

Natural Gas Outlook and Assessment of Energy Infrastructure

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Summary on Impacts of Hurricanes

- **Hurricanes were incredibly destructive to energy business – effects felt for some time.**
- **Hurricanes clearly showed the interrelationship of all types of energy infrastructure in the Gulf – the “4 Ps” – production, processing, pipes, and power.**
- **Hurricanes impacts were felt nationally – drives home importance of Gulf coast.**
- **Price and supply wildcards: geopolitics, weather, and industrial activity. Recent industrial demand destruction not clear but a big potential looming problem.**
- **Energy markets are likely to not be back on their feet prior to the next hurricane season.**



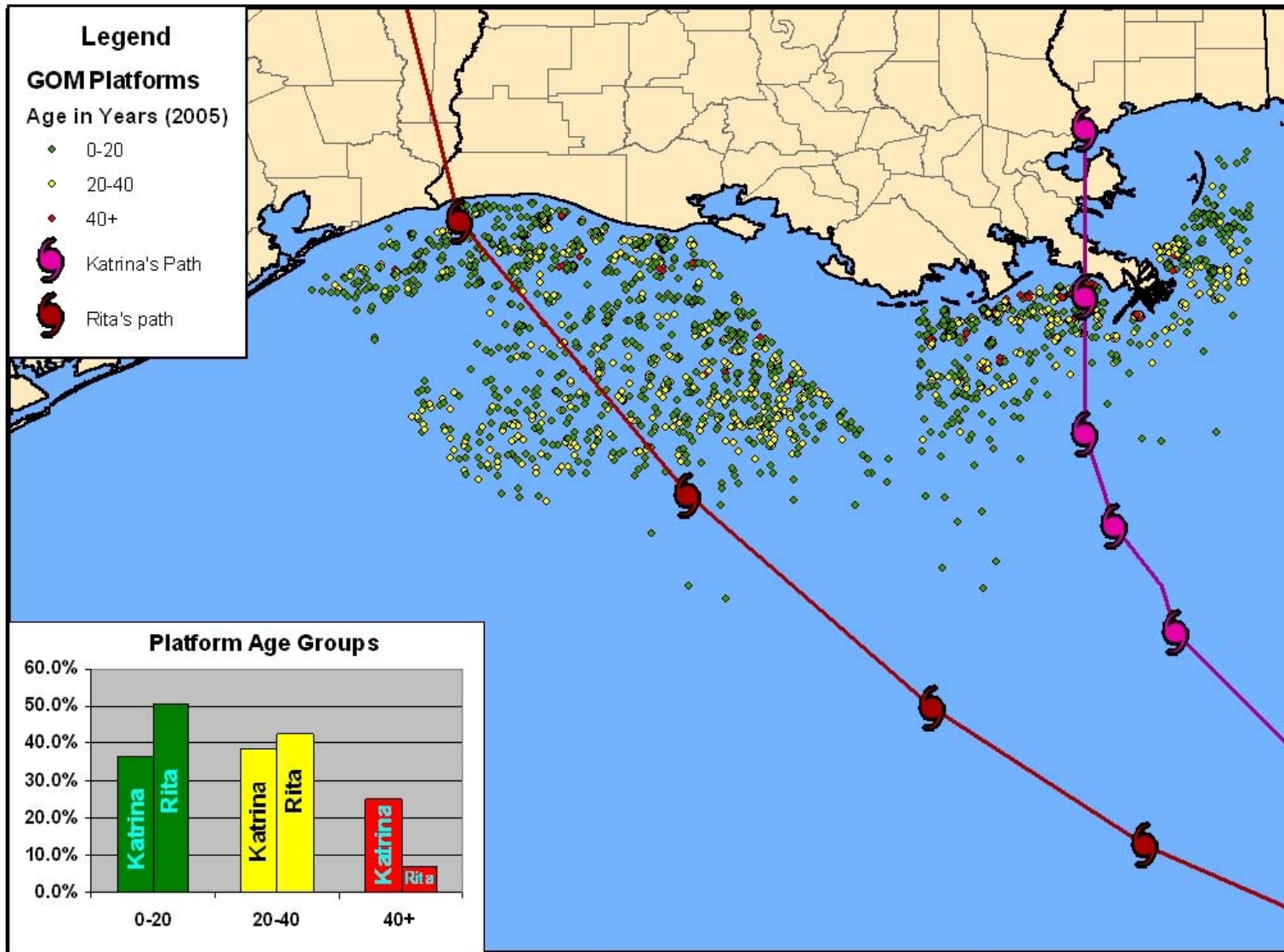
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The WORST Case Scenario:

**Two Hurricanes in the Heart of the Largest
Energy Infrastructure Region of the U.S.**



Platforms/Structures Impacted by Rita





Date	Shut-in Natural Gas Production (bcf/day)	Percent of Daily GOM Gas Production (%)	Total Cumulative Shut-in Gas Production ¹ (bcf)	Percent of Annual GOM Gas Production (%)	Percent of Annual US Production (%)
week ending 9/23/05	7.20	72.0%	140.50	3.8%	0.6%
week ending 9/30/05	7.94	79.4%	196.48	5.4%	0.8%
week ending 10/7/05	6.44	64.4%	246.47	6.8%	1.0%
week ending 10/14/05	5.65	56.5%	288.87	7.9%	1.2%
week ending 10/21/05	5.34	53.4%	326.52	8.9%	1.4%
week ending 10/28/05	5.50	55.0%	364.72	10.0%	1.5%
week ending 11/4/05	4.57	45.7%	400.74	11.0%	1.7%
week ending 11/10/05	4.02	40.2%	426.43	11.7%	1.8%
week ending 11/18/05	3.62	36.2%	456.74	12.5%	1.9%
week ending 11/23/05	3.20	32.0%	473.55	13.0%	2.0%
week ending 12/02/05	2.94	29.4%	501.22	13.7%	2.1%
week ending 12/09/05	2.35	23.5%	519.24	14.2%	2.1%
December 12, 2005	2.31	23.1%	526.22	14.4%	2.2%
December 15, 2005	2.23	22.3%	532.93	14.6%	2.2%
December 19, 2005	2.01	20.1%	541.09	14.8%	2.2%
December 22, 2005	1.96	19.6%	547.07	15.0%	2.3%
December 29, 2005	1.95	19.5%	560.77	15.4%	2.3%
January 5, 2006	1.88	18.8%	574.21	15.7%	2.4%
January 9, 2006	1.86	18.6%	581.68	15.9%	2.4%
January 11, 2006	1.81	18.1%	585.31	16.0%	2.4%
January 25, 2006	1.66	16.6%	609.26	16.7%	2.5%
February 8, 2006	1.55	15.5%	631.33	17.3%	2.6%
February 22, 2006	2	15.0%	653	17.9%	2.7%

Note: ¹ cumulative production is as of August 26, 2005
Source: Minerals Management Service



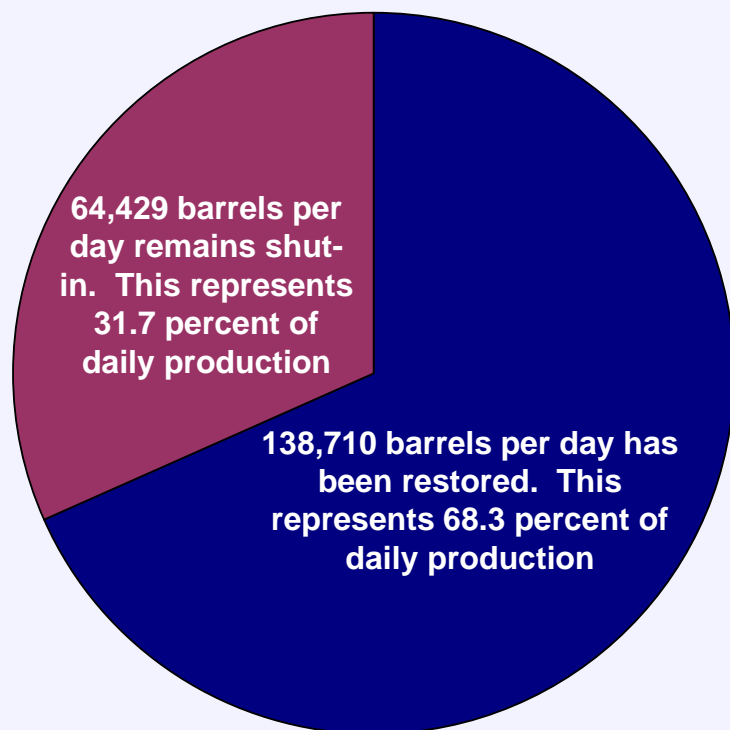
Date	Shut-in Oil Production (bbls/day)	Percent of Daily GOM Oil Production (%)	Total Cumulative Shut-in Oil Production ¹ (bbls)	Percent of Annual GOM Oil Production (%)	Percent of Annual US Production (%)
week ending 9/23/05	1,486,877	99.1%	30,280,661	5.5%	1.5%
week ending 9/30/05	1,467,577	97.8%	40,828,134	7.5%	2.0%
week ending 10/7/05	1,162,913	77.5%	50,105,764	9.2%	2.4%
week ending 10/14/05	1,008,909	67.3%	57,642,292	10.5%	2.8%
week ending 10/21/05	986,805	65.8%	64,547,816	11.8%	3.1%
week ending 10/28/05	1,017,551	67.8%	71,613,334	13.1%	3.4%
week ending 11/4/05	780,633	52.0%	78,193,735	14.3%	3.8%
week ending 11/10/05	736,279	49.1%	82,735,894	15.1%	4.0%
week ending 11/18/05	702,556	46.8%	88,540,236	16.2%	4.3%
week ending 11/23/05	615,623	41.0%	91,731,141	16.8%	4.4%
week ending 12/02/05	539,074	35.9%	96,956,676	17.7%	4.7%
week ending 12/09/05	447,425	29.8%	100,369,239	18.3%	4.8%
December 12, 2005	441,394	29.4%	101,693,483	18.6%	4.9%
December 15, 2005	426,282	28.4%	102,973,119	18.8%	4.9%
December 19, 2005	414,495	27.6%	104,648,778	19.1%	5.0%
December 22, 2005	412,687	27.5%	105,889,263	19.3%	5.1%
December 29, 2005	410,618	27.4%	108,775,910	19.9%	5.2%
January 5, 2006	403,861	26.9%	111,633,122	20.4%	5.4%
January 9, 2006	402,259	26.8%	113,246,964	20.7%	5.4%
January 11, 2006	396,786	26.5%	114,042,425	20.8%	5.5%
January 25, 2006	373,407	24.9%	119,356,377	21.8%	5.7%
February 8, 2006	364,195	24.3%	124,502,898	22.7%	6.0%
February 22, 2006	362,796	24.2%	129,590,370	23.7%	6.2%

Note: ¹ cumulative production is as of August 26, 2005
Source: Minerals Management Service

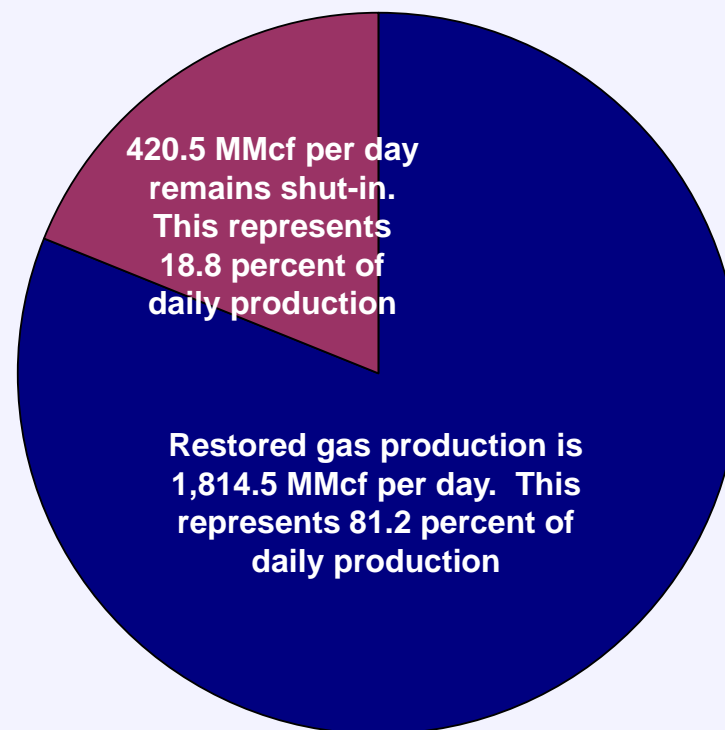


Status of Louisiana Oil and Gas Production

State Oil Production 32% Shut-in



State Natural Gas Production 19% Shut-in

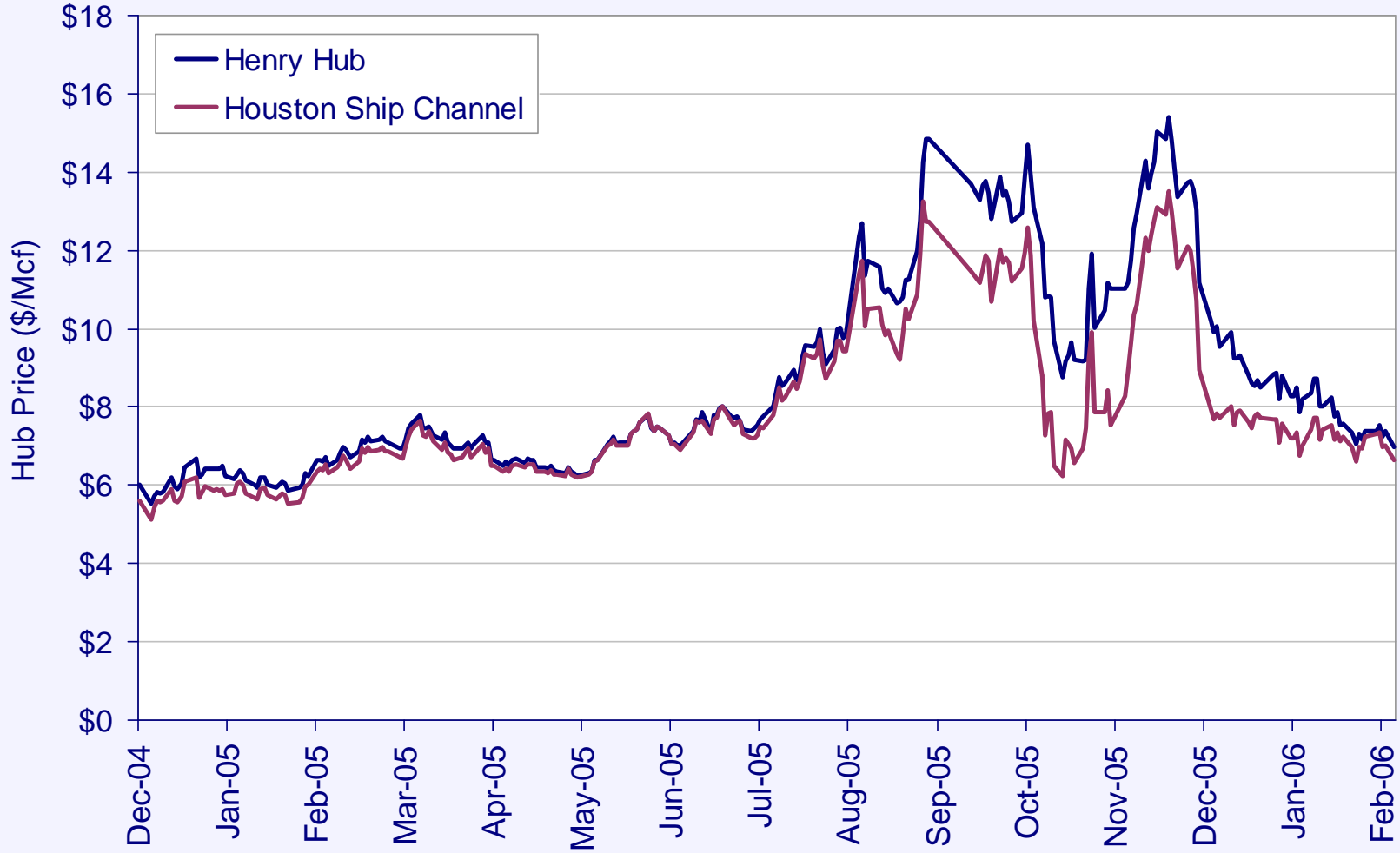


Note: As of February 26, 2006.

Source: Louisiana Department of Natural Resources



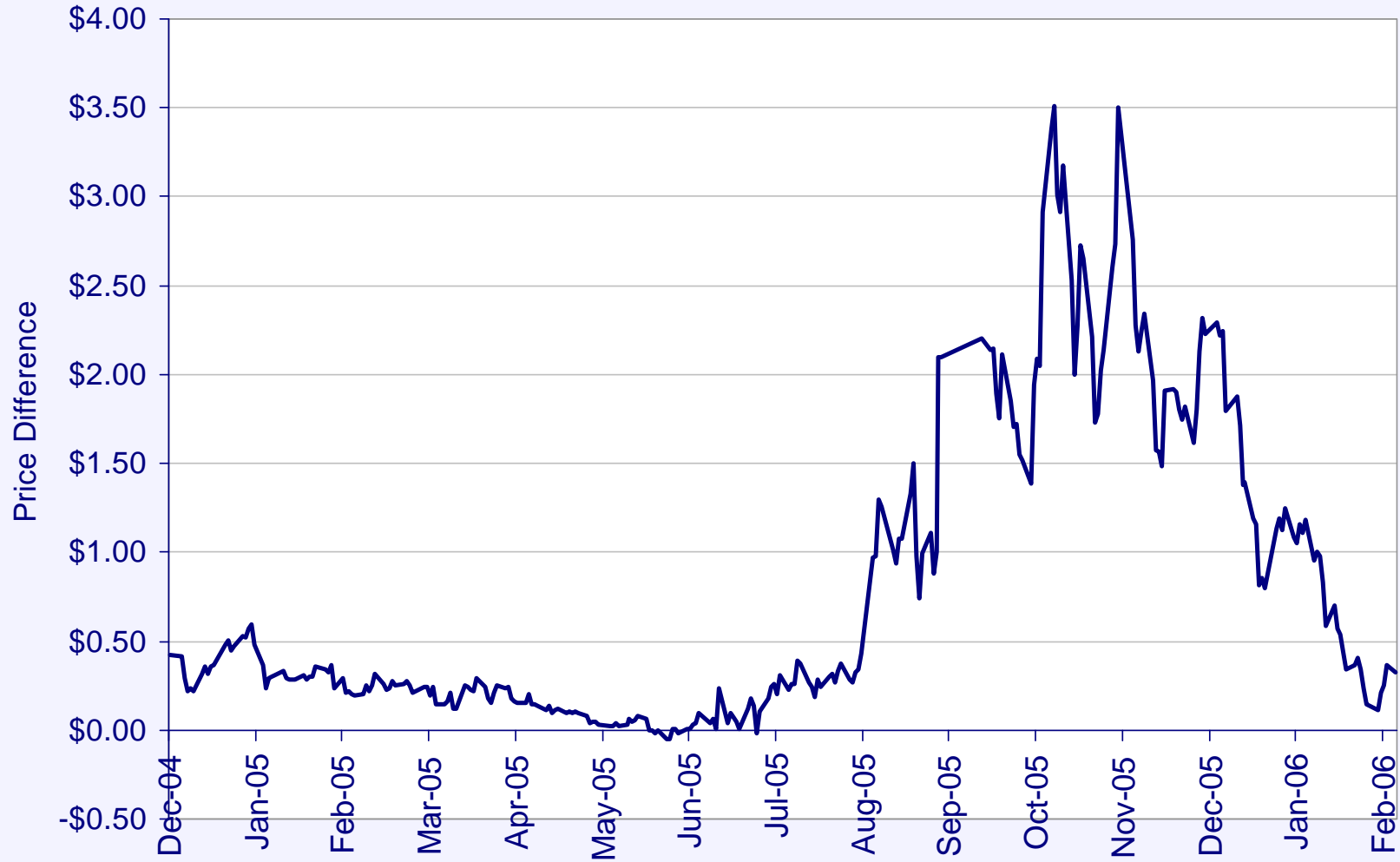
Henry Hub and Houston Ship Channel





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Henry Hub Less Houston Ship Channel





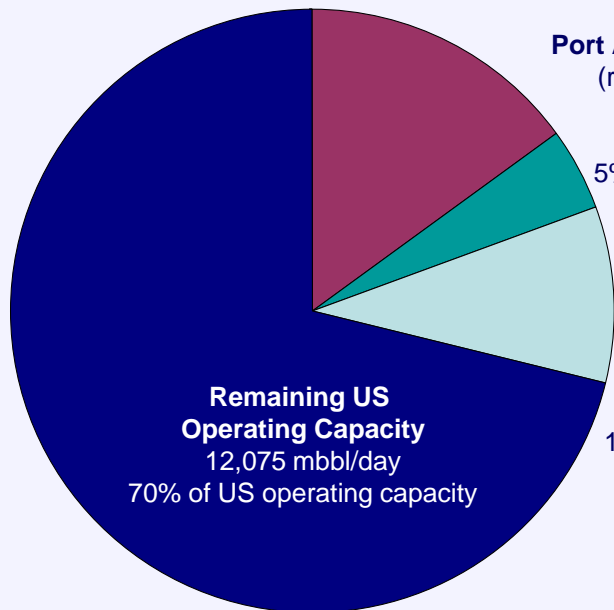
Total Immediate Refinery Impact

Hurricane Katrina

LA/MS/AL Gulf Coast Refiners
(reduced runs and shutdowns)
2,528 mbbbl/day
15% of US operating capacity

Port Arthur/Lake Charles
(reduced runs and supply loss)
775 mbbbl/day
5% of US operating capacity

Midwest
(reduced runs – supplied by Capline Pipeline)
1,628 mbbbl/day
10% of US operating capacity



