

## 2008 – 2009 Natural Gas Price Outlook

Mike Watson

NiSource Energy Supply Services

June 26, 2008



# Disclaimer

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# Agenda

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- Overview
- Fundamental Review
- Storage
- Weather
- Gas Prices / Forecast

# NiSource Gas Distribution Overview



## NiSource Fact Sheet

- 10 LDC's in 9 states
- 190 Bcf Storage
- 3.2 million customers
- Peak Day Sendout = 5.1 Bcf

# Current Operating Environment

- **Economic Environment**

- Housing crisis continues as home prices fall and foreclosures rise
- Financial sector still recovering from the mortgage crisis
- High food & energy prices translate into higher inflation
- Consumer strapped for cash with mortgage crisis and rising inflation
- Consumer confidence at its lowest level in 20 years

- **Market Environment**

- LNG deliveries are down 14% year on year
- Independence Hub deliveries curtailed between early April and mid-June taking roughly 60 Bcf of supply out of the market
- Storage inventories down 16% from where we were last year at this time
- Petroleum complex rockets to record levels

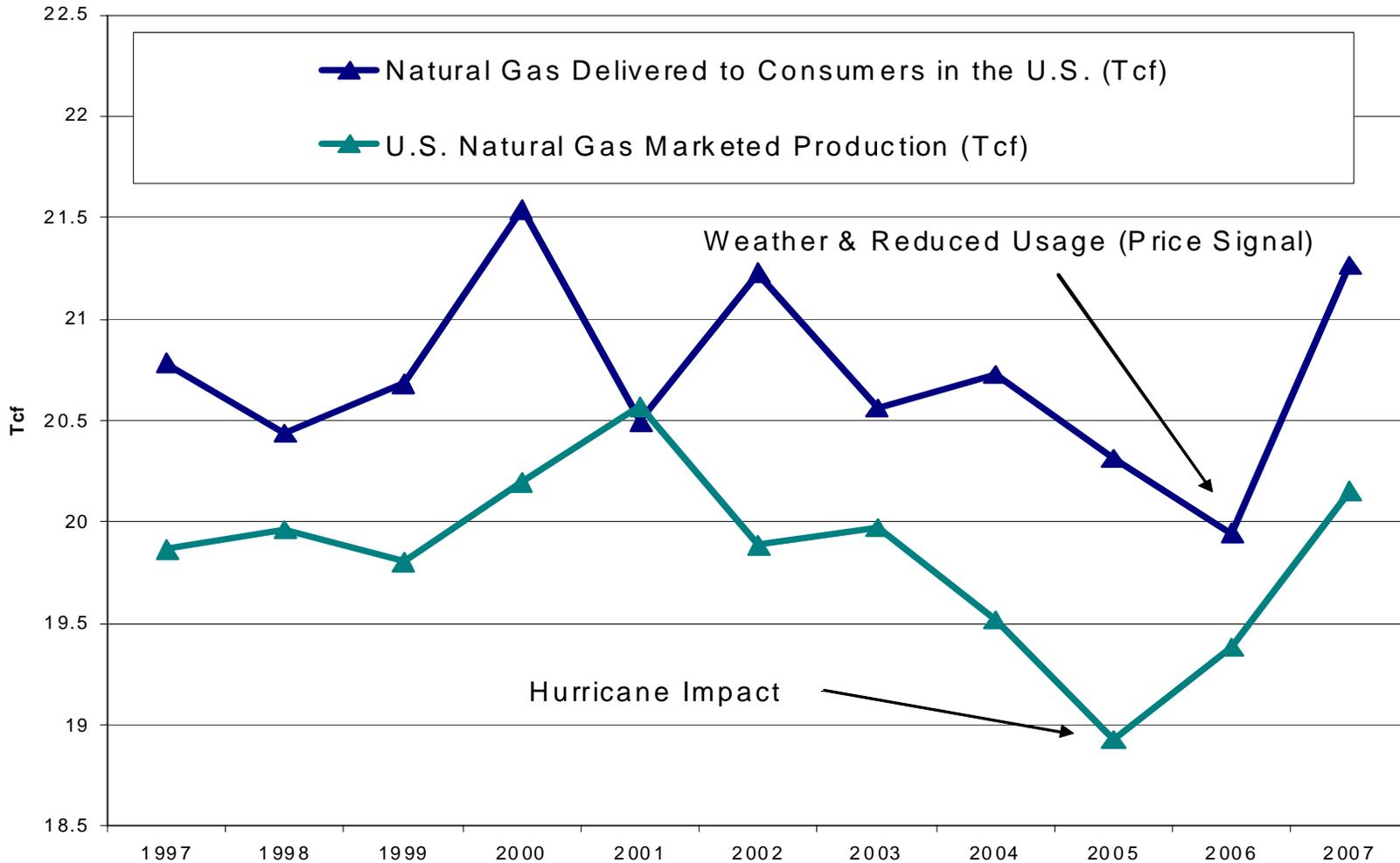


# Key Assumptions

- **Assuming average 5 year weekly injections for the remainder of the summer, storage will end the injection season with 3.3 Tcf in the ground**
  - Significantly behind last summer's season ending storage inventory of 3.5 Tcf
- **No Major Hurricanes will hit the Gulf Coast**
  - Any supply disruptions will be in line with previous two summers
- **Normal Weather**
  - Summer and winter weather will be in line with 30 year average
- **No new legislation that will significantly impact supply or demand**
  - Possible climate change legislation is at least a year away
- **LDC's will not move the needle – they are price takers**
  - Commercial & Residential demand growth will remain stagnant



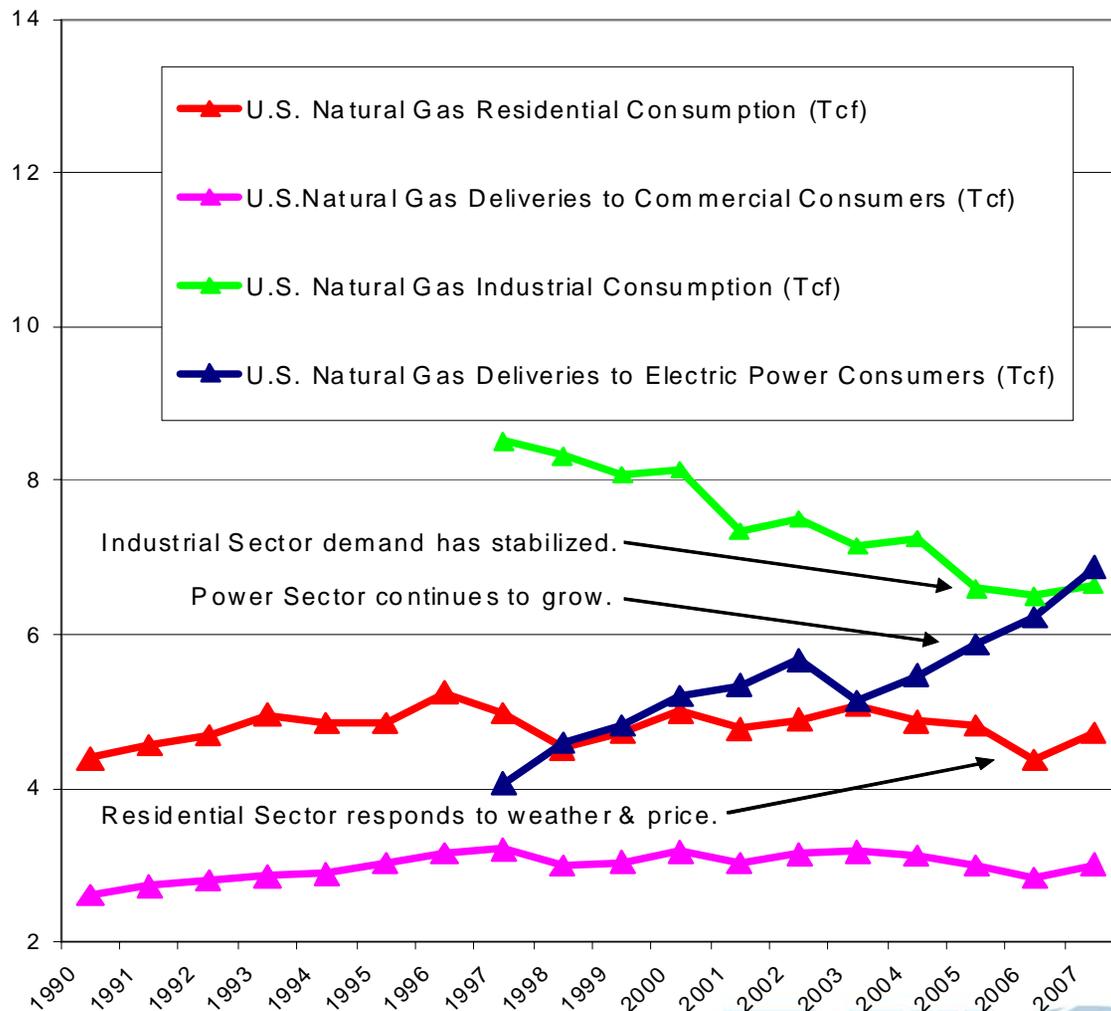
# U.S. Supply – Demand Balance



Source: EIA



# U.S. Demand



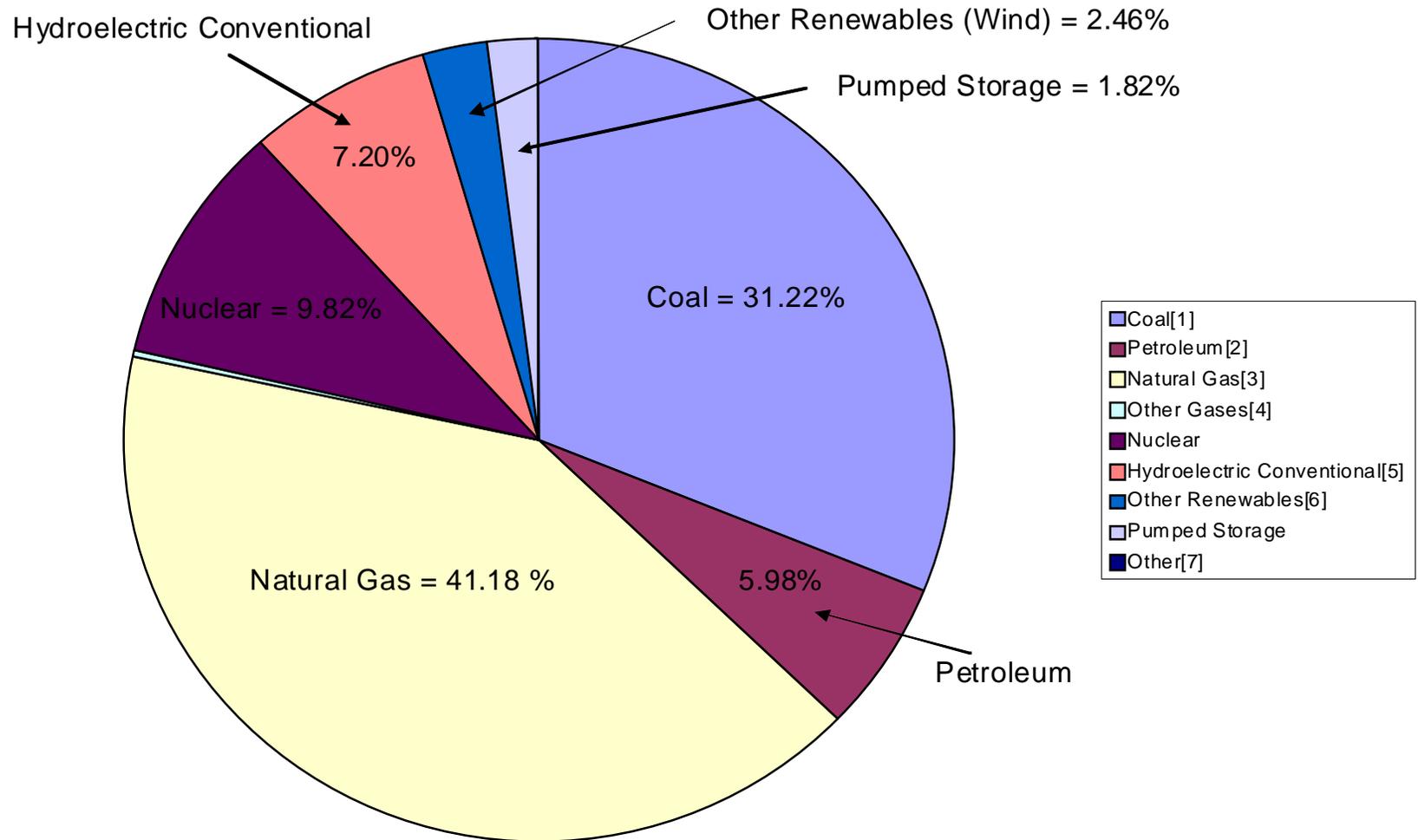
## 2007 Demand

Power Sector	6.9 Tcf
Industrial Sector	6.6 Tcf
Residential Sector	4.7 Tcf
<u>Commercial Sector</u>	<u>3.0 Tcf</u>
<b>Total</b>	<b>21.2 Tcf</b>

Source: EIA



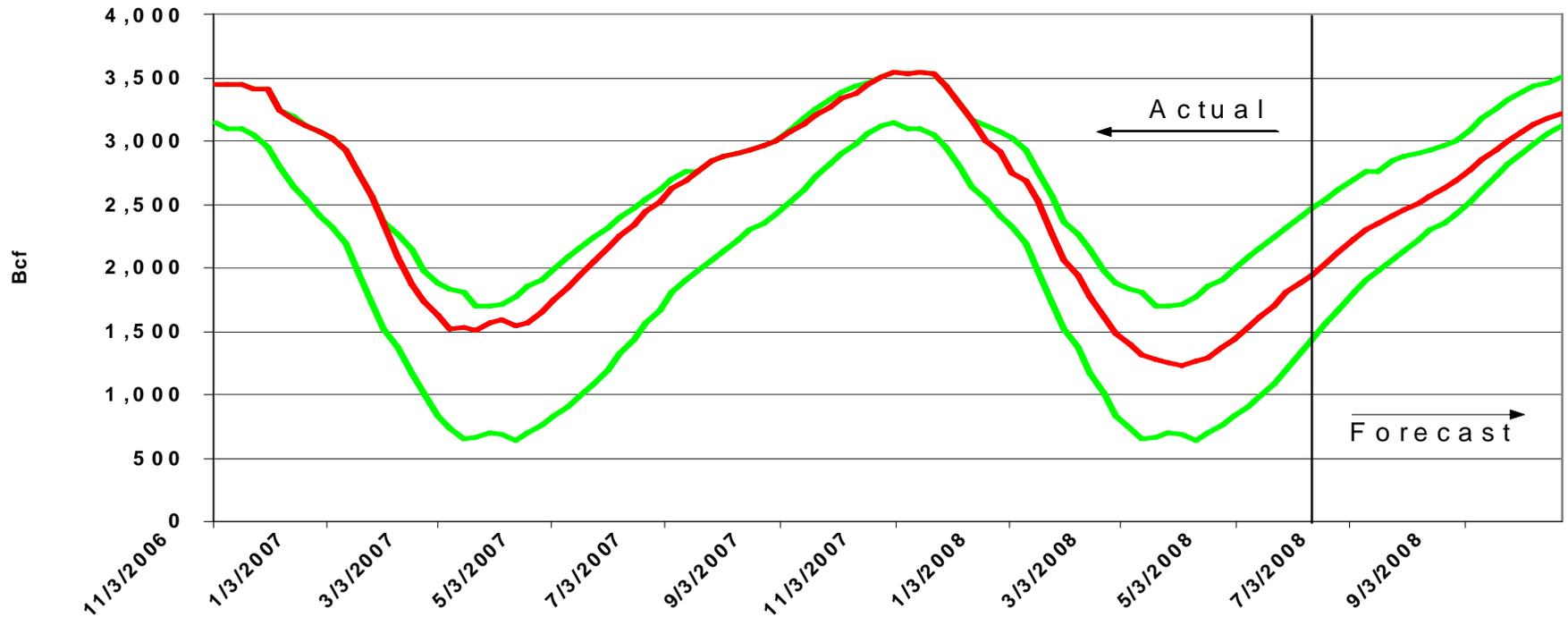
# U.S. 2006 Existing Generation Capacity



Source: EIA



# Summer 2008 Injection Season



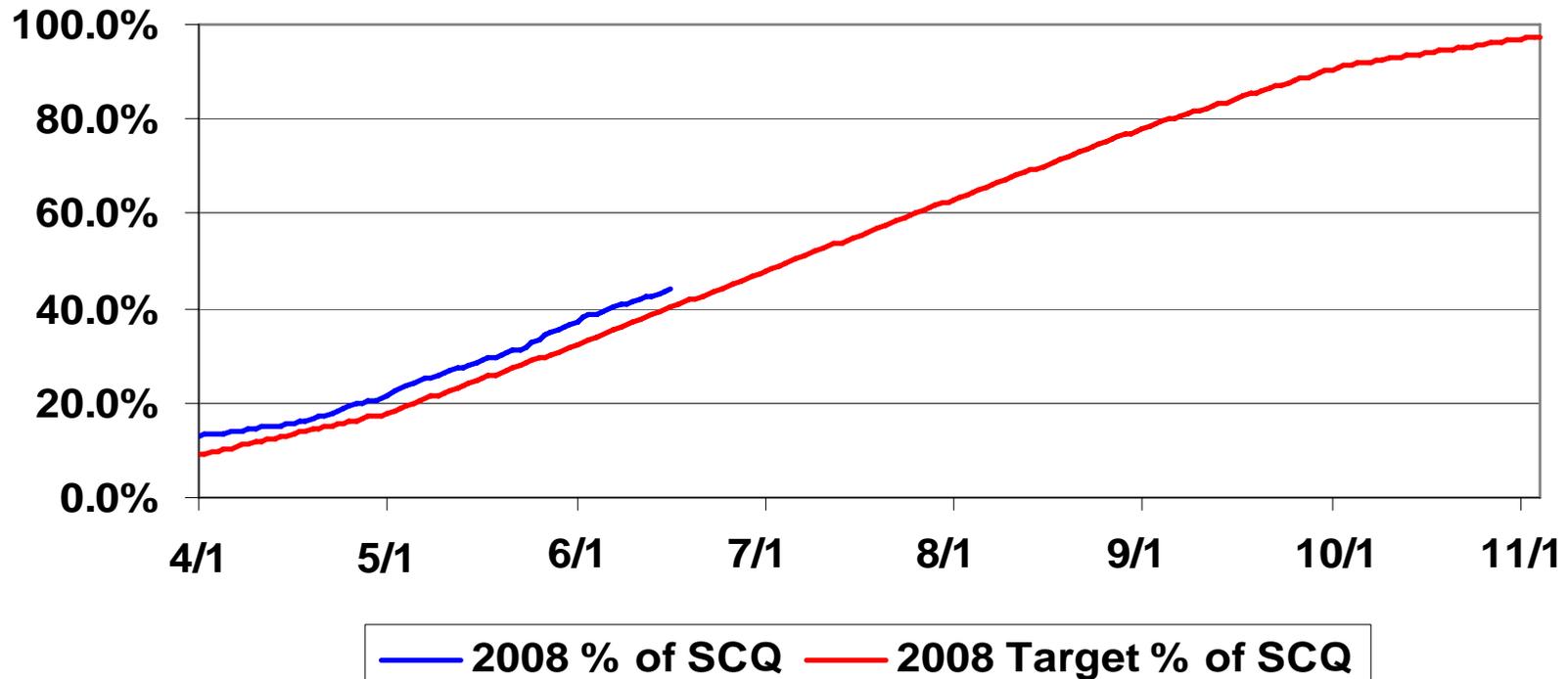
The US Estimated Working Gas in Storage was 1,943 Bcf for the week ending June 13, 2008. This quantity of gas in storage is 376 Bcf or 16.2 % behind last year at this time and 52 Bcf or 2.6 % behind the five year average. Using the 5 year average injections for the remaining summer injection period would put national storage at 3,306 to end the season.

