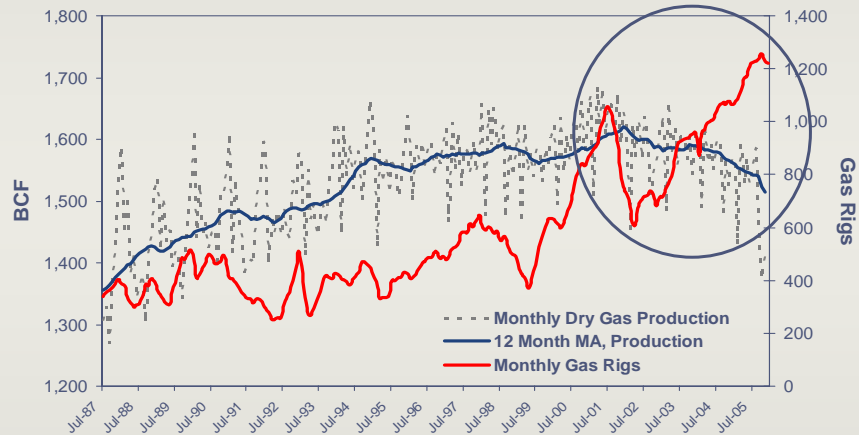


## Current Natural Gas Prices



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## U.S. Gas Resource “Just in Time” Development: Reality is Perception



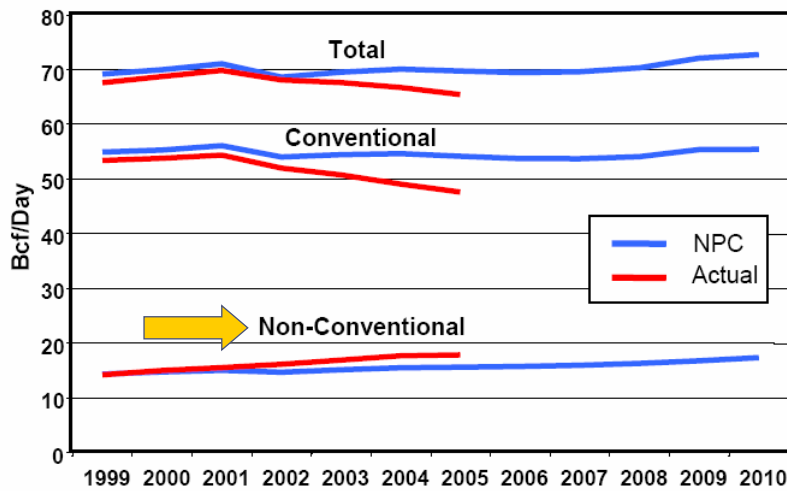
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## North America Gas Production

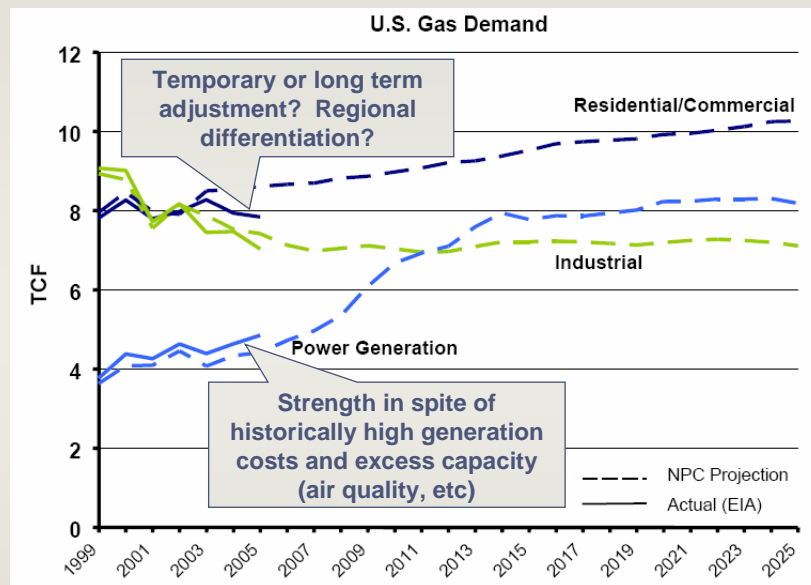
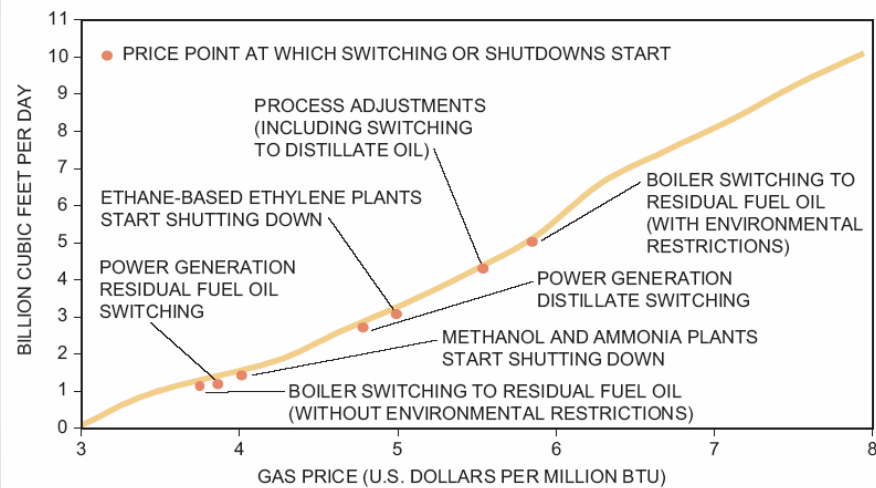