Total Refinery Impact
4,931 mbbbl/day
30% of US operating capacity

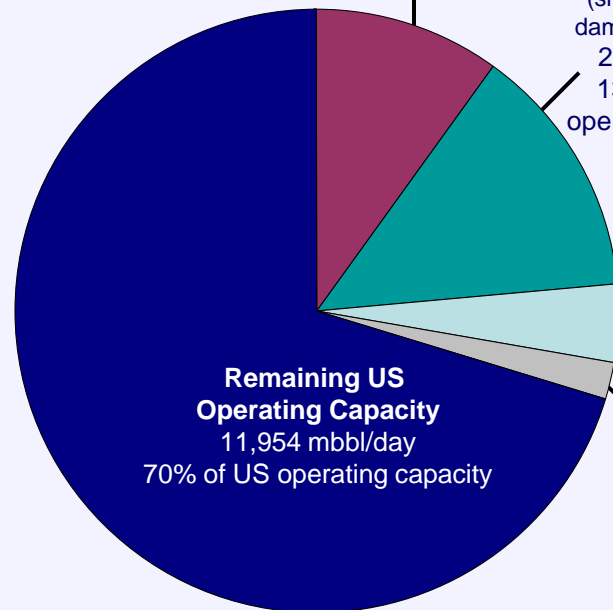
Hurricane Rita

Port Arthur/Lake Charles
(shutdowns and damaged facilities)
1,715 mbbbl/day
10% of US operating capacity

Houston/Texas City
(shutdowns and damaged facilities)
2,292 mbbbl/d
13.5% of US operating capacity

Corpus Christi
(shutdown and reduced runs)
706 mbbbl/day
4% of US operating capacity

Midwest
(reduced runs from supply loss)
338 mbbbl/day
2% of US operating capacity

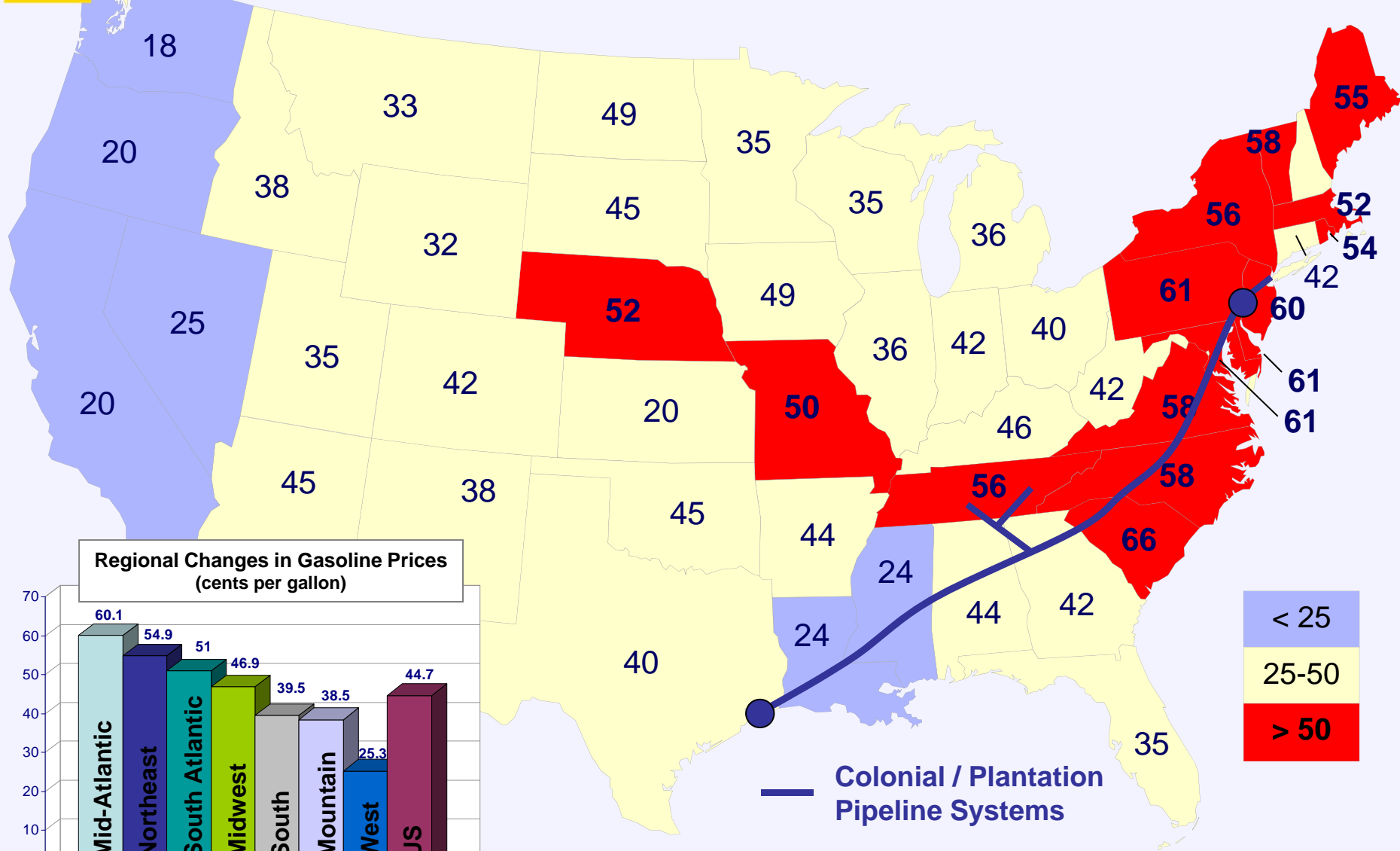


Total Refinery Impact
5,052 mbbbl/day
30% of US operating capacity



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Gasoline Price Increases August 30, 2005 to September 6, 2005



Source: American Petroleum Institute

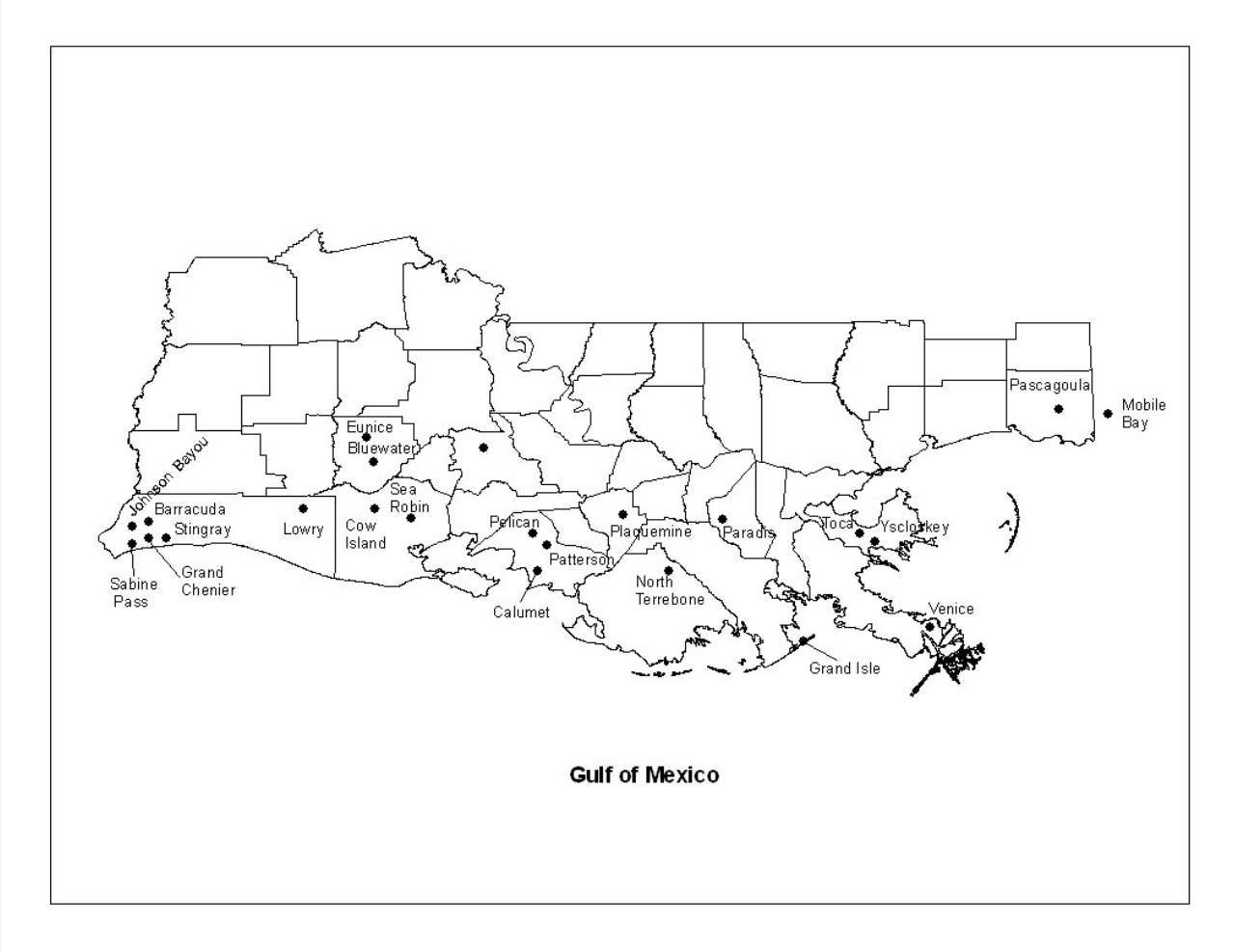
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Number of Natural Gas Processing Facilities Out

Outages at gas processing facilities throughout all of south Louisiana was one of the more unique aspects of the combined hurricanes.

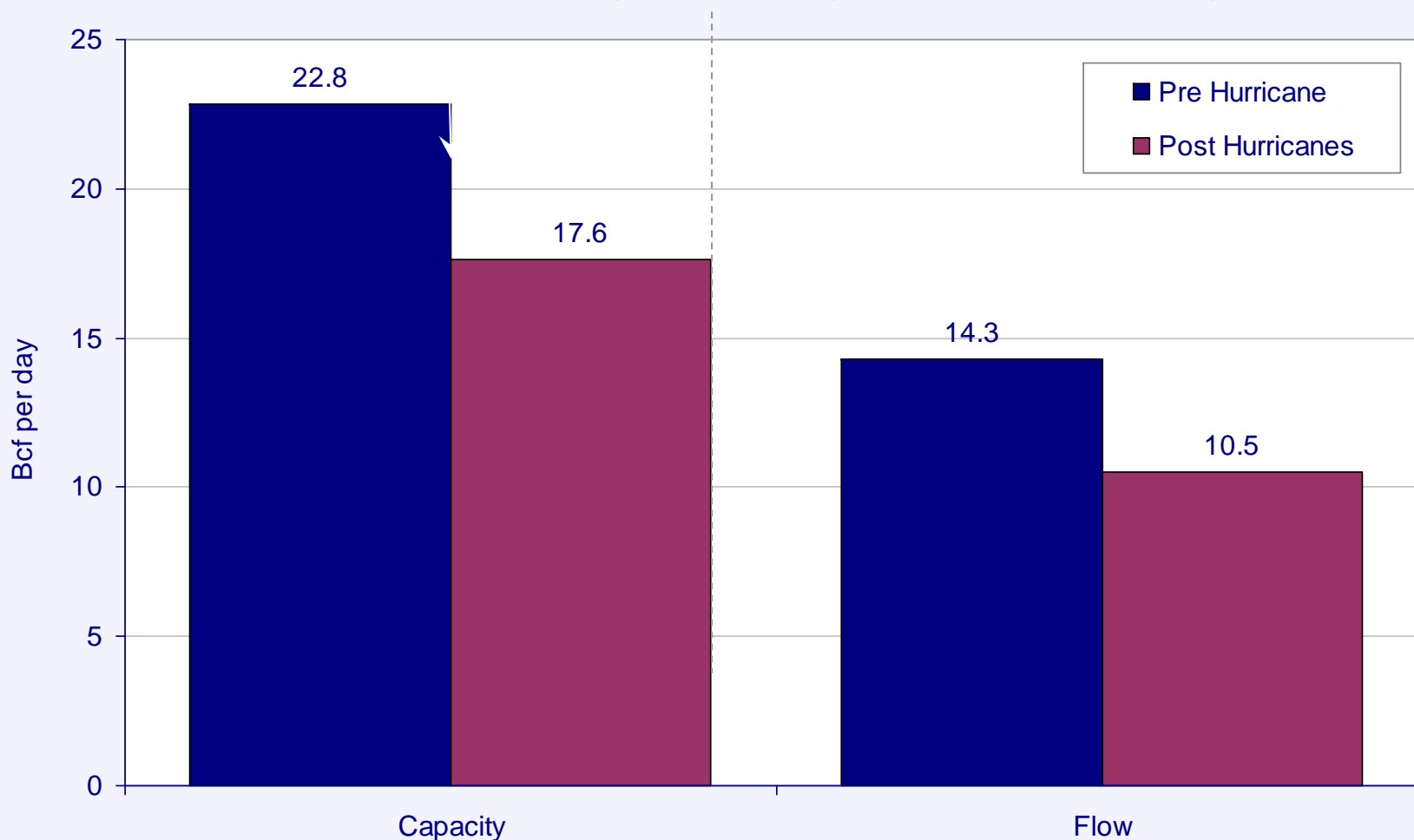
	Capacity (MMcf/d)	Throughput (MMcf/d)
Mississippi and Alabama Plants		
BP Pascagoula	1,000.0	768.0
DEFS Mobile Bay	600.0	272.0
RDS Yellowhammer	200.0	135.0
Total	1,800.0	1,175.0
East Louisiana Plants		
DYN Venice	1,300.0	997.0
EPD Toca	1,100.0	607.8
DYN Yscloskey	1,850.0	1,343.0
Total	4,250.0	2,947.8
West Louisiana Plants		
DYN Barracuda	225.0	155.0
BP Grand Chenier	600.0	344.0
WMB Johnson Bayou	425.0	114.0
EPD Sabine Pass	300.0	166.0
DYN Stingray	305.0	257.0
Total	1,855.0	1,036.0
Central Louisiana Plants		
DYN Lowry	300.0	195.0
EPD Cow Island	500.0	134.0
AHC Sea Robin	900.0	571.8
EPD Calumet	1,600.0	733.0
Norcen Patterson I	600.0	500.0
DUK Patterson II	500.0	246.0
EPD Pelican	325.0	290.0
Total	4,725.0	2,669.8
Grand Total	12,630.0	7,828.6
Assumed Total GOM Production		10,000.0
Percent of Total		78.3%





Current Status of Natural Gas Plants in the Coastal Gulf Region

23% of pre-storm gas processing capacity is still shut-in
27% of pre-storm gas processing volumes are not flowing



Note: Data are for plants with capacity equal to or greater than 100 MMcf per day, in the coastal counties of Texas, Louisiana, Mississippi and Alabama.

Source: Energy Information Administration, Department of Energy



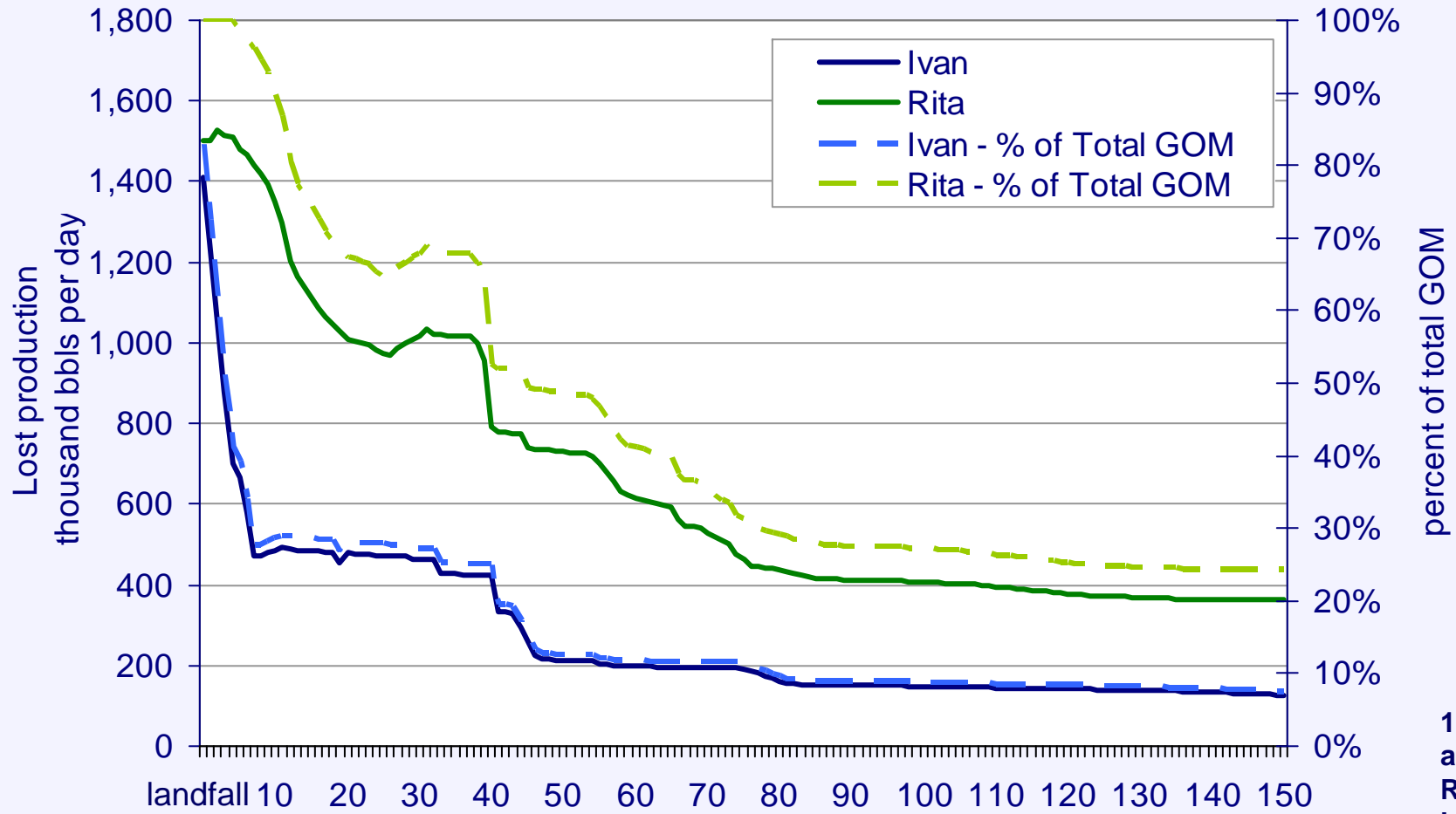
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Energy Capacity Offline: Current and Forecast



Estimated Return of Existing Crude Production

Shut-ins have reached a difficult plateau trend much like Hurricane Ivan

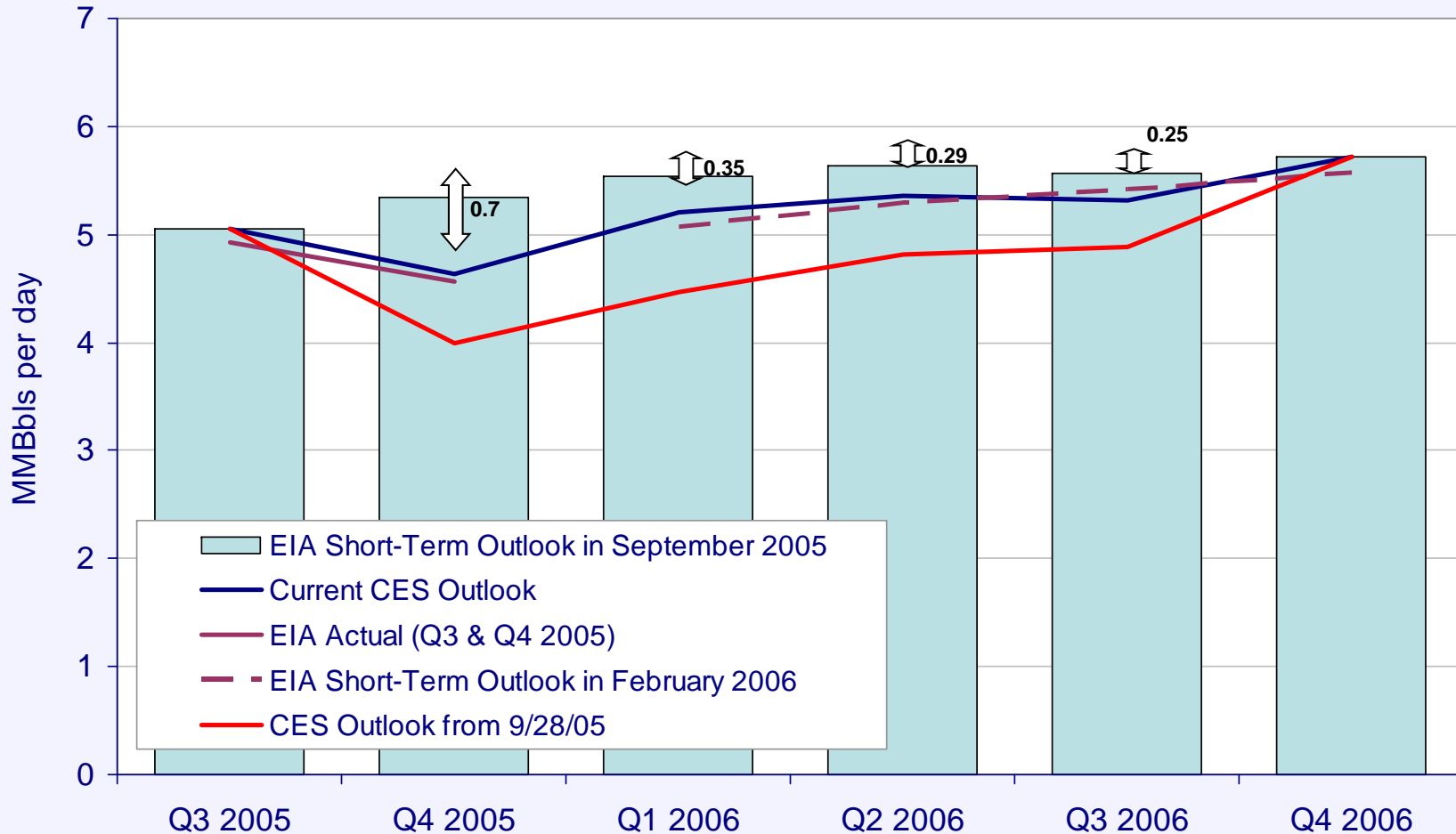


150 days after Rita's landfall is 21-Feb-06

Note: Shut-in statistics for Ivan were no longer reported after 150 days. The latest shut-in statistics for Katrina and Rita were published on February 22, 2006. Source: Minerals Management Service



Shut in production will total 192.2 million barrels by the end of the third quarter 2006. Cumulative shut in for through 2005 totals 109.1 million barrels, while cumulative shut in for the first three quarters of 2006 total 83.1 million barrels – 43 % of total impact yet to be experienced.

