Global & U.S. Energy Outlook

Energy Virginia Conference

October 17, 2006

David E. Dismukes
Center for Energy Studies
Louisiana State University

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Take Away Points – What's Happened?

- Current market set up started over a year ago.
- Correction has been posed to occur since the end of last winter
- What Mother Nature took away in the tropical seasons of 2004-2005, she gave back in the winter of 2005-2006 and the 2006 tropical season.
- Large storage positions on all energy commodities – coupled with production restoration – coupled with infrastructure restoration and expansion – is the source of the relief
- Very favorable outlook – but still short run uncertainties and longer run structural challenges.

Take Way Points: Outlook & Issues

- Like to be a relatively favorable winter heating season for most consumers.
  - US average for typical residential customer (using natural gas) will be $119 for the heating season – a 13 percent decrease from last year.
- Production positions getting better all the time through all basins include GOM.
- Counter-revolution of the supply optimists.
- Some uncertainties about the economy
  - Strong economy + unfavorable weather = erosion of record storage.
  - Slow economy + mild weather = challenges to storage capabilities (?)
- Does OPEC matter if so how and why?

Post-Hurricane Markets

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Post-Hurricane Market Concerns

Post-Hurricane Fears		Post-Hurricane Reality
• Massive outages would not be repaired.	→	• Unprecedented restoration has occurred.
• Industrial demand would be destroyed by high prices.	→	• Industrial activity remains strong.
• Cold winter would create interruptions.	→	• Mild winter resulted in record storage positions.

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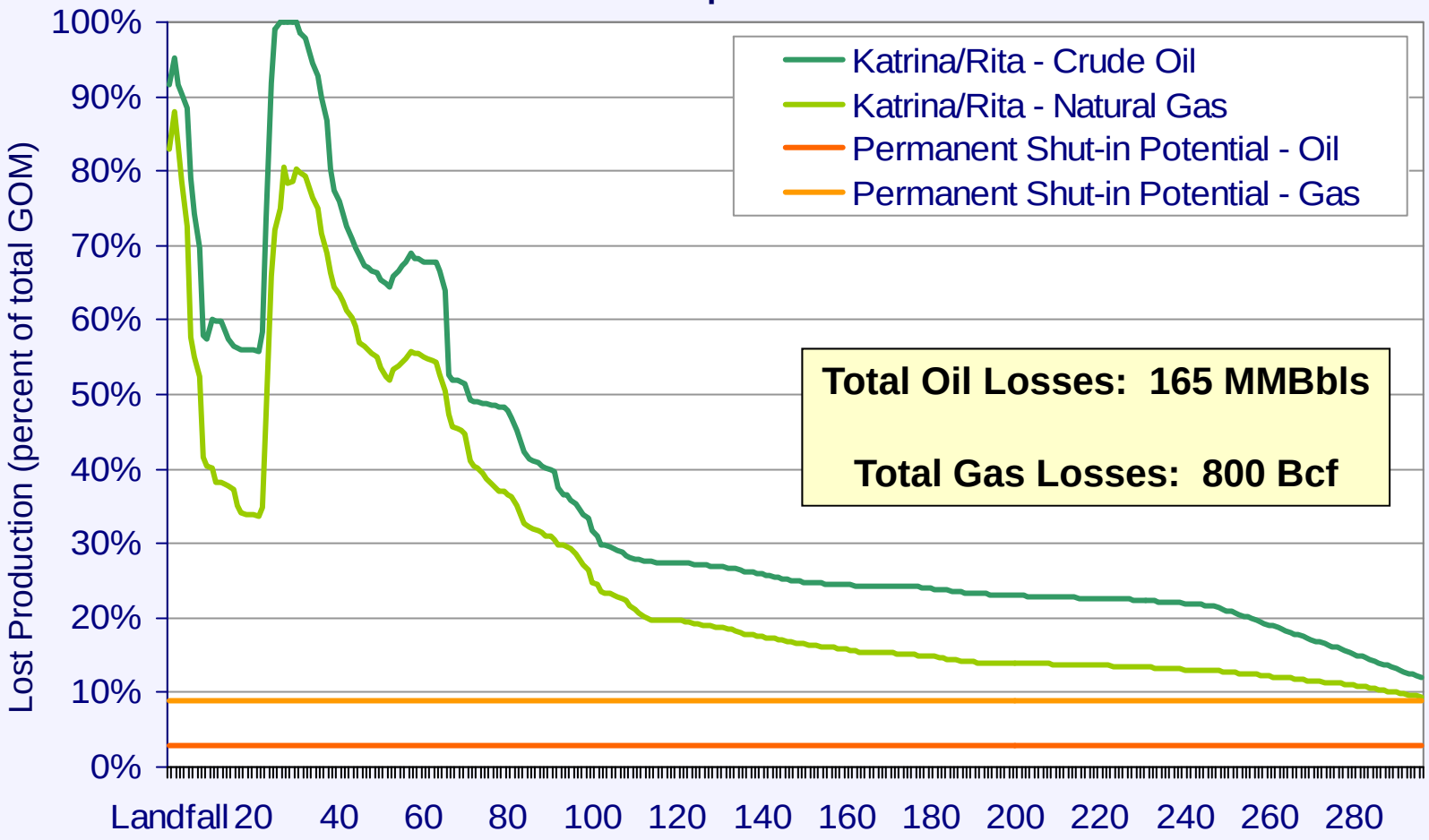
Estimated Return of Existing Crude Oil and Natural Gas Production

As of June 2006, there was 936 MMcf/d and 179 MBBl/d of shut in gas and oil production.



Note: Shut-in statistics for Ivan were no longer reported after 150 days. The last shut-in statistics for Katrina and Rita were published on June 21, 2006 (the 296th day after Katrina made landfall). Total pre-hurricane crude production of 1.5 MMBBls/d and gas of 10 Bcf/d.

Source: Minerals Management Service, US Department of the Interior

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Proven System Resiliency

- All refineries seriously impacted by the hurricane are operational.
- Most gas pipelines have been repaired or alternative routes/service has been secured for most shippers.
- All petrochemical facilities are operational.
- All service basis and ports are operational. Some in MS at 70-80 percent capacity.
- Electricity restored to all homes that can take service within 2 weeks (some 2.7 million without power Day 1 after Hurricane Katrina)
- To date, all but one gas processing facility is back on line.
- Most all crude oil production and natural gas production is back on line in GOM
  - -- Crude oil shut-in: 179 MBbls/d (12 percent).
  - -- Natural gas shut-in: 936 MMcf/d (9 percent).

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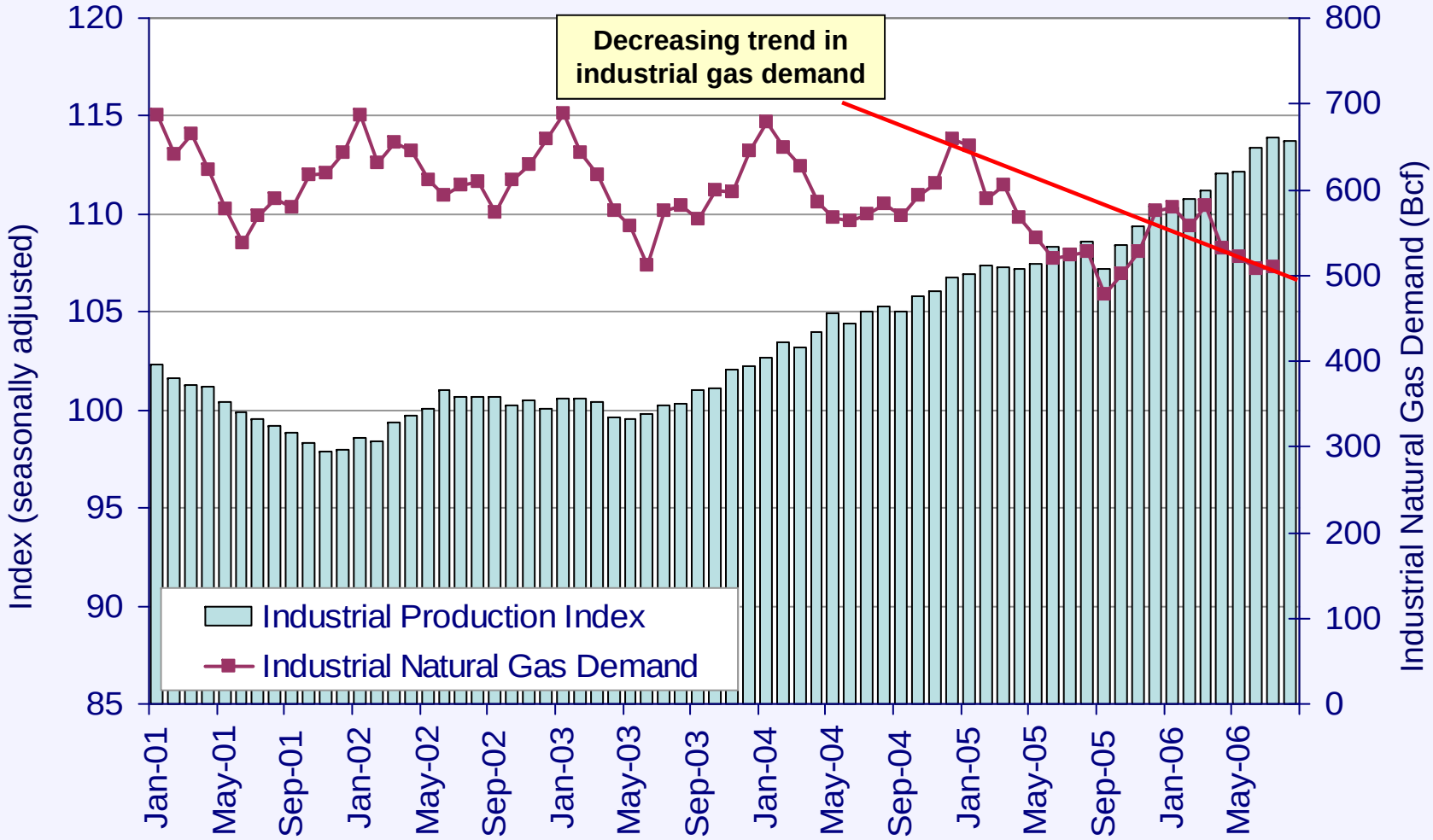
Industrial Production Index