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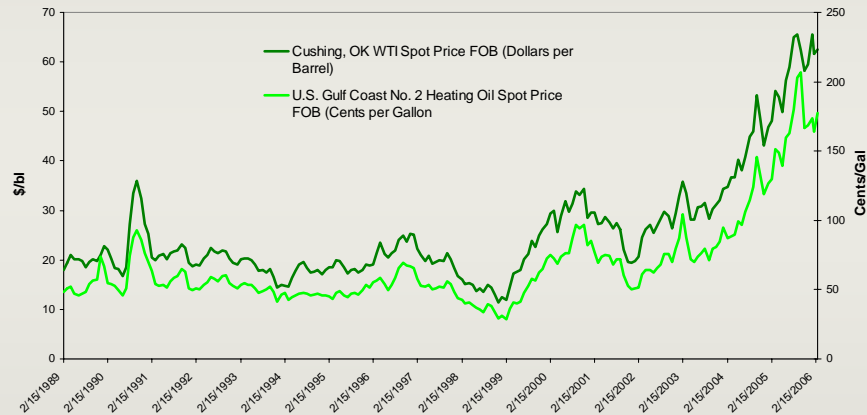
Source: NPC Sec. 1818 Update, 2005 ©CEE, BEG-UT Austin, 22

## Impact of Prices, “Demand Adjustment”



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## Oil as Marginal Alternative for Power Generation