Source: EIA



# NiSource LDC's Storage Inventory

## NiSource LDCs' 2008 Storage Inventory Summer 2008 Compared To Target

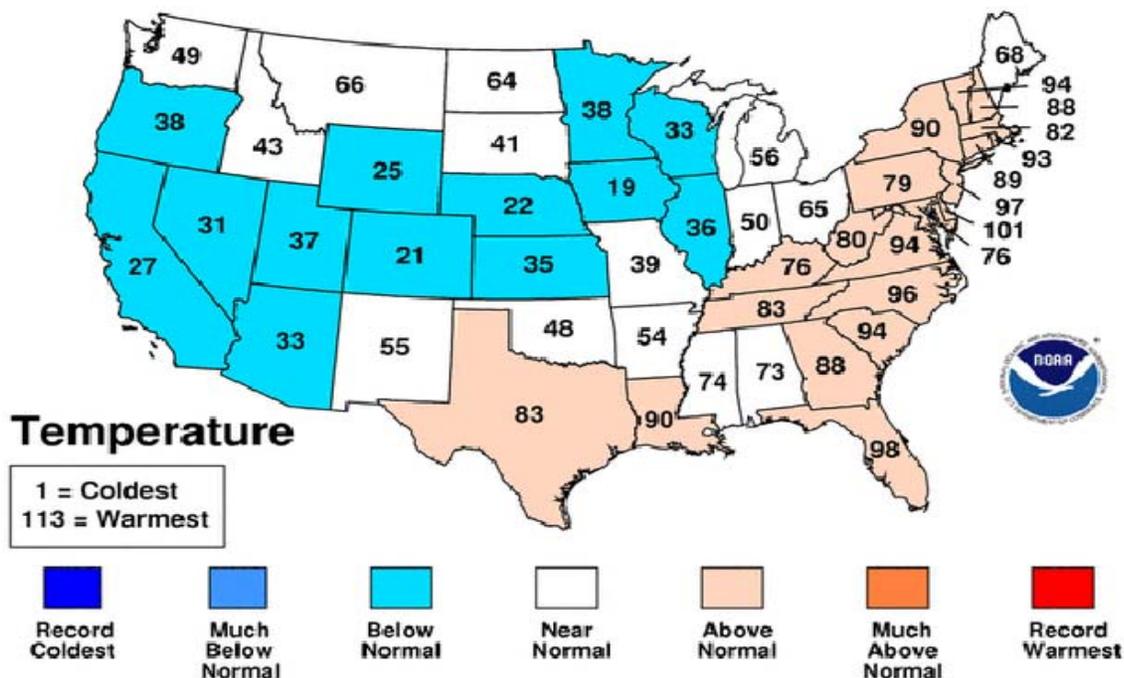


# Winter 2007 - 2008

NOAA: Coolest Winter Since 2001 for U.S., Globe

## Dec 2007-Feb 2008 Statewide Ranks

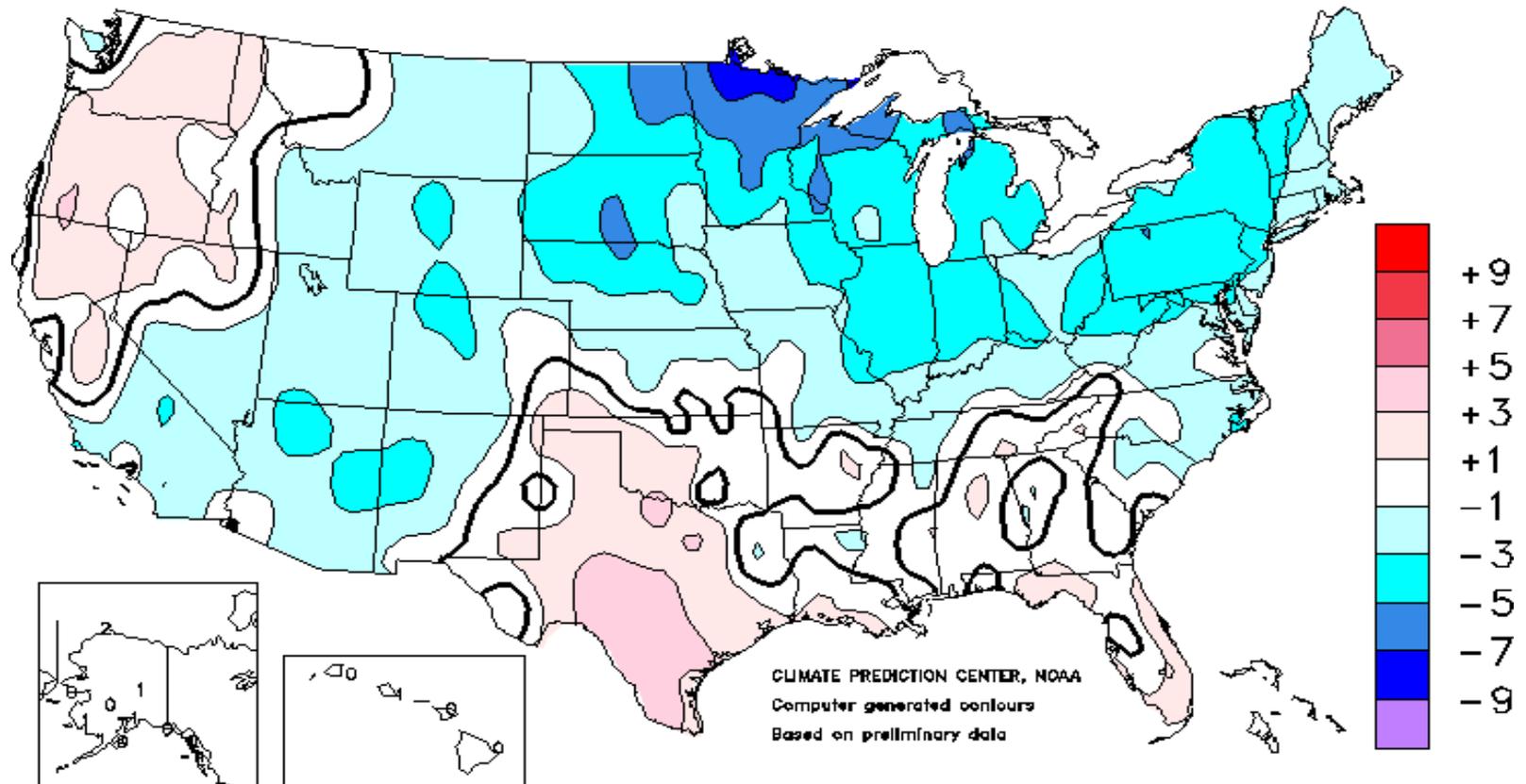
National Climatic Data Center/NESDIS/NOAA



# Weather – Month Ago

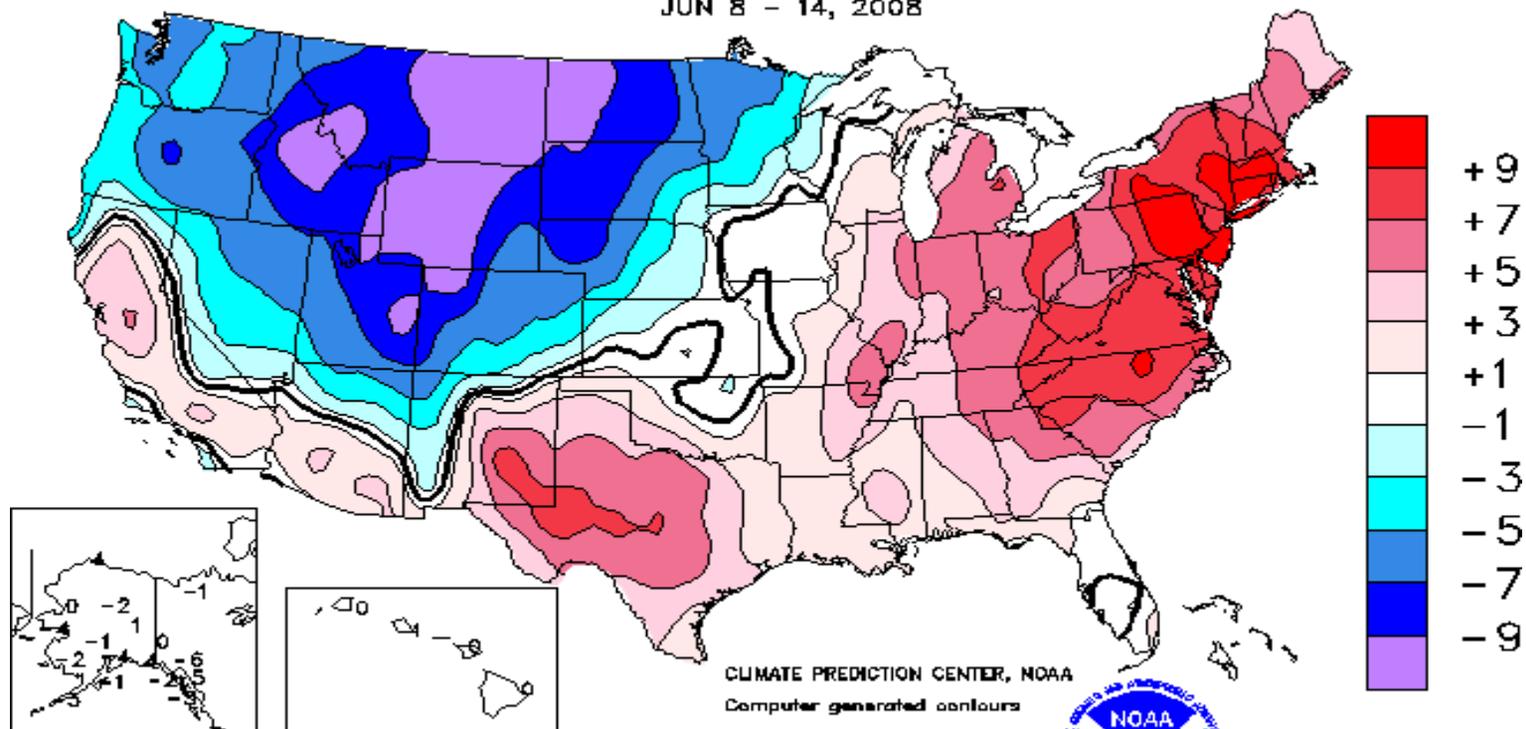
Departure of Average Temperature from Normal (°F)

May 2008



# Recent Weather

Departure of Average Temperature from Normal (°F)  
JUN 8 - 14, 2008

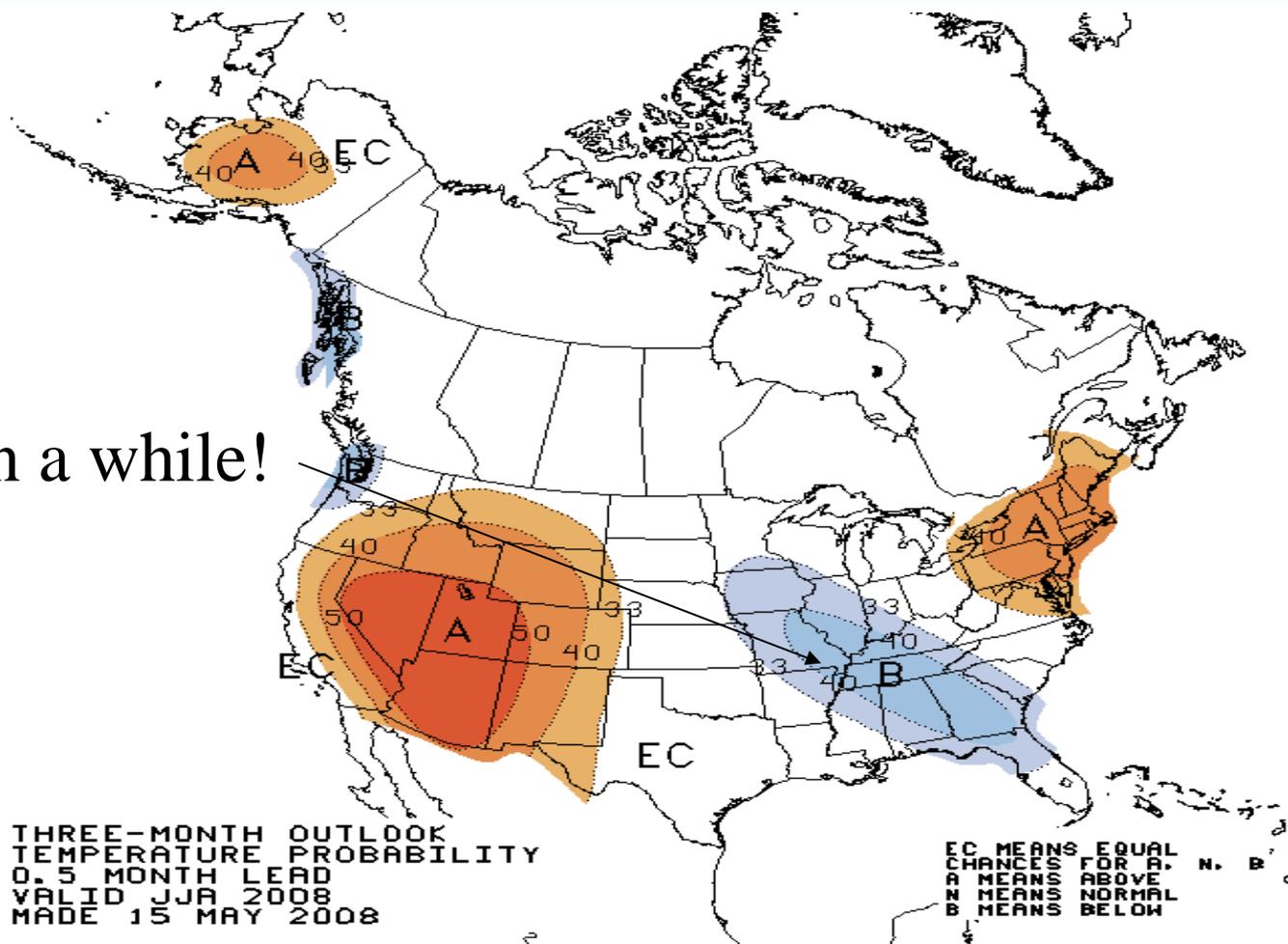


CLIMATE PREDICTION CENTER, NOAA  
Computer generated contours  
Based on preliminary data

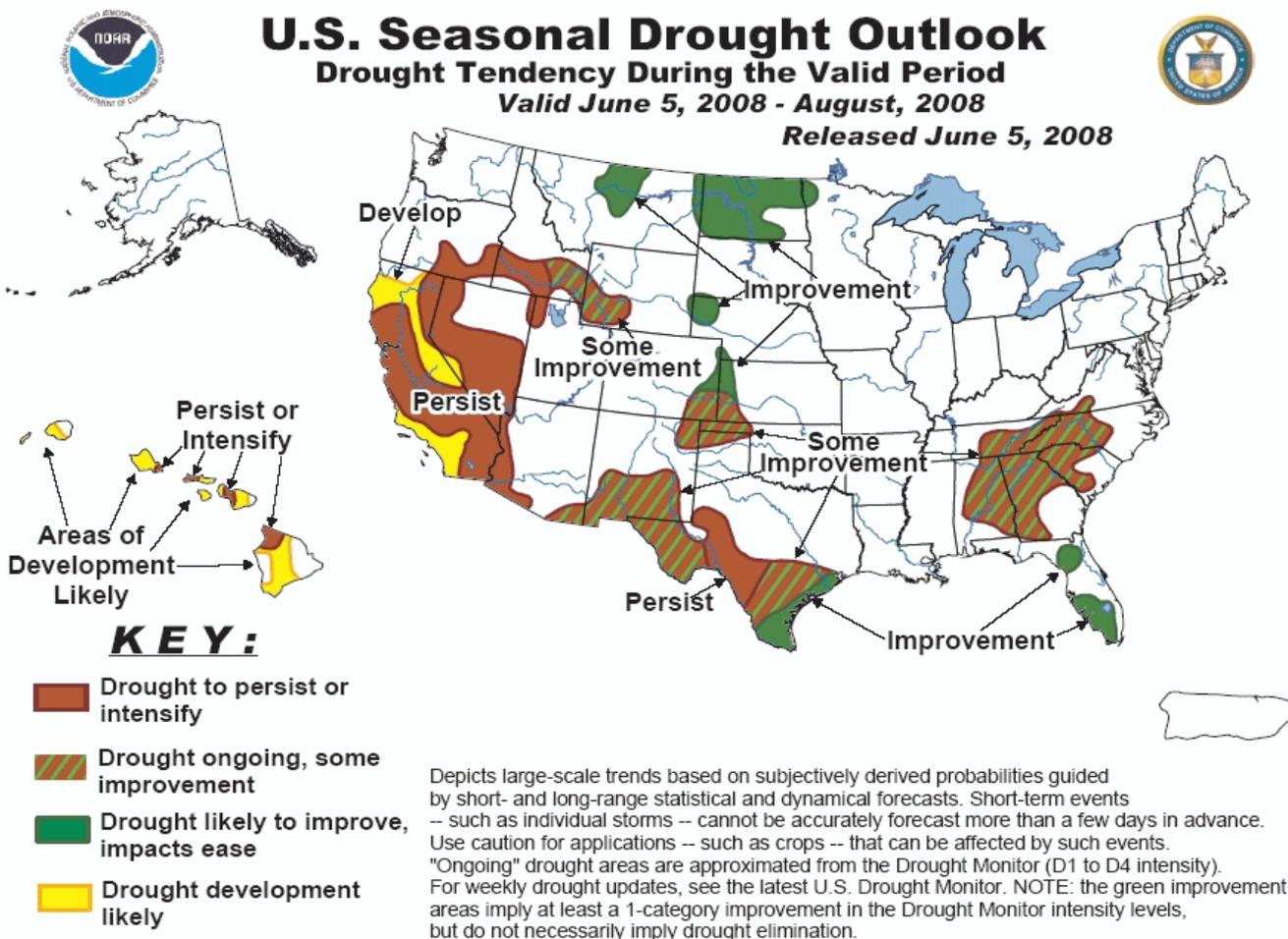


# Summer Outlook

Its been a while!



# National Weather – Drought Outlook



# 2007 Hurricane Review

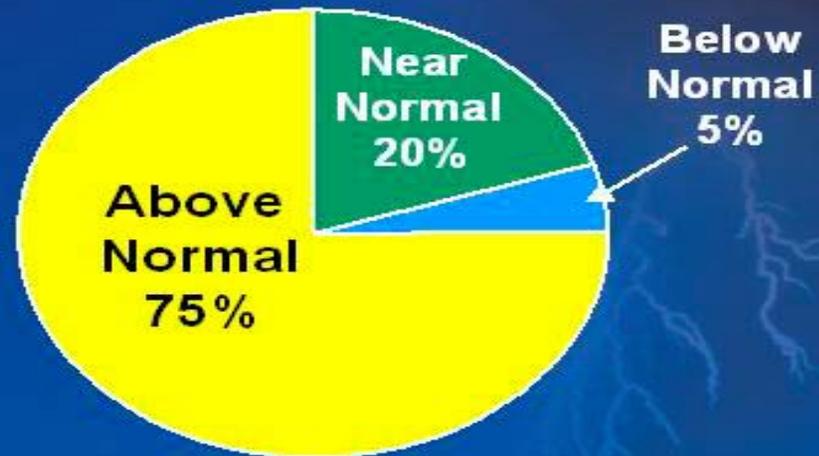


## 2007 Atlantic Hurricane Outlook

Named Storms:	13 - 17	→ 14
Hurricanes:	7 - 10	→ 6
Major Hurricanes:	3 - 5	→ 2

*2007 Actual*

*2007  
Outlook  
Probability*

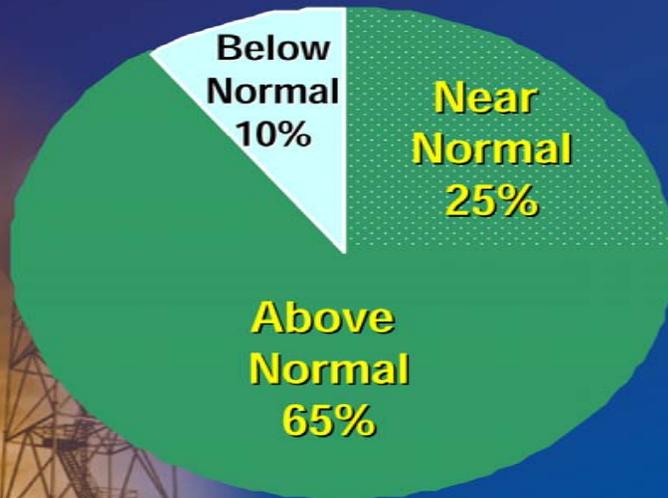


# 2008 Hurricane Outlook



## 2008 Atlantic Hurricane Outlook

**90% Chance of Near Normal or Above Normal Season**



**60% – 70% probability for each range**

<b>Named Storms</b>	<b>12 - 16</b>
<b>Hurricanes</b>	<b>6 - 9</b>
<b>Major Hurricanes</b>	<b>2 - 5</b>

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# Industrial Demand

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On the North American continent, US steel production increased by 1.1% in April, bringing the year to date total up 6.5% to 33.8 million tonnes. Canadian steel production rose by 3.7% in April, while the four months total was up 3.0% to 5.6 million tonnes. Mexican steel production, however, increased by 10.5% in April, with the year to date total up 10.4% to 6.3 million tonnes.