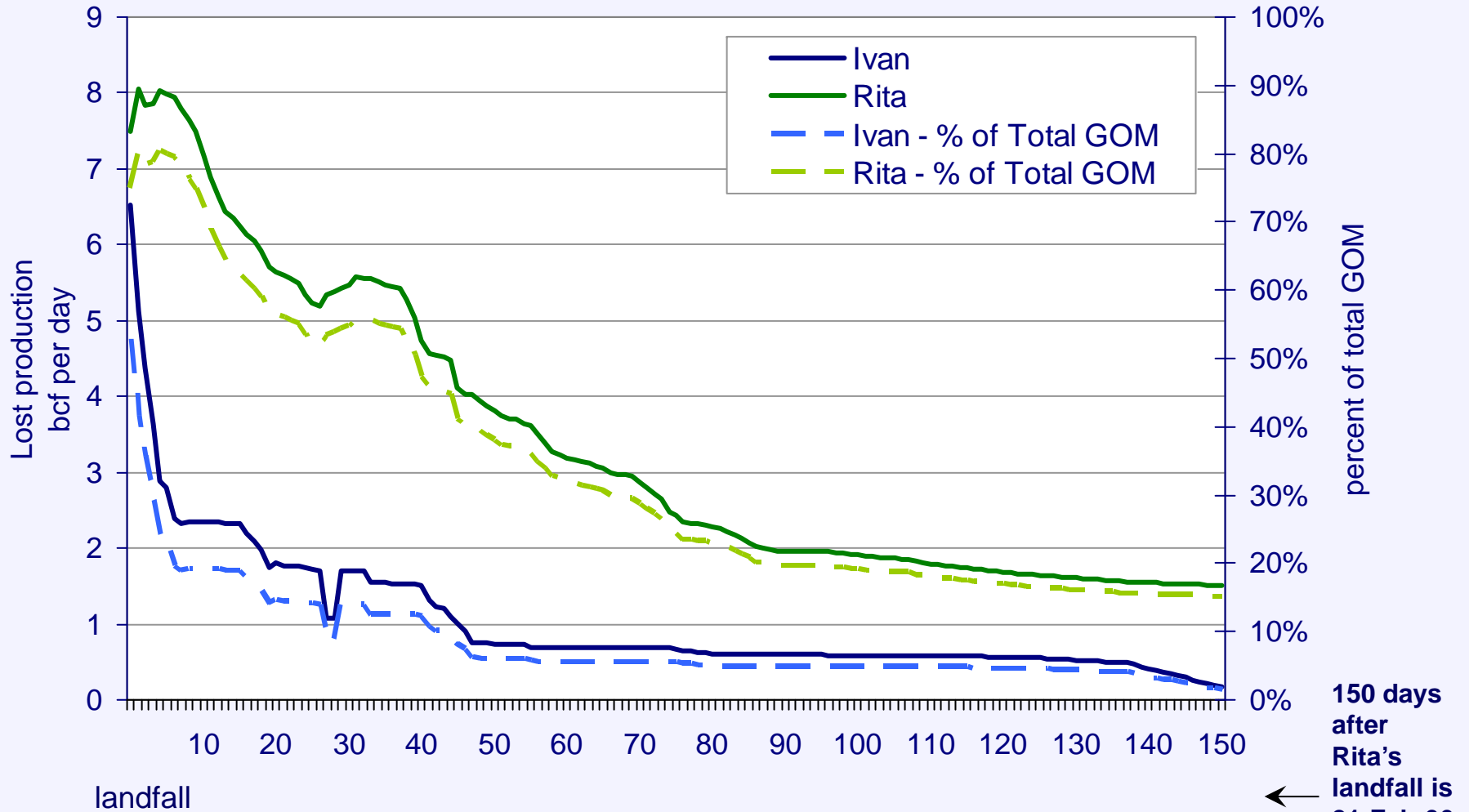


Note: Assuming recovery of 15.65 bcf per day for 150 days.



Estimated Return of Existing Natural Gas Production

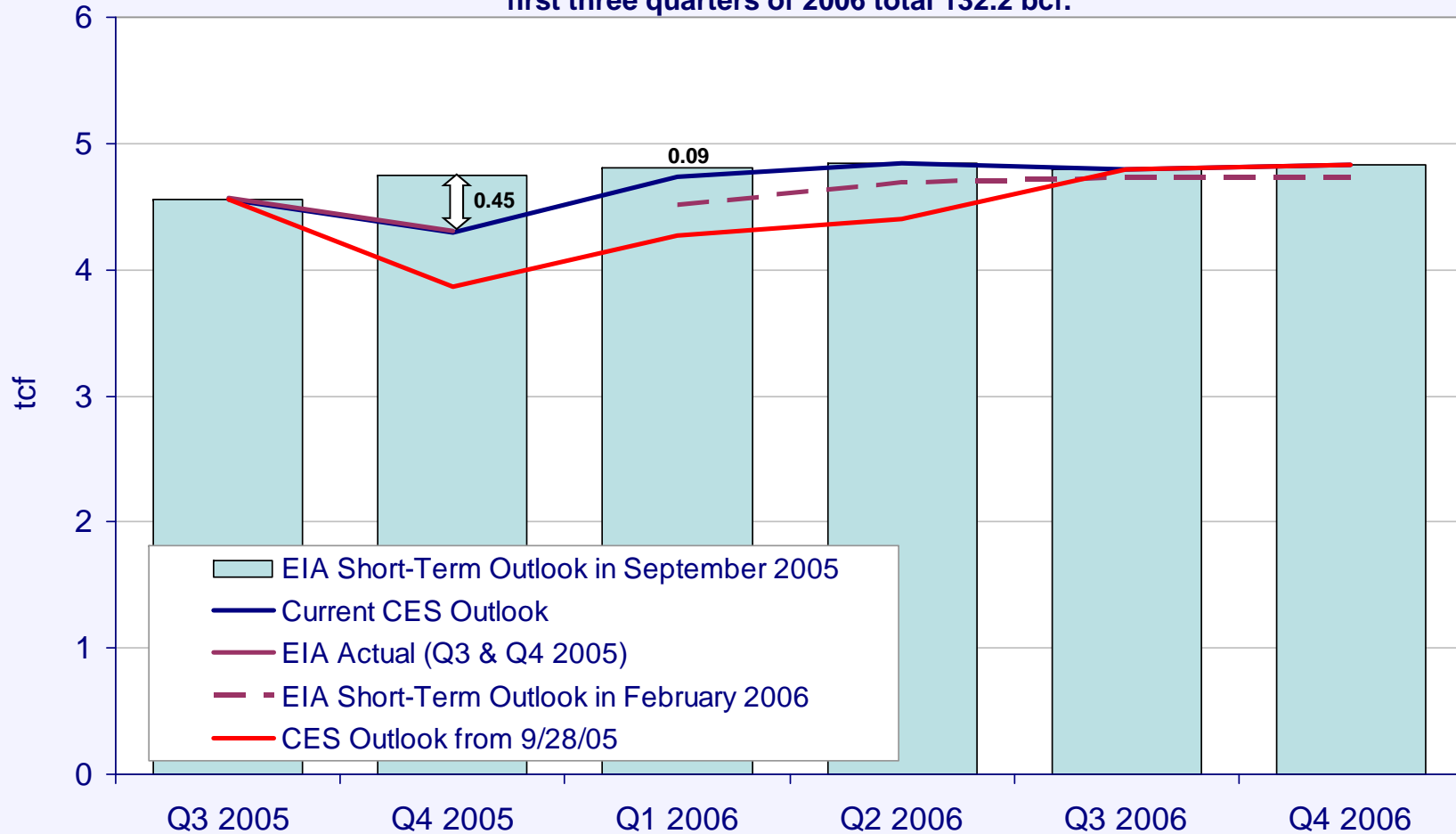
Shut-ins have reached a difficult plateau trend much like Hurricane Ivan



Note: Shut-in statistics for Ivan were no longer reported after 150 days. The latest shut-in statistics for Katrina and Rita were published on February 22, 2006. Source: Minerals Management Service



Shut in production will total 693.4 bcf by the end of the third quarter 2006.
Cumulative shut in for through 2005 totals 561.2 bcf, while cumulative shut in for the
first three quarters of 2006 total 132.2 bcf.

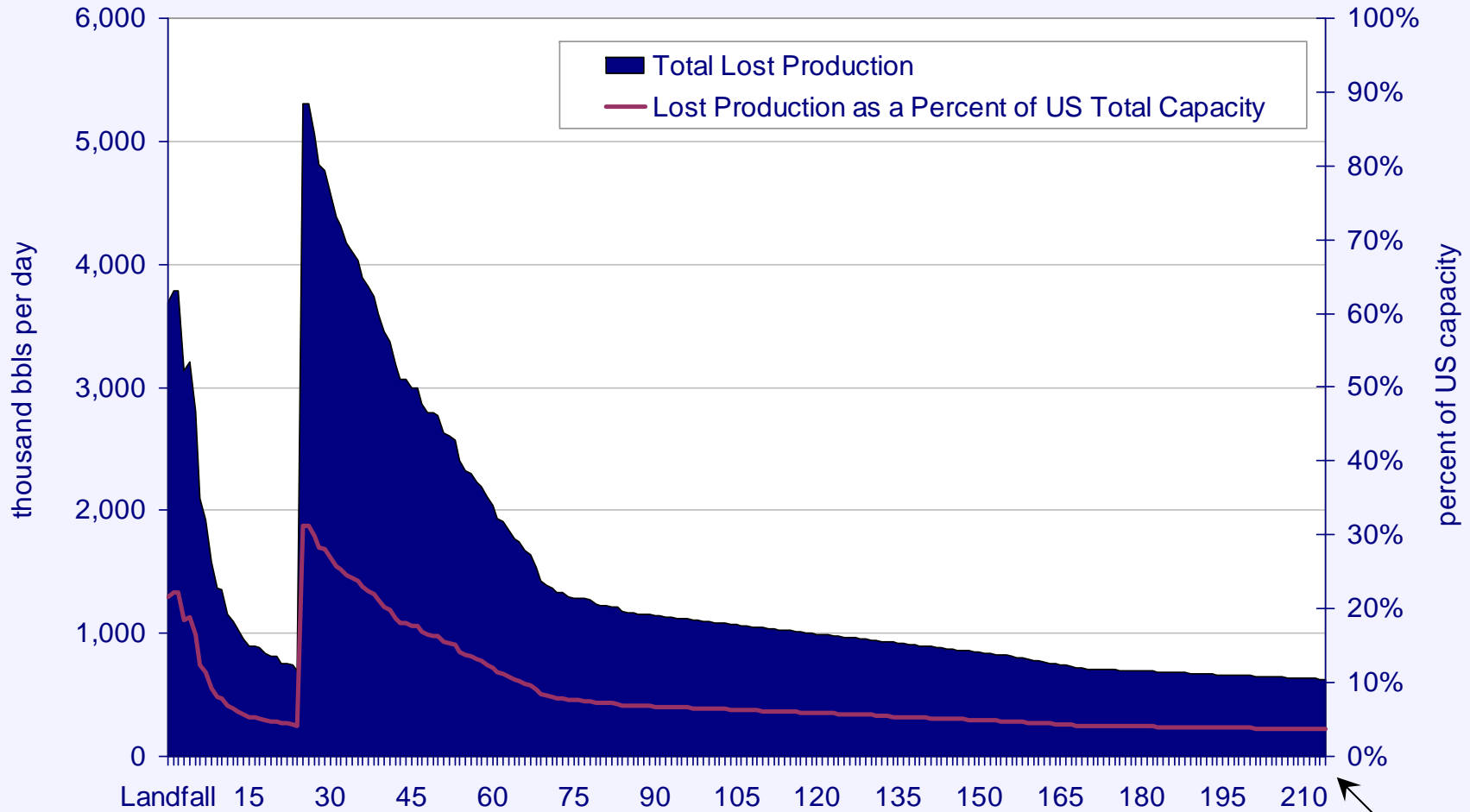


Note: Assuming recovery of 15.65 bcf per day for 150 days.



Estimated Decrease in Refining Production from both Katrina and Rita

Refining capacity should return to normal soon, but there will be a stubborn five percent of total capacity that has unknown return date – not good for tight markets



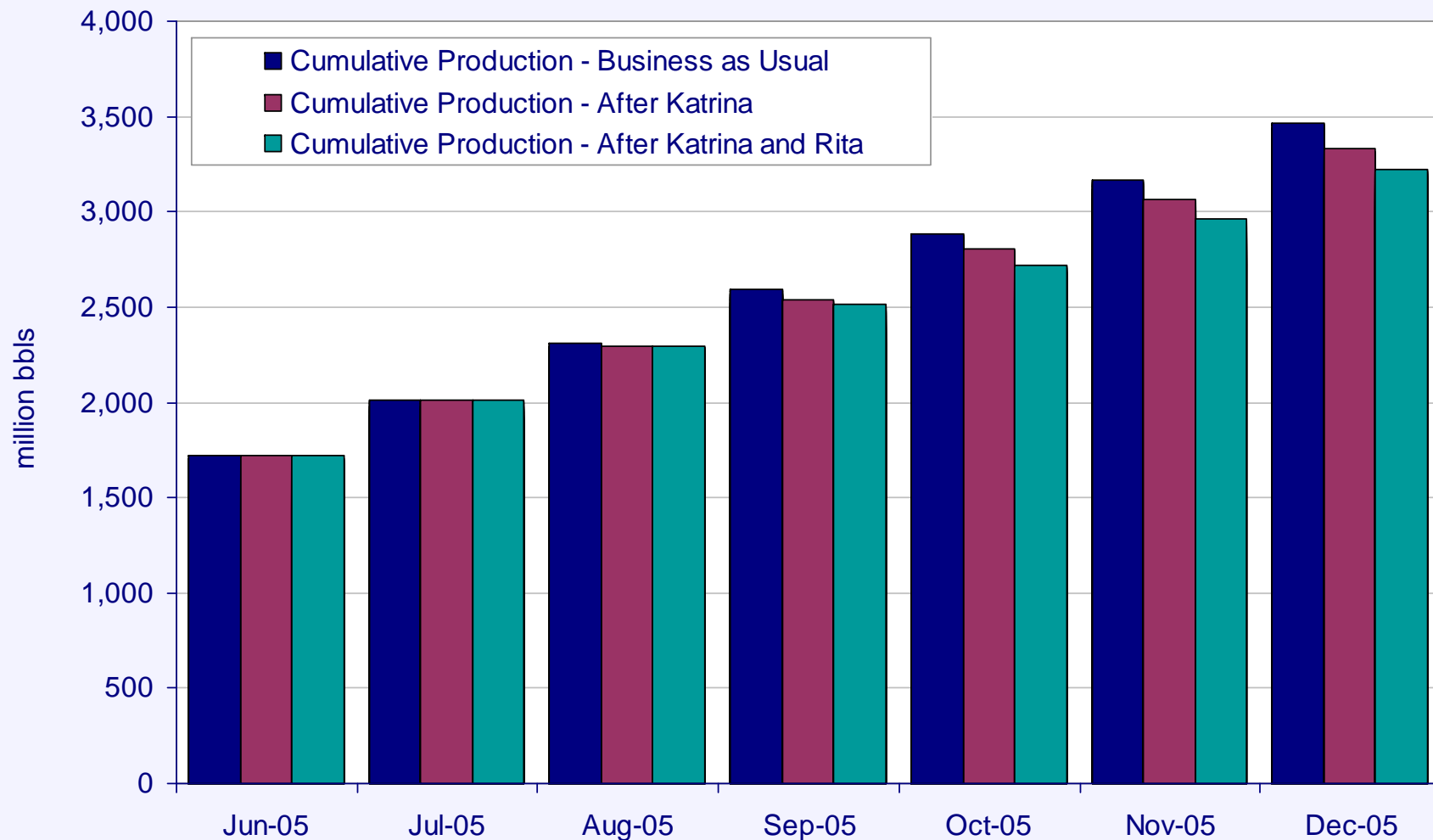
214 days is March 31, 2006

Source: Assumes 95 percent capacity factor; assumes 4 week recovery for facilities damaged by Rita.



Cumulative Refining Production

Impacts of Katrina and Rita result in a loss of 240 million barrels, or 4 percent of total, by the end of the year. This is equivalent to shutting down all US refineries for 14 days.



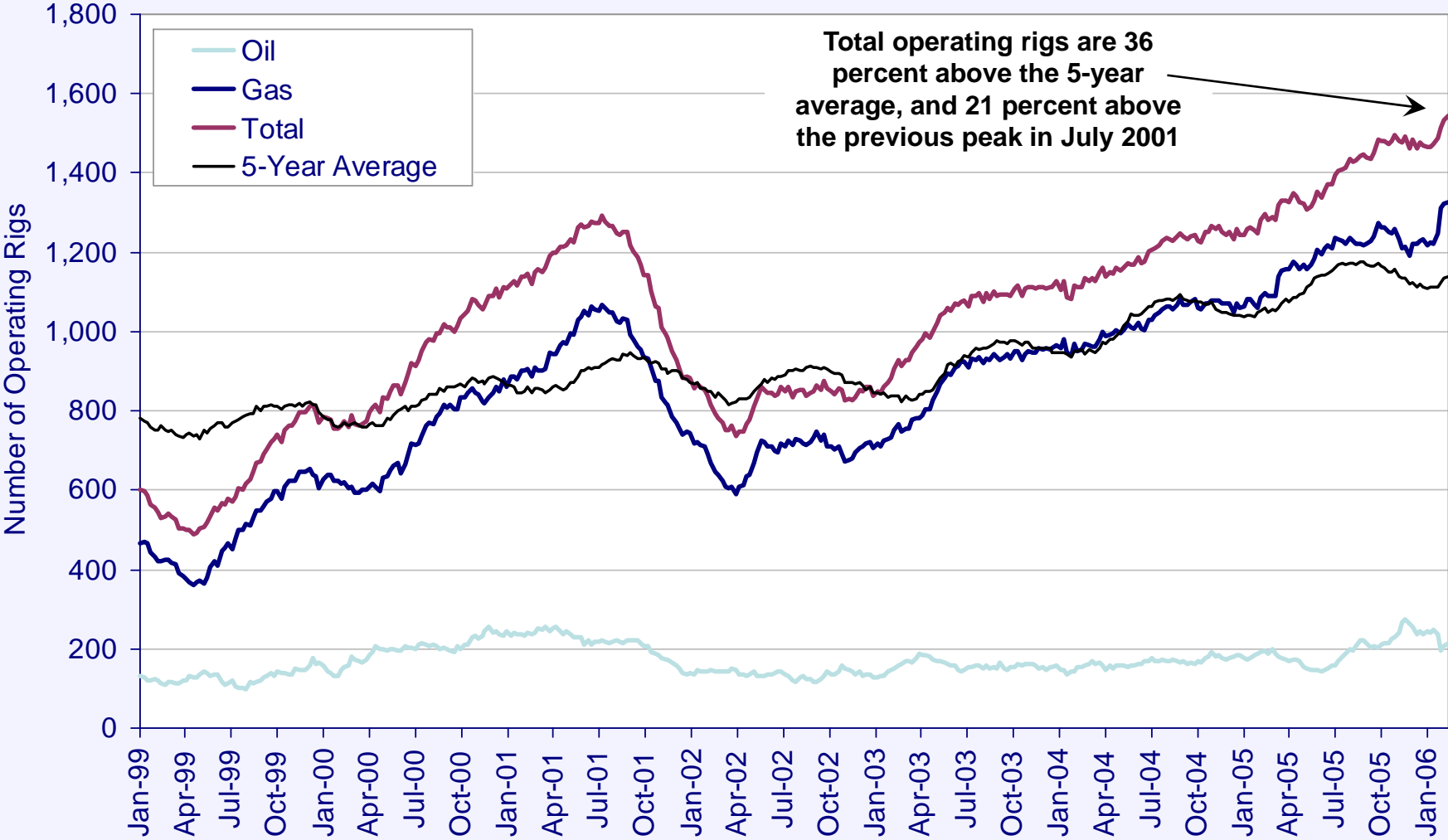
Source: Assumes 95 percent capacity factor



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Ongoing Production and Natural Gas Market Challenges

Weekly Counts of Rotary Rigs in Operation

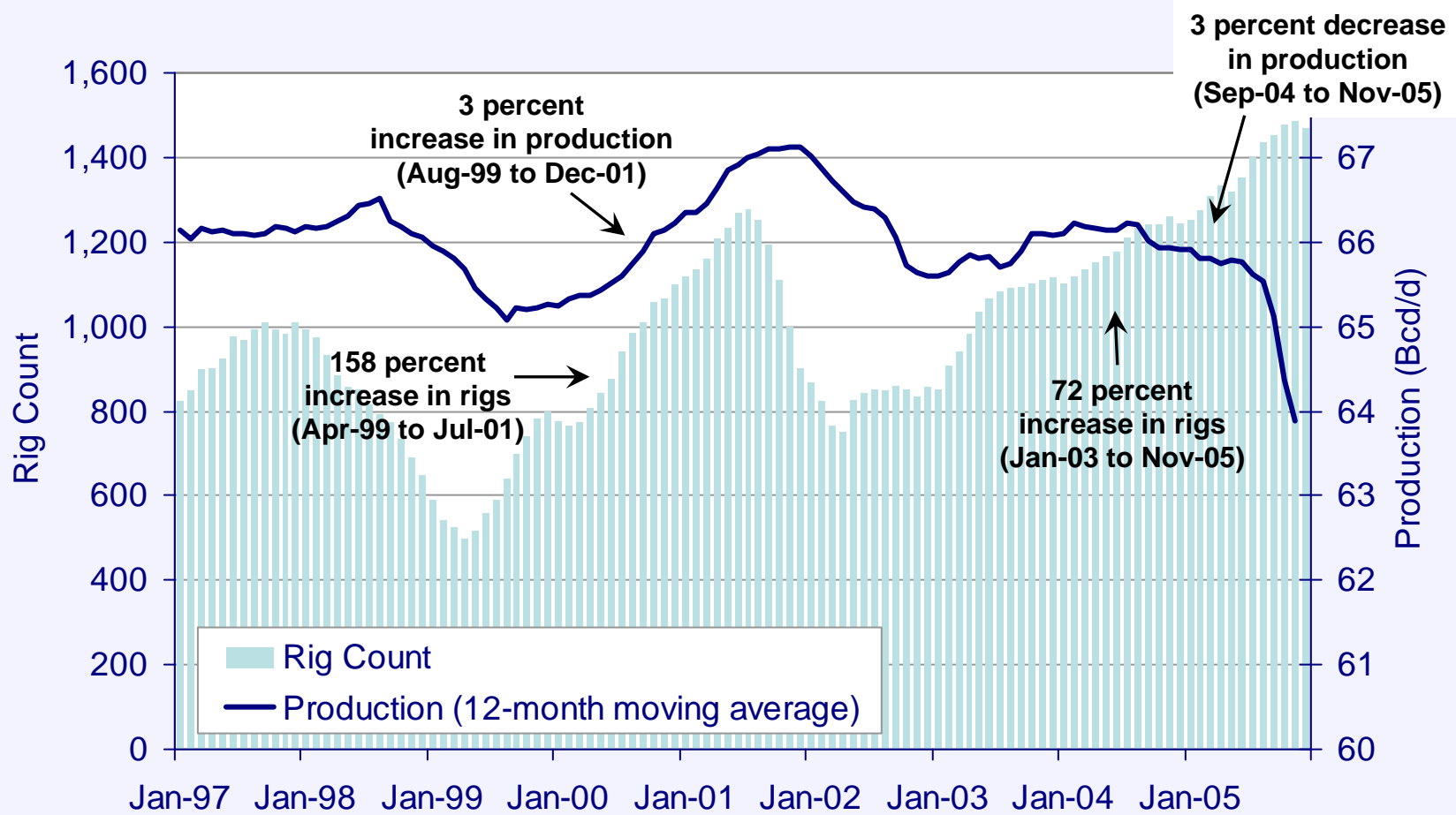


Total operating rigs are 36 percent above the 5-year average, and 21 percent above the previous peak in July 2001

Source: Baker-Hughes Inc.