Industrial production has maintained strength despite lower industrial gas demand



Source: Federal Reserve Statistical Release; and Energy Information Administration, US Department of Energy

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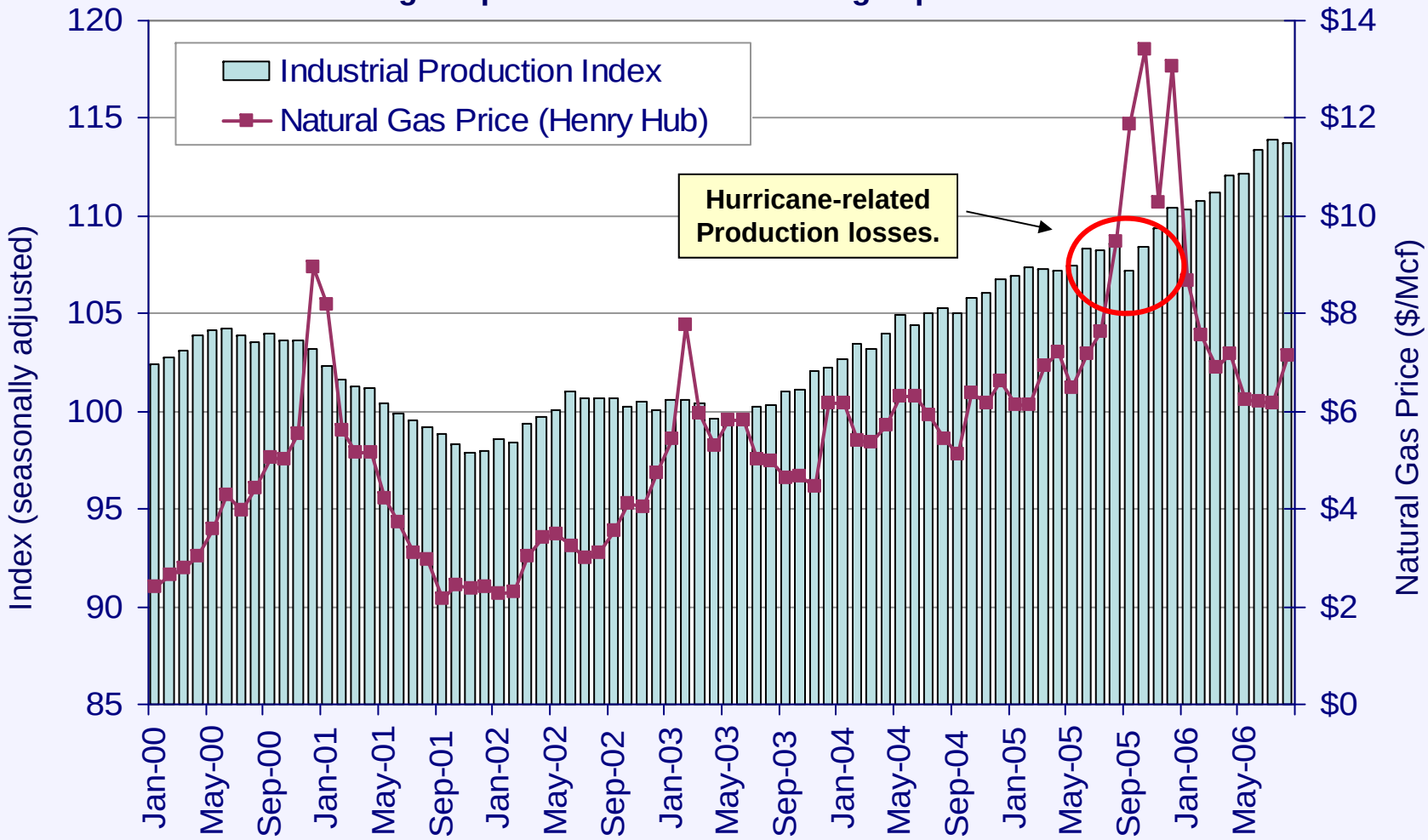
Industrial Production Index

After 2000-2001 correction, industry (overall) has been increasing despite increases in natural gas prices since 2002.



Source: Federal Reserve Statistical Release; and Intercontinental Exchange

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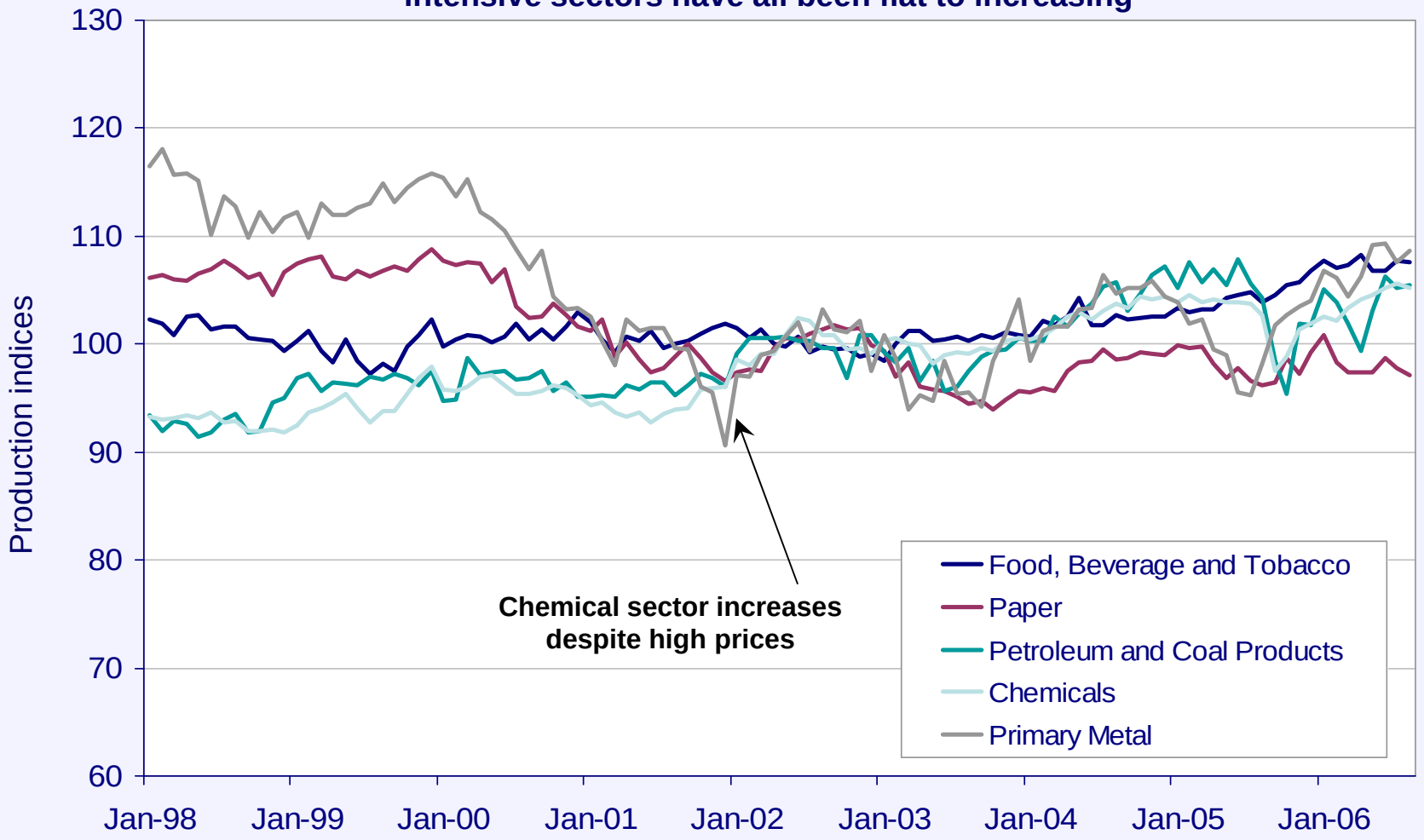
Industrial Production Indices
Energy Intensive Industries

Sub-sector analysis shows that since 2000-2001 correction, energy intensive sectors have all been flat to increasing



Source: Federal Reserve

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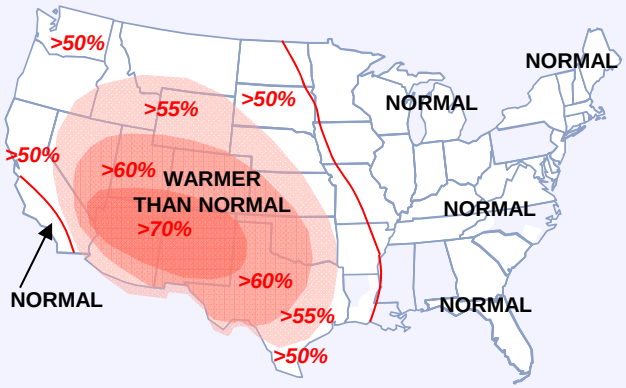
Considerable Warmer Than Normal 2005-2006 Winter

FORECASTED
Last Winter
2005-2006

Winter Season
Data Sources: NOAA, NGSA

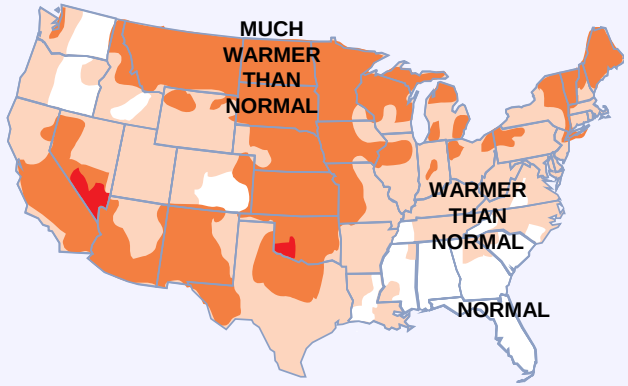
ACTUAL
Last Winter
2005-2006



< NOAA's PROJECTION

ACTUAL >

5th Warmest



3,658	HEATING DEGREE DAYS	**3,331**

Actual HDDs about 9 percent lower than anticipated.