Source: [steelonthenet.com](http://steelonthenet.com)



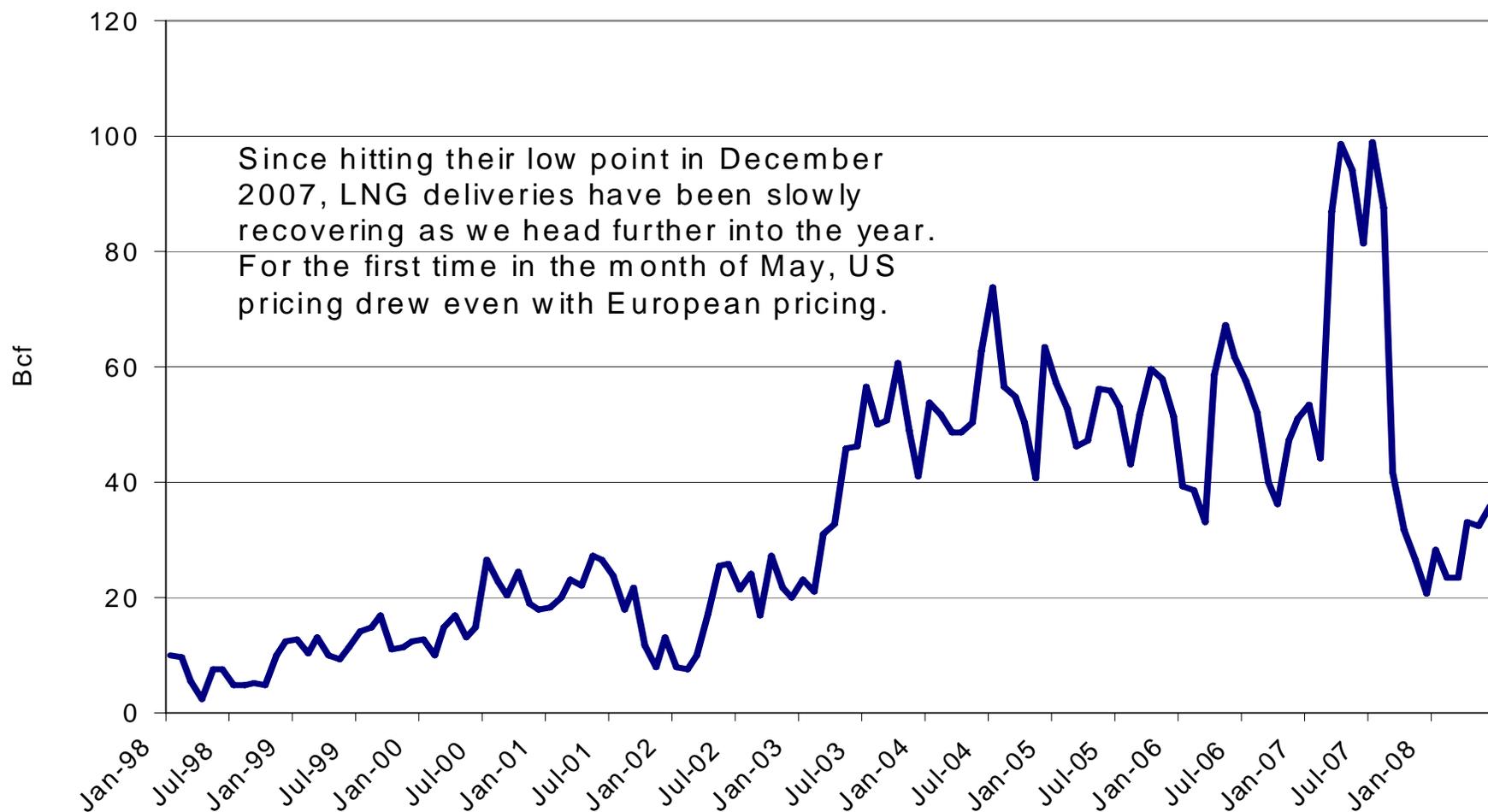
# Spot Market Prices – LNG

- Korea = \*\$25/MMBtu
- Japan = \*\$20/MMBtu
- India = \*\$17/MMBtu
- China = \*\$15/MMBtu
- Britain = \$12/MMBtu
- Japan's Nuclear Plant remains on forced outage driving LNG deliveries to the Far East.
- Far East LNG contracts tie price to a basket of energy commodities including the petroleum complex.
- Spain's continued drought (lack of hydroelectric power) driving up demand for LNG spot cargoes for power generation.
- Weak dollar impacts U.S. competitiveness.

\*Source: NGI May 22<sup>nd</sup>, 2008

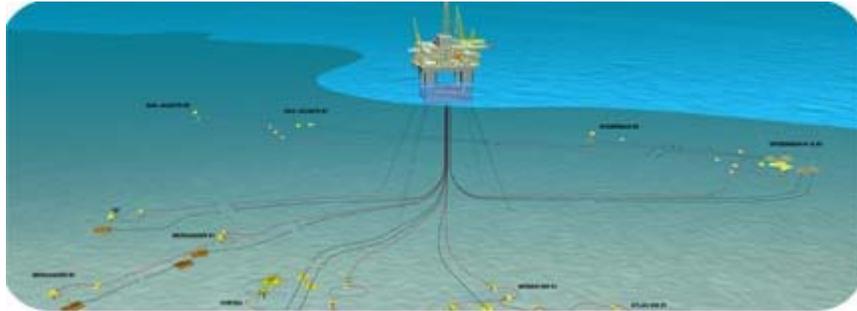


# LNG Imports



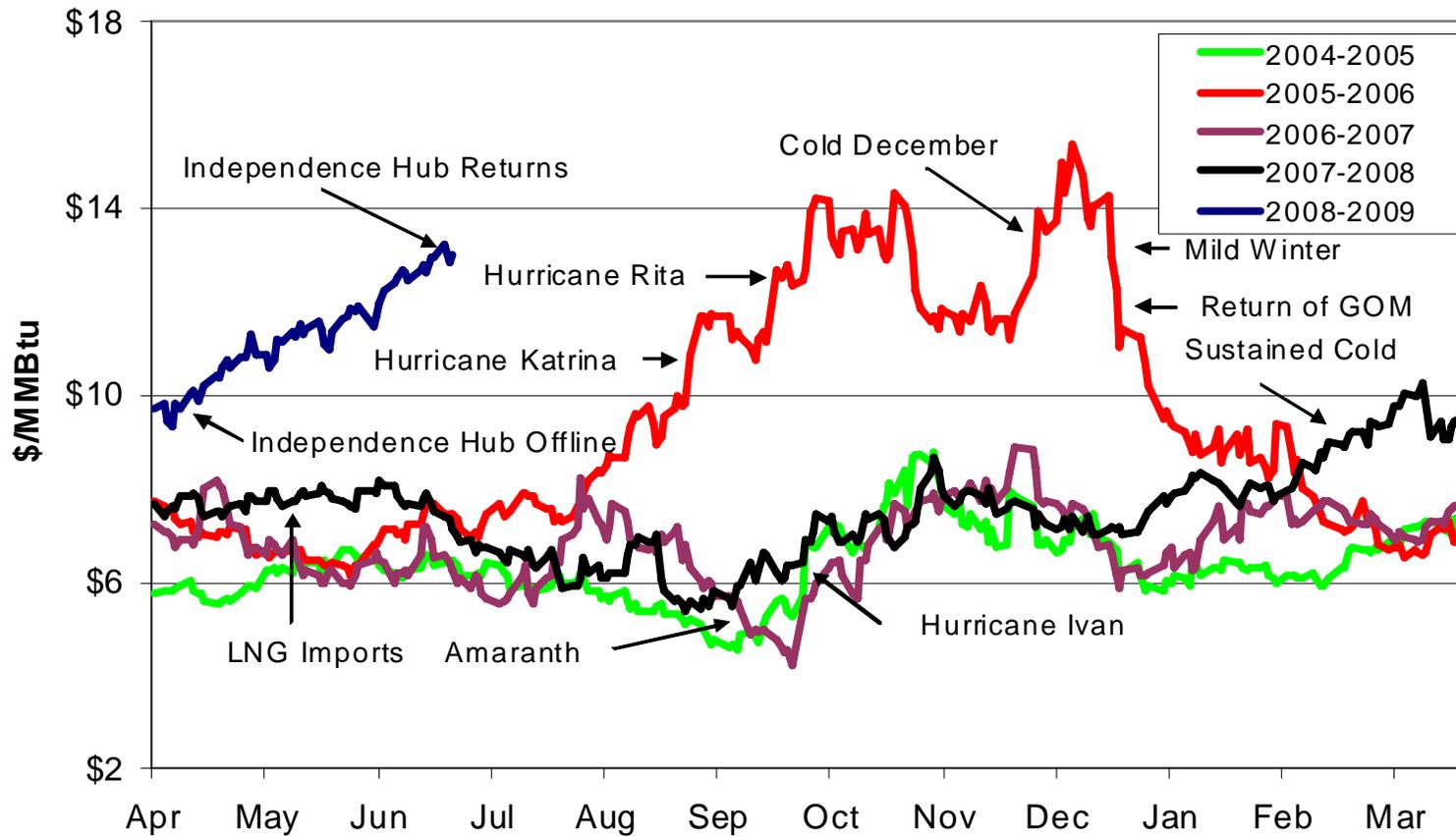
# Independence Hub

Anadarko Independence Hub

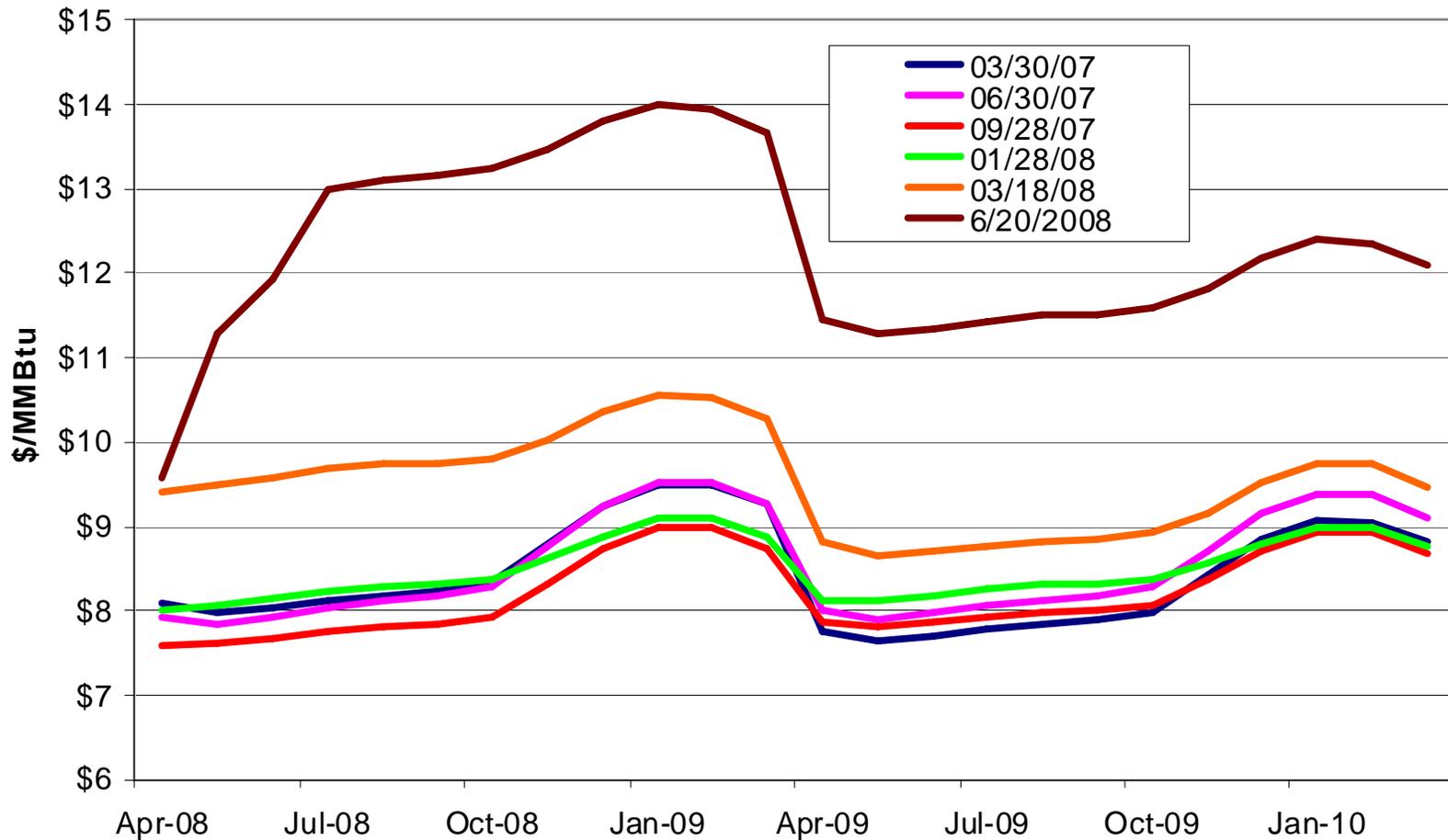


- Started Production July 19<sup>th</sup>, 2007
- Ramped up production had approached 1Bcf/day
- Flowing supplies went to zero on April 9<sup>th</sup>, 2008
- Production came fully back on line early last week with flows reaching 0.944 Bcf on June 16<sup>th</sup>, 2008.
- Total lost production is approaching 60 Bcf
- It should be noted that the Independence Hub outage (April to June) took out more Gulf of Mexico production than the past two hurricane seasons!

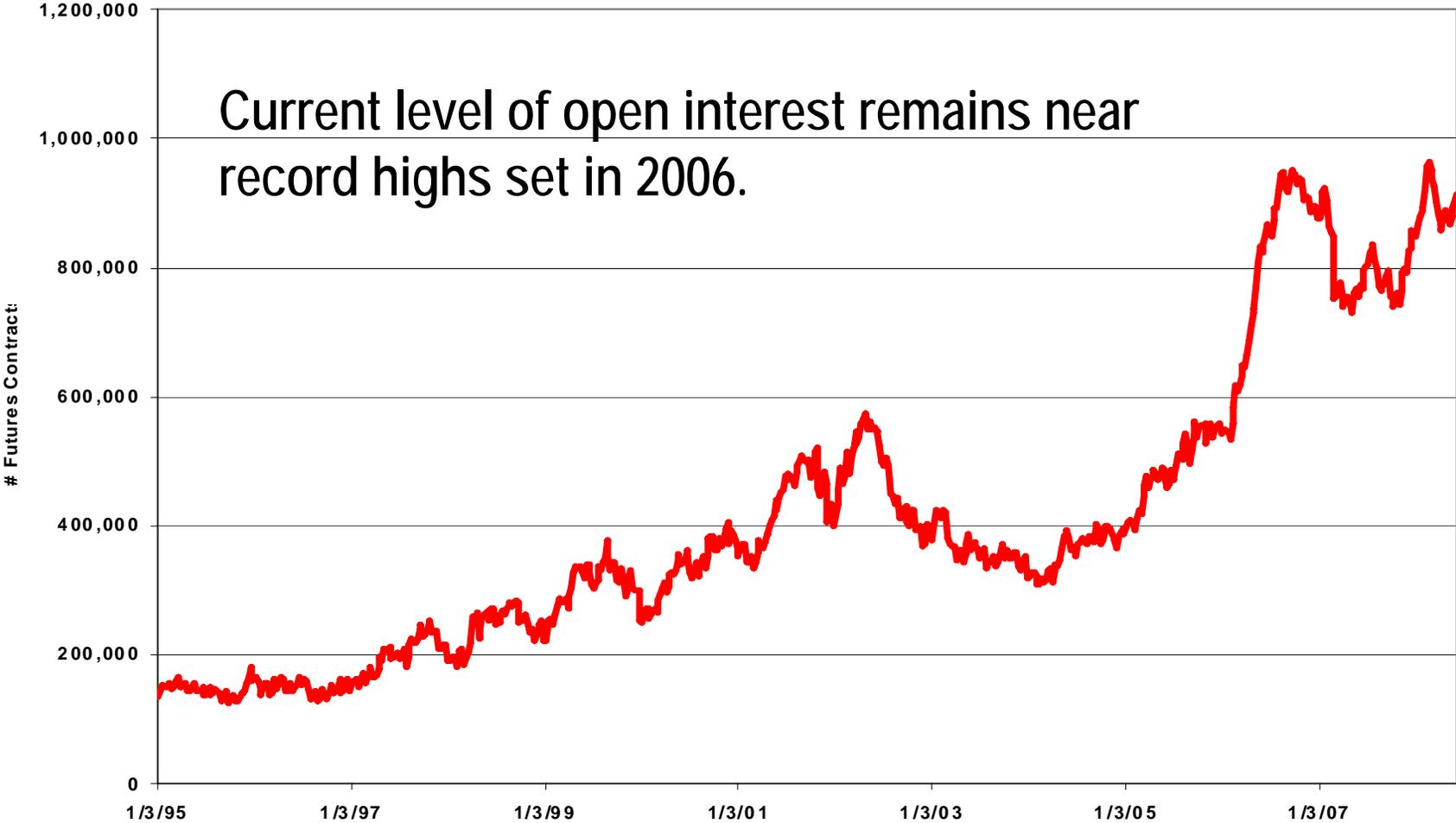
# Market Prices – Prompt Month Close



# Market Prices – Forward Strip



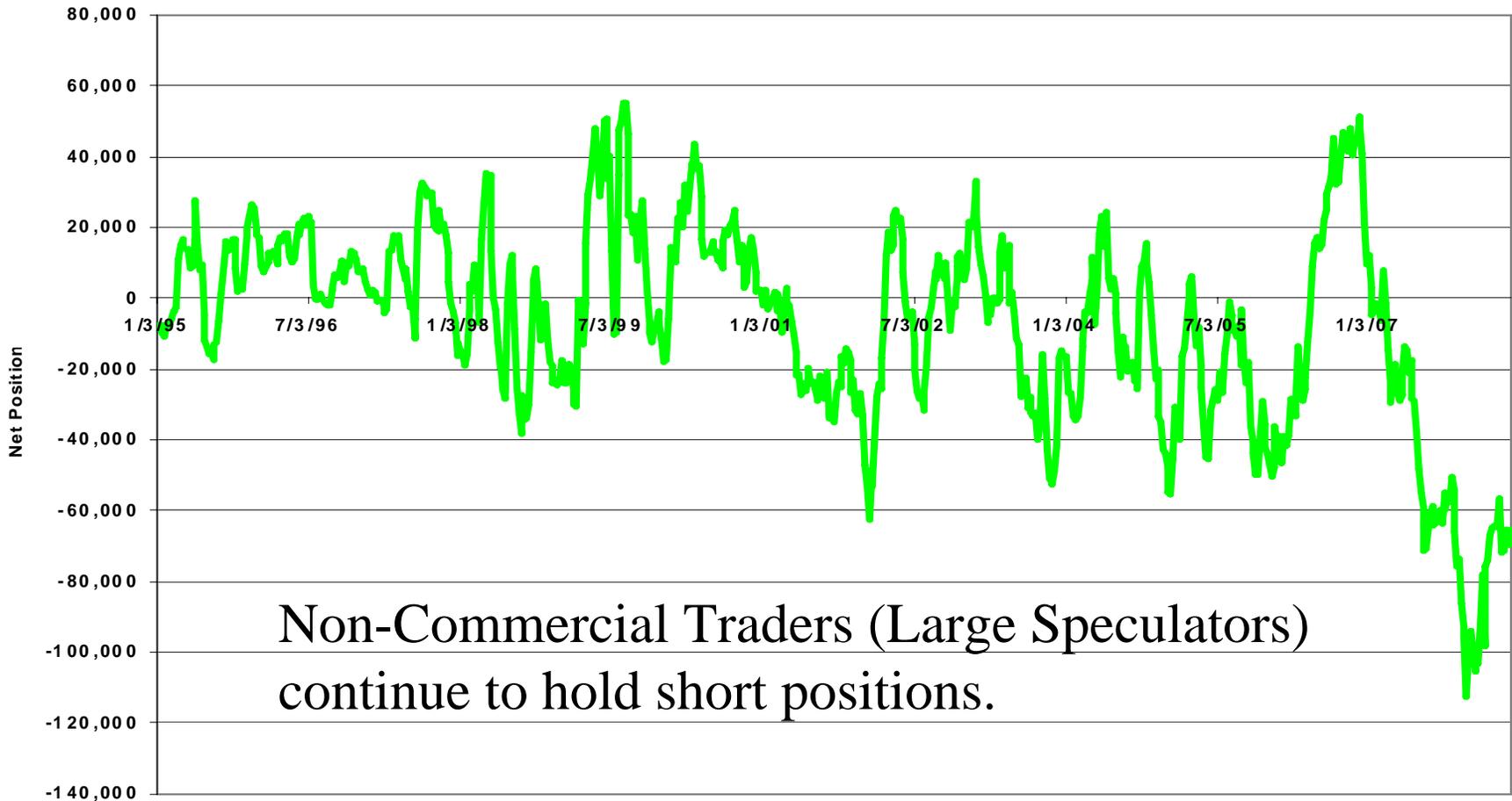
# Energy Market Growth – NYMEX Natural Gas Open Interest