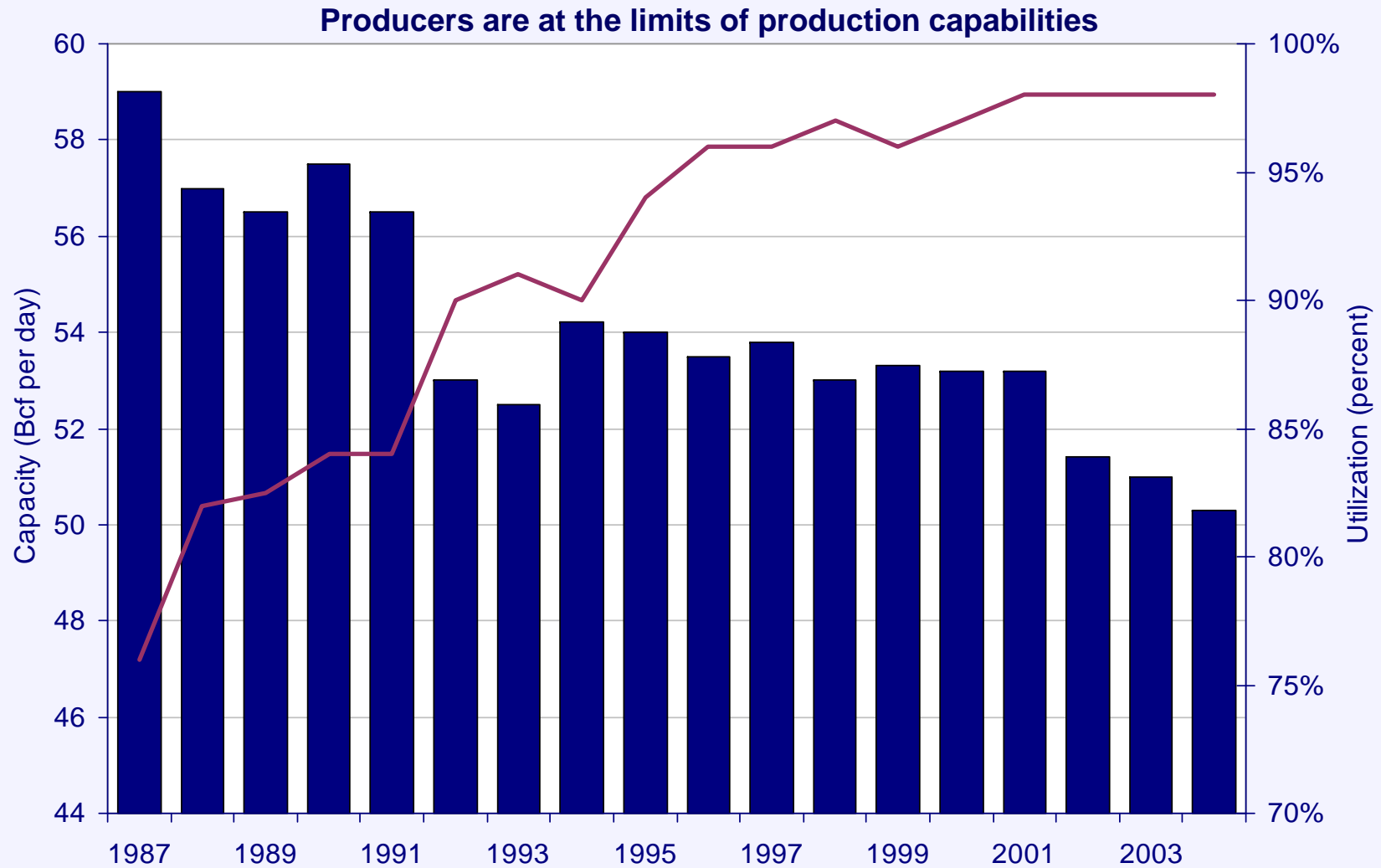
U.S. Natural Gas Production and Monthly Rig Count (1997-Present)

Despite increased drilling efforts, production is falling;
The US is seeing decreasing drilling productivity



Source: Energy Information Administration, Department of Energy; and Baker-Hughes Inc.

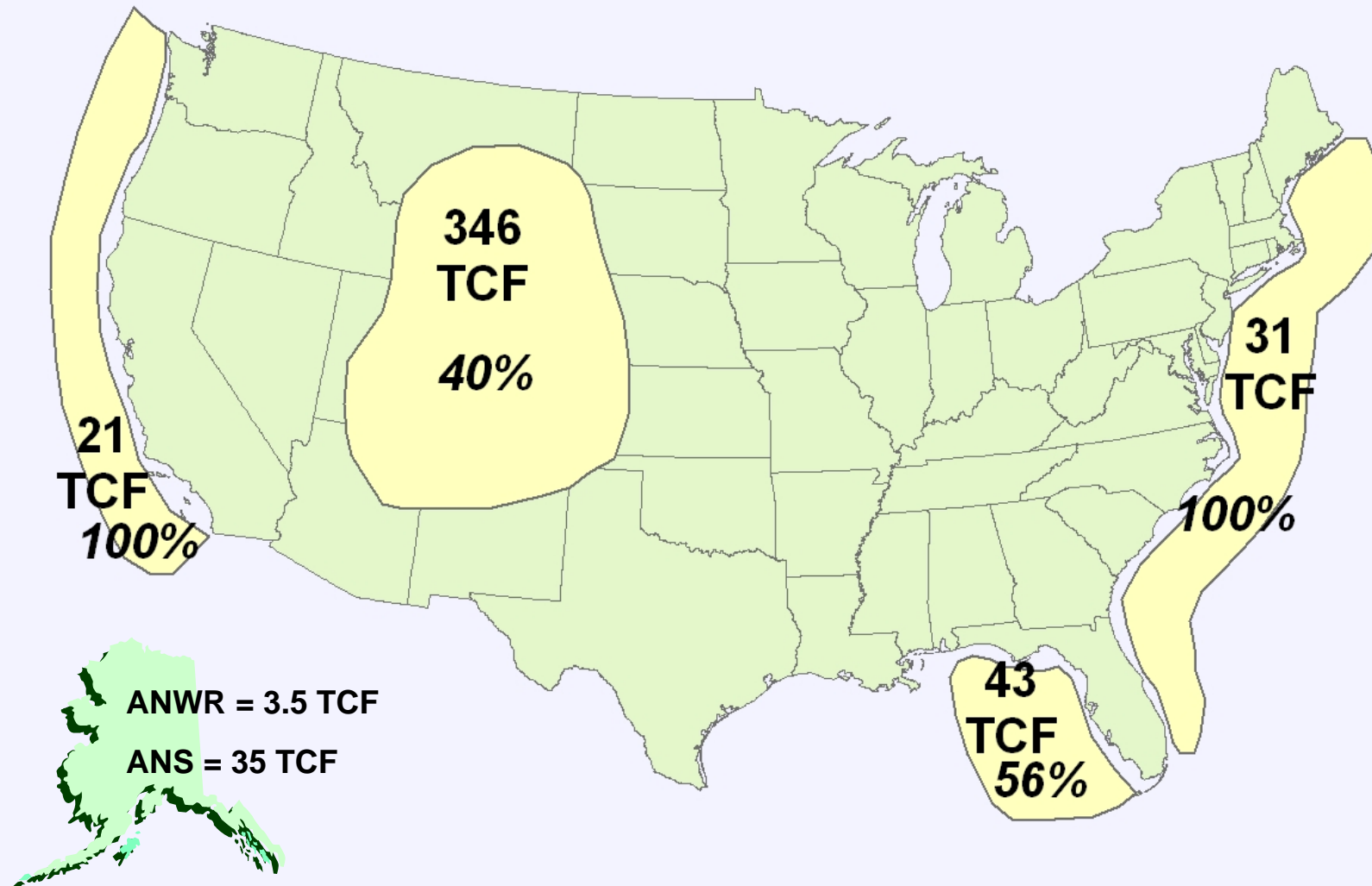
Natural Gas Productive Capacity and Utilization



Note: This is an approximation.
Source: EnergySeer.com

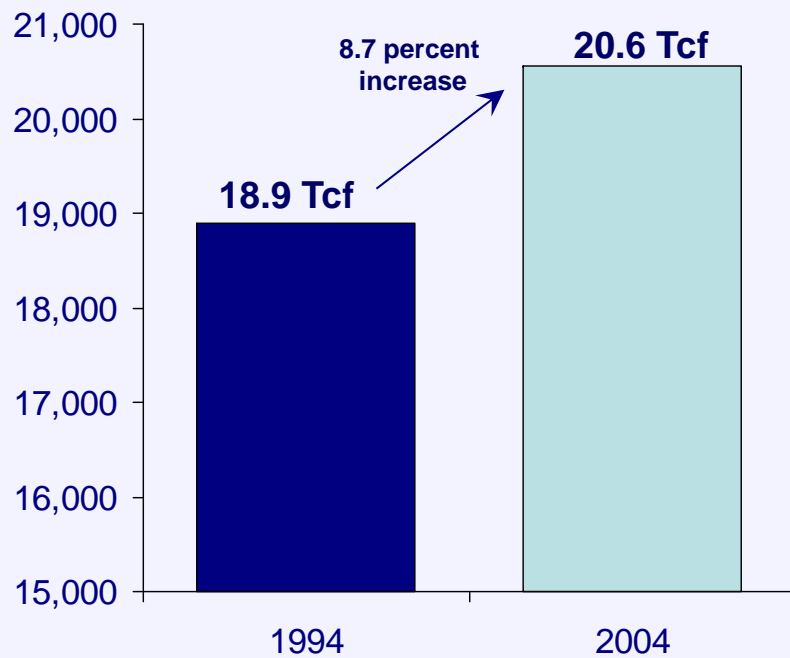
Resource Estimates – Restricted Areas Estimated, Percentage Restricted

High return frontier areas are off limits for new drilling and production activity.

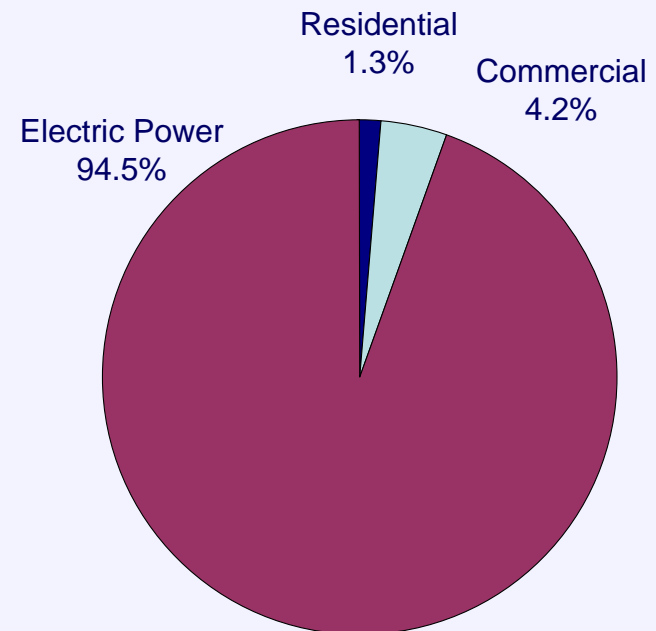


Increase in Natural Gas Usage by Major Sector (1994 and 2004)

Total Natural Gas Delivered to End Users

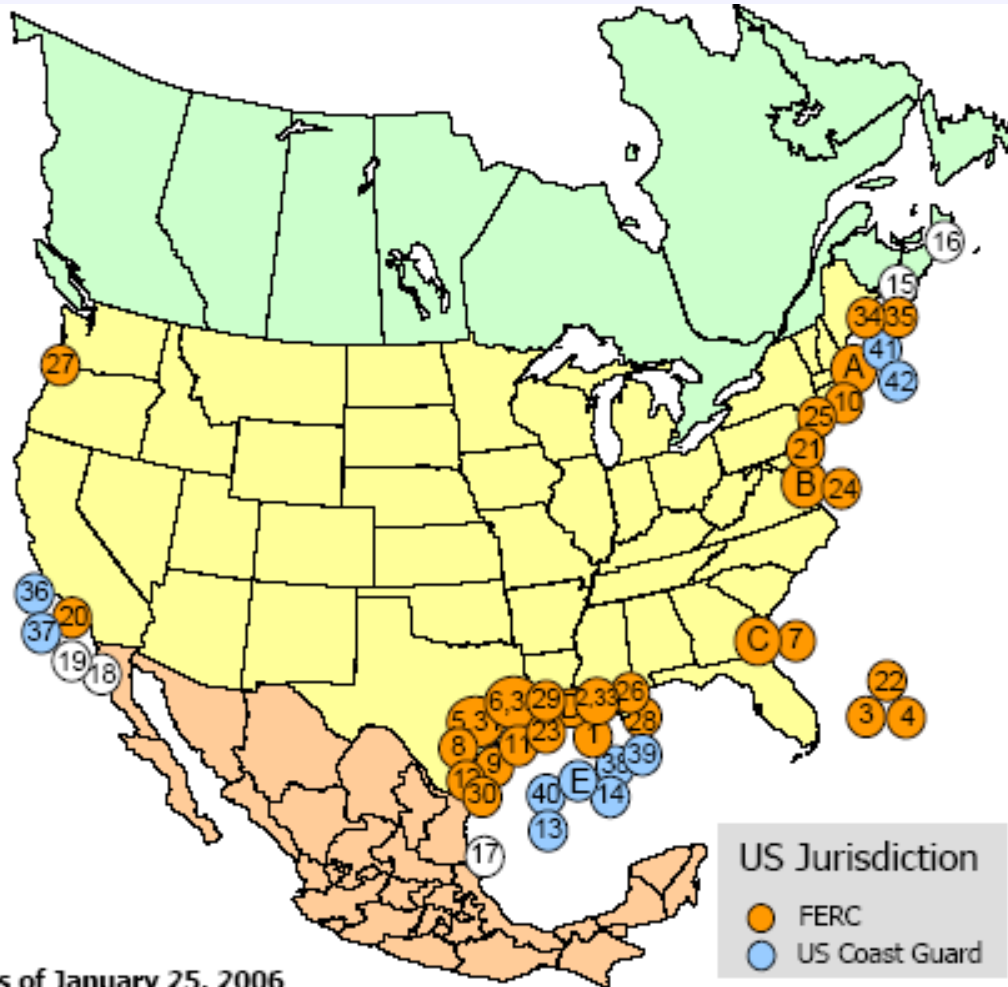


Increase by Sector



Note: Industrial consumption decreased by 11%

Existing and Proposed LNG Terminals



As of January 25, 2006

* US pipeline approved; LNG terminal pending in Bahamas

CONSTRUCTED

- A. Everett, MA : 1.035 Bcfd (Tractebel - DOMAC)
- B. Cove Point, MD : 1.0 Bcfd (Dominion - Cove Point LNG)
- C. Elba Island, GA : 0.68 Bcfd (El Paso - Southern LNG)
- D. Lake Charles, LA : 1.2 Bcfd (Southern Union - Trunkline LNG)
- E. Gulf of Mexico: 0.5 Bcfd, (Gulf Gateway Energy Bridge - Exceleerate Energy)

APPROVED BY FERC

- 1. Lake Charles, LA: 0.6 Bcfd (Southern Union - Trunkline LNG)
- 2. Hackberry, LA : 1.5 Bcfd, (Sempra Energy)
- 3. Bahamas : 0.84 Bcfd, (AES Ocean Express)*
- 4. Bahamas : 0.83 Bcfd, (Calypso Tractebel)*
- 5. Freeport, TX : 1.5 Bcfd, (Cheniere/Freeport LNG Dev.)
- 6. Sabine, LA : 2.6 Bcfd (Cheniere LNG)
- 7. Elba Island, GA: 0.54 Bcfd (El Paso - Southern LNG)
- 8. Corpus Christi, TX: 2.6 Bcfd, (Cheniere LNG)
- 9. Corpus Christi, TX : 1.0 Bcfd (Vista Del Sol - ExxonMobil)
- 10. Fall River, MA : 0.8 Bcfd, (Weaver's Cove Energy/Hess LNG)
- 11. Sabine, TX : 1.0 Bcfd (Golden Pass - ExxonMobil)
- 12. Corpus Christi, TX: 1.0 Bcfd (Ingoleside Energy - Occidental Energy Ventures)

APPROVED BY MARAD/COAST GUARD

- 13. Port Pelican: 1.6 Bcfd, (Chevron Texaco)
- 14. Louisiana Offshore : 1.0 Bcfd (Gulf Landing - Shell)
- 15. St. John, NB : 1.0 Bcfd, (Canaport - Irving Oil)
- 16. Point Tupper, NS 1.0 Bcfd (Bear Head LNG - Anadarko)

MEXICAN APPROVED TERMINALS

- 17. Altamira, Tamulipas : 0.7 Bcfd, (Shell/Total/Mitsui)
- 18. Baja California, MX : 1.0 Bcfd, (Sempra)
- 19. Baja California - Offshore : 1.4 Bcfd, (Chevron Texaco)

PROPOSED TO FERC

- 20. Long Beach, CA : 0.7 Bcfd, (Mitsubishi/ConocoPhillips - Sound Energy Solutions)
- 21. Logan Township, NJ : 1.2 Bcfd (Crown Landing LNG - BP)
- 22. Bahamas : 0.5 Bcfd, (Seafarer - El Paso/FPL)
- 23. Port Arthur, TX: 1.5 Bcfd (Sempra)
- 24. Cove Point, MD : 0.8 Bcfd (Dominion)
- 25. LI Sound, NY: 1.0 Bcfd (Broadwater Energy - TransCanada/Shell)
- 26. Pascagoula, MS: 1.0 Bcfd (Gulf LNG Energy LLC)
- 27. Bradwood, OR: 1.0 Bcfd (Northern Star LNG - Northern Star Natural Gas LLC)
- 28. Pascagoula, MS: 1.3 Bcfd (Casotte Landing - ChevronTexaco)
- 29. Cameron, LA: 3.3 Bcfd (Creole Trail LNG - Cheniere LNG)
- 30. Port Lavaca, TX: 1.0 Bcfd (Calhoun LNG - Gulf Coast LNG Partners)
- 31. Freeport, TX: 2.5 Bcfd (Cheniere/Freeport LNG Dev. - Expansion)
- 32. Sabine, LA: 1.4 Bcfd (Cheniere LNG - Expansion)
- 33. Hackberry, LA : 1.15 Bcfd (Cameron LNG - Sempra Energy - Expansion)
- 34. Pleasant Point, ME : 0.5 Bcfd (Quoddy Bay, LLC)
- 35. Robbinston, ME: 0.5 Bcfd (Downeast LNG - Kestrel Energy)

PROPOSED TO MARAD/COAST GUARD

- 36. California Offshore: 1.5 Bcfd (Cabrillo Port - BHP Billiton)
- 37. So. California Offshore : 0.5 Bcfd, (Crystal Energy)
- 38. Louisiana Offshore : 1.0 Bcfd (Main Pass McMoran Exp.)
- 39. Gulf of Mexico: 1.0 Bcfd (Compass Port - ConocoPhillips)
- 40. Gulf of Mexico: 1.5 Bcfd (Beacon Port Clean Energy Terminal - ConocoPhillips)
- 41. Offshore Boston, MA: 0.4 Bcfd (Neptune LNG - Tractebel)
- 42. Offshore Boston, MA: 0.8 Bcfd (Northeast Gateway - Exceleerate Energy)