Source: Natural Gas Supply Association; and NOAA

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Winter Demand Considerably Lower

FORECASTED Last Winter (Bcf) 2005-2006	Winter Season	ACTUAL Last Winter (Bcf) 2005-2006	
	Data Sources: NGSA		
3,710	RESIDENTIAL	3,203	↓
1,975	COMMERCIAL	1,828	↓
3,084	INDUSTRIAL	2,782	↓
1,864	POWER GENERATION	1,819	↓
815	OTHER	707	↓
11,448	TOTAL	10,339	↓

Source: Natural Gas Supply Association

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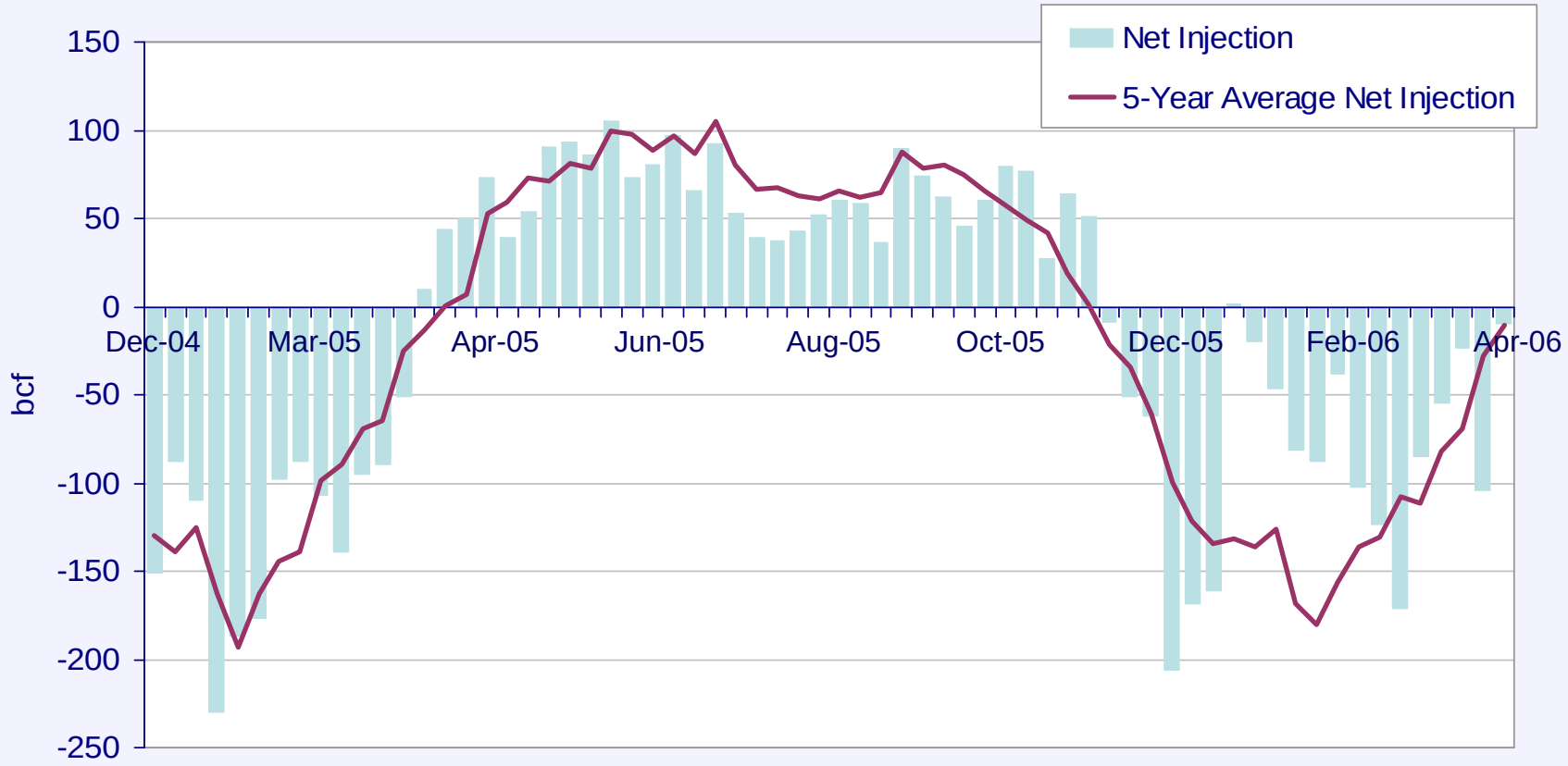
Weekly Natural Gas Injections Relative to 5-Year Average

After a quick December cold spell, withdrawals stayed well below historical averages for the entire winter.



Source: Energy Information Administration, US Department of Energy

Recent Challenges

Recent Challenges

Despite favorable set-up, prices remained high for the summer because of:

- **Pessimism about future production outlook;**
- **Concerns about tropical season and summer outlook;**
- **Strong economy with little price sensitivity; and**
- **Geopolitical tension.**

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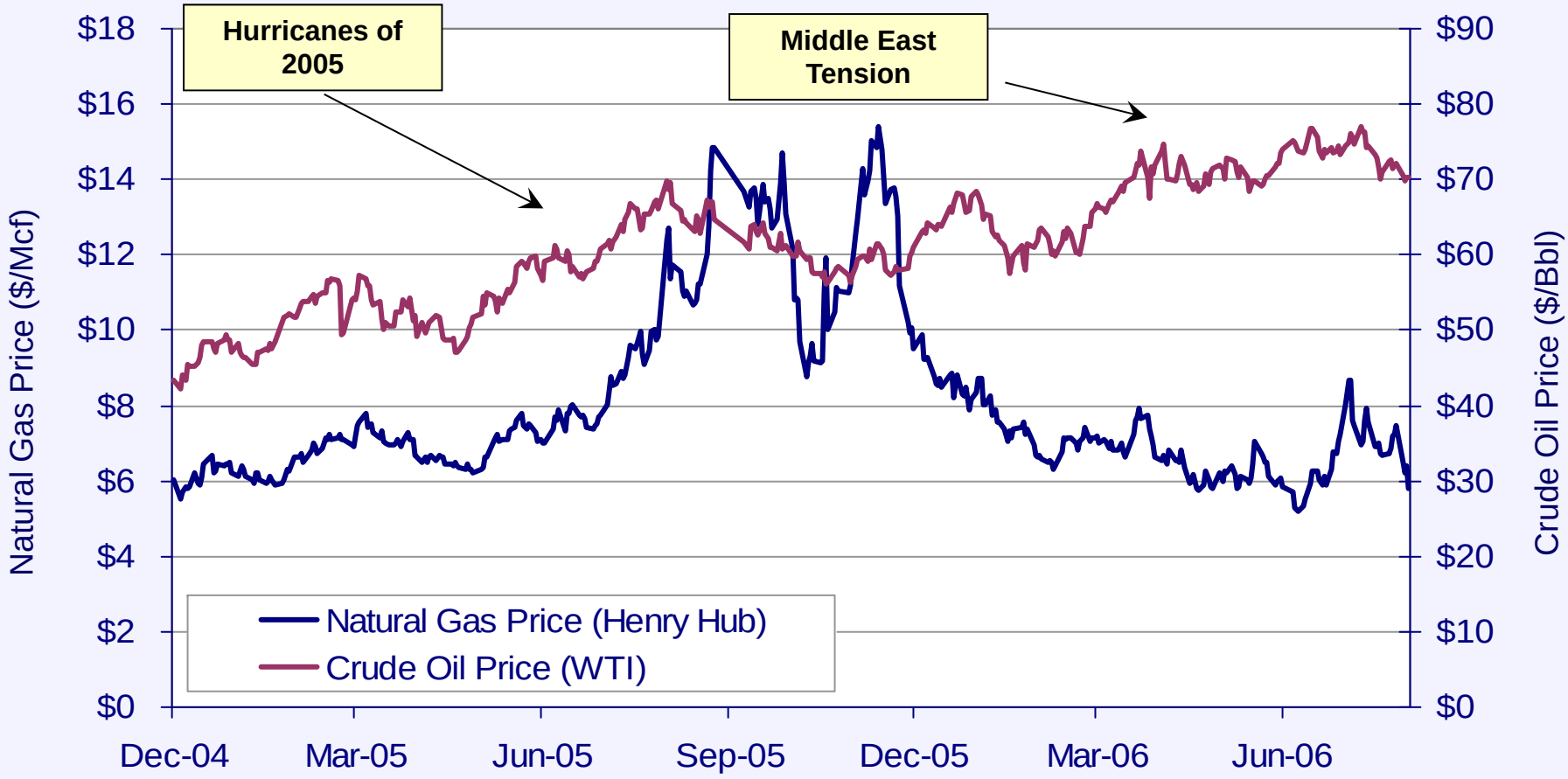
Natural Gas and Crude Oil Prices

Considerable strength in energy prices over the past 24 months



Source: Energy Information Administration, US Department of Energy; and Intercontinental Exchange

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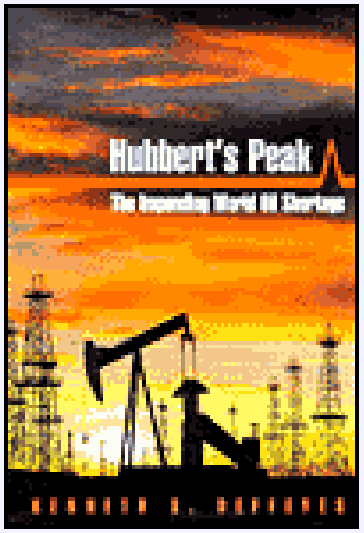
Peak Oil Prognosticators

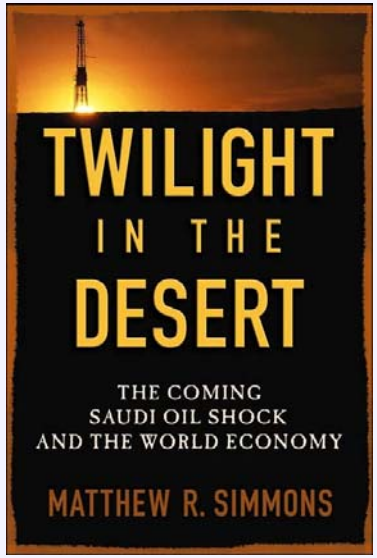


Ken Deffeyes (2001)
Geologist

Peak oil is coming as soon as 2005.