Source: CFTC



# CFTC Non-Commercial Position Report – Natural Gas



Source: CFTC



# US Dollar Index vs. NYMEX Crude Oil Contract

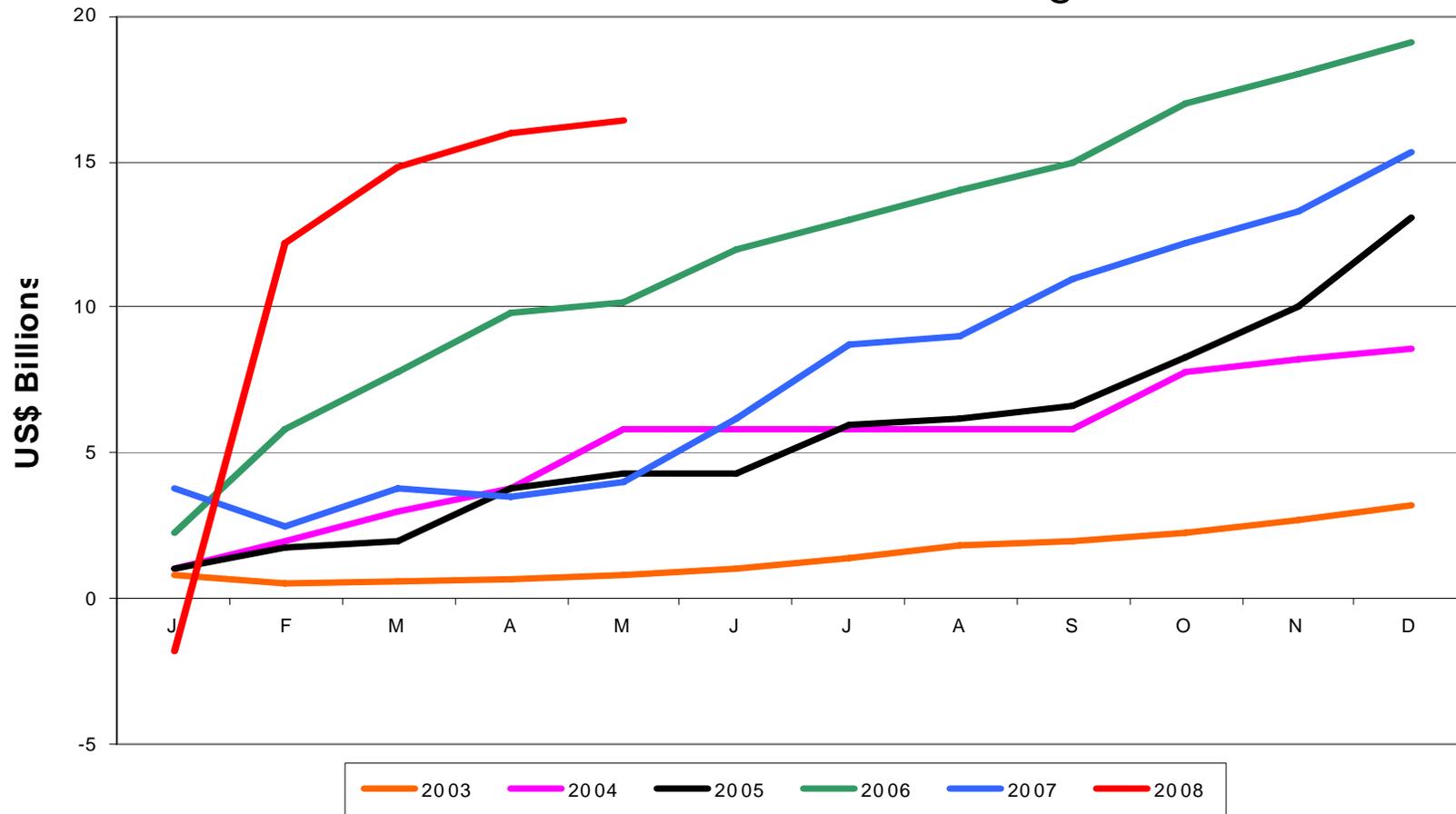


# NYMEX Crude Oil vs. NYMEX Natural Gas



# Cumulative Commodity Fund Inflows

\$104 Billion – Assets Under Management



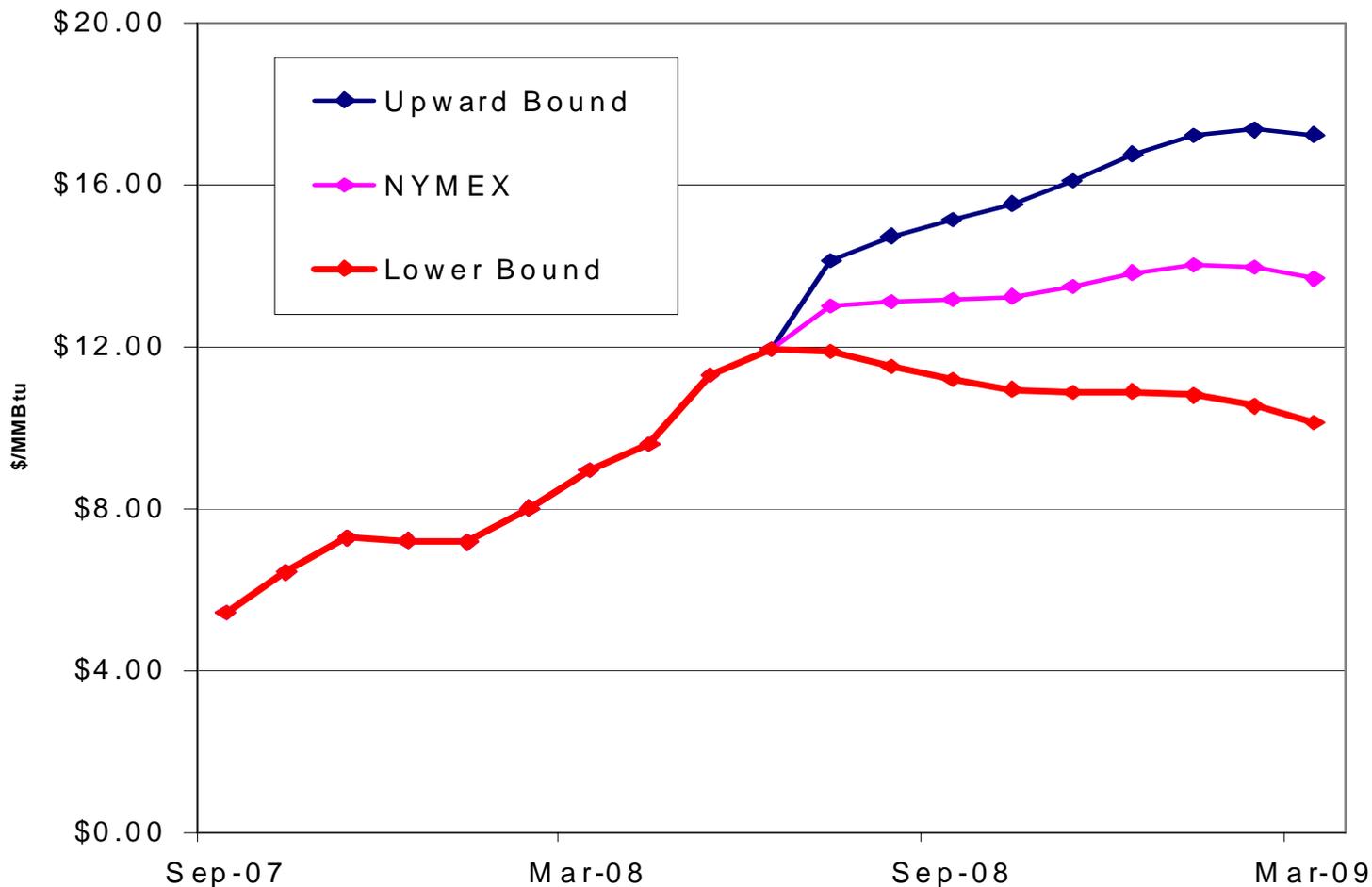
Source: JP Morgan



# Market Prices – Heating Oil



# Forecasted Market Prices



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# Factors to Consider (Looking Back)

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- LNG imports have dropped off dramatically
- The Independence Hub production curtailment
- Significant commodity fund inflows
- There has been a bullish bias in the market whereby any bullish news is taken as very bullish and any bearish news is taken as neutral to slightly bearish.

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# Factors to Consider (Looking Forward)

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- Hurricane Activity
- Summer Heat
- International demand for LNG
- Money flows (into/out of) commodity funds



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# IURC Energy Forum

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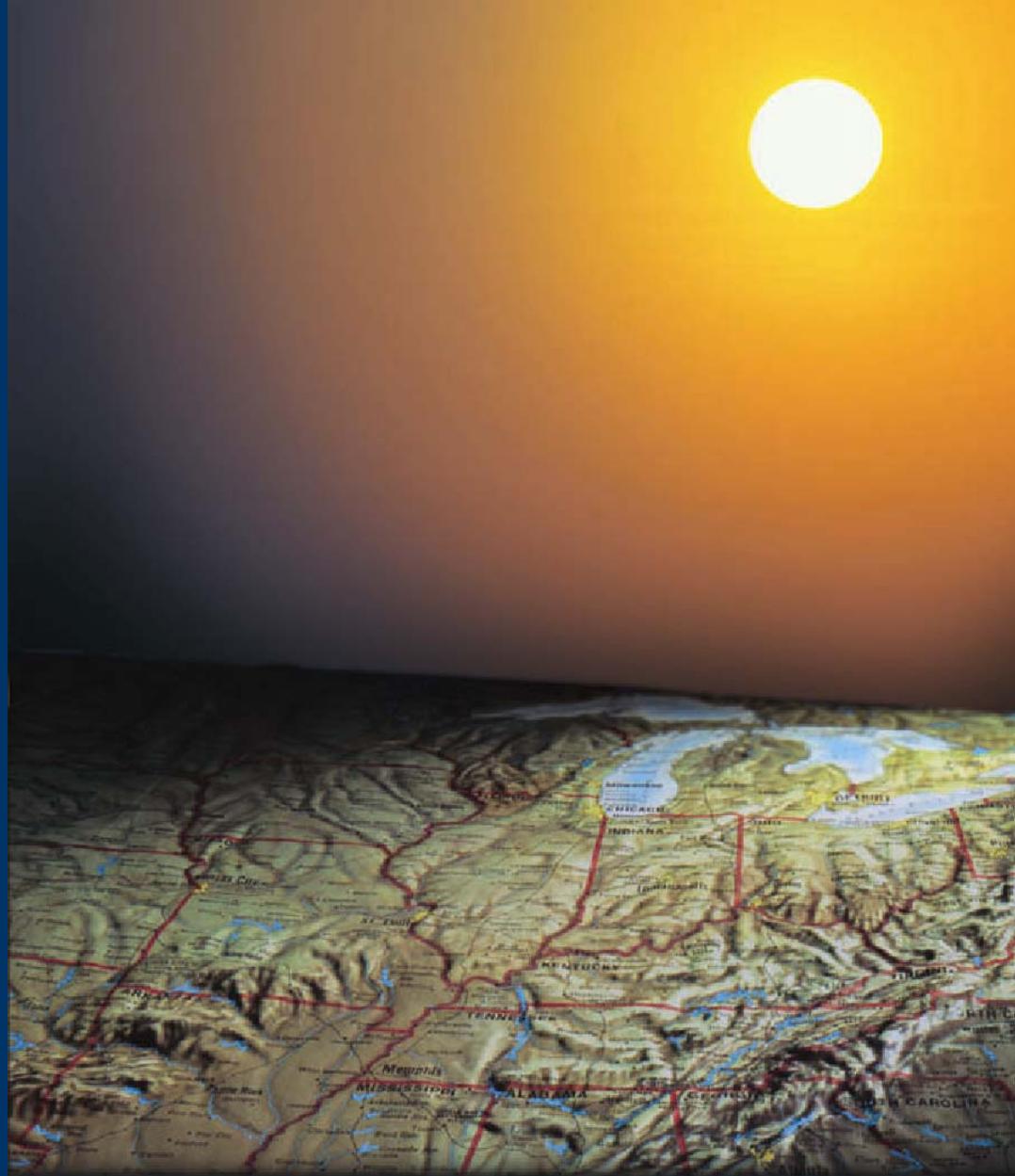
Thank You!



# Natural Gas Market Outlook 2009 – 2013 and Beyond

IURC Energy Forum

Susannah Hardesty  
Manager of Strategic Analysis  
ProLiance Energy  
June 26, 2008



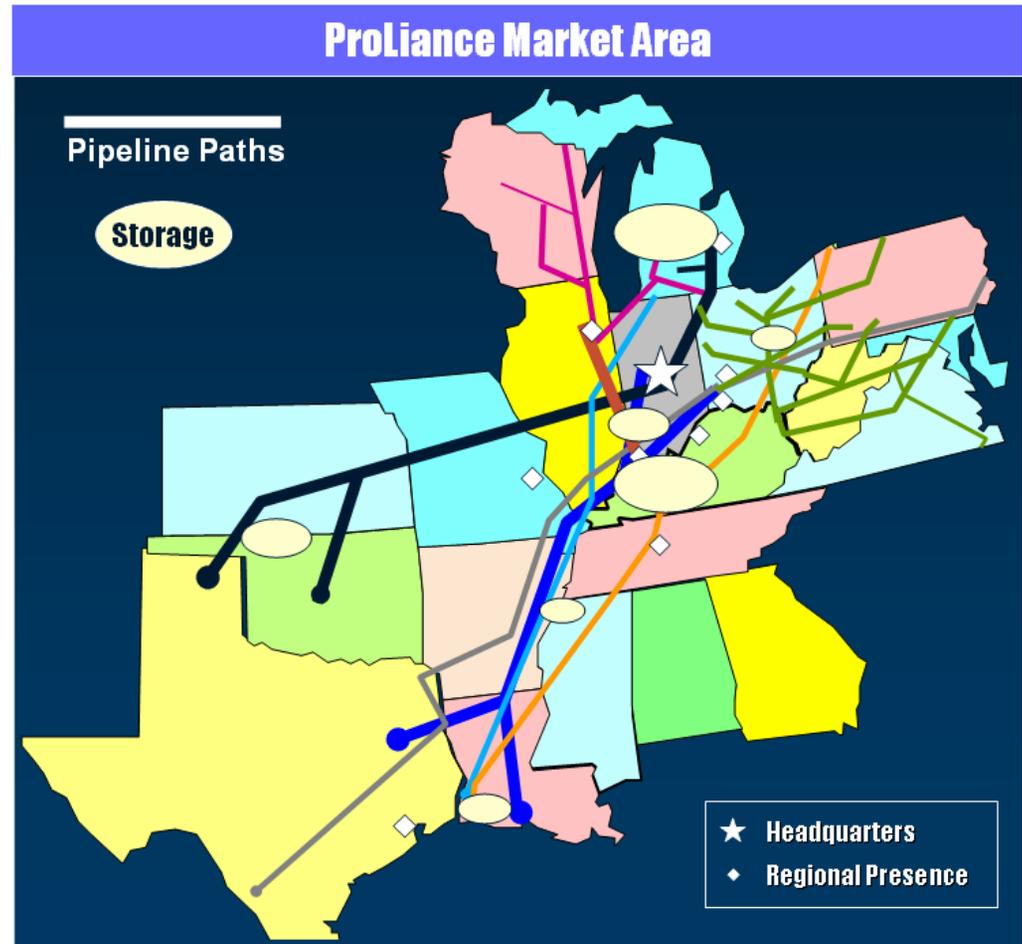
**ProLiance**  
HOLDINGS, LLC

Information contained in this report represents a summary and general analysis of publicly available data. The information is believed to be accurate but ProLiance does not warrant accuracy. This report contains statements about future events and scenarios. Information not known to us at the time a report is issued or developments that occur after a report is issued may have a material impact on any statements contained therein.

This information is presented as a useful reference; however, ProLiance is not responsible for any particular use of this report or the information contained herein.