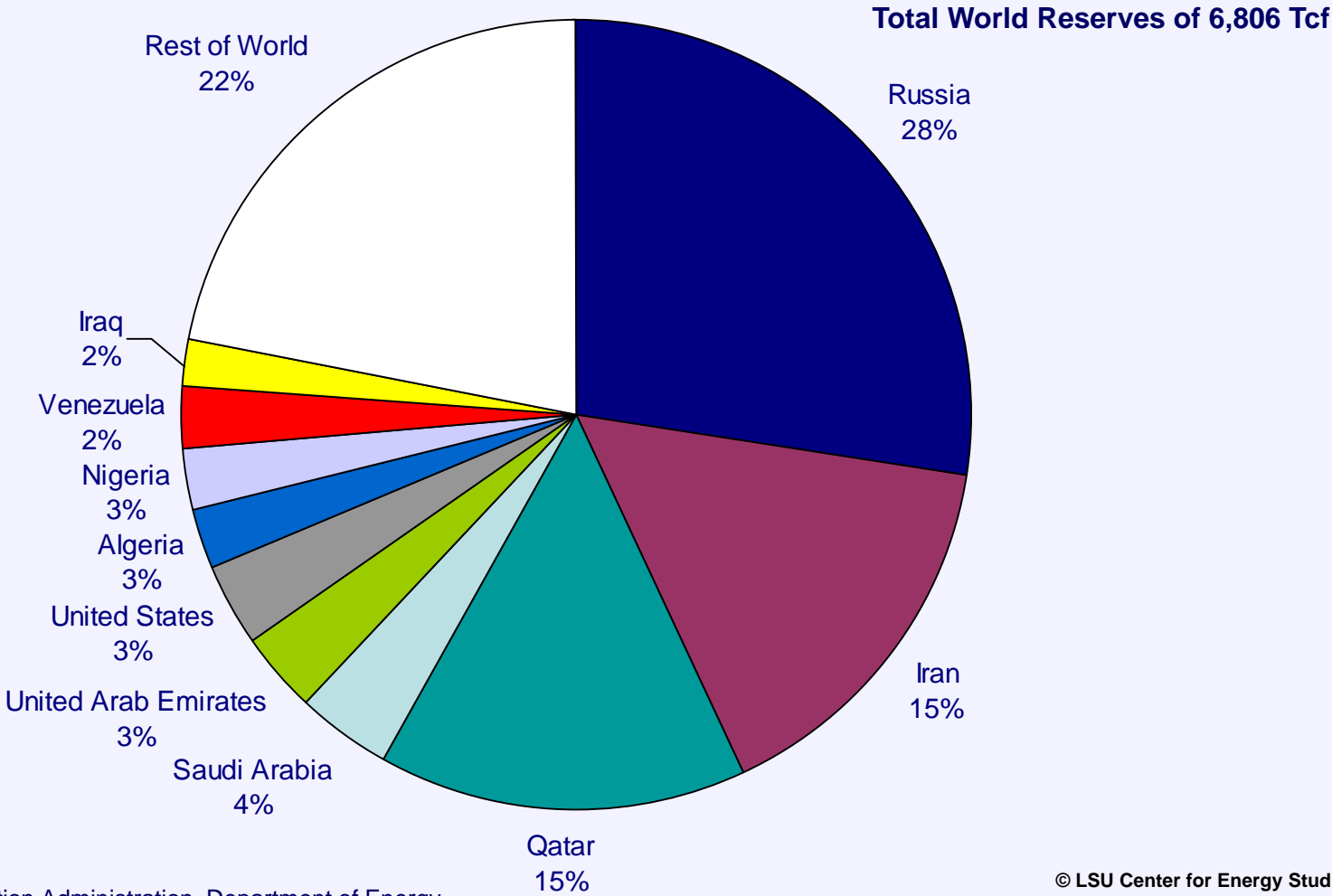
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Background on LNG

- Liquefied natural gas (LNG) is natural gas that has been turned into a liquid by cooling it to a temperature of -256°F
- It consists of primarily methane (typically, at least 90 percent)
- LNG is odorless, colorless, non-corrosive and non-toxic
- Liquefying natural gas reduces its volume by a factor of 610.
- The weight of LNG is 45 percent of that of water

Natural Gas Reserves by Country (2004)

Considerable reserves around the world – just not in the areas where the gas is needed



Source: Energy Information Administration, Department of Energy

Economic Sharing in the LNG Chain

Regasification terminals are one small portion of the development of an overall LNG project



Gas Producer
\$0.5 to \$1.0 billion
\$0.50 - \$1.00 / MMBtu
23% of total cost

Liquefaction
\$0.8 to \$1.0 billion
\$0.80 - \$1.00 / MMBtu
28% of total cost

Shipping*
\$0.6 to \$1.2 billion
\$0.65 - \$1.60 / MMBtu
35% of total cost

Receiving Terminal
\$300-\$400 million
\$0.40 - \$0.50 / MMBtu
14% of total cost

Cost out of Plant
Total Investment: \$2.2 to \$3.6 billion
\$2.50 - \$3.50 / MMBtu

Note: *depends upon the distance shipped

Source: Cheniere LNG Industry Profile, <http://www.cheniere.com/LNGIndustryProfile.htm>.

LNG Schematic: Production to End-User



to fuel over 70 percent of Georgia's natural gas fueled electric power plants for 1 month

OR



to fuel over 2 percent of Georgia's residential customers for 1 year (over 38,000 customers)

OR



to fuel over 20 percent of Georgia's industrial plants for 1 month

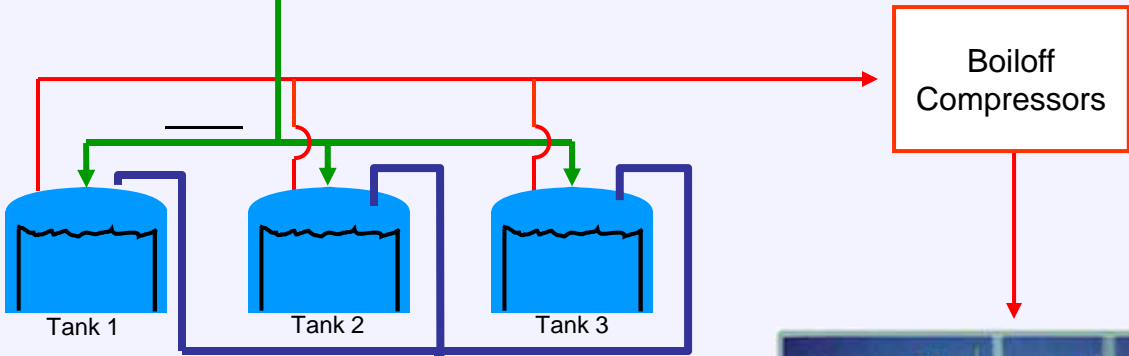
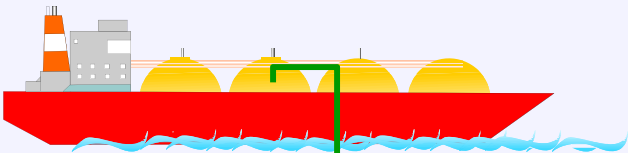
Assumptions:

- One 1 LNG tanker carries approximately 125,000 to 138,000 cubic meters of LNG, which will provide about 2.6 to 2.8 bcf of natural gas
- Average monthly power usage of 3.8 bcf;
- Average monthly industrial usage of 4.24 MMcf

Source: Energy Information Administration; Federal Energy Regulatory Commission; IELE, University of Houston; and Statoil.com.

Receiving Terminal – LNG Gas Flow

- LNG – Ship to Tanks
- Natural Gas
- LNG – Tanks to Vaporizers



As LNG boils off, the gas is withdrawn from the tanks and compressed.



Gas Pipeline



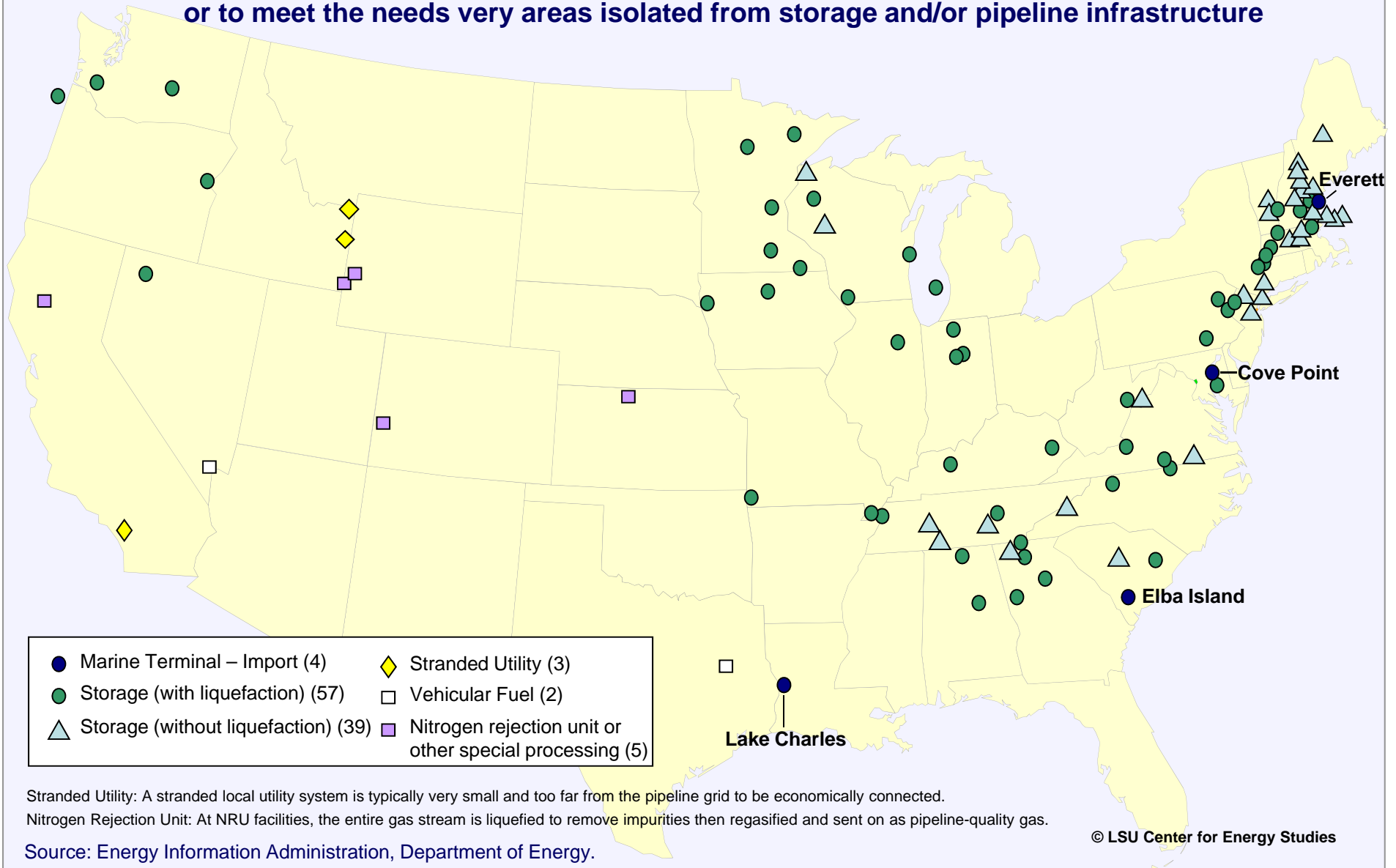
As gas is required, pumps inside the tanks transfer LNG to the plant vaporizers.

The plant vaporizers warm the LNG until it vaporizes.

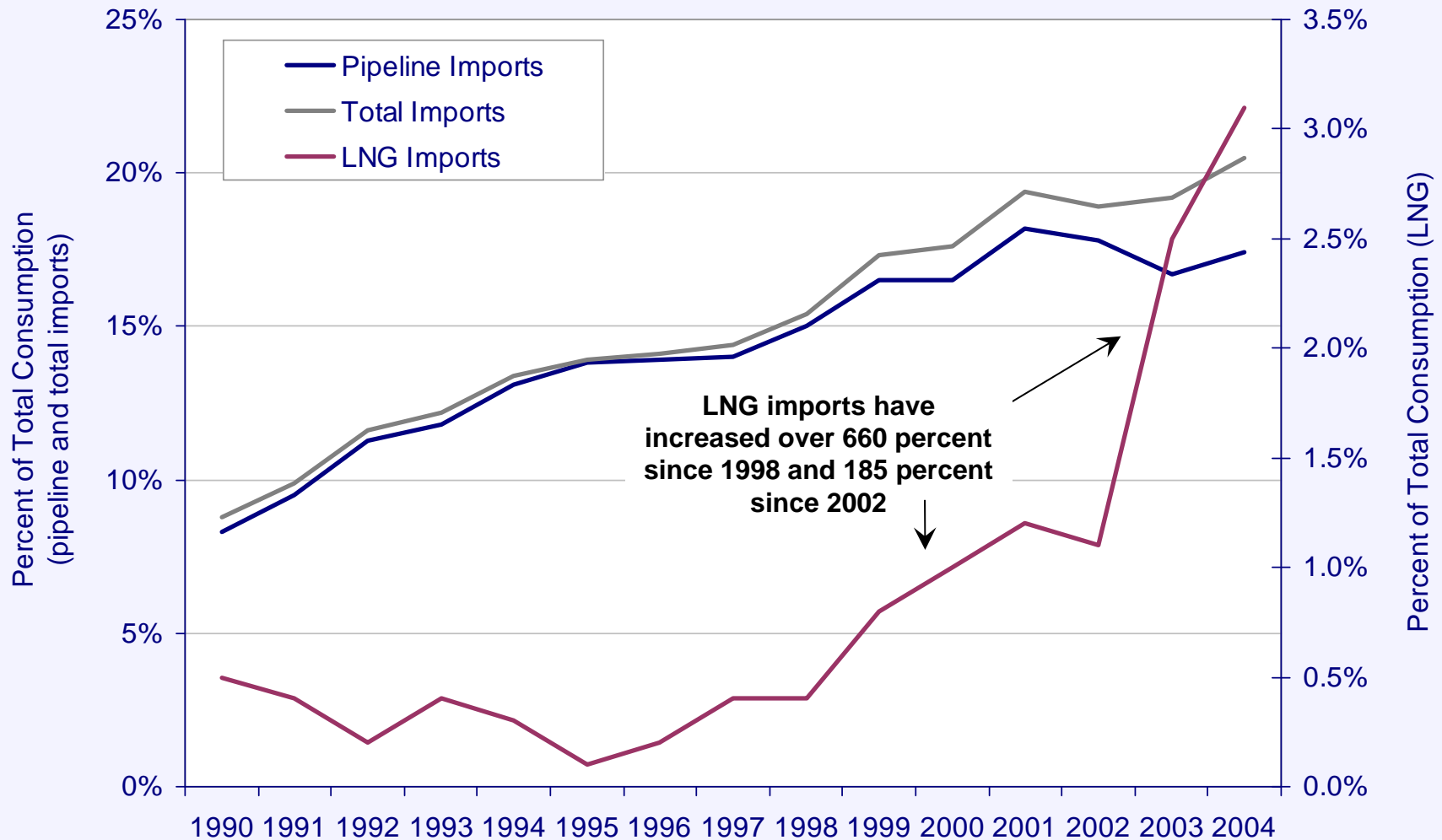
LNG Importers and Facilities

US LNG Facilities

A number of small LNG facilities throughout the US are used for peak shaving or to meet the needs very areas isolated from storage and/or pipeline infrastructure



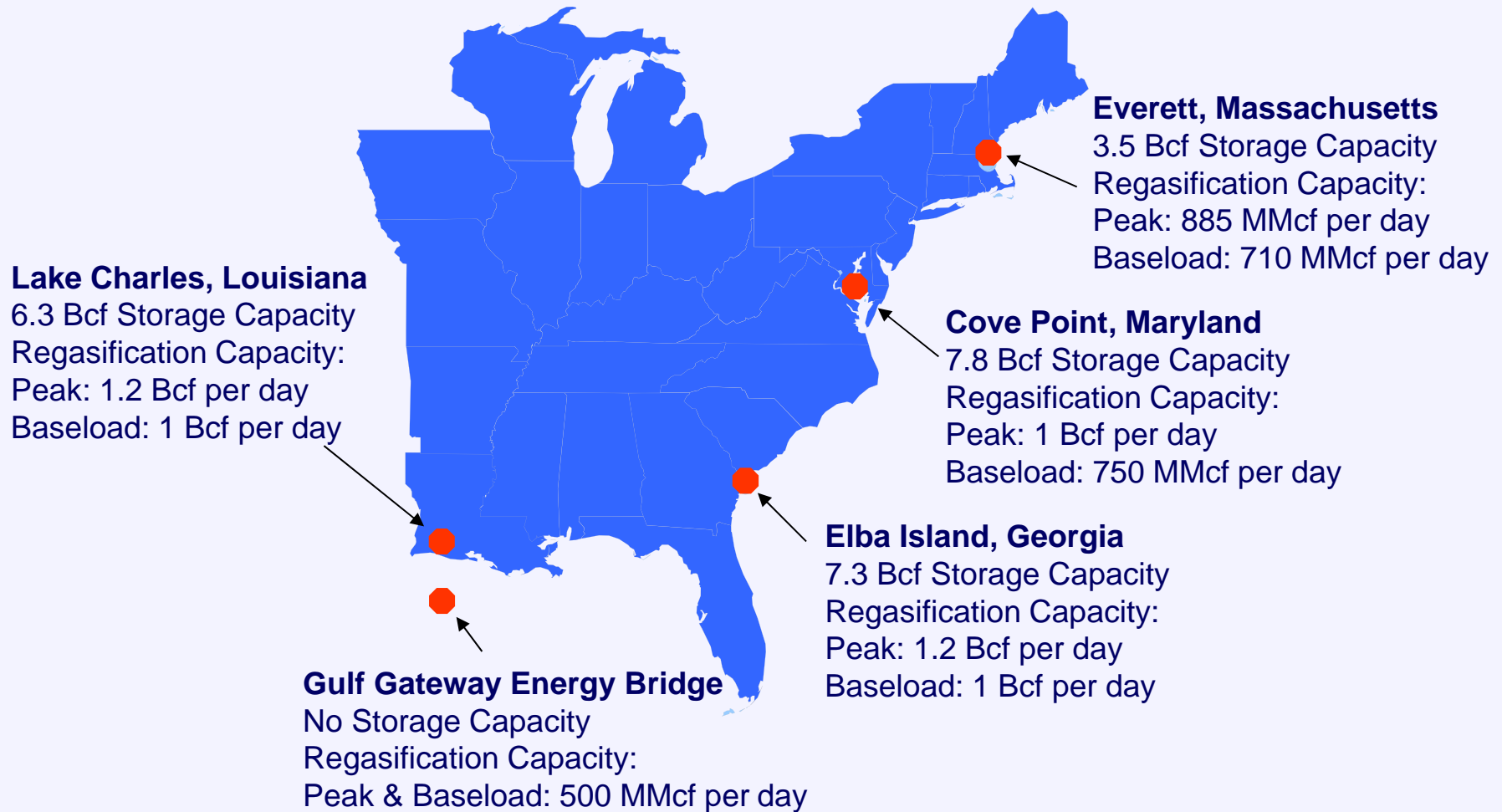
US Imports as a Percent of Total Consumption



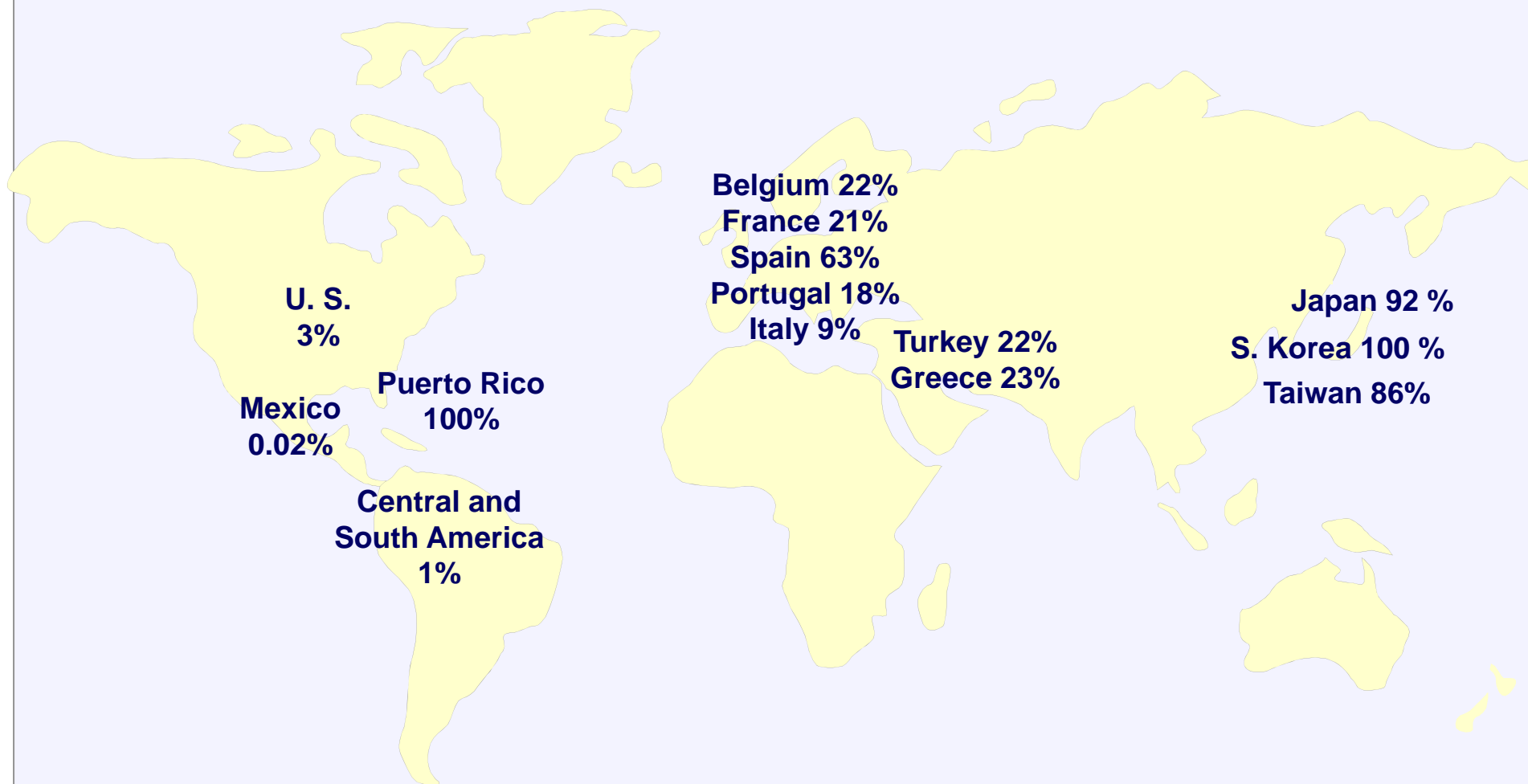
Source: Energy Information Administration, Department of Energy.