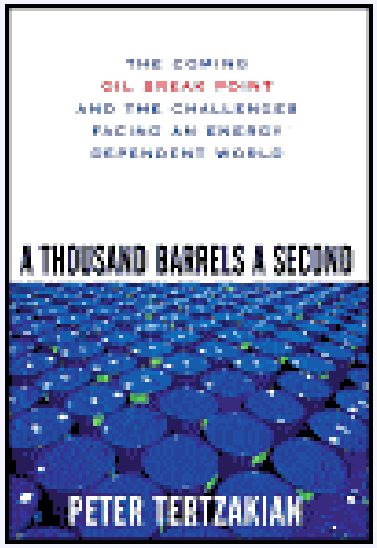
Paul Roberts (2006)

The world is running out of oil quickly and will lead to economic challenges.



Matt Simmons (2005)
Economist/Investment Banker

Saudi Arabia's ability to serve as world "backstop" is challenged. Representations of reserves and future production potentially biased.



Peter Tebtzakian (2006)

The world is running out of oil quickly – future is grim unless we take action now.

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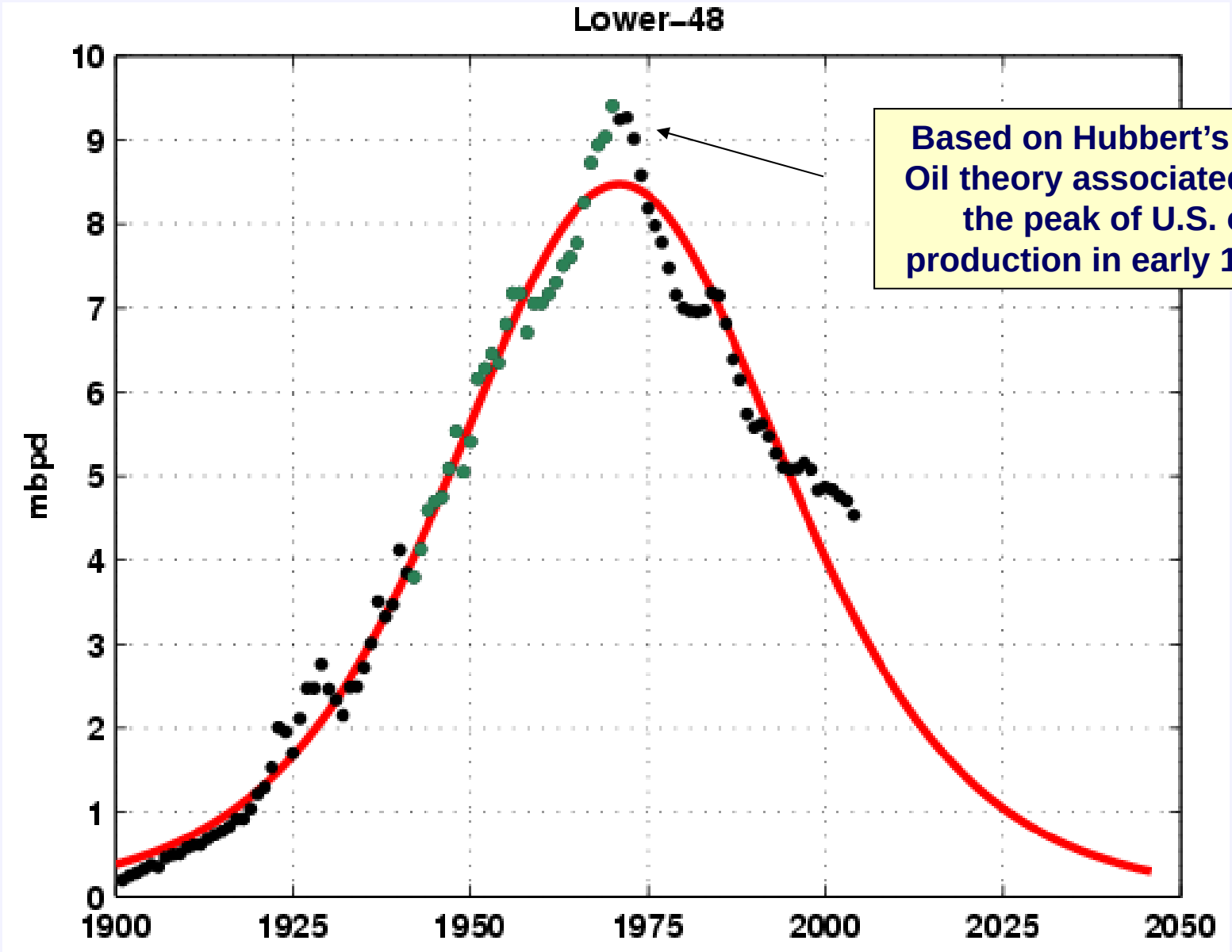
What is Peak Oil Theory?



Based on Hubbert's Peak Oil theory associated with the peak of U.S. oil production in early 1970s.

Source: EnergyBulletin.net

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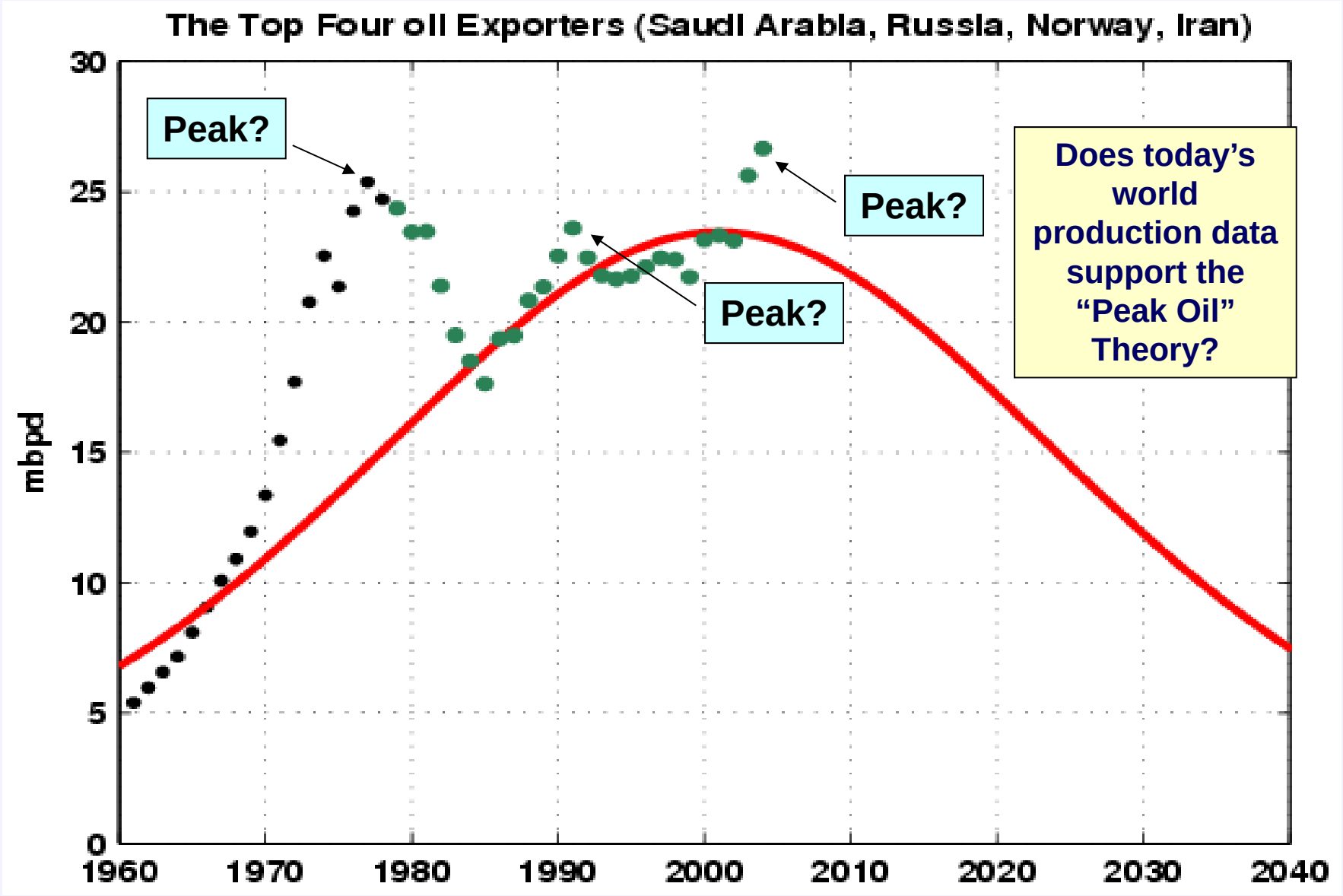
Has The World Reached Its "Peak Oil" Point?



Source: EnergyBulletin.net

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Dr. William Gray's December Hurricane Forecasts - Colorado State University

The 2006 forecast included the highest forecasted number of storms and "major" hurricanes this decade.