## ProLiance Energy: Background

- Leading energy marketer and services company serving Midwest and Southeast markets
- Buys, sells, moves and stores natural gas for its best use
- ProLiance leads through providing:
  - Expertise and capabilities to our customers to manage their energy need
  - Superior operations, management and customer service
  - Expert optimization of strategic energy resources
- Joint venture between unregulated affiliates of Vectren and Citizens
- Inception 1996



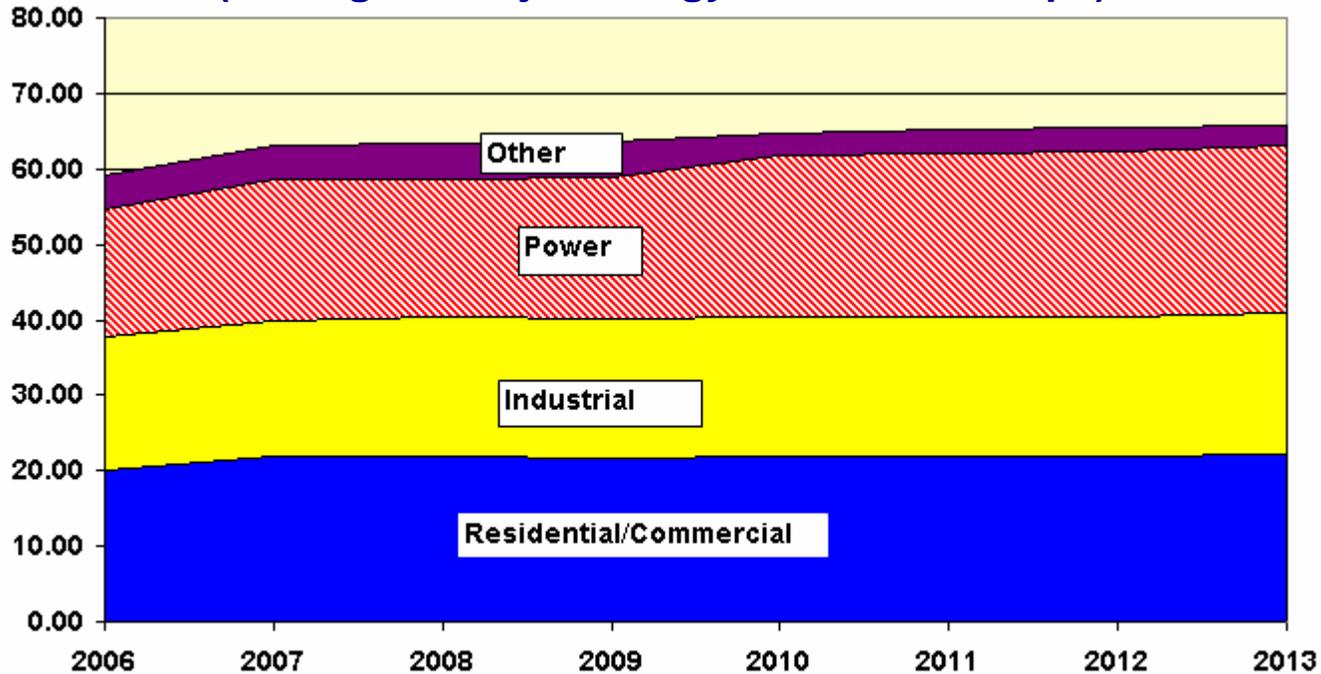
## **Natural Gas Market Topics**

### **Market Outlook: 2009 - 2013**

- Demand continues to grow, reduced slightly by lower GDP outlook.
- Power is main demand growth sector.
- Unconventional drilling leads a production surge in US. Emerging shale gas plays and coal bed methane turn around domestic supply decline.
- Canadian production and imports decline.
- Global LNG growth delayed. US imports down from earlier projections.
- CO2 emission proposals/mandates/legislation continue to emerge and take hold.

# How Will the Market Continue to Grow?

## US Demand Growth to 2013 (Average of Major Energy Research Groups)



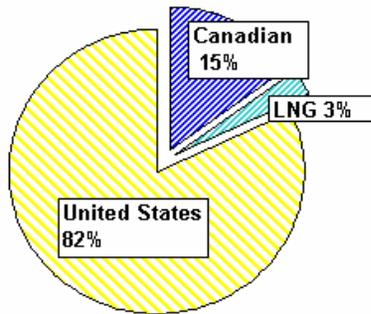
Average Growth From 2008 - 2013	Power	Res/Com.	Industrial
2013 Demand=24 Tcf	3.80%	0.01%	0.50%

# How Will the Market Continue to Grow?

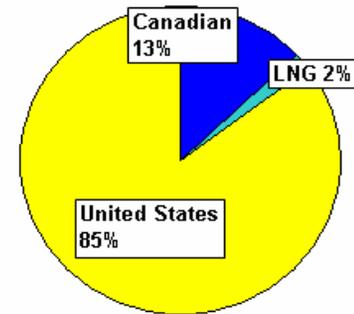
## US Supply Outlook to 2013 Shifts from 2007 to 2008

(Average of Major Energy Research Groups)

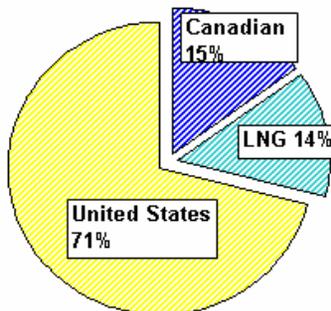
2007  
23 Tcf



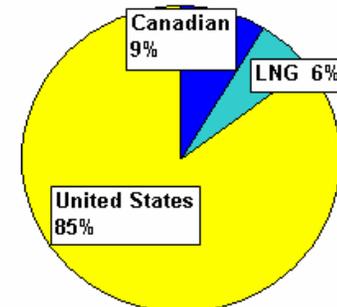
2008  
23.2 Tcf



2007 est. for 2013  
24.2 Tcf



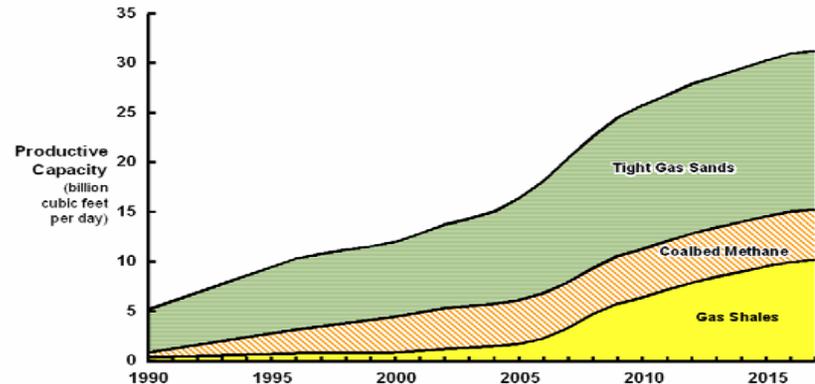
2008 est. for 2013  
24 Tcf



# How Will the Market be Served?

## Domestic Production Grows with Unconventional Gas

**US Unconventional Gas Outlook**



Source: Cambridge Energy Research Associates.  
Updated May 2009  
40916-96

NAG Houston Roundtable, June 10, 2009

- ▶ Higher prices have spurred record drilling levels and revived supplies to 2012, possibly beyond.
- ▶ Decline in conventional supply is surpassed by unconventional drilling. Shale, coalbed methane, and tight sands account for 46% production today, 57% in 2012 and 65%, or more, in 2015.
- ▶ Rockies – Tight gas growth represents a key increment of new supply.
- ▶ Well down spacing has added to growth. From 40 to 20 to 10 acres in some cases in Rockies. 40 to 20 acre in Barnett core.
- ▶ Independence Hub has provided a boost to deepwater GOM production.
- ▶ Production growth in shale gas, especially Barnett (NE Texas) has been steady over last 2 years. Barnett production currently @ 3.7 Bcf/day. Monthly growth rate of 3.8% in 2007 should continue, with large undeveloped acreage position.

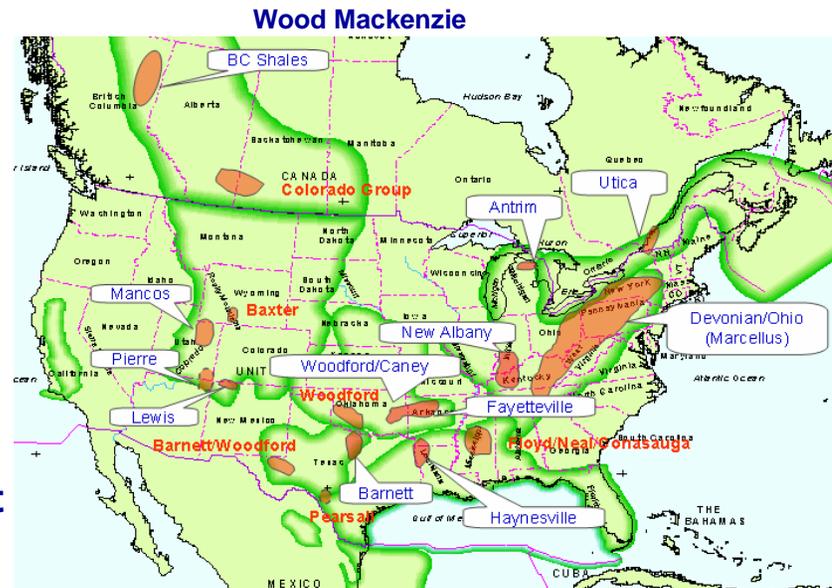
# How Will the Market be Served?

## Strong Growth in Shale: NA Emerging Shale Gas

- ▶ Shale plays are commercially viable. Breakeven prices for existing shale plays in Barnett, Fayetteville and Woodford are \$4.50 - \$7.
- ▶ New and emerging shale plays have been made possible by improved technology and higher gas prices.
- ▶ Significant upside growth from recent shale announcements include:

- ▶ Haynesville LA
- ▶ Marcellus Shale in PA
- ▶ Utica in Quebec
- ▶ With the excessive volume of shale gas announcements so far this year, long term production numbers are not yet available. Current energy research group's average est. 2013 production @ 57.4 Bcf/d\*, up from 52.1 Bcf/d (avg.) in 2007. Firmer projections should be available later this year.

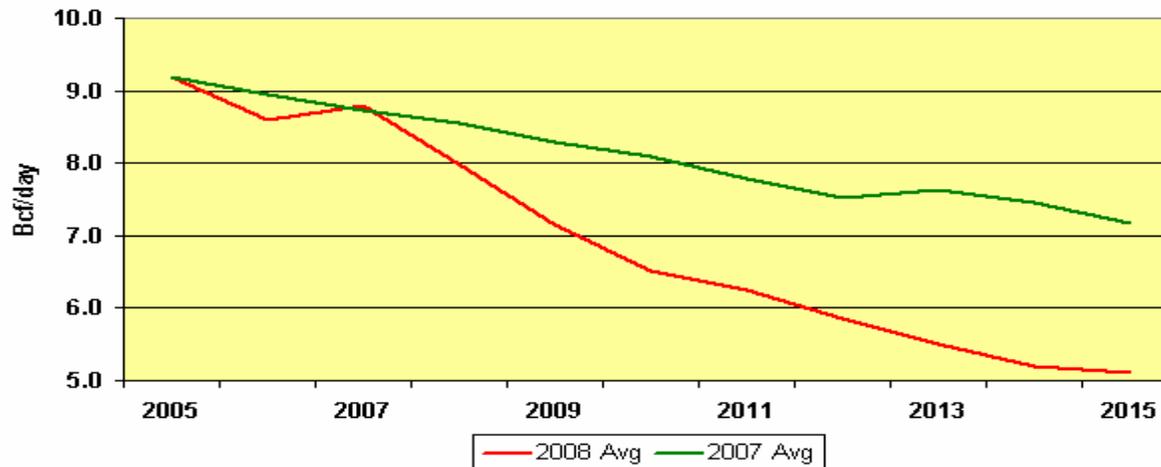
\* These numbers do not include Haynesville, Marcellus, Utica and others.



# How Will the Market be Served?

## Canadian Imports in Decline

Change in Canadian Imports 2008/'07  
Average of Major Energy Research Groups

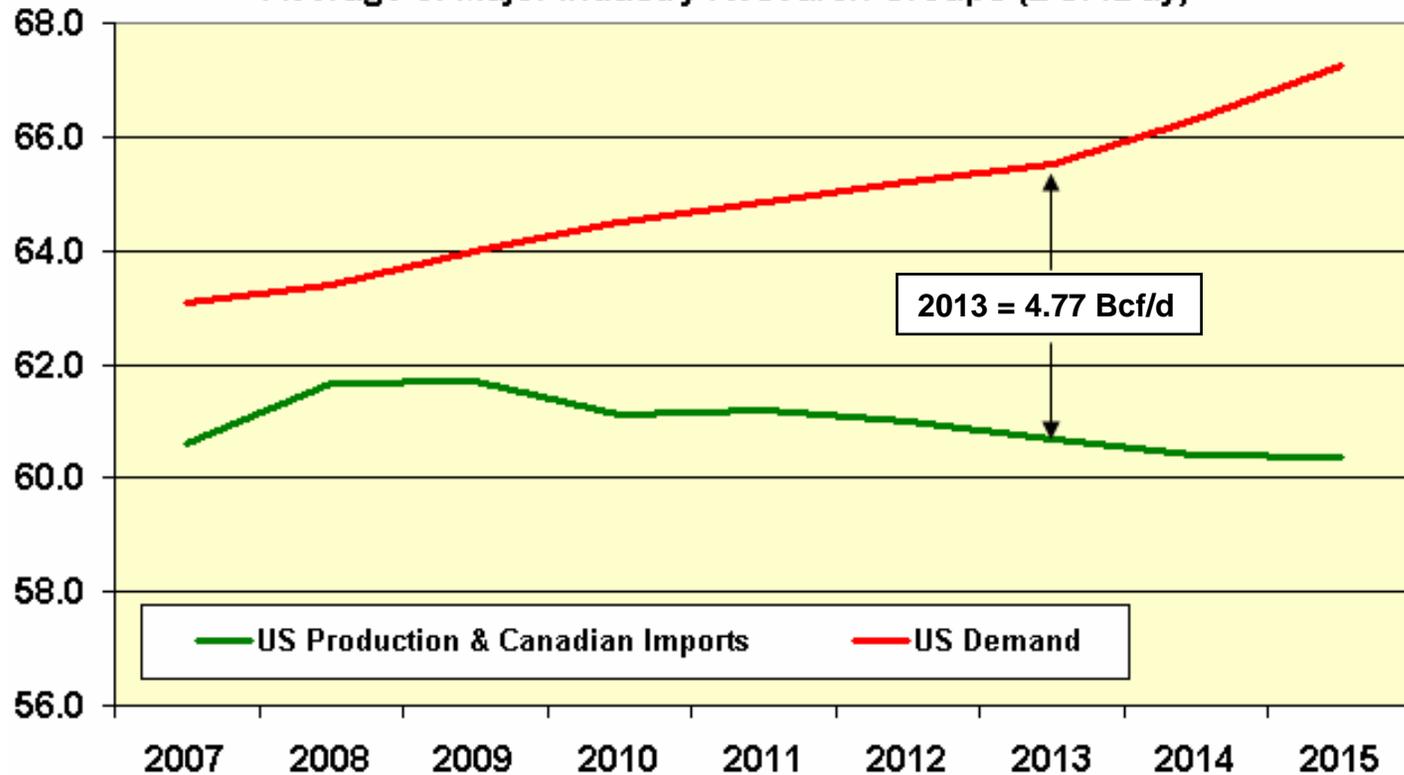


- ▶ **Several factors are likely to decrease Canadian production/imports going forward:**
  - ▶ **E & P cost pressures and competition with oil sands for resources.**
  - ▶ **New royalty structure imposed on natural gas production.**
  - ▶ **Increased domestic demand for natural gas for economic growth.**
- ▶ **Average Canadian imports are forecast to be approximately 5.4 Bcf/d by 2013.**

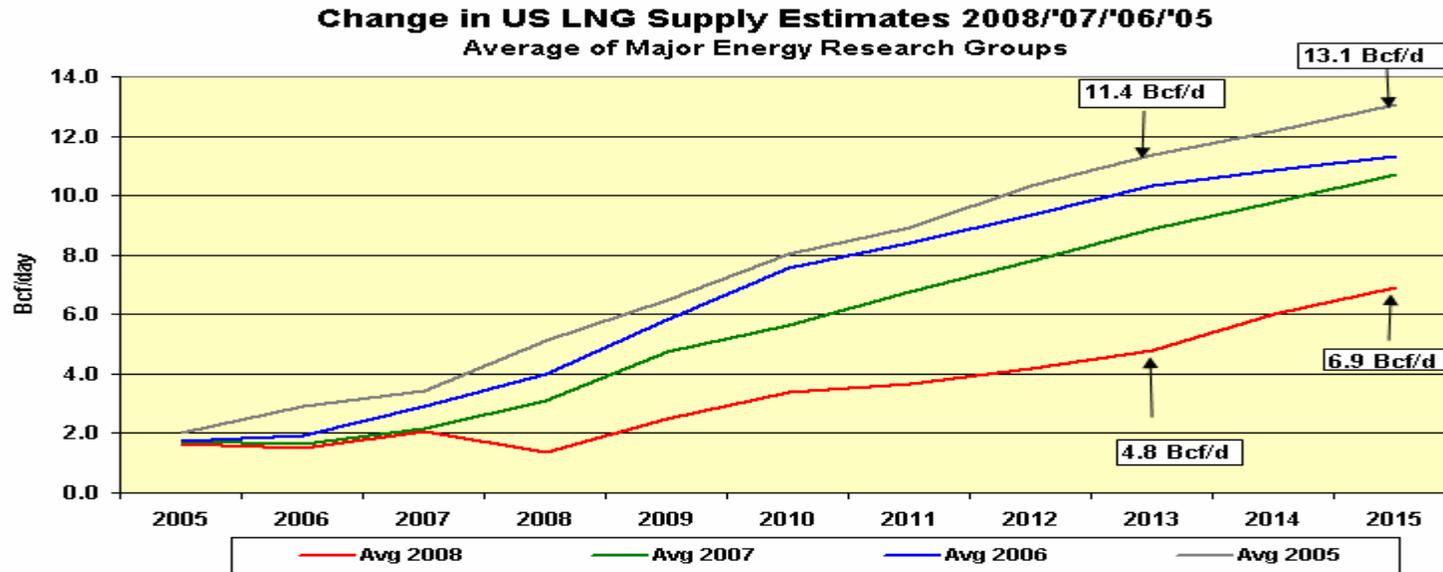
# N.A. Natural Gas Supply Gap thru 2013

## US Natural Gas Supply Demand Gap

Average of Major Industry Research Groups (BCF/Day)



# LNG Imports to Fill Supply Gap



- ▶ LNG import projections for 2010 to 2015 have dropped, on average 5.8 Bcf/d.
- ▶ Liquefaction is the bottleneck with delays in start up, increased costs, qualified personnel shortages.
- ▶ Only 3 Financial Investment Decisions (FID) made in 2006/07/08 to date, when 9 or more were expected in 2007 alone.
- ▶ Asia absorbing more flexible LNG supply, formerly intended for US market.
- ▶ Some National Oil Companies (NOC's) starting to monetize gas through domestic use vs. export.



## **A Carbon Constrained Future**

- **The future will be carbon-constrained, though we don't yet know the form that might take. This will lead to a cleaner environment, but at a higher, currently unknown, cost.**
- **Power generation and transportation will be likely targets for any type of legislation.**
- **In 2007, 40% CO2 emissions came from power and 33% came from transportation.**
- **A carbon constrained future is becoming a reality. Currently over 20 states have greenhouse gas targets. State actions will help shape the context for national climate policy.**
- **Consensus is building around a cap and trade approach. Allowances and cap levels will be critical.**
- **At this time the impact of carbon policies upon natural gas is unknown.**

## **Natural Gas Market Topics**

### **Market Outlook: Beyond 2013**

- Power will continue to drive natural gas demand growth, displacing some coal and as back up for new wind.
- A production surge in emerging shale gas plays is likely to continue beyond 2013, as Marcellus, Haynesville, Utica and others come on line.
- Natural gas infrastructure expands to move new supply.
- Canadian production/imports continue to decline.
- Global LNG market matures with first generation complete. FID's made in the next 4 years will give direction to the second generation of liquefaction.
- LNG plays bigger role in US market as gas on gas competition goes global.
- CO2 emission programs and legislation take hold.
- Alaska pipeline delayed until after 2020.