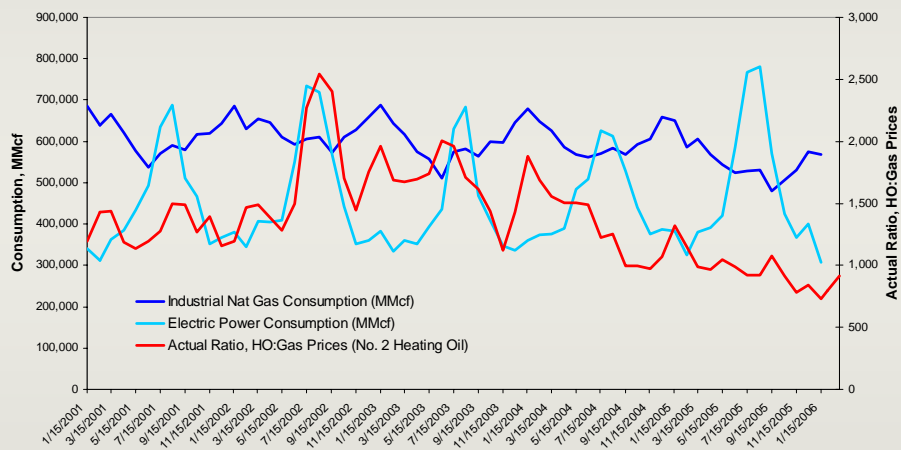


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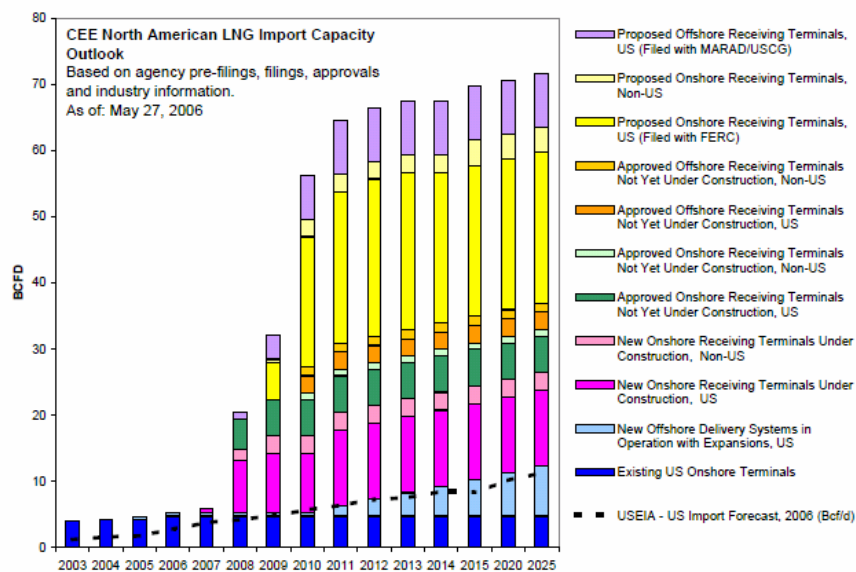
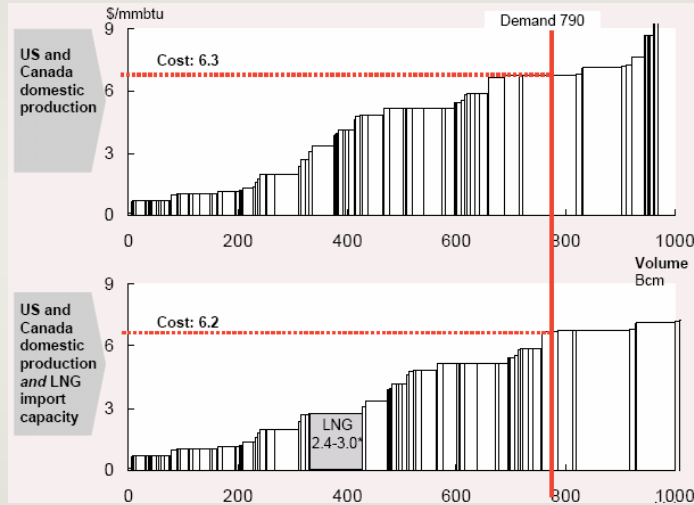
## Gas Peaks for Power Gen Remain Strong in Spite of Fuel Competition



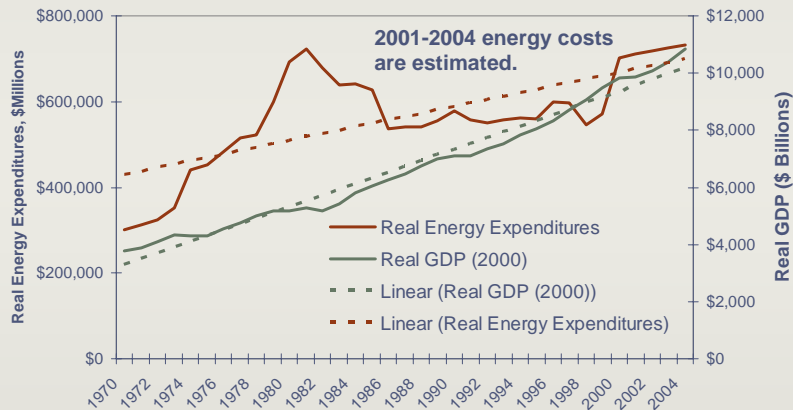
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## High Cost Gas Attracts LNG



## GDP Growth and Energy Costs, Long Run View



## Our energy/economy dilemma...

- In the U.S., we are an \$11 trillion economy (2000\$)...
- We produce 28% of world economic output...
- We use 25% of the world's energy supply...
- The U.S. is 43% of OECD energy and 33% of GDP...
- The OECD nations use 59% of the world's energy supply and are 83% of world GDP...
- We are a nation of roughly 290 million...
- OECD population is roughly 1.1 billion...
- World population is roughly 5 billion...
- For the rest of the world to catch up to OECD will mean at least **2-3X** amount of energy currently used

**...is an energy/economy opportunity**

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