April "First" Forecast	Named Storms	Total Hurricanes	'Major' Hurricanes
2001	9	5	2
2002	13	8	4
2003	12	8	3
2004	13	7	3
2005	11	6	5
2006	17	9	5
NOAA 2006	13-16	8-10	4-6
Accuweather 2006		5	3

Source: Klotzbach and Gray, Colorado State University, Final April 2006 Forecast; MSNBC.com; and Accuweather.com

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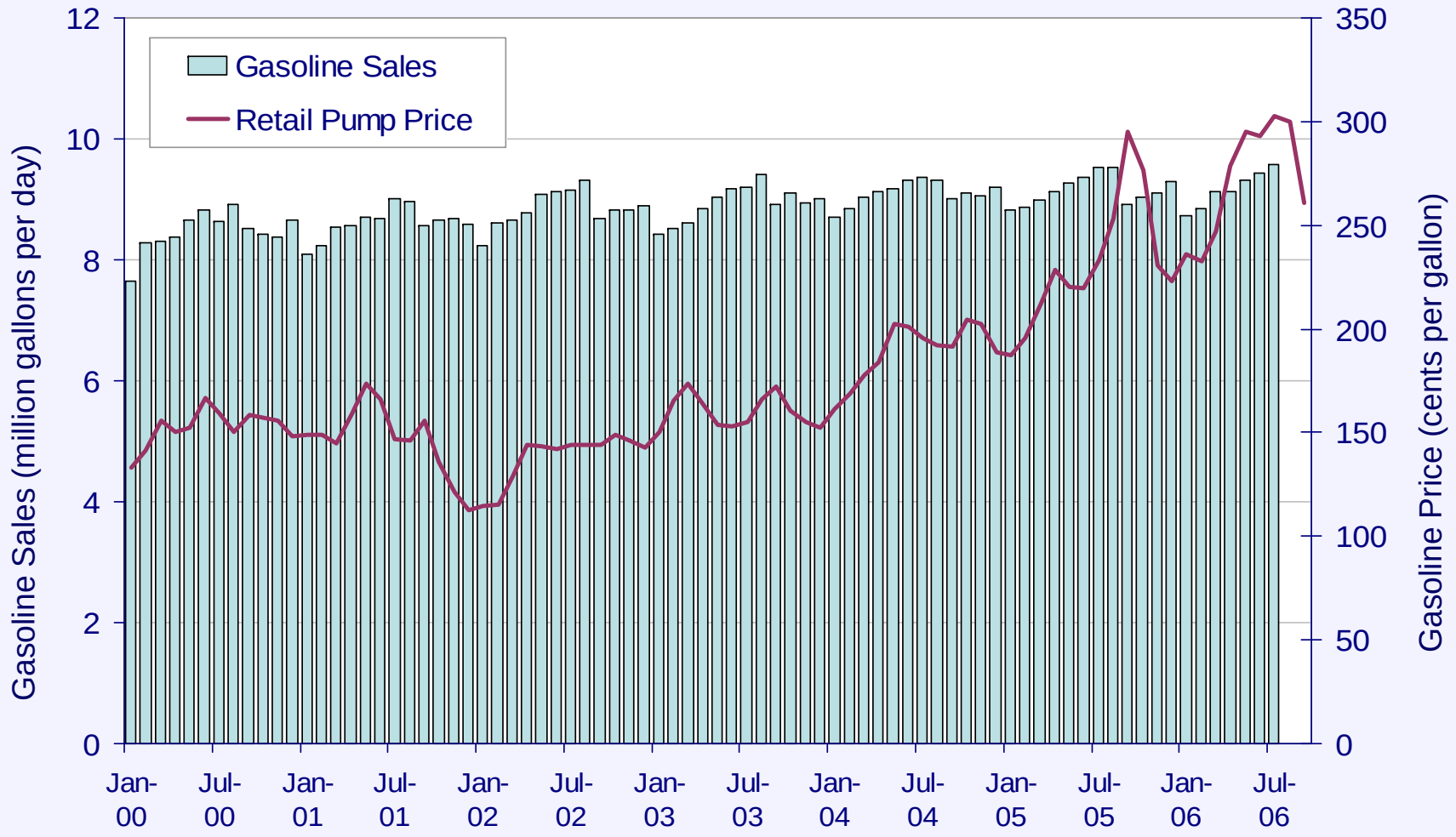
US Gasoline Demand and Retail Pump Prices

Despite high prices, gasoline demand is still relatively strong.



Source: Energy Information Administration, Department of Energy

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Impact of Shut-in Production Worldwide

Shut-in Production: 2.3 M
Forecast World Growth (2006): 1.6 M
Forecast World Growth (2007): 1.8 M

North Korea

Iraq
1 MMBbls/day

Iraq post-war insurgency

Venezuela
600 MBbls/day

Nigeria
500 Mbls/day

Venezuelan oil strike

Nigerian civil strife

Factors Leading to Recent Correction

Why Things Look Good Now

The current correction has been in the making since the Spring of 2006. A number of factors have lead to this correction:

- **Favorable restoration of crude/gas production;**
- **Revenge of the supply "optimists;"**
- **Major infrastructure announcements/development;**
- **Significant positive weather developments;**
- **Significant Reserve Announcements; and**
- **Strong storage positions on all commodities.**

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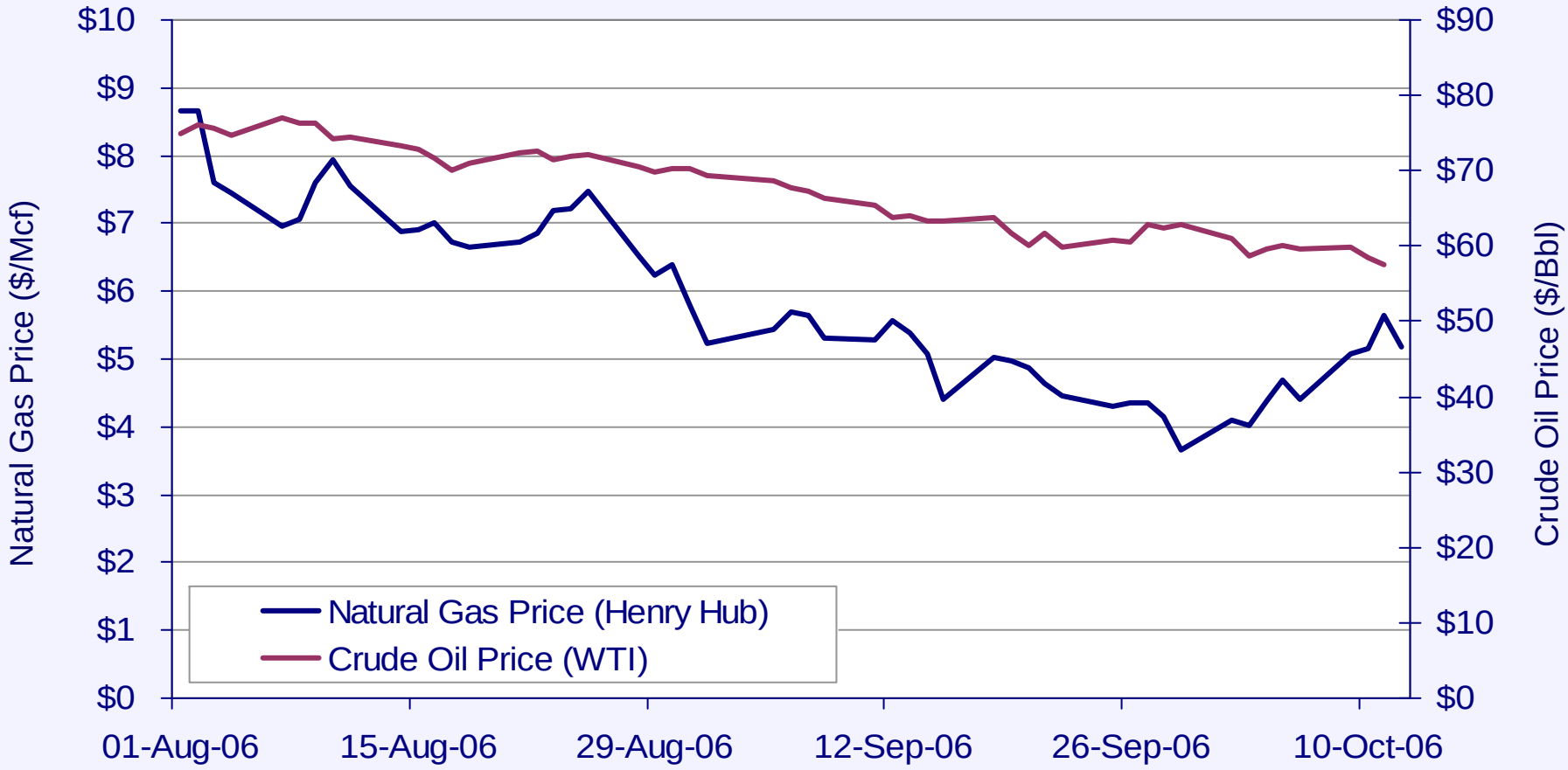
Recent Natural Gas and Crude Oil Prices

Since August, natural gas prices have fallen 40 percent and crude oil prices have dropped 23 percent.



Source: Energy Information Administration, US Department of Energy; and Intercontinental Exchange

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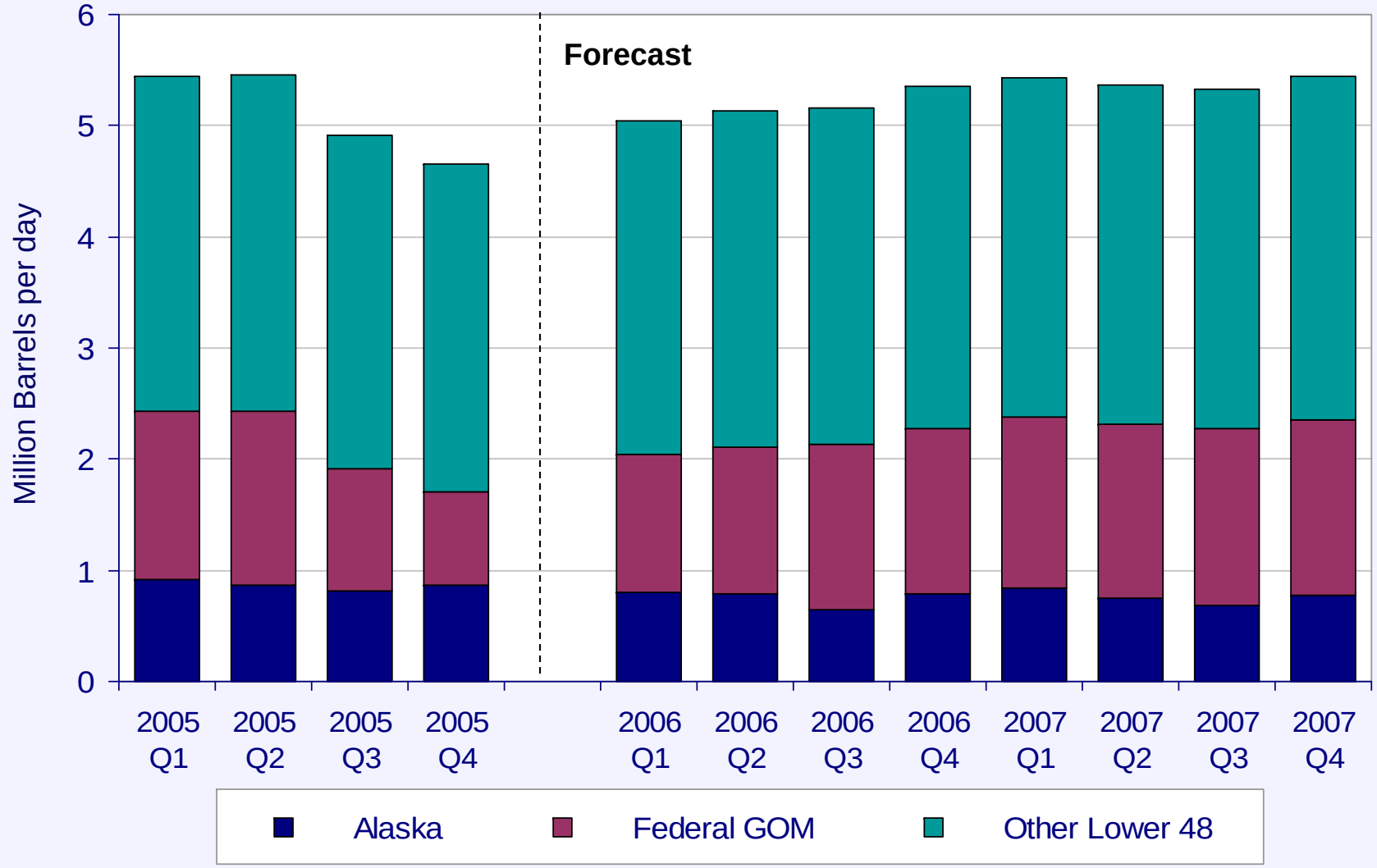
Forecast of US Crude Oil Production