**Thank You!**

**Further Questions?  
Please Call**

**Susannah Hardesty  
Manager of Strategic Analysis  
ProLiance Energy  
(317) 231 6544**

# ***Re-Plumbing the US: Natural Gas Pipeline Expansions & Their Impacts On MW Markets***

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Presented to:

IN Utility Regulatory Commission  
Gas Cost Forum

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June 26, 2008



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[www.bentekenergy.com](http://www.bentekenergy.com)

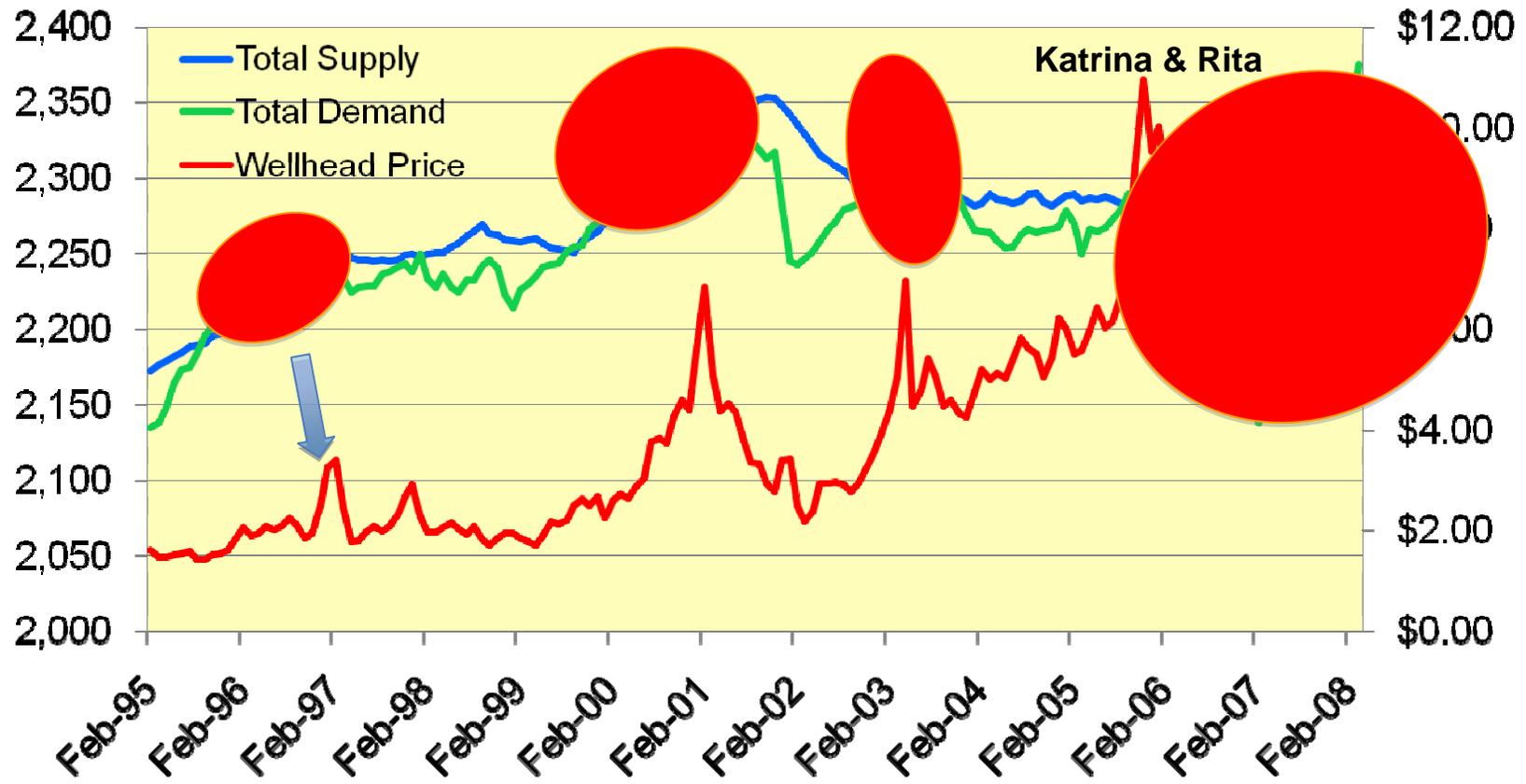
# *Agenda*

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- ❖ **Introduce BENTEK Energy LLC**
- ❖ **Review of US Market Dynamics**
- ❖ **Review Developments in the SE and Rockies Production Areas**
- ❖ **Implications for the IURC**

# NG Pricing Is Cyclical, Reflecting The Supply & Demand Balance

What goes up, comes down!



# BENTEK Energy LLC

### News

- 12/07/07 0400PM Tennessee Gas - Force Majeure Update
- 12/07/07 0139PM Tennessee Gas - OPO Alert
- 12/07/07 1022AM Alliance USA - Alameda Compressor Maintenance
- 12/07/07 1000AM Alliance USA - Morinville Compressor Maintenance

[Check Here For Today's Calendar](#)

[Check Here For More Articles](#)

### Energy Market Fundamentals

**Special** Bentek Energy - Canadian Examiner

Daily I

- Daily Supply/Demand Balance
- Daily Storage Range
- Gas Burn Report
- Texas Energy Bulletin
- Gulf Coast Monitor

Weekly

- Weekly Storage Report
- Weekly Market Recap
- Weekly Rockies Observer

Daily II

- Nuclear Plant Status Report
- Industrial End Users Report

### Hub Flow Maps

BENTEK's Hub Flow Map™

[View Map](#)

### Weather Data

Weather	Normal	12/7/07	Avg.	Avg.
Forecast	High/Low	High/Low	High/Low	High/Low
Atlanta	58/34	57/25	66/51	51/36
Boston	43/30	36/21	34/25	32/22
Chicago	35/22	30/22	28/20	26/17
Cleveland	37/25	33/23	38/29	31/24
Dallas	59/35	76/58	61/47	54/41
Denver	43/18	37/31	25/9	29/15
Detroit	36/23	32/24	32/26	29/22
Houston	66/44	75/67	69/60	62/54
Las Vegas	61/42	52/45	46/32	45/33
Los Angeles	67/50	55/48	54/44	55/46
Miami	78/65	80/72	78/74	74/68
Minneapolis	28/17	20/-1	17/4	19/5
New Orleans	61/43	77/59	70/61	62/50
New York City	44/32	39/25	43/32	36/28
Philadelphia	45/30	37/19	47/35	37/28
Phoenix	58/46	57/52	52/36	54/38
San Francisco	58/46	53/48	56/41	55/43
Seattle	45/37	33/27	34/26	32/28
St. Louis	47/26	38/28	43/32	37/26
Washington DC	48/33	38/18	52/39	39/28

\* provided by WEATHER INSIGHT L.P.

### Daily Market Model Reports

- Summary Reports
- Pipeline Flows
- Region Flow Summary
- Demand
- Supply
- Import/Exports/LNG
- Daily Storage

### Monthly History Summary Reports

- Pipeline Flows
- Demand
- Supply
- Import/Exports and LNG

### Market Highlights

12/07/07 - Demand was revised a little higher to 91.5 Bcf/d in yesterday's 12 cycle but has dropped significantly today to only 84.5 Bcf/d. A combination of much lower demand from the residential/commercial sector and from the power sector has led to the big one-day decline. Month-to-date demand from the power sector remains up about 7% from levels last December but average res/comm demand has dropped to levels below last December. U.S. production has slipped a little today but is up 1.6 Bcf/d from levels in 2006 with gains in every region except Appalachia. Canadian imports and LNG sendout are down a little today and

### Weather Maps

Copyright 2007 weather insight, LP

\* provided by WEATHER INSIGHT L.P.

### Market Studies

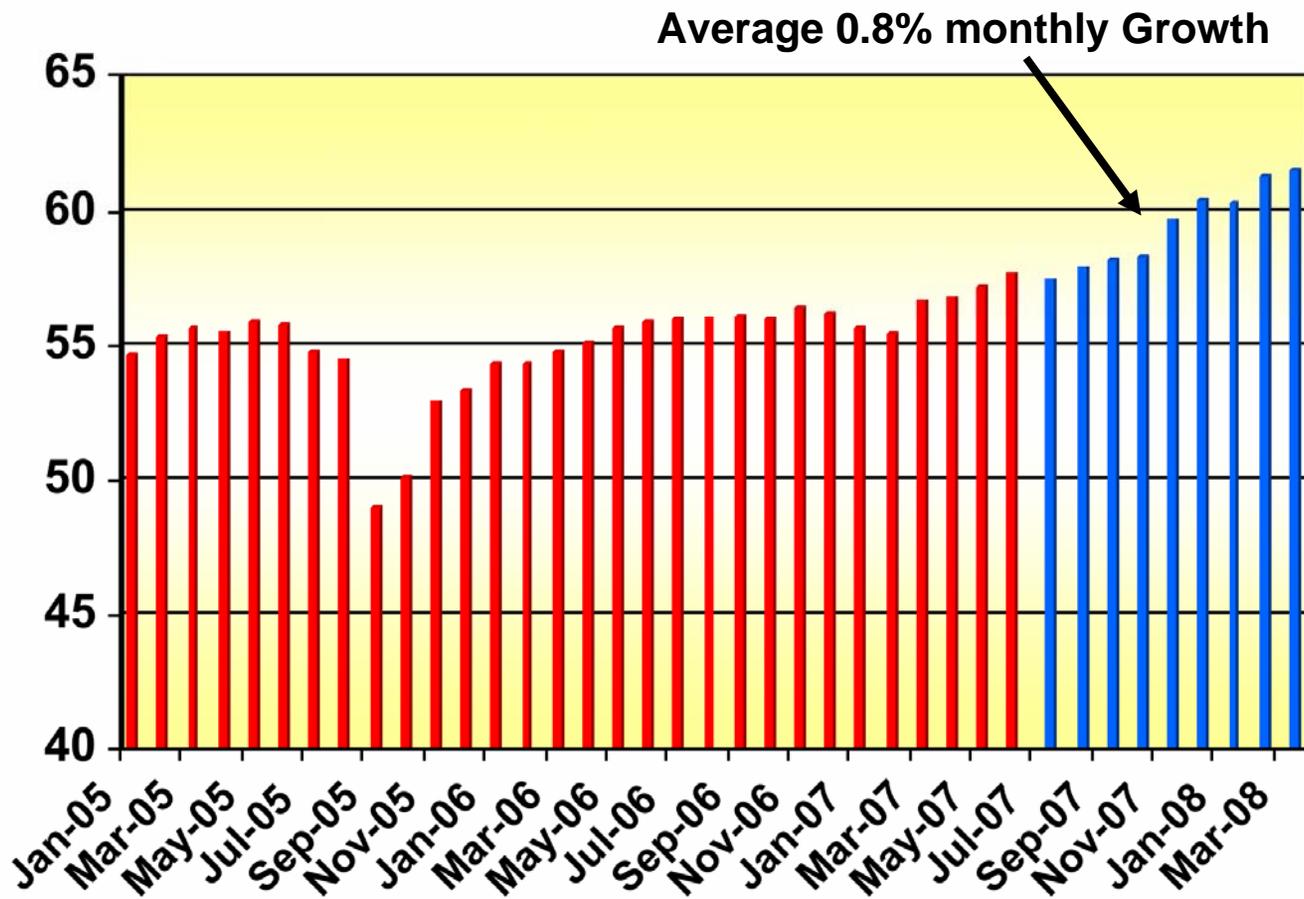
- REX: Phase I - A Bridge to Nowhere?
- REX: Phase II - A Bridge to Nowhere?
- REX: Phase III - Reshuffling The Gas Market
- REX: Part Four - The Day After Tomorrow
- CenterPoint Carthage-to-Perryville Line Startup

### Demo Reports

- ❖ BENTEK is the leading energy analytics firm
- ❖ We provide:
  - Daily assessments of the US natural gas market fundamentals
  - Assess major market developments
  - Near real-time Market Fundamentals Data
- ❖ Over 150 clients include producers, marketers pipelines, banks, LDCs and end users
- ❖ 45 employees

# US Production Is Clearly Responding To The "Drill" Price Signal

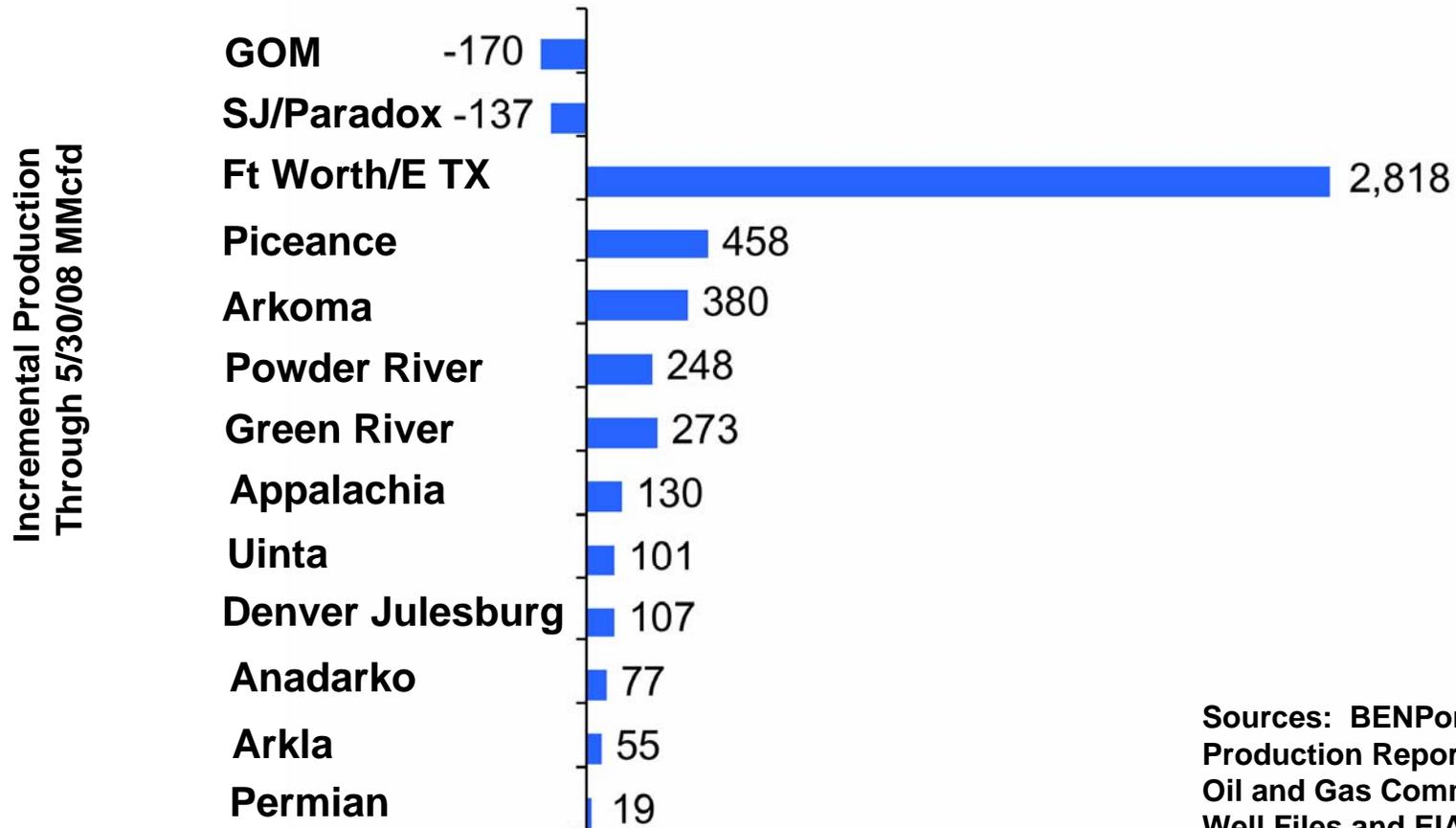
Total US Production (Bcfd)



Source: EIA 914 and BENTEK Energy, LLC

# Production Is Growing In Most Major US Basins

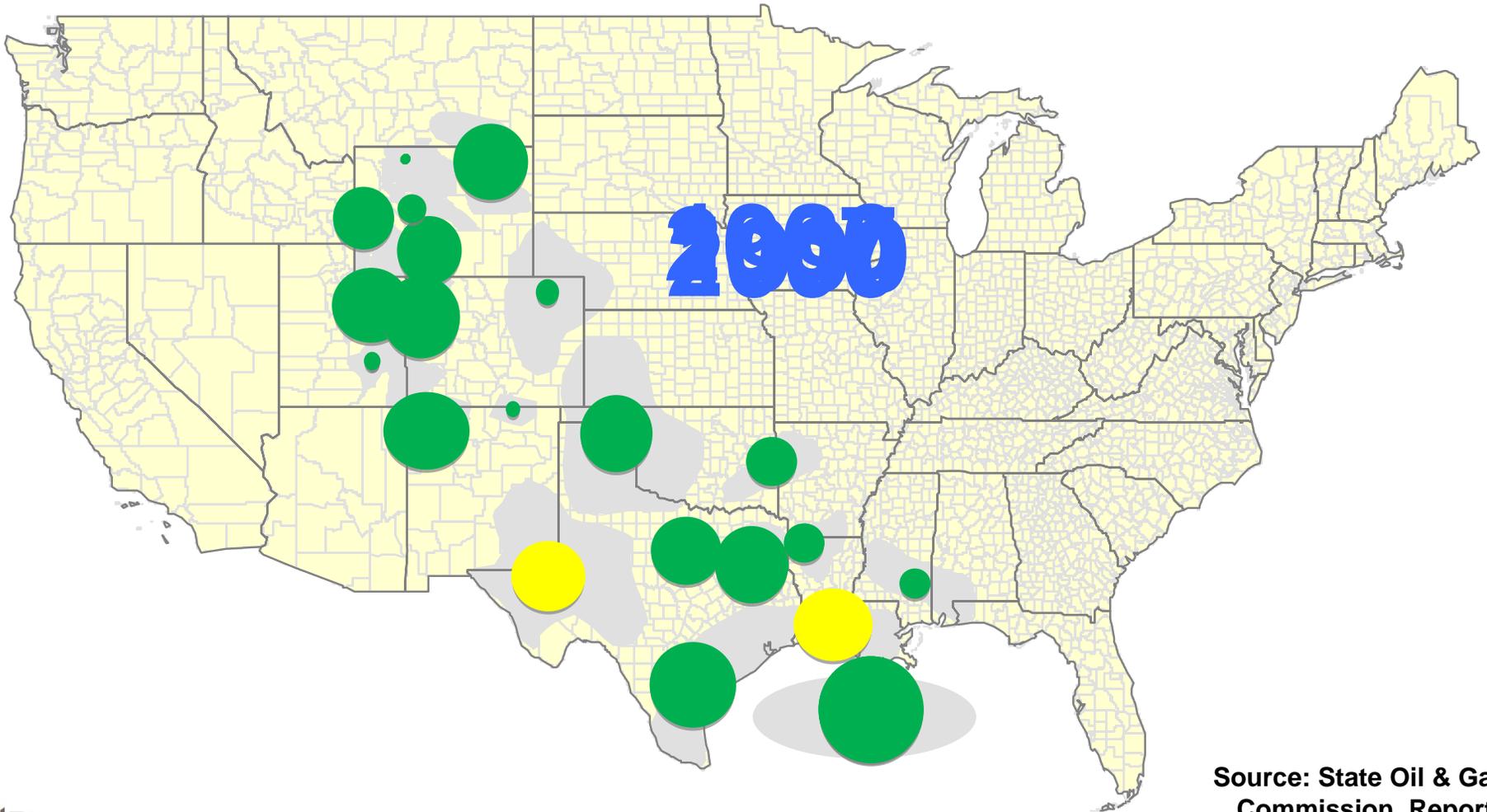
Through 6/12, Rockies Production Through Cheyenne Is Up 1.1 Bcfd.  
SE Supply Area Basins Are Up 3.1 Bcfd



Sources: BENPort™  
Production Reports, State  
Oil and Gas Commission  
Well Files and EIA 914.

