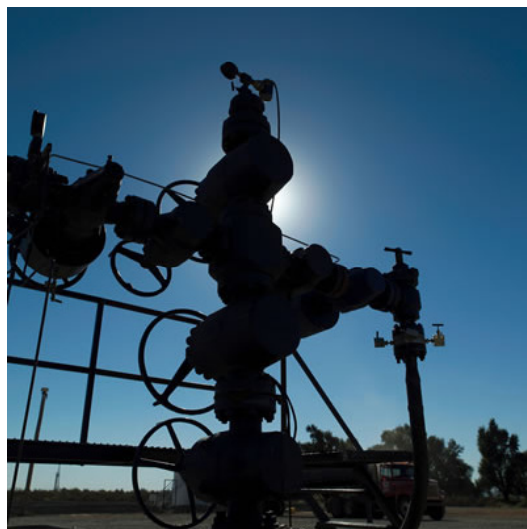


2011 Natural Gas Outlook



**Houston Producers Forum
March 23, 2011**

**David W. Kistler
Director, Exploration and Production Research**

***Important Disclosures Appear in Appendix D**

Agenda

- 2011 Supply/Demand Forecast – continued over supply
- How did the gas market get over supplied?
- Is the negative near-term outlook justified?
- Can natural gas recover?
- Q&A

Note: Cover photos courtesy of Chesapeake Energy.

2011 Simmons Natural Gas Supply/Demand Forecast

- **Supply:** We are projecting 69.0 bcf/d in '11 (up 2.9 bcf/d or 4% y/y).
 - Dry gas production: 62.2 bcf/d (up 3.1 bcf/d or 5% y/y).
 - Net imports: 6.9 bcf/d (down 0.1 bcf/d or 2% y/y).

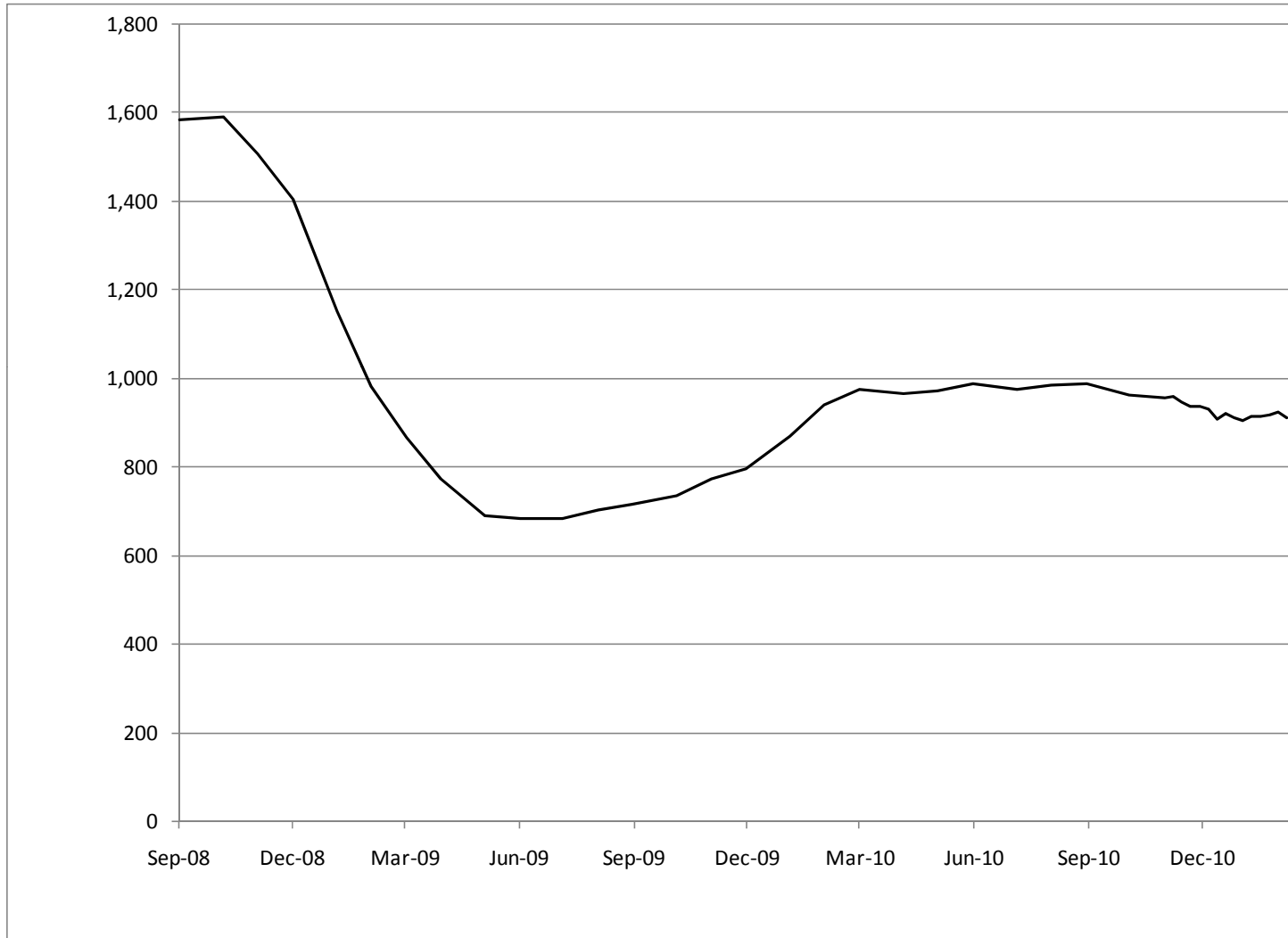
- **Demand:** We are projecting 67.4 bcf/d in '11 (up 1.3 bcf/d or 2% y/y).
 - Residential & Commercial: 22.6 bcf/d (up 0.2 bcf/d or 1% y/y).
 - Power Generation: 20.7 bcf/d (up 0.5 bcf/d or 3%).
 - Industrial: 18.6 bcf/d (up 0.6 bcf/d or 3%).