Considerable post-hurricane crude oil production increases that should be stabilized by 2007.



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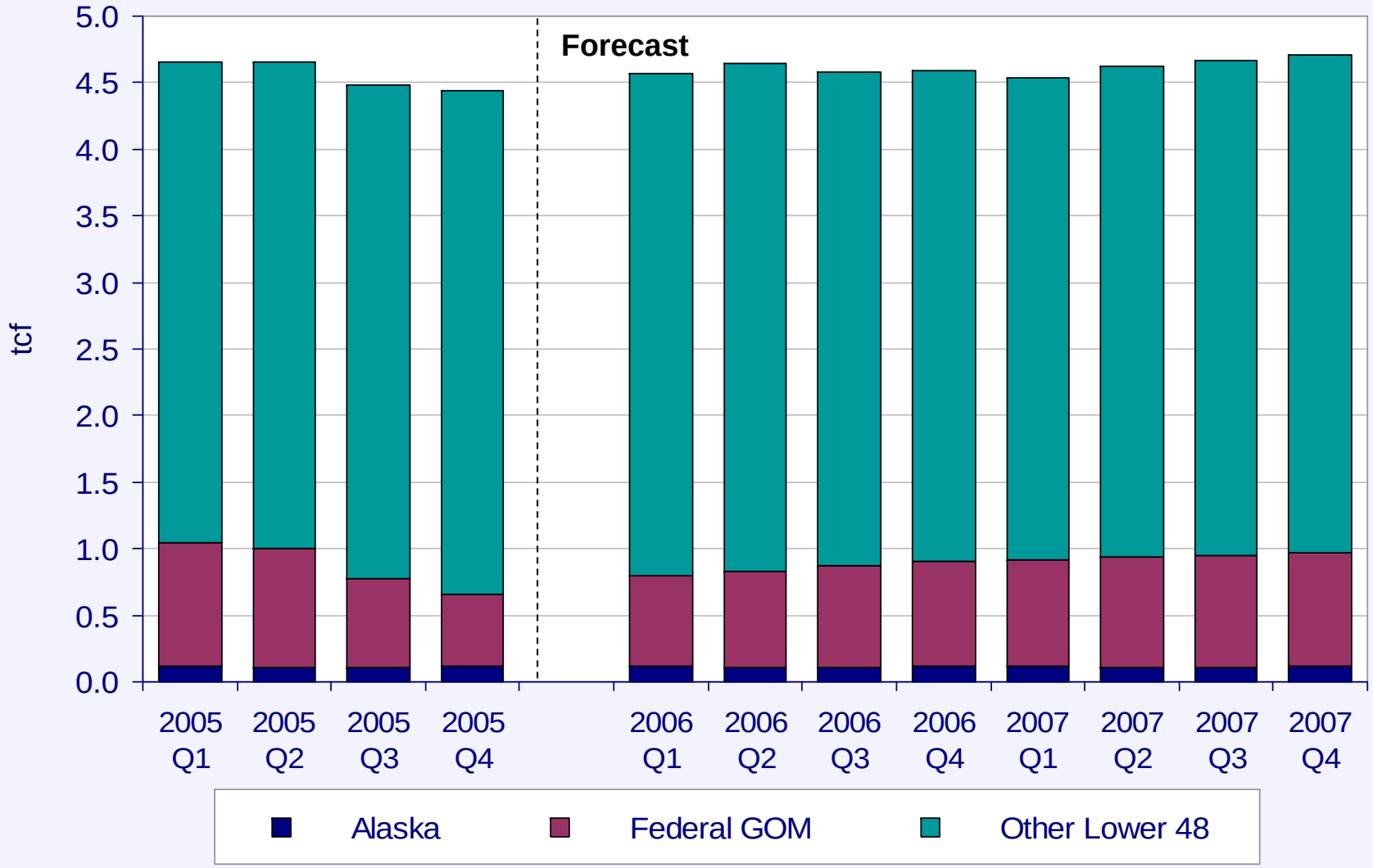
Forecast of US Gas Production

Additional strong increases in natural gas production that should stabilize supplies.



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Recent "Counter Revolution" on The Peak Oil Theory

Crude oil reserve additions replaced 122 percent of 2005 production. Crude oil proved reserves went up in 2005 for the first time in 3 years, increasing by 2 percent. Several significant deepwater discoveries that have been made in recent years in the Gulf are not yet booked as proved reserves.

Estimates from the US Geological Survey of ultimately recoverable reserves have practically doubled since the early 1980s, from just 1,700 billion barrels to over 3,300 billion barrels. There is no physical shortage of the necessary conventional and non-conventional resources to meet demand. [Third OPEC International Seminar, Vienna, September 12-13, 2006]

I believe we will eventually tally about a trillion barrels each from yet-to-be-discovered fields and higher recovery rates. Add those two trillion barrels to the 1.2 trillion barrels of current proven reserves and the 1.5 trillion barrels of oil that can be extracted from non-conventional oil using current technology, and we are looking at more than four and a half trillion barrels of potentially recoverable oil. That number translates into more than 140 years of supply at today's current rate of consumption. [Third OPEC International Seminar, Vienna, September 12-13, 2006]

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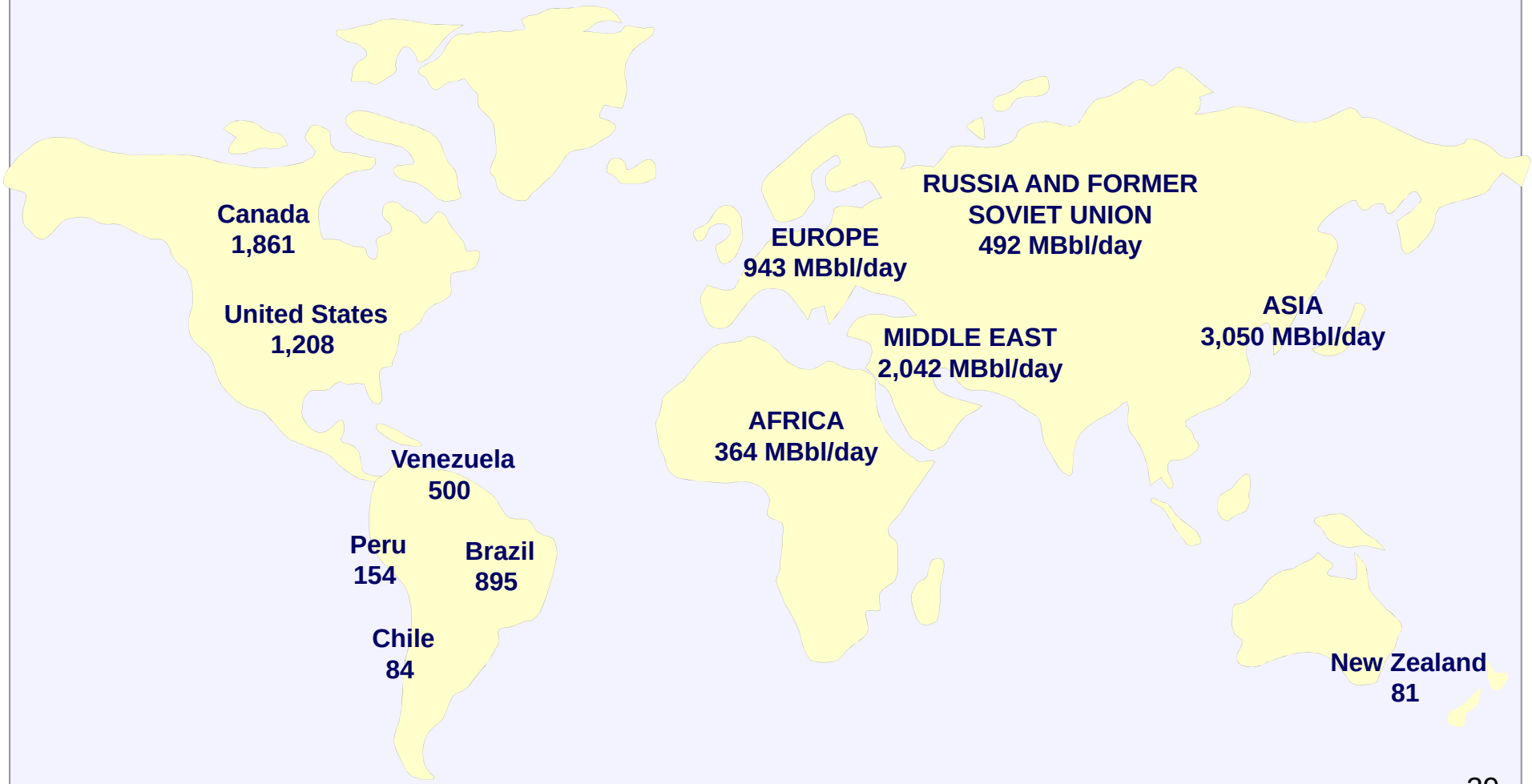
Under Construction and Planned Refining Capacity for Selected Countries