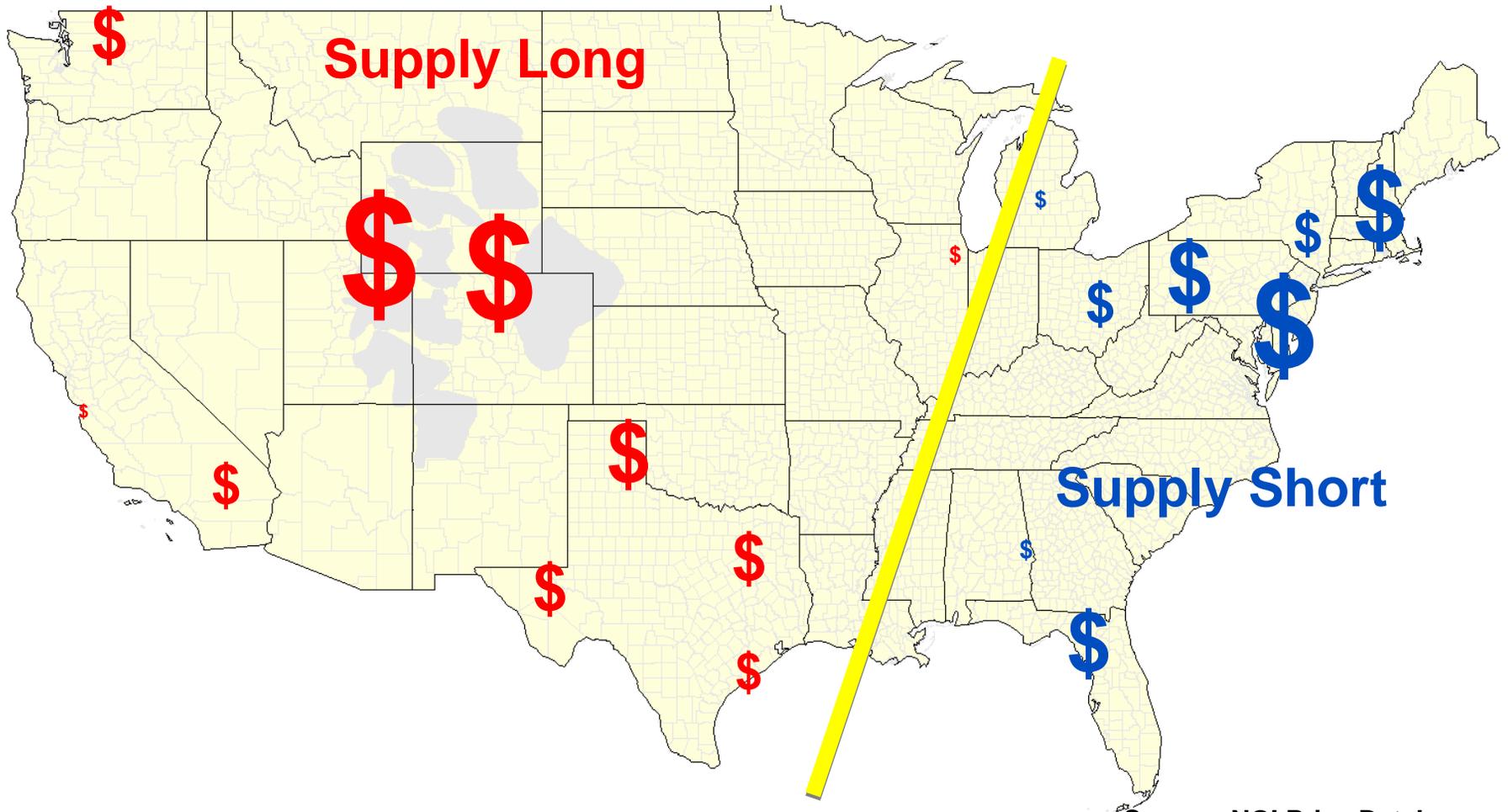
# *The Geography of Production Is Changing*

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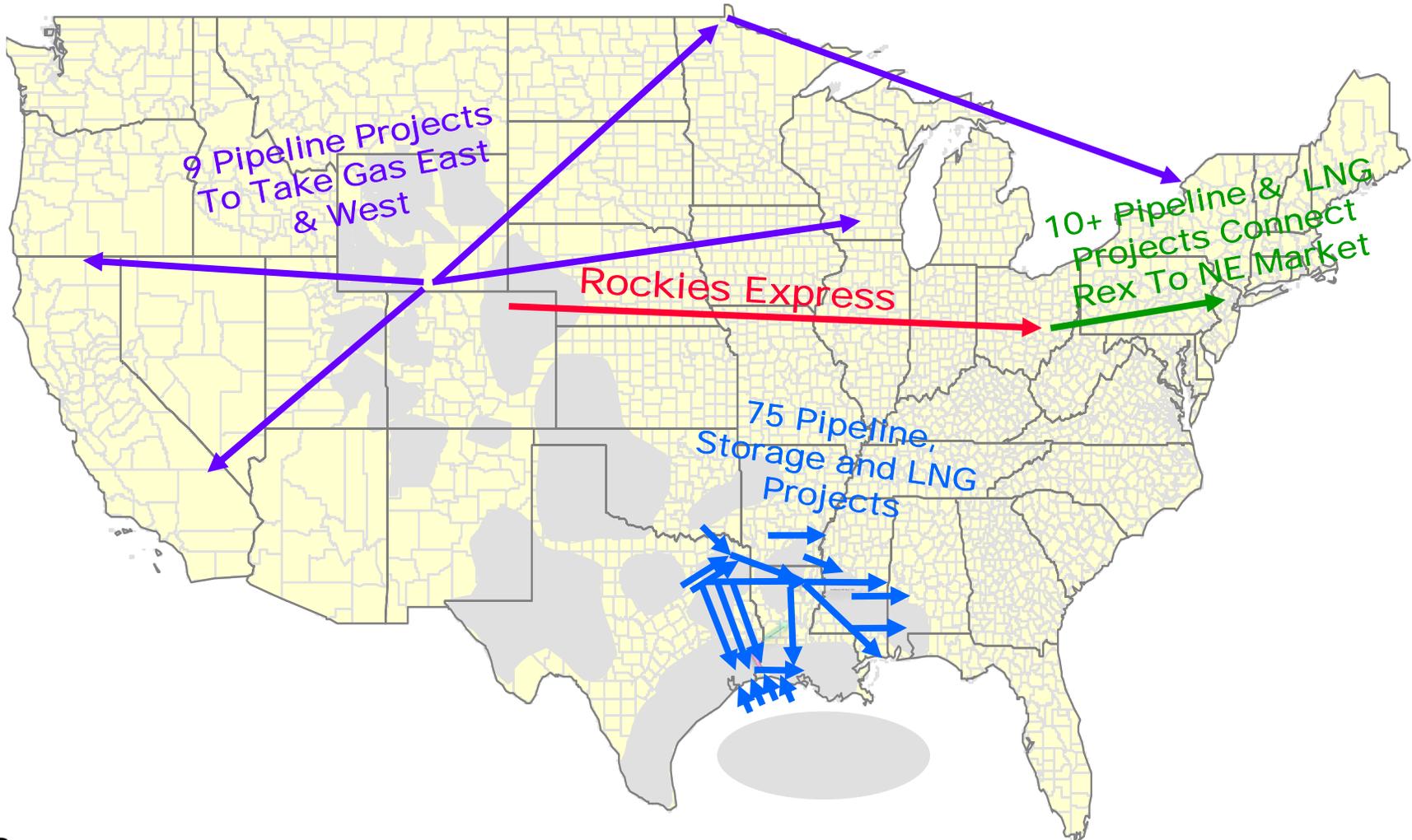
Source: State Oil & Gas  
Commission Reports

# Price Trends Reflect Location



Source: NGI Price Database

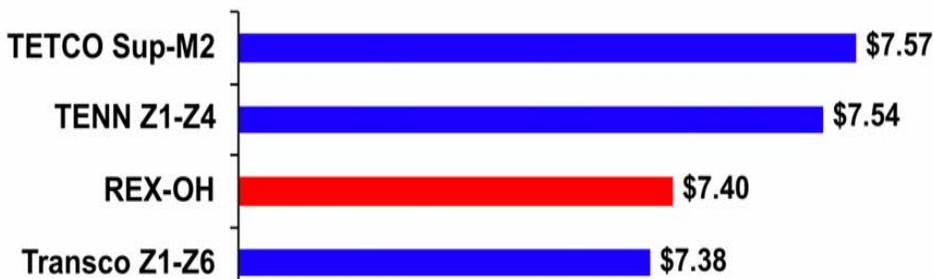
# *\$ Billions Are Being Invested To Increase Access To Connect New Production*



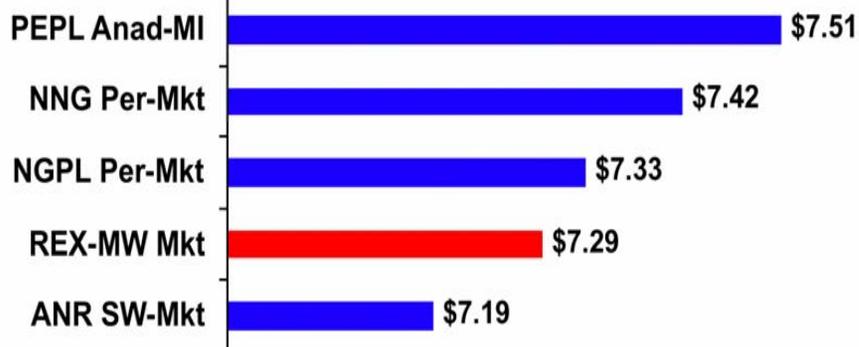
# New Pipeline Tariff Structures Provide Significant Competitive Advantage

The Competitive Advantage Makes New Pipelines Disruptive

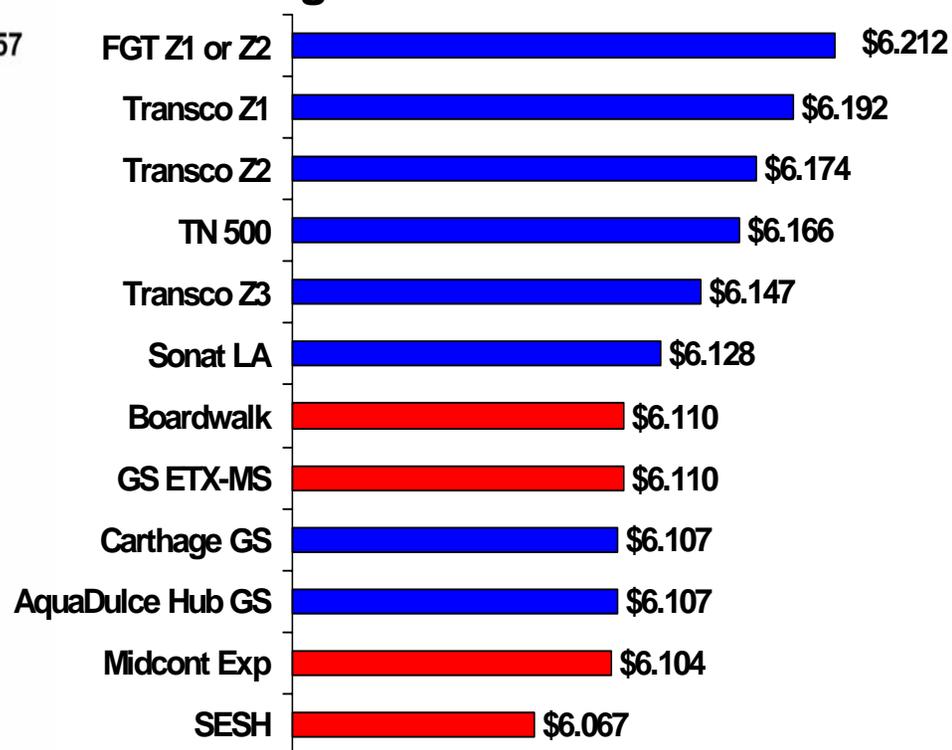
## REX to OH



## REX to MW



## Carthage/East Texas to Station 85



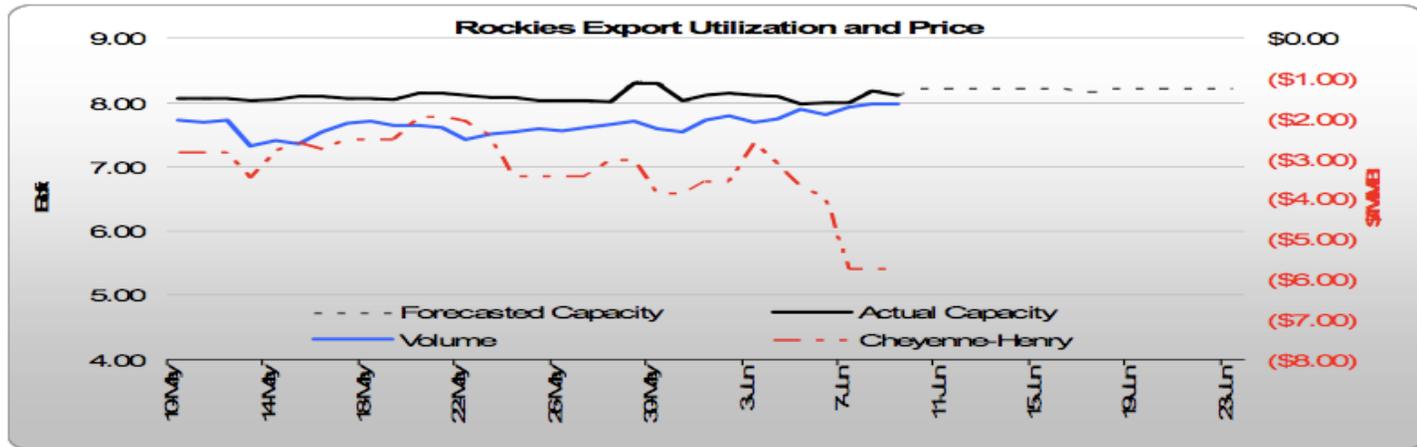
Existing Pipeline

New Pipeline

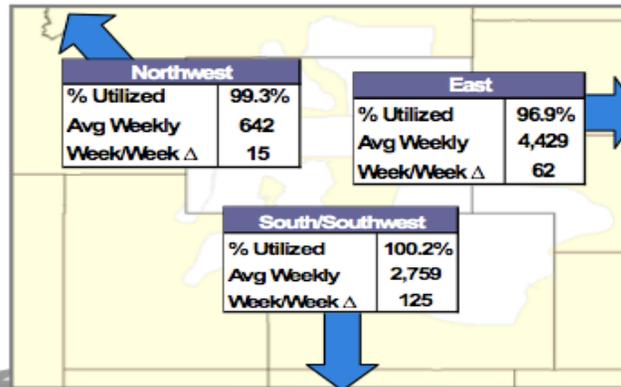
(Variable Costs Only)

# Rockies Export Capacity Is Full

Date	7 Day Avg	Major Export Impacts - Daily Change from 7 Day Avg Calendar									
		6/9	6/10	6/11	6/12	6/13	6/14	6/15	6/16	6/17	
Capacity	8200*	0	0	0	0	0	0	0	0	0	↓ 50
Production	9,842	0	0	0	0	0	0	0	0	0	0
Demand	(1,205)	↓ 112	↑ 266	↑ 125	↑ 336	↑ 266	↑ 223	↑ 125	↑ 60	↑ 45	
Net Storage	(389)	↓ 777	↓ 399	↓ 540	↓ 329	↓ 399	↓ 443	↓ 540	↓ 606	↓ 620	

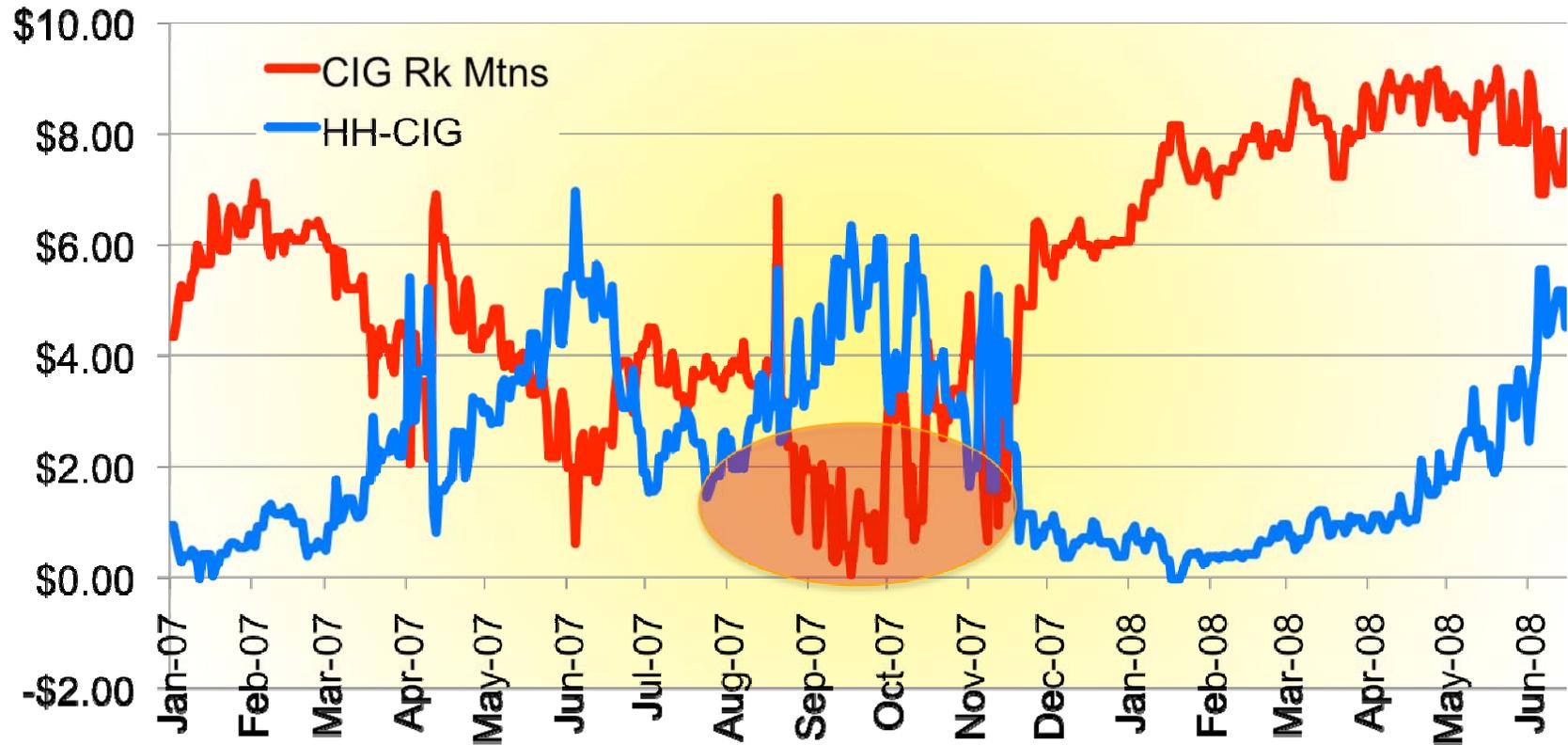


Utilization Map



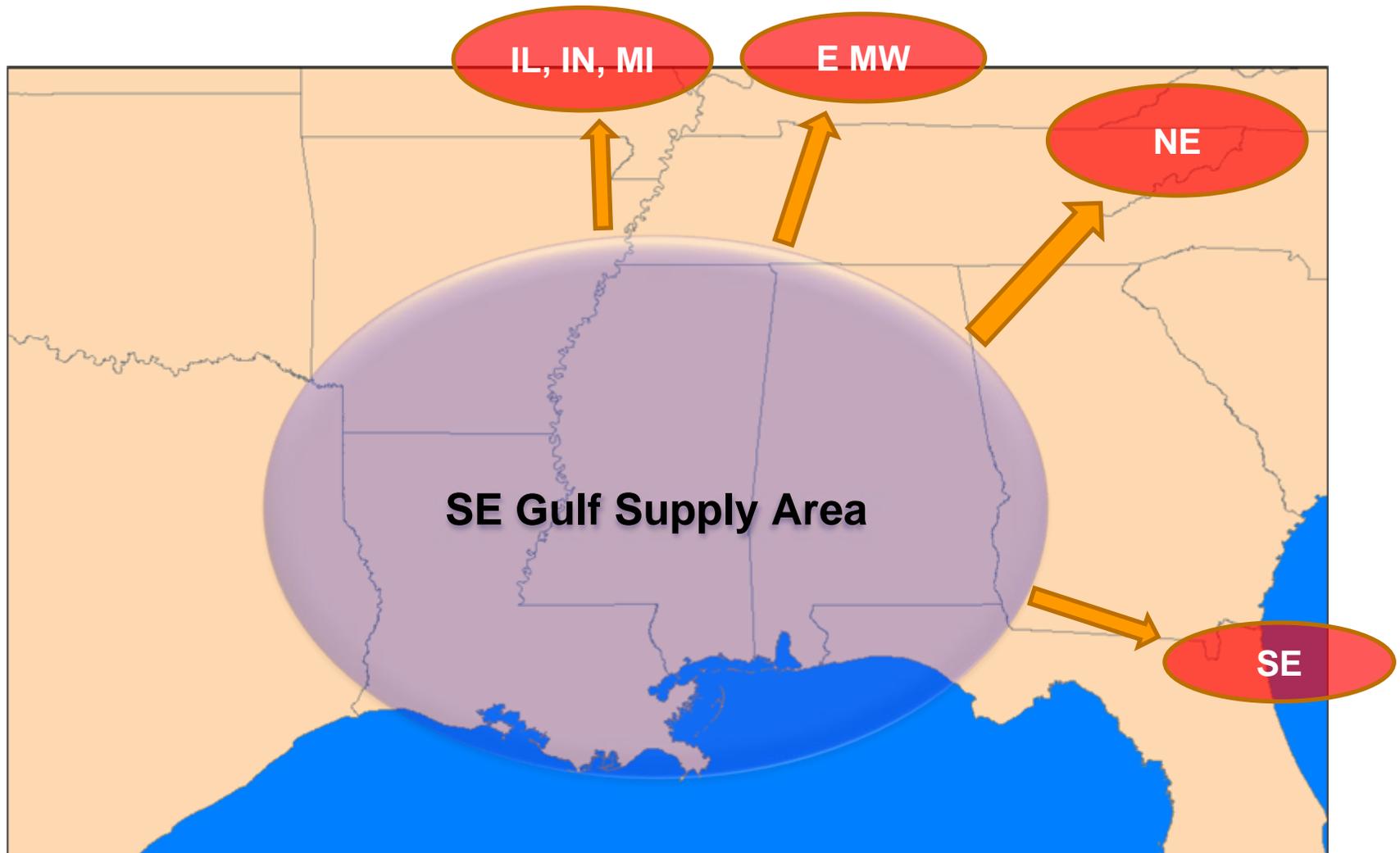
# Reflecting Tightened Capacity, Basis Is Once Again Widening