- Supply exceeds demand in 2011 by 1.6 bcf/d.

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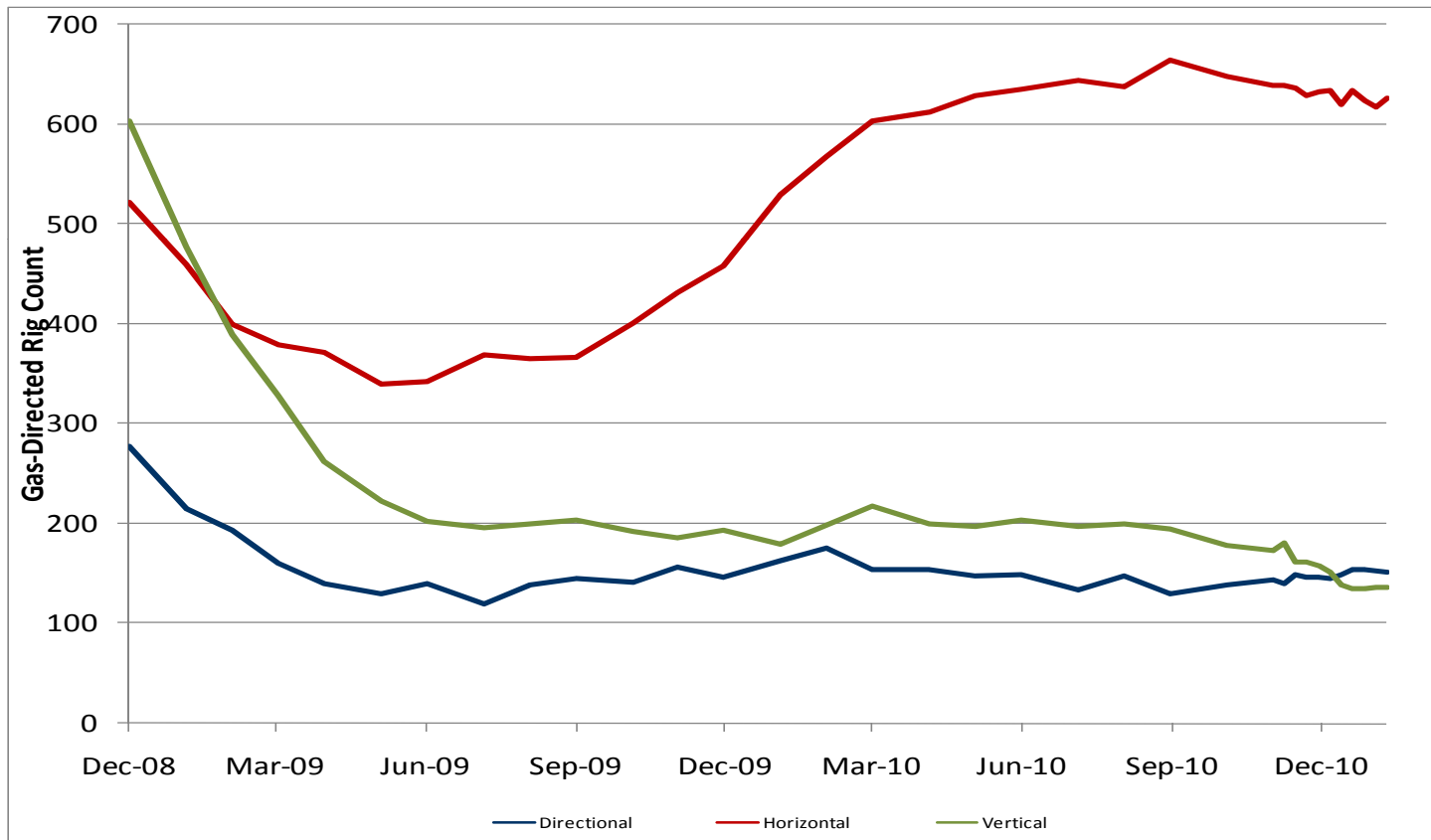
Even Though the Natural Gas Rig Count Has Declined...



Source: SmithBits.