Total Worldwide Under Construction and Planned Capacity:
12,160,670 Barrels per Day



Source: Oil and Gas Journal

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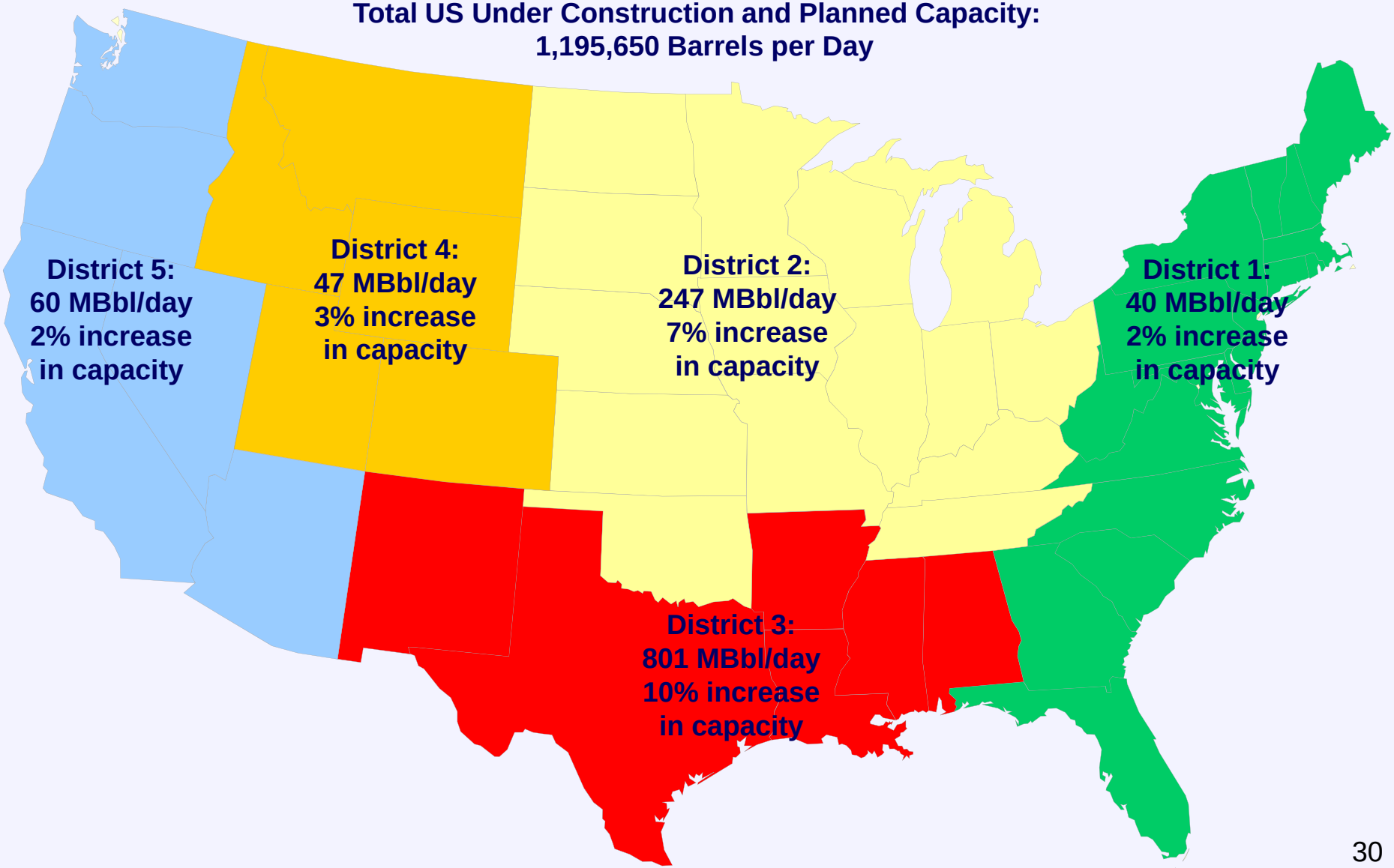
Under Construction and Planned Refining Capacity in the US

Total US Under Construction and Planned Capacity:
1,195,650 Barrels per Day



Source: Oil and Gas Journal

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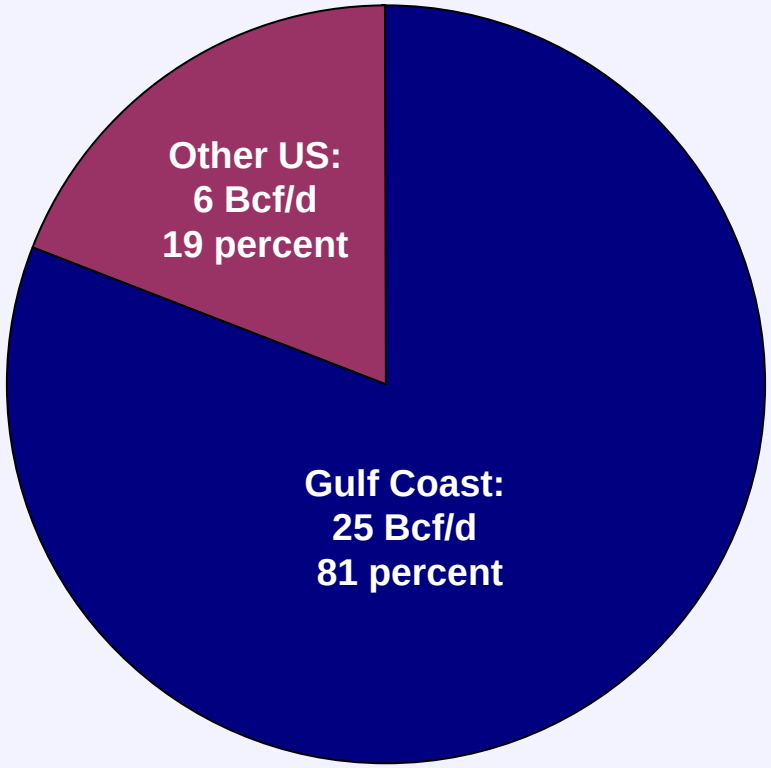
Existing and Approved LNG Terminals Share of Gulf Coast Region

Considerable development of LNG. Some 31 Bcf/d of capacity is current approved or under construction.



Source: Federal Energy Regulatory Commission

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No Hurricanes this Year

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Dr. William Gray's Hurricane Forecasts - Colorado State University

Forecast	Named Storms	Total Hurricanes	'Major' Hurricanes
6-Dec-05	17	9	5
4-Apr-06	17	9	5
31-May-06	17	9	5
3-Aug-06	15	7	3
1-Sep-06	13	5	2
Actual	**9**	**5**	**2**
(observed through September 2006)			

Major tropical forecast revision

Source: Colorado State University

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Publicly Announced Lower Tertiary Trend Discoveries in the Gulf of Mexico

Prospect	Block	Operator	Discovery Date
Trident	AC 903	Chevron	2001
Great White	AC 857	Shell	2002
Cascade	WR 206	BHP	2002
Chinook	WR 469	BHP	2003
St. Malo	WR 678	Chevron	2003
Tobago	AC 859	Chevron	2004
Silvertip	AC 815	Chevron	2004
Tiger	AC 818	Chevron	2004
Jack	WR 759	Chevron	2004
Stones	WR 508	BP	2005
Gotcha	AC 856	Total	2006
Kaskida	KC 292	BP	2006

During the last ten years, the average deepwater field has added over 67 MMBOE of proved and unproved reserves.

About 60 billion barrels of oil found in deepwater fields to date.

Some 8- to 10 billion barrels have already been produced.

Yet-to-find potential could be 114 billion barrels of oil, and 68 billion barrels of oil equivalent (BOE) of gas. [Oil and Gas Investor, May 2006]

Source: Minerals Management Service, US Department of the Interior

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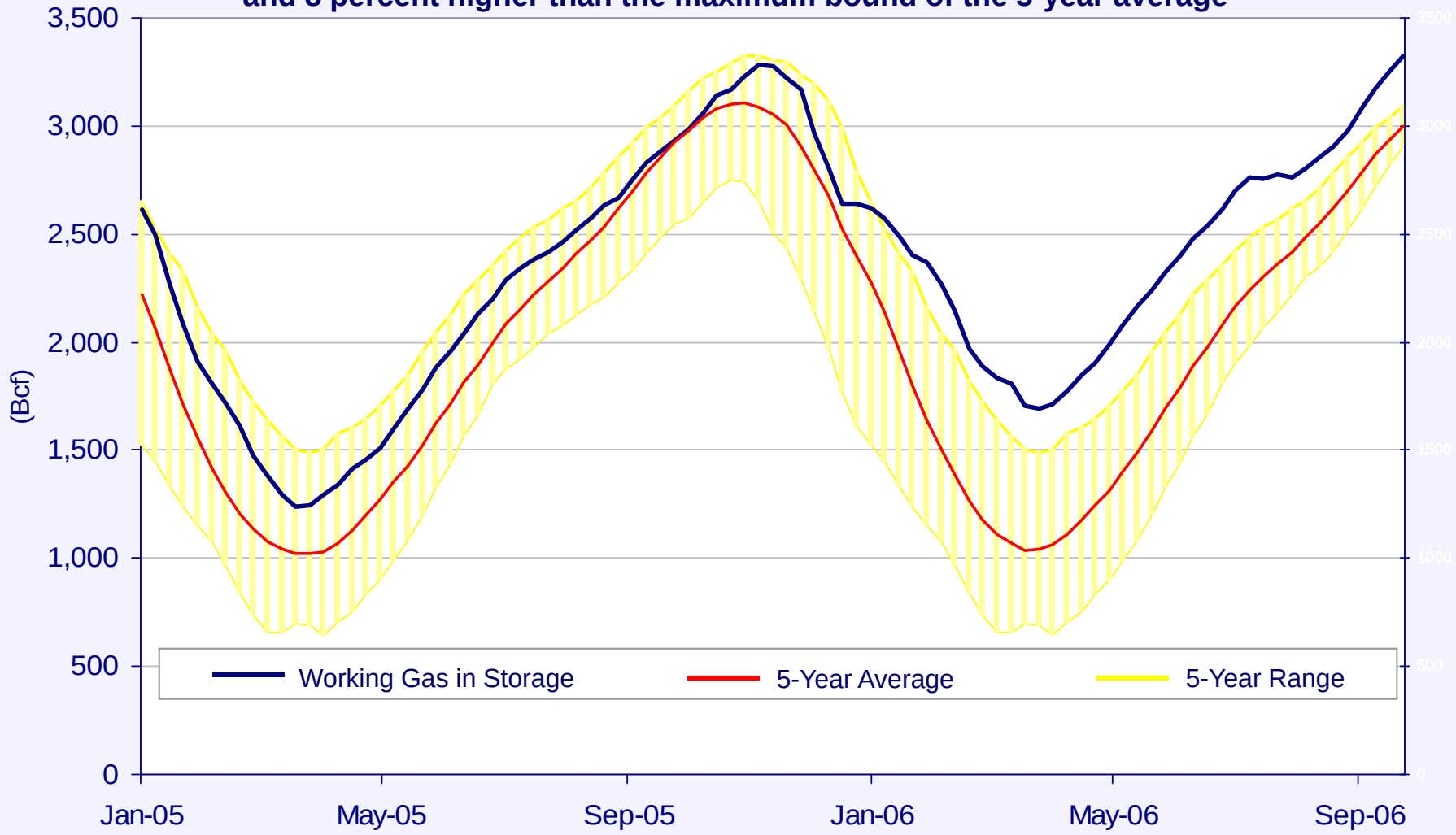
Working Gas in Underground Storage

Working gas in storage is currently 11 percent higher than the 5-year average and 8 percent higher than the maximum bound of the 5-year average



Source: Energy Information Administration, Department of Energy.

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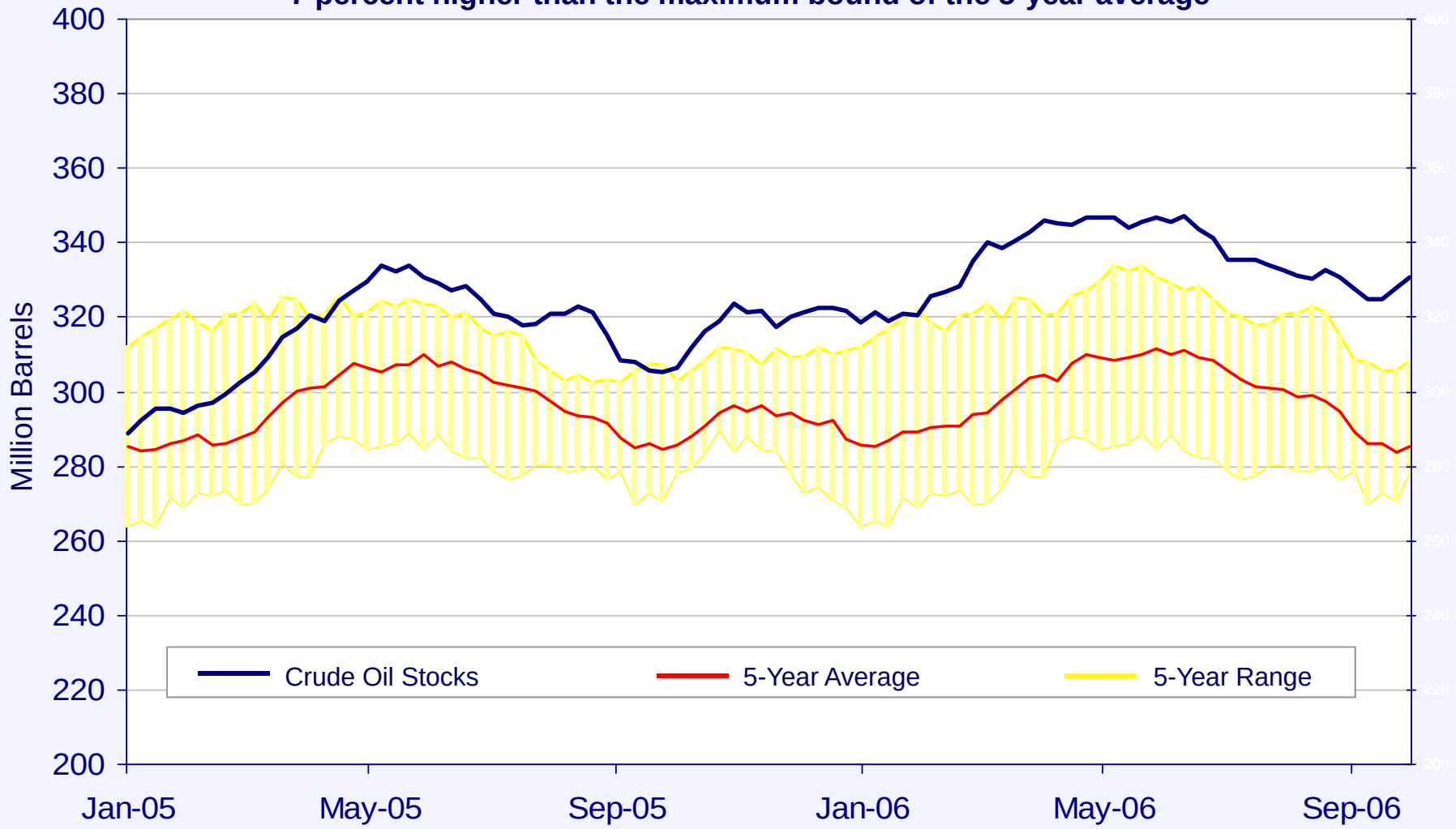
US Crude Oil Stocks

Crude oil stocks are currently 16 percent higher than the 5-year average and 7 percent higher than the maximum bound of the 5-year average

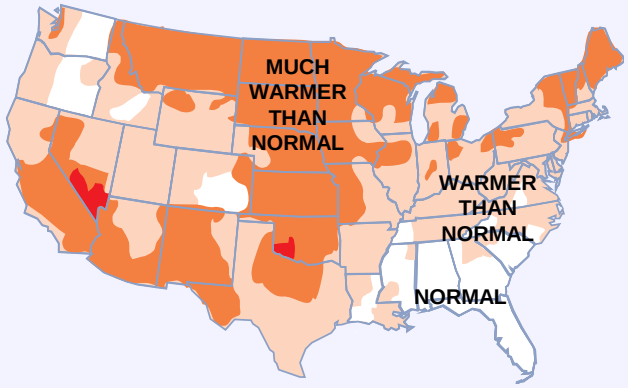
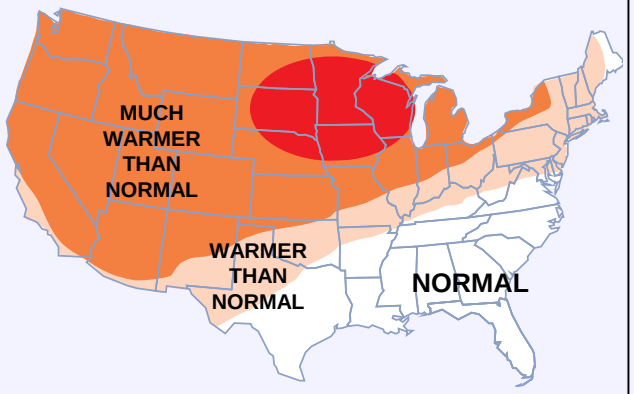


Source: Energy Information Administration, Department of Energy.

Recent Correction – Current Outlook

Winter Season

Data Sources: NOAA, EVA

ACTUAL		FORECAST
Last Winter 2005-2006		**This Year** 2006-2007
5th Warmest	< ACTUAL SEASON	**Slightly Cooler**
	NOAA's PROJECTION >	
3,331	HEATING DEGREE DAYS	**3,523**

Winter-To-Winter Pressure On Natural Gas Prices → **UPWARD**

Source: Natural Gas Supply Association

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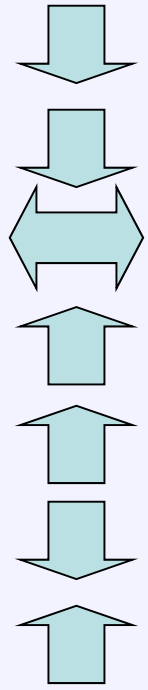
Forecast Demand for Upcoming Winter

Market Risk	Likelihood	Impact on Price
Economic Slowdown	Likely	
Economic Recession	Not Likely	
Future OPEC Production Cuts	Likely	(depends on magnitude)
Colder than Average Winter	Not Likely	
Strong Economy	Not Likely	
Global Slowdown	Not Likely	
Continued Global Strength	Likely	



Source: Natural Gas Supply Association

Long Run Structural Challenges

Strong Global Demand

- DOE forecasts see developing world demand as being comparable to that in the developed world.
- Large developing economies of China and India will comprise most of that demand. Energy nationalism/assurance important to them too.

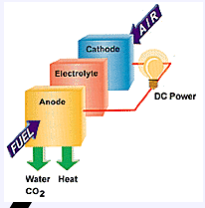
Supply Additions Becoming more Challenging and More Expensive

- Recent discoveries in the GOM, while promising are expected to be more expensive (Lower tertiary wells may cost between $80 million and $120 million each, while producing facilities may cost between $600 million and $1.5 billion)
- Future U.S. reserve additions from increasingly more non-conventional sources (particularly natural gas) and Canadian reserves (our largest source of imported oil) expensive and energy intensive.
- While peak oil theorist have recently been challenged, their analysis should not be discounted entirely.

Energy Policy Goals

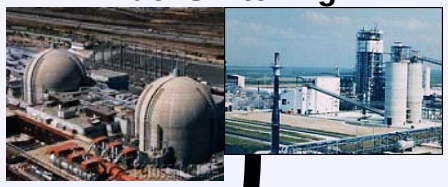
Development of a Balanced Energy Portfolio that Includes Moderate and Reasonable Hedges on Traditional Resources

Research and Development



Renewables

Fuel Switching



Energy Efficiency (Supply Side)

Energy Efficiency (Demand Side)

Access to Restricted Areas

LNG Infrastructure

Pipeline Infrastructure

Questions, Comments, & Discussion

dismukes@lsu.edu

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