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Current US LNG Import Terminals



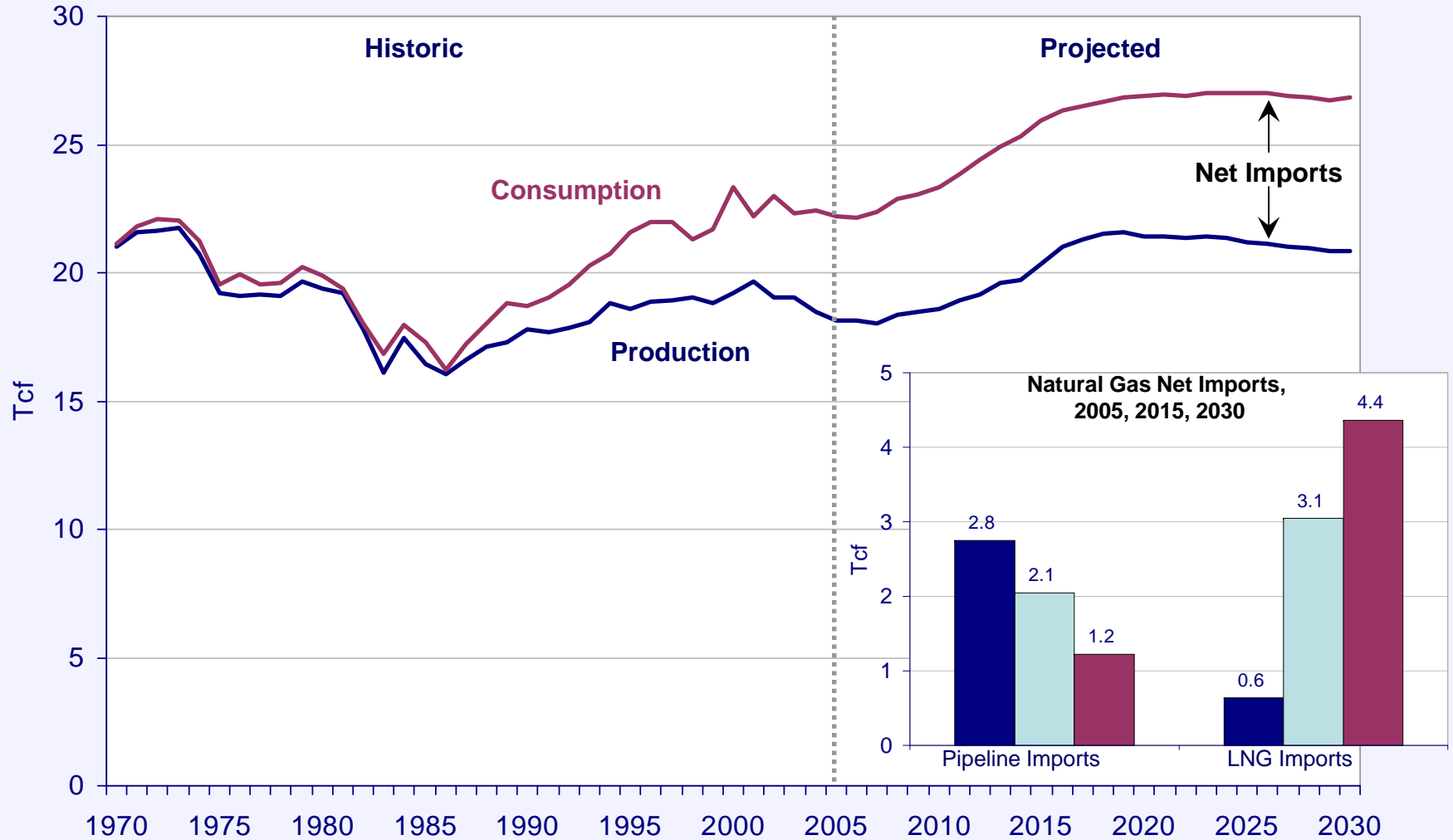
World Importers of LNG: Imports as Percent of Total Natural Gas Consumption (2003)



**Importance of LNG on
Future US Supply Disposition**

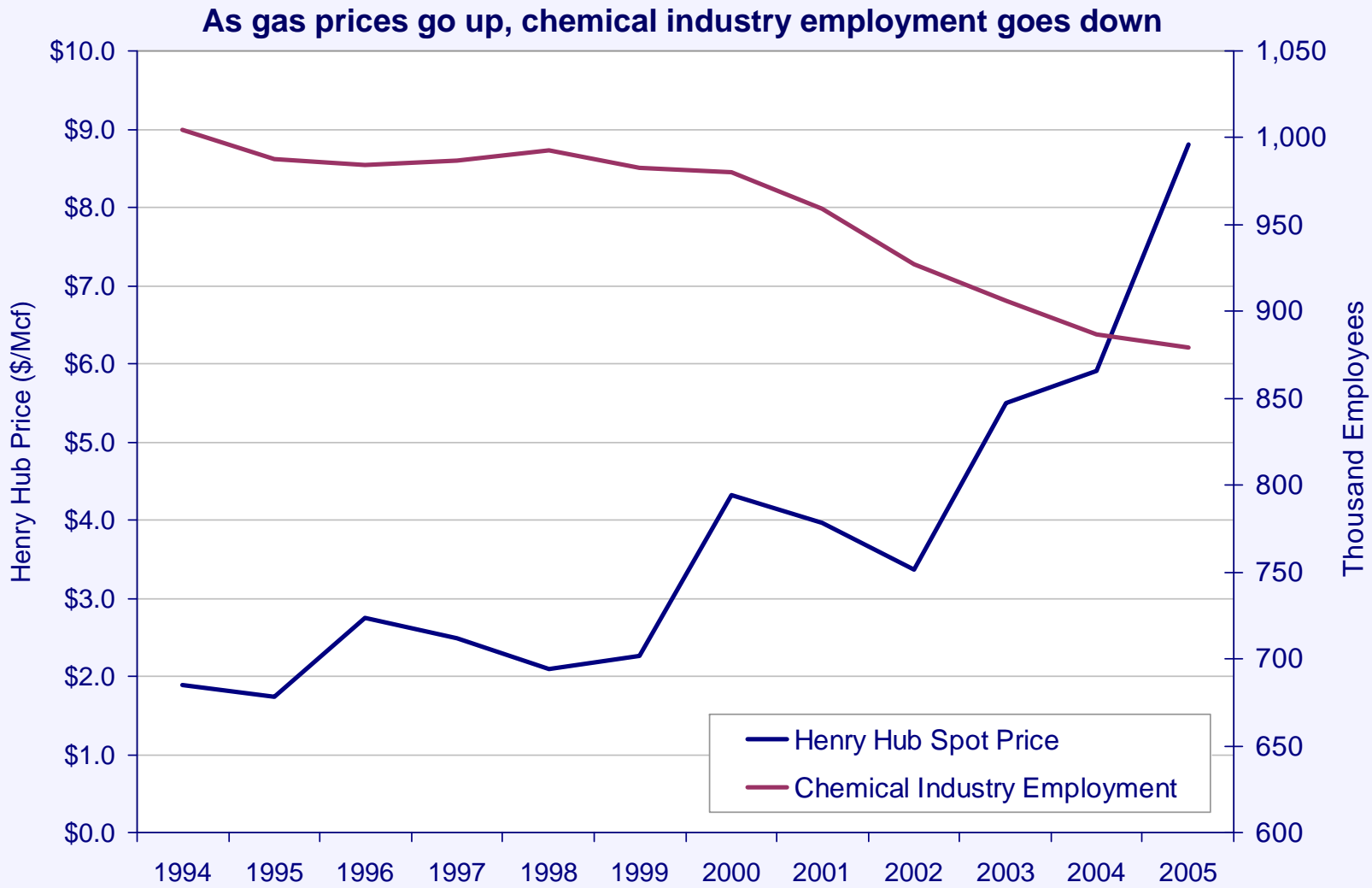
Natural Gas Production, Consumption and Imports (1970-2030)

DOE forecasts that LNG will be an important component of our natural gas supplies



Source: Energy Information Administration, Department of Energy

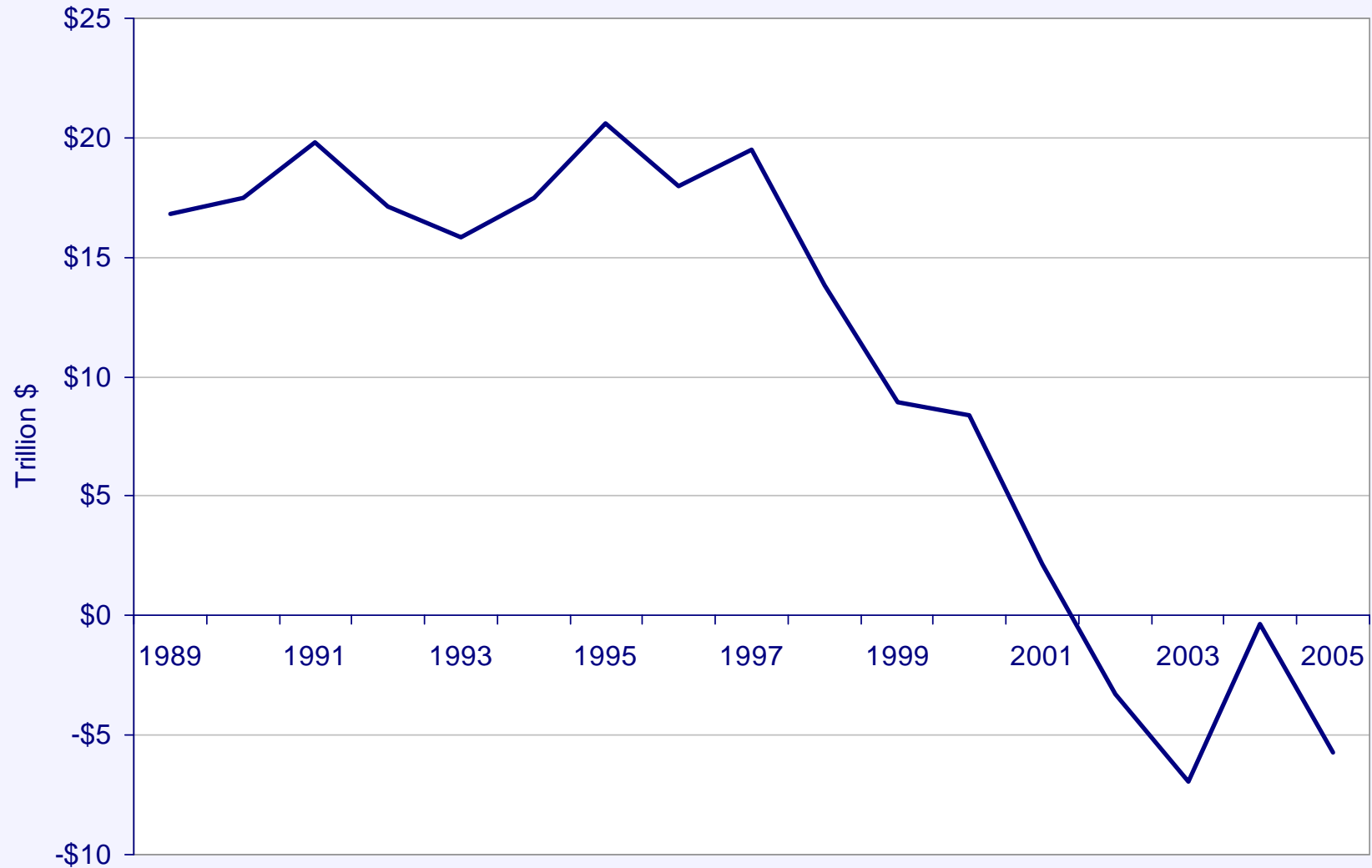
Natural Gas Spot Price and Chemical Industry Employment



Source: Bureau of Labor Statistics, US Department of Labor; and Federal Reserve Bank of St. Louis

Value of Net Exports of NAICS 325 – Chemicals

In 2002 the US became a net importer of chemicals



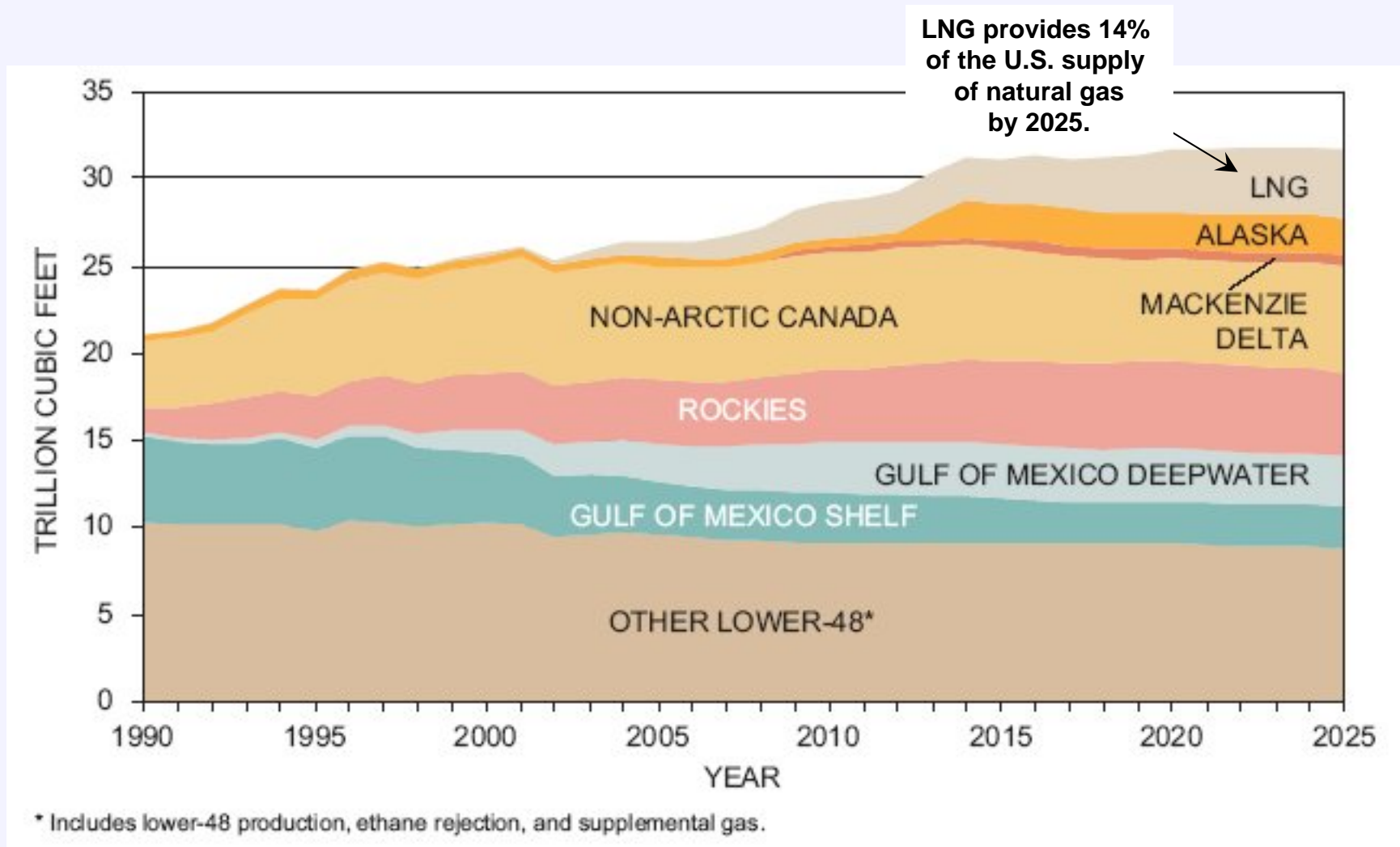
Source: Office of Trade and Economic Analysis, Trade Development, International Trade Administration, U.S. Department of Commerce © LSU Center for Energy Studies

World Natural Gas Prices for Industry (\$US/MMBtu)

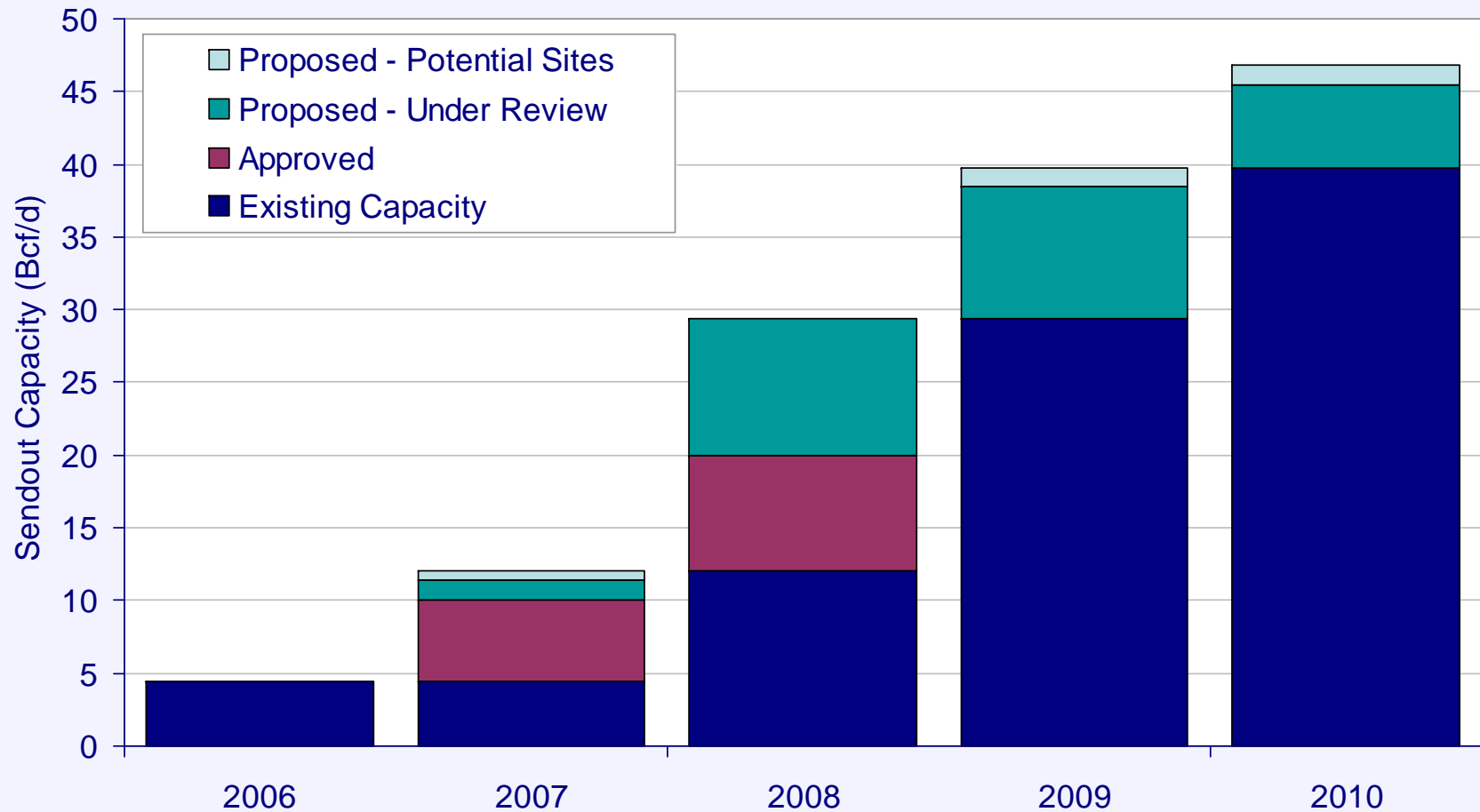
Industries may be forced to other countries where natural gas can be considerably cheaper



U.S. and Canadian Natural Gas Supply



Planned LNG Capacity Additions and Expansions



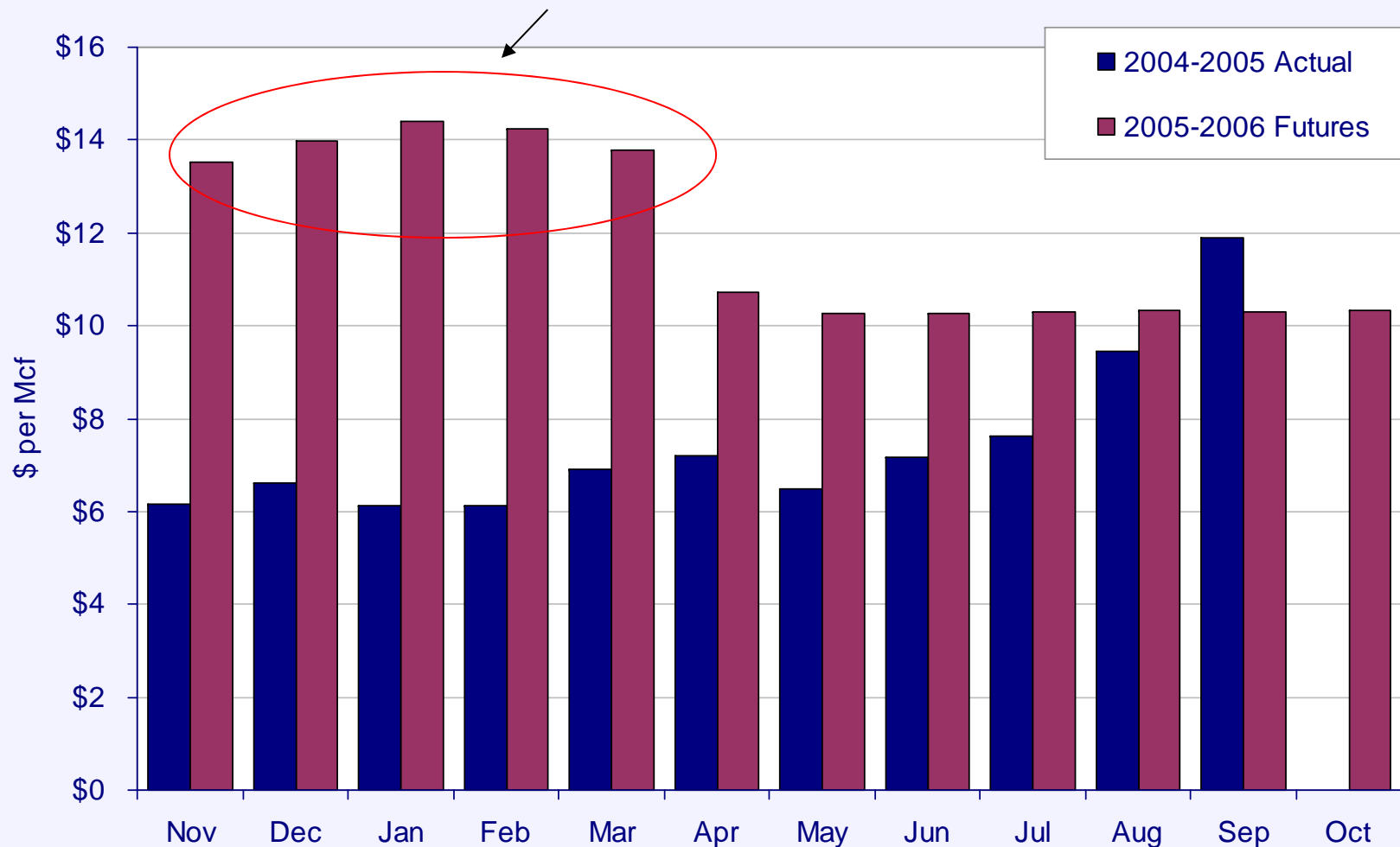
Note: New capacity includes terminals that have been approved, or are pending approval.
Source: FERC and various trade press and company websites