Once Again, Rockies' Producers Will Receive Less For Their Gas

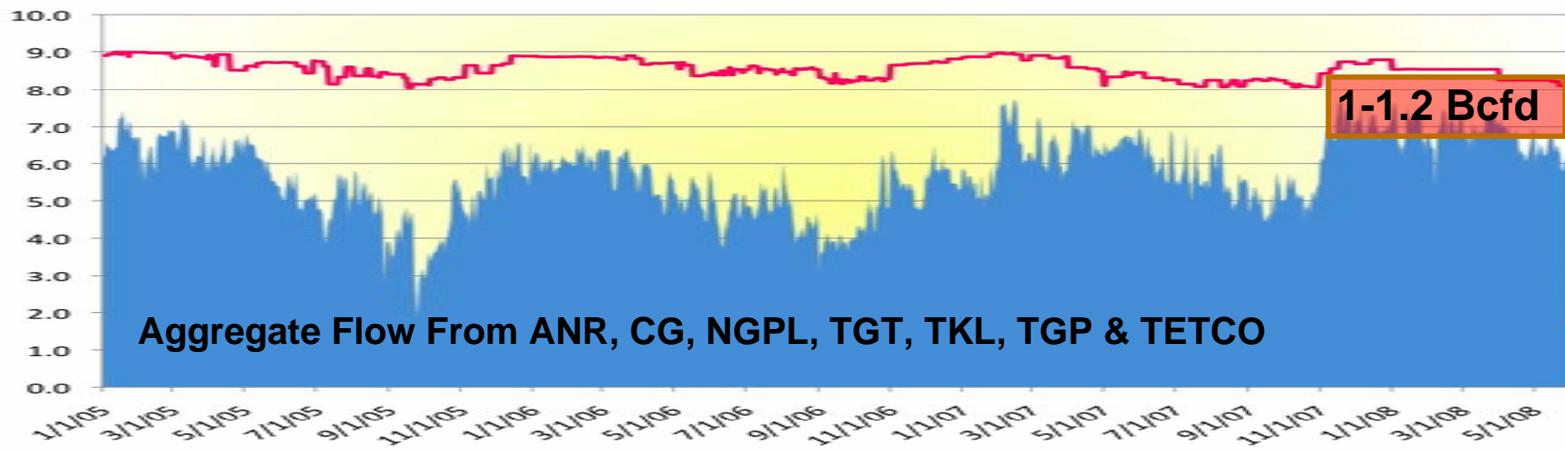
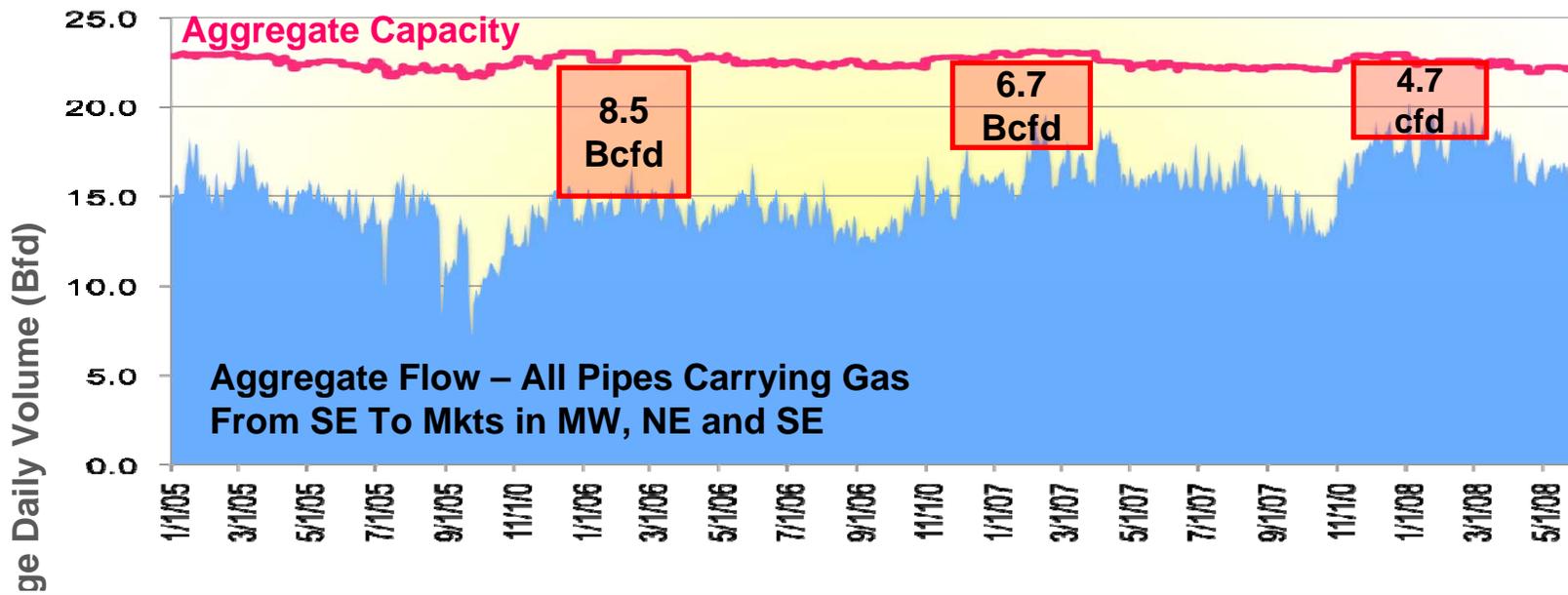


Source: BENPort™ Reports

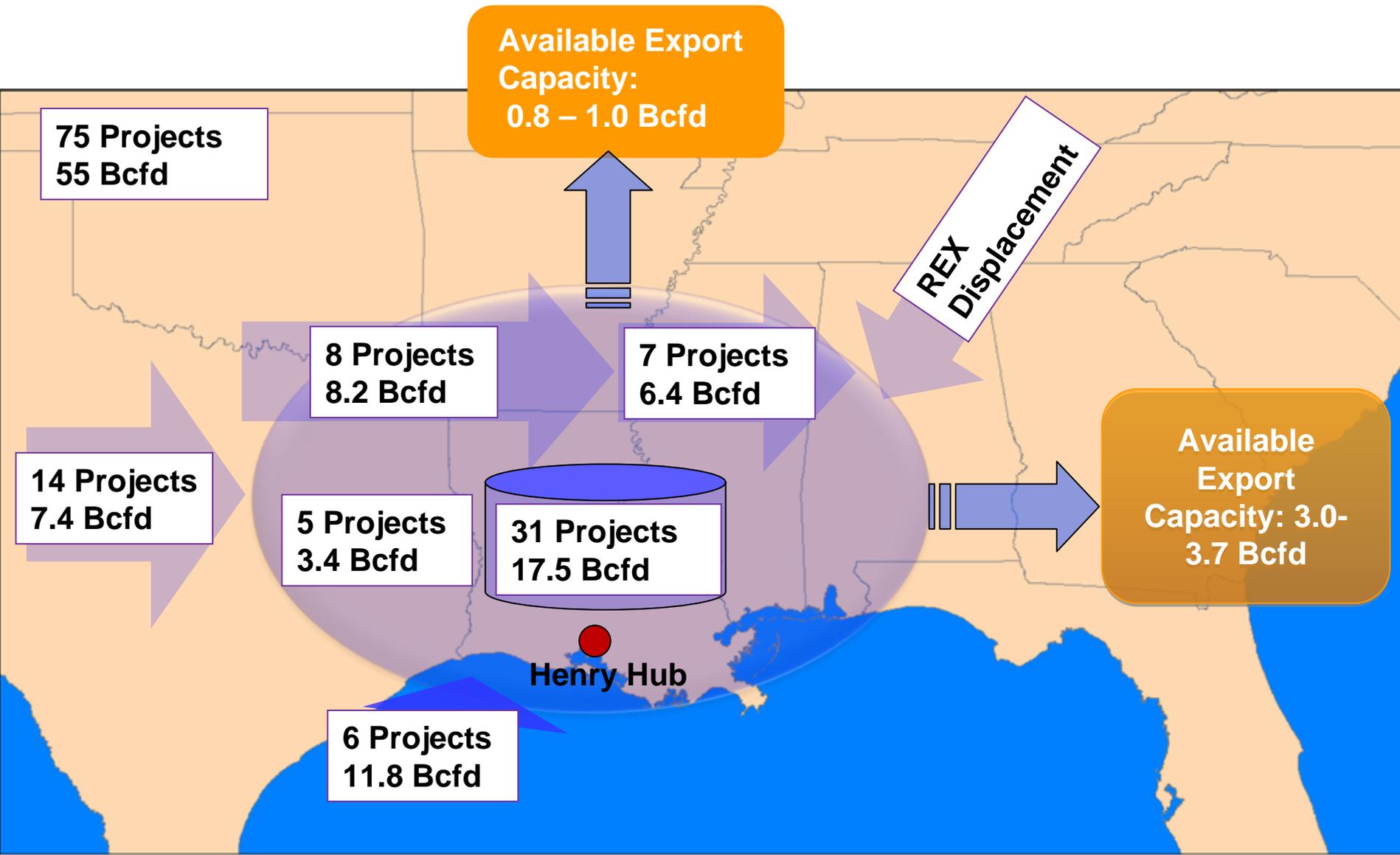
# *The SE Gulf Supply Area Serves Most Of The US*



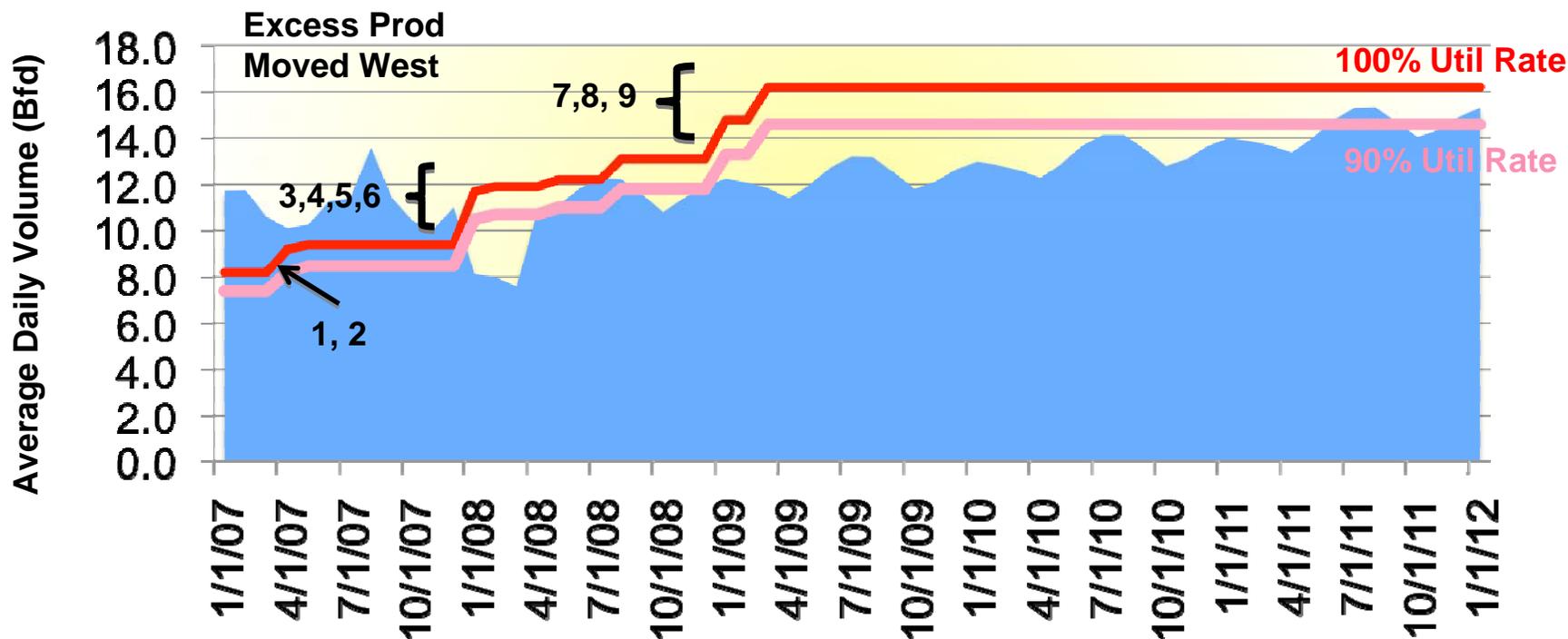
# Available Export Capacity Is Shrinking



# *New Gulf Capacity Does Not Balance With Export Capacity*



# Barnett, Woodford and Fayetteville Shales Will Fill Cap by 2011



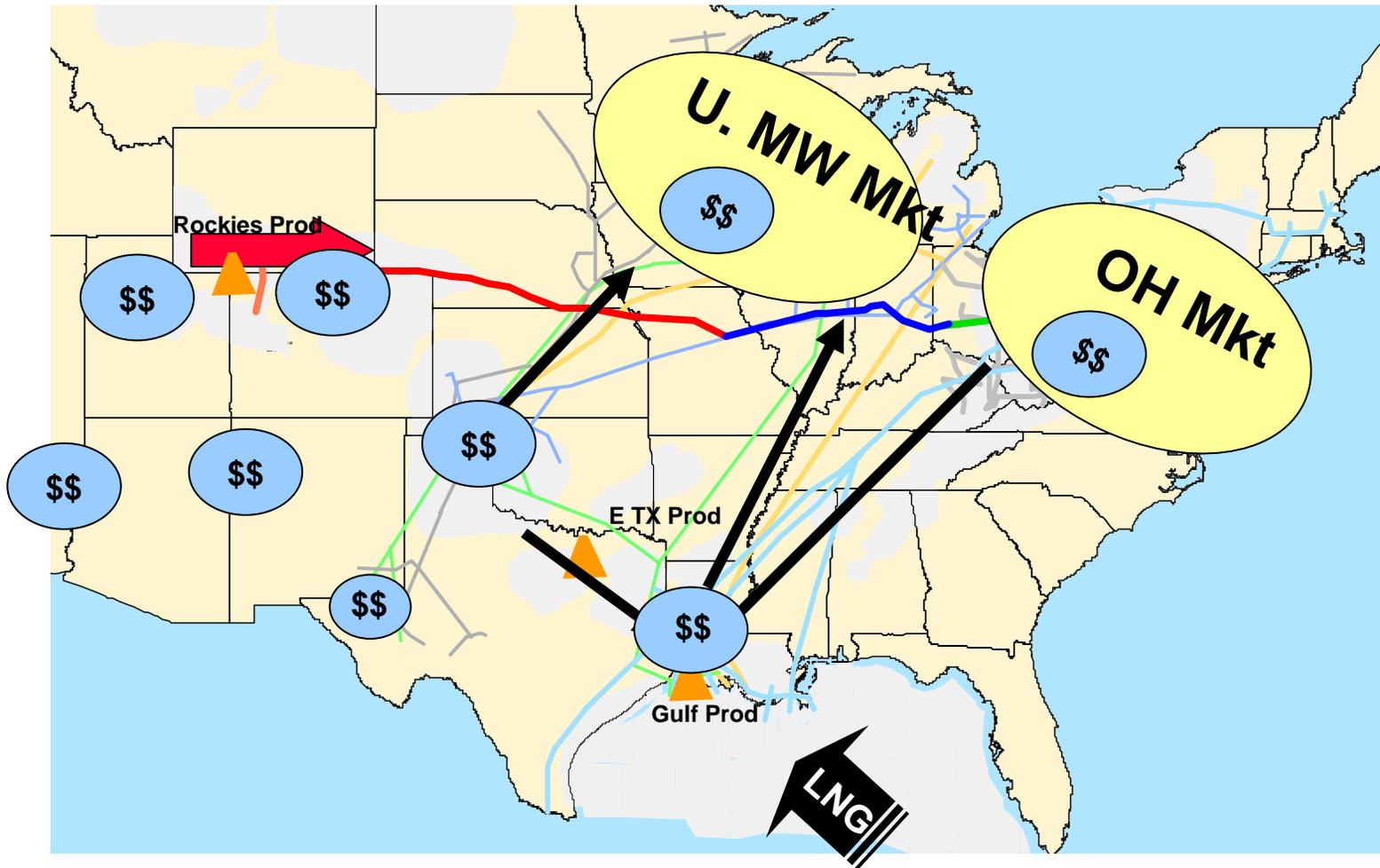
## IN SERVICE

## TO BE COMPLETED

- |   |  |
|---|--|
| 1. 4/20/07: CenterPoint Expansion (0.96 Bcf/d)              | 7. 9/1/08: Texas Gas Fayetteville Lateral Pipeline (0.8 Bcf/d) |
| 2. 5/1/07: CenterPoint Expansion (0.277 Bcf/d)              | 8. 1/1/09: Boardwalk Gulf Crossing Pipeline (1.6 Bcf/d)        |
| 3. 1/1/08: Trunkline Field Zone/Henry Lateral (0.625 Bcf/d) | 9. 3/1/09: Kinder Morgan Midcontinent Express (1.4 Bcf/d)      |
| 4. 1/1/08: Gulf South ETX to MS Pipeline (1.7 Bcf/d)        |  |
| 5. 1/14/08: NGPL Louisiana Line Expansion (0.2 Bcf/d)       |  |
| 6. 5/1/08: Center Point's CP Pipeline (0.316 Bcf/d)         |  |

Source: BENPort™ Reports

# Market Dynamics: 2009 Reshuffling The Deck



# *Conclusions*

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- ❖ The US gas industry is in the midst of a major infrastructure restructuring.
- ❖ Producers have spent and continue to spend \$Billions to find new reserves and re-plumb the pipeline network.
- ❖ Production is rising dramatically, pushing back LNG and Canadian gas.
- ❖ Barring disruptions, the supply/demand balance should tip driving prices lower.
- ❖ Regional constraints will exaggerate the bear movement, particularly in the Rockies and Gulf supply points.
- ❖ More long haul capacity i.e. the most expensive and risky kind, is needed from the Rockies and the Gulf. But, it will not be developed in time to avert problems particularly in the Rockies.
- ❖ While prices should fall this autumn, numerous factors could quickly drive them back up i.e. carbon cap and trade programs and onerous green house gas emission concerns and rulings which will dramatically reduce drilling activities particularly in the Rockies.

# *Implications*

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- ❖ **Barring disruption or extreme hot weather, consumers and utilities should start seeing lower natural gas prices by this fall.**
- ❖ **As pipeline contracts expire, utilities will need to reconsider their supply procurement orientation i.e. which basins do they buy from.**
- ❖ **Development of new long haul capacity may require utility participation to offset risk.**

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