Price and Usage Outlook



Forecast for Energy Commodity Prices Natural Gas Futures – Post Storm-Winter 2005-2006

Significant futures prices for winter natural gas post-hurricane



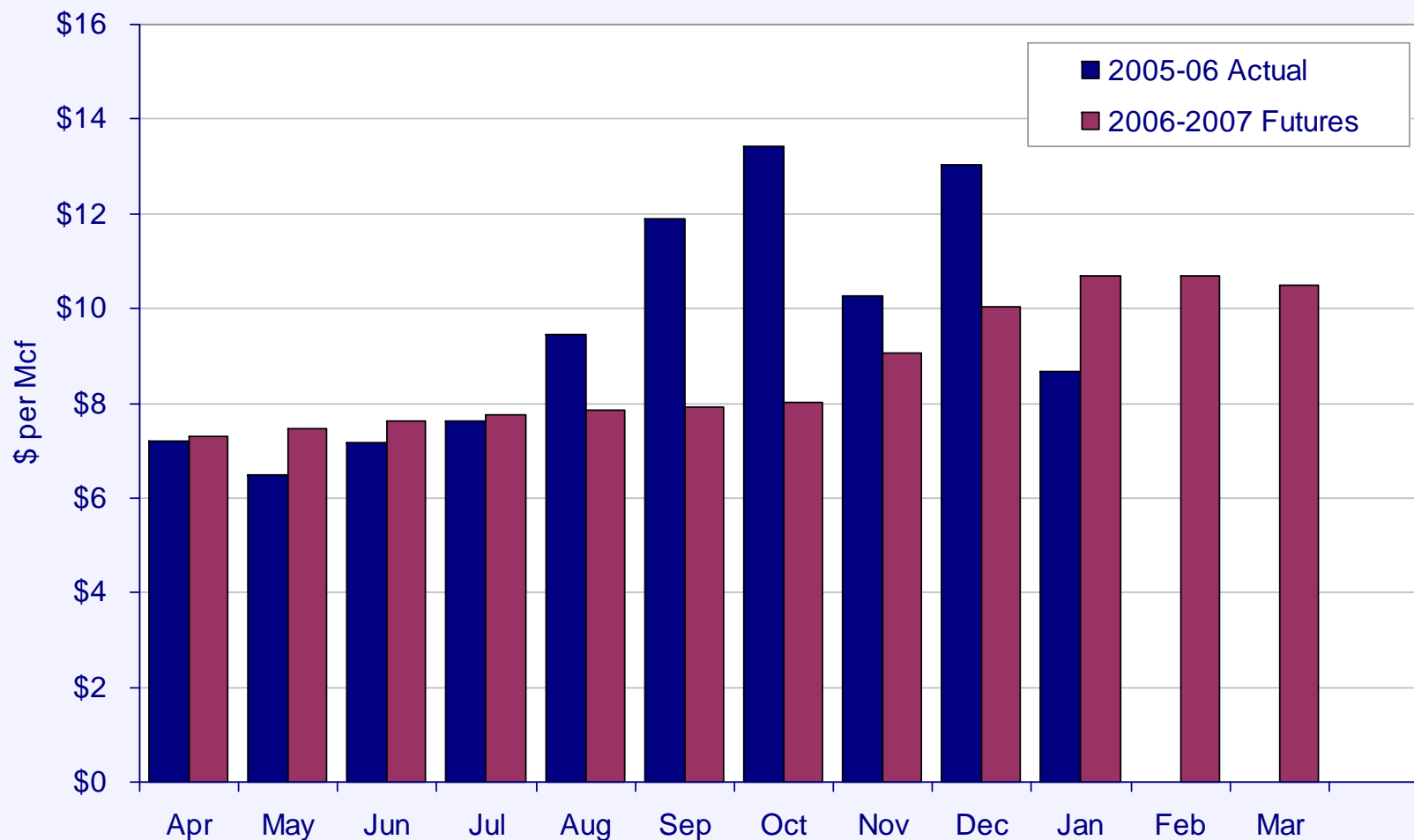
Note: Prices recorded on October 11, 2005

Source: Federal Reserve Bank of St. Louis; and Nymex.com



Forecast for Energy Commodity Prices Natural Gas Futures

Prices have moderated significantly due to mild winter and strong storage position



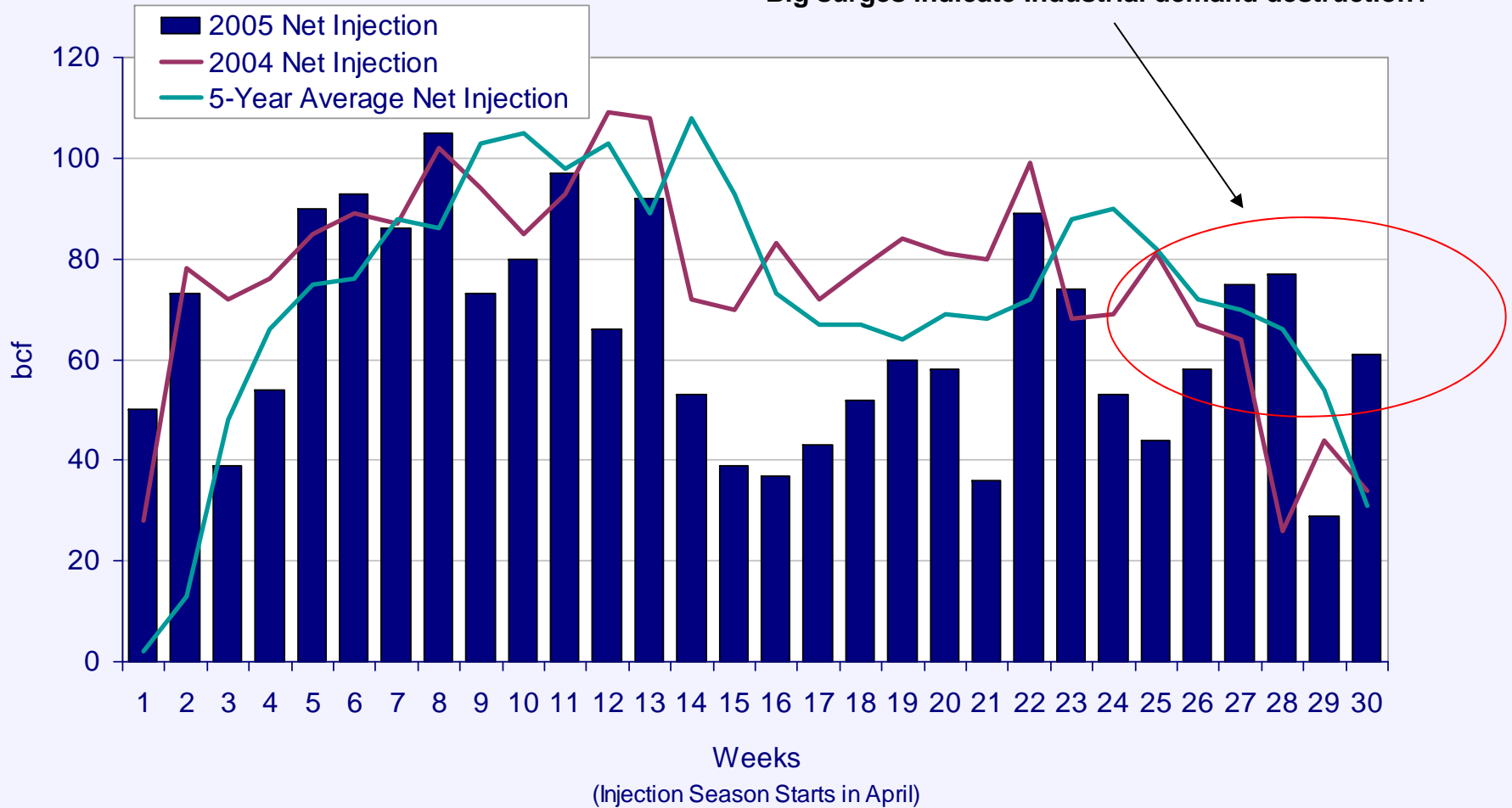
Note: Futures prices recorded on February 27, 2006
Source: Federal Reserve Bank of St. Louis; and Nymex.com



Weekly Natural Gas Injections Relative to Prior Year and 5-Year Average

What impact have high prices had on industrial activity?

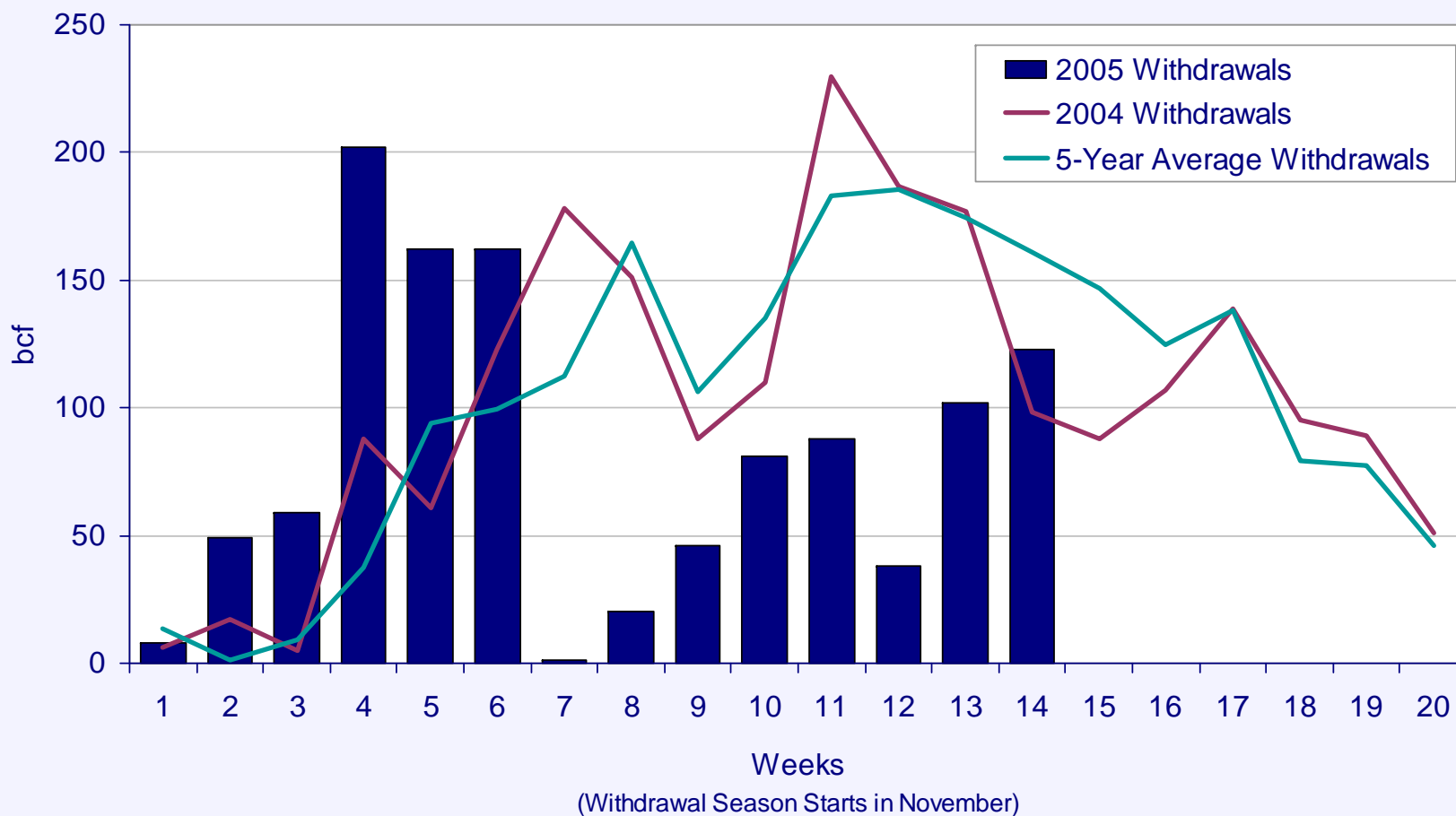
Big surges indicate Industrial demand destruction?





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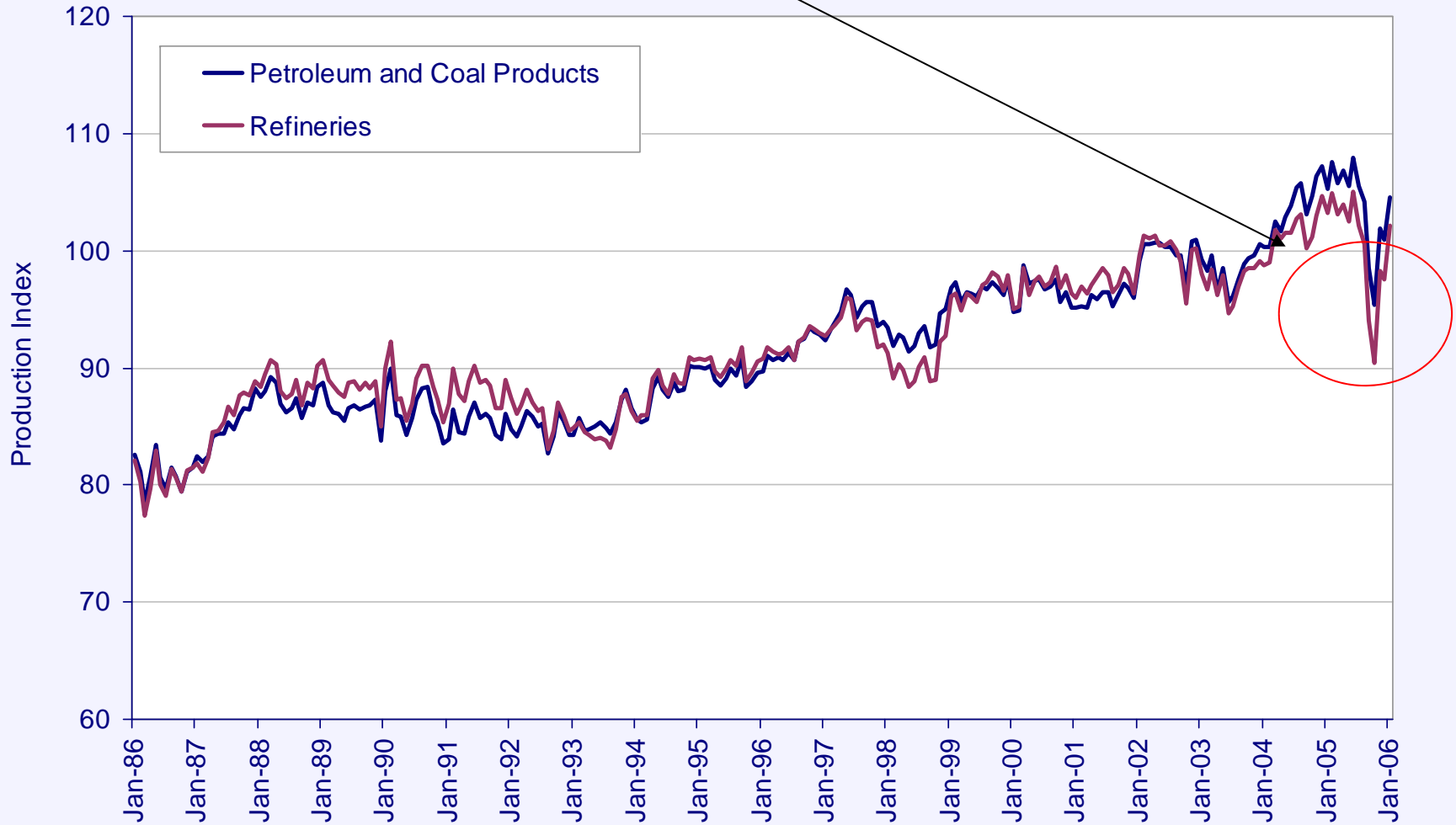
Weekly Natural Gas Withdrawals Relative to Prior Year and 5-Year Average





Petrochemical and Refinery Industrial Production Indices

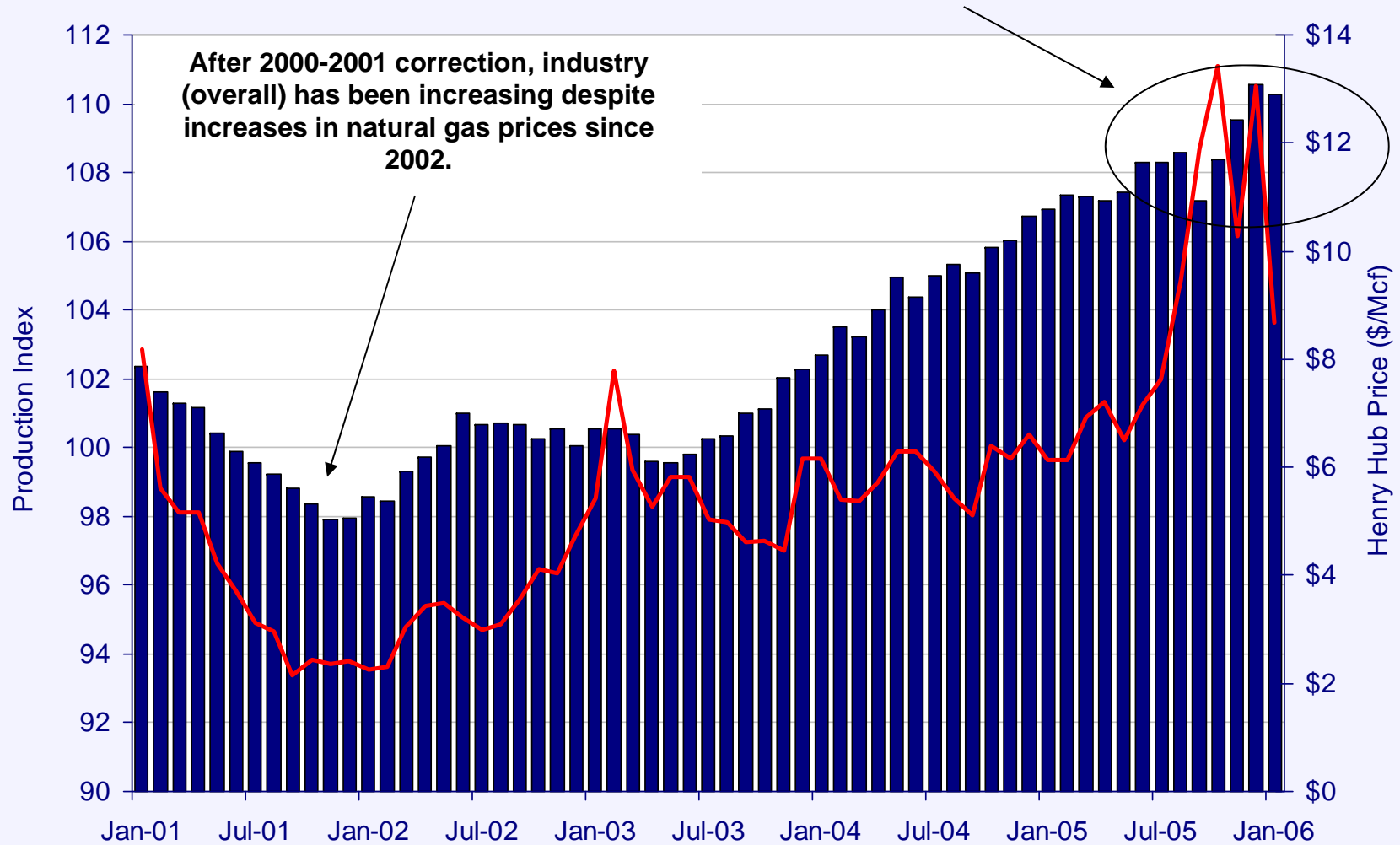
Hurricane-related or price-related demand destruction?





Industrial Production Index

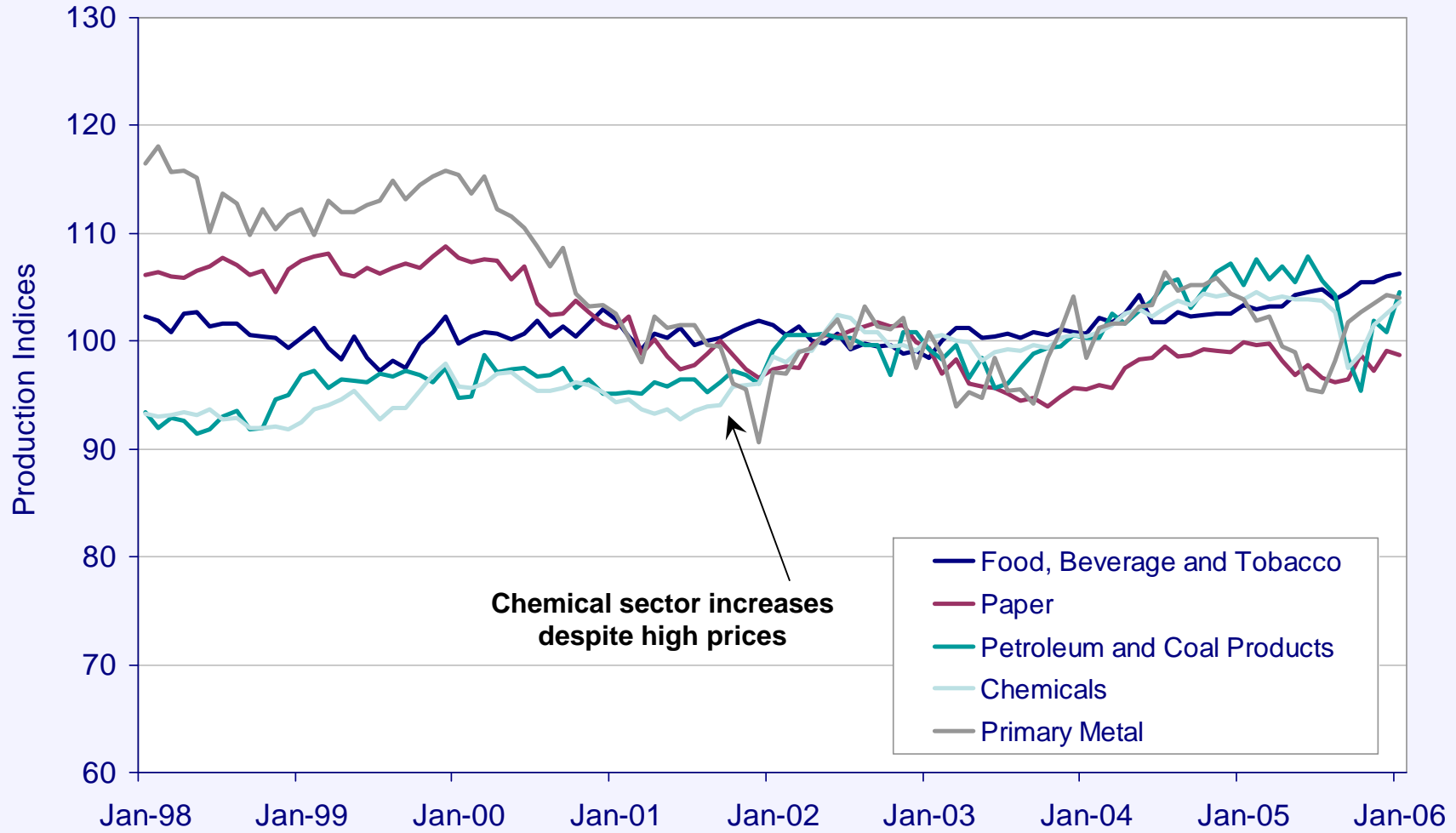
Appears to be strong post-hurricane rebound in industrial activity





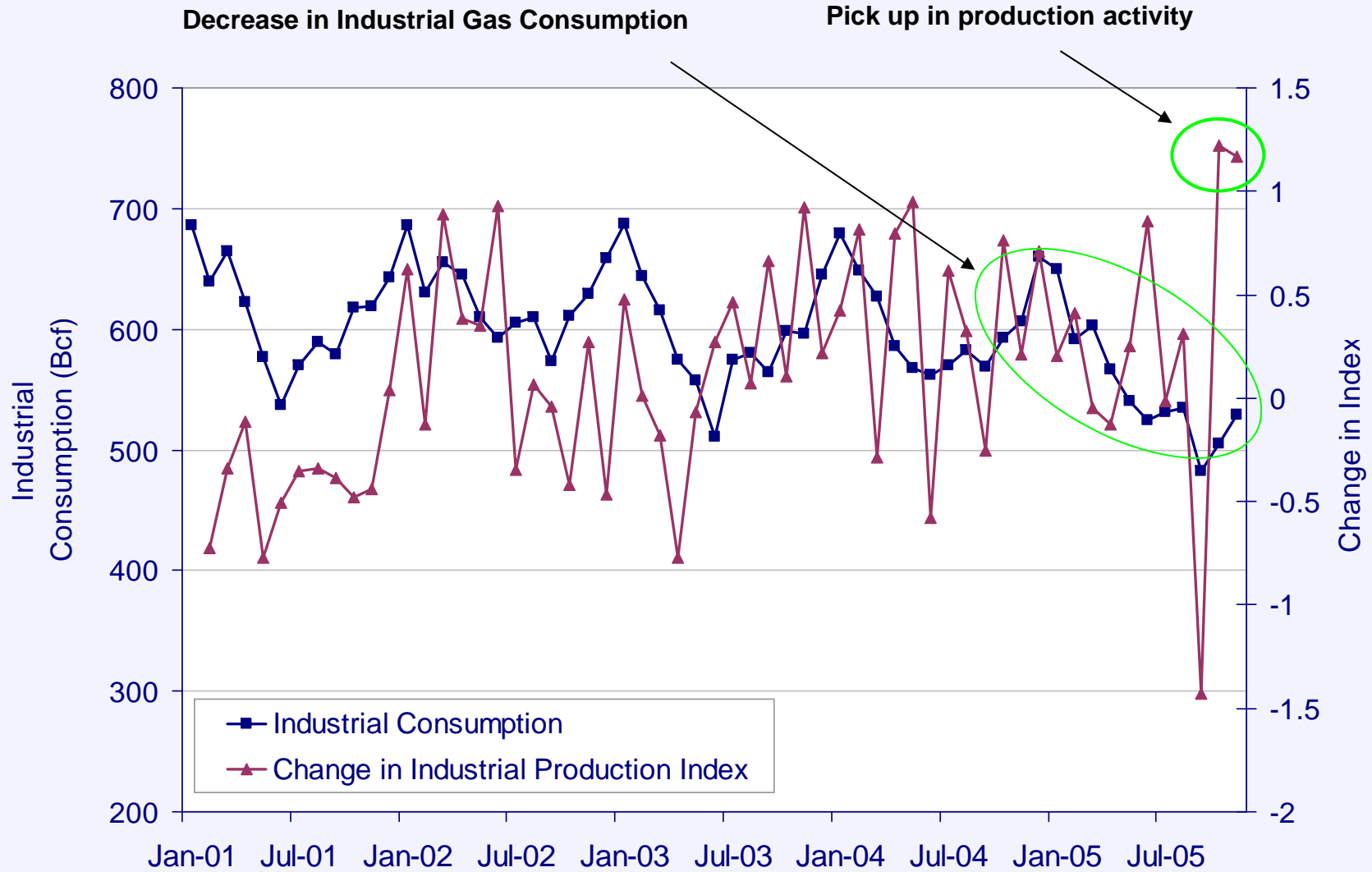
Industrial Production Indices Energy Intensive Industries

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





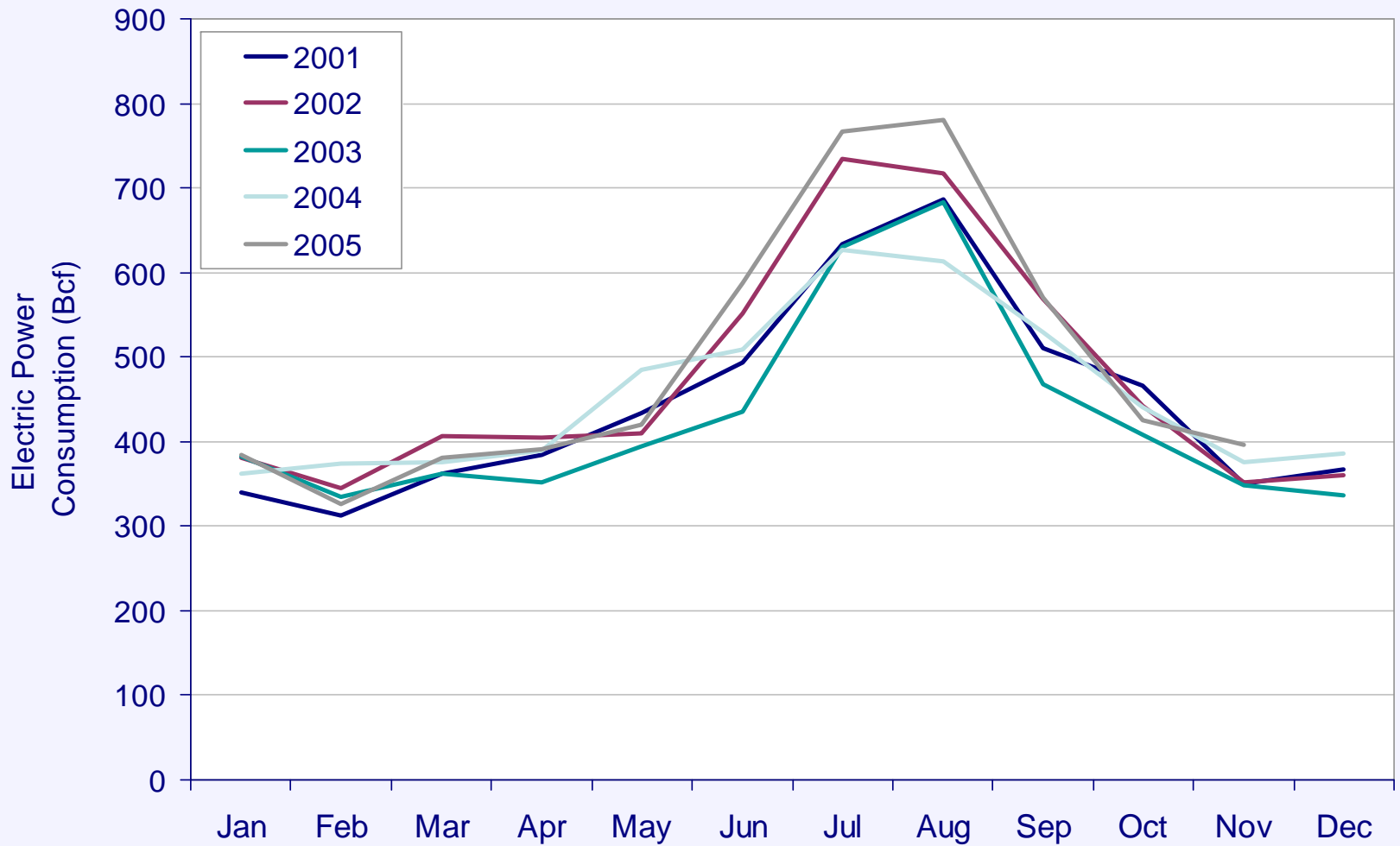
Industrial Natural Gas Usage and Industrial Activity: Demand Destruction or Fuel Switching?





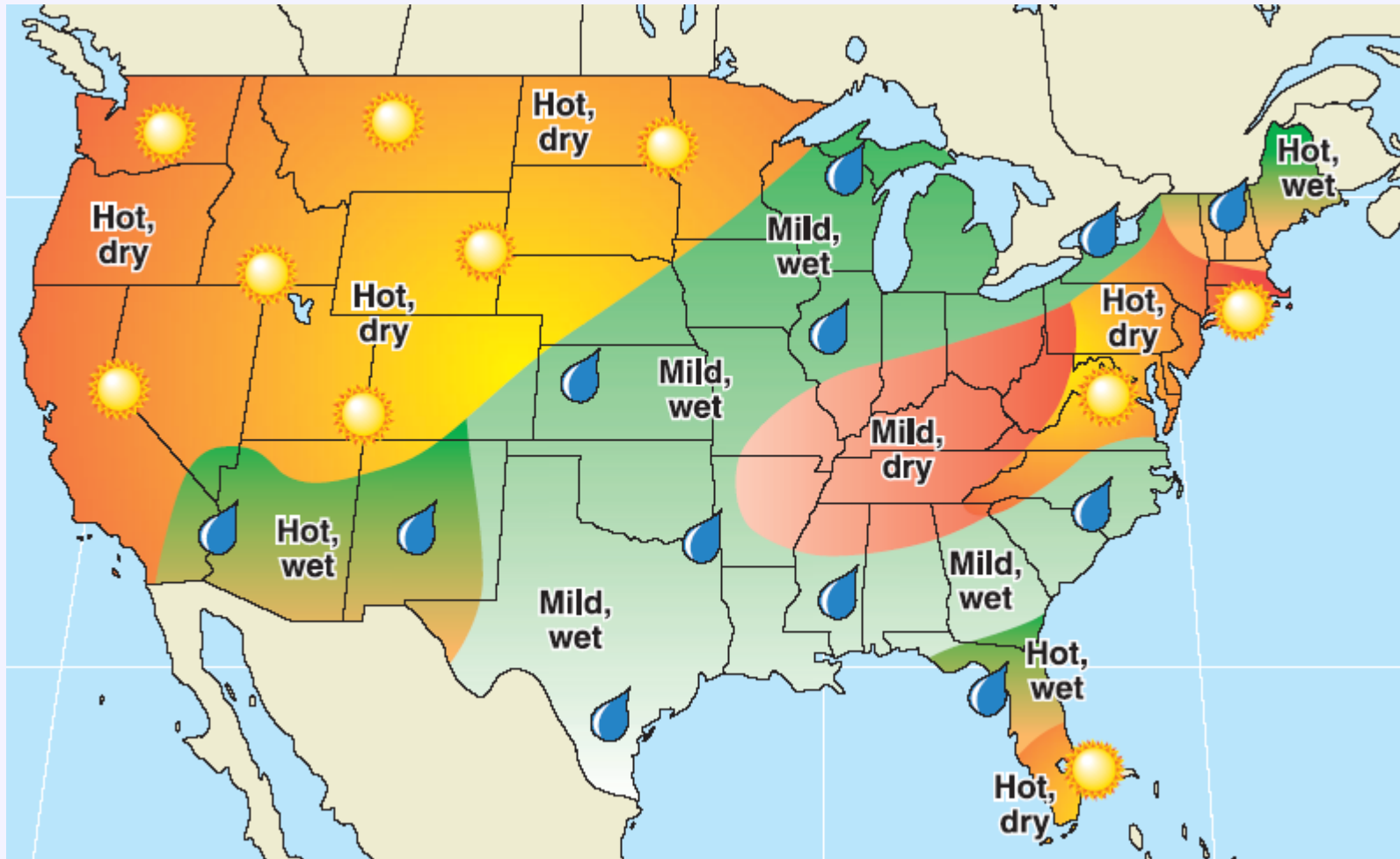
Power Generation Natural Gas Usage

Gas-fired generation becoming important source of winter gas demand
2005 has been big year for gas-fired power generation





2006 Summer Forecast by Region





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

December "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	3
2006	17	9	5



Company	4Q 2005	FY 2005	1Q 2006	2Q 2006	FY 2006	FY 2007
Raymond James	\$ 10.15	\$ 7.90	\$ 12.50	\$ 9.75	\$ 10.50	\$ 10.00
RBC Capital Markets	\$ 10.67	\$ 8.07				
UBS	\$ 12.15	\$ 8.60	\$ 9.42	\$ 8.50	\$ 9.50	
Morgan Stanley	\$ 12.00	\$ 8.50	\$ 10.50	\$ 7.75	\$ 8.50	\$ 7.00
Buckingham Research Group	\$ 10.45	\$ 8.00	\$ 7.00	\$ 7.00	\$ 7.00	
Weeden & Co	\$ 14.00	\$ 8.75			\$ 10.00	\$ 12.00
RW Beck	\$ 12.00	\$ 8.37	\$ 10.22	\$ 8.59	\$ 9.00	\$ 7.38
Jofree Energy Consulting	\$ 12.86	\$ 8.51	\$ 8.91	\$ 8.67	\$ 9.21	\$ 9.66
Prudential Securities	\$ 11.00	\$ 8.30	\$ 11.00	\$ 10.00	\$ 9.75	
The Gerdes Group			\$ 9.50	\$ 7.00	\$ 7.88	\$ 8.00
Purvin & Gertz	\$ 12.70	\$ 8.35	\$ 8.60	\$ 9.10	\$ 9.05	\$ 8.35
Bear Sterns	\$ 10.00	\$ 7.98	\$ 10.50	\$ 8.00	\$ 8.90	\$ 8.25
Merrill Lynch Global Securities	\$ 11.55	\$ 7.75	\$ 9.00	\$ 6.70	\$ 6.75	\$ 6.25
First Energy Capital	\$ 11.83	\$ 8.75	\$ 13.00	\$ 9.75	\$ 10.75	\$ 9.00
Petral Consulting	\$ 10.95	\$ 8.25	\$ 7.20	\$ 6.25	\$ 7.00	\$ 7.00
Banc of America Securities	\$ 12.00	\$ 8.45	\$ 9.00	\$ 7.25	\$ 7.75	\$ 7.00
Gelber Corp.			\$ 10.50	\$ 11.20	\$ 9.80	\$ 7.86
Deutsche Bank Alex Brown	\$ 12.50	\$ 8.75	\$ 10.00	\$ 10.00	\$ 9.00	\$ 7.00
Stephen Smith Energy Associates	\$ 13.30	\$ 8.70	\$ 9.10	\$ 7.20	\$ 8.25	\$ 7.80
JPMorgan Chase	\$ 13.25	\$ 9.11	\$ 9.10	\$ 8.25	\$ 9.00	\$ 7.75
Energy Ventures Analysis	\$ 13.15	\$ 9.01	\$ 8.89	\$ 8.26	\$ 8.52	\$ 7.39
Credit Suisse			\$ 8.00	\$ 7.50	\$ 7.75	\$ 6.50
US Energy Information Administration	\$ 12.44	\$ 8.88	\$ 10.43	\$ 8.71	\$ 8.98	\$ 8.06
Average	\$ 11.95	\$ 8.45	\$ 9.64	\$ 8.35	\$ 8.77	\$ 8.01



- **Short Run Impacts (Current to June, 2006)**
 - Mild winter has resulted in lower than anticipated demand.
 - Economy generally strong running into this crisis and momentum will continue to carry.
 - Continued mild weather will have bearish impact on natural gas prices through spring.
 - Geopolitical concerns will drive crude (slight downward tendency).
 - Attention to tropical season on both crude and natural gas.

- **Longer Run Impacts: (6 months and beyond)**
 - Tropical activity could be concern (cyclical shift in weather trends)
 - High prices are bad for energy sensitive industries – will eventually show up in trade deficit numbers (chemicals, refining, and paper and pulp).
 - Imports for energy (crude, natural gas) will pick up and have impacts on trade deficit.
 - Potential crash in energy prices in future versus “treadmill effect” created by more hurricane activity (global warming vs 20-year cycle) – global economic activity will decided where we go.



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Questions, Comments, & Discussion

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Examples of Energy Infrastructure Damage



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Shell Mars Tension Leg Platform



Source: Shell.com

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Shell Mars Tension Leg Platform



Source: Shell.com

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Ocean Warwick Dauphin Island, AL



Source: Rigzone.com

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Semi-Sub Stuck Under Bridge North Mobile Bay



Photo via Noble Drilling and GlobalSantaFe

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Source: Rigzone.com



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Venice Port, Supply & Crew Bases



Source: LIOGA

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Chevron Refinery Pascagoula, MS



© LSU Center for Energy Studies

Source: Chevron



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Air Products Facility – Normal Day New Orleans, Louisiana (Intracoastal Drive)



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Source: Air Products



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Air Products Facility – During Hurricane Katrina New Orleans, Louisiana



Source: Air Products

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Air Products Facility – Post Hurricane Katrina New Orleans, Louisiana



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Source: Air Products



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Power Outages Generating Stations – Entergy Patterson



Source: Entergy



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Power Outages Substation Damage



Source: Entergy



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Then,
Along Comes Rita



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Henry Hub, September 25, 2005



© LSU Center for Energy Studies

Source: LIOGA



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Energy Transmission



Source: Entergy.com

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Citgo Refinery – Storage Tank Lake Charles, Louisiana Post-Rita



Source: Citgo

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Citgo Refinery – Onsite Dock Lake Charles, Louisiana Post-Rita



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Source: Citgo



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Citgo Refinery – Cooling Tower Lake Charles, Louisiana Post-Rita



Source: Citgo

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Citgo Refinery – Tent City Lake Charles, Louisiana Post-Rita

Facility rental of \$3.5 million for 3 weeks – for 250 employees – roughly \$156 per day per person



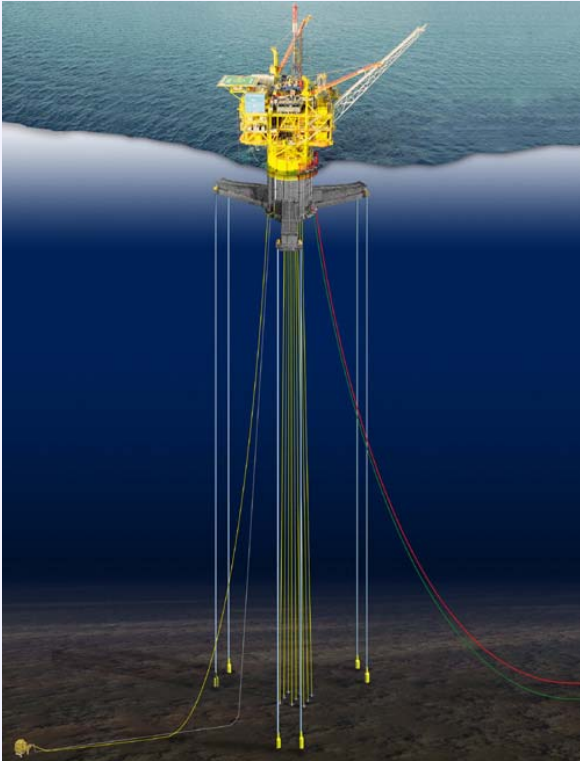


Temporary Natural Gas Release: To date, all subsea safety valves have held. There have been a couple of incidents where pipeline damage has allowed the temporary venting of gas that was in the pipeline. There are currently no known incidents of gas venting from wells and the temporary venting from pipelines appears to have stopped.



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Chevron Typhoon TLP



Source: Chevron, Rigzone.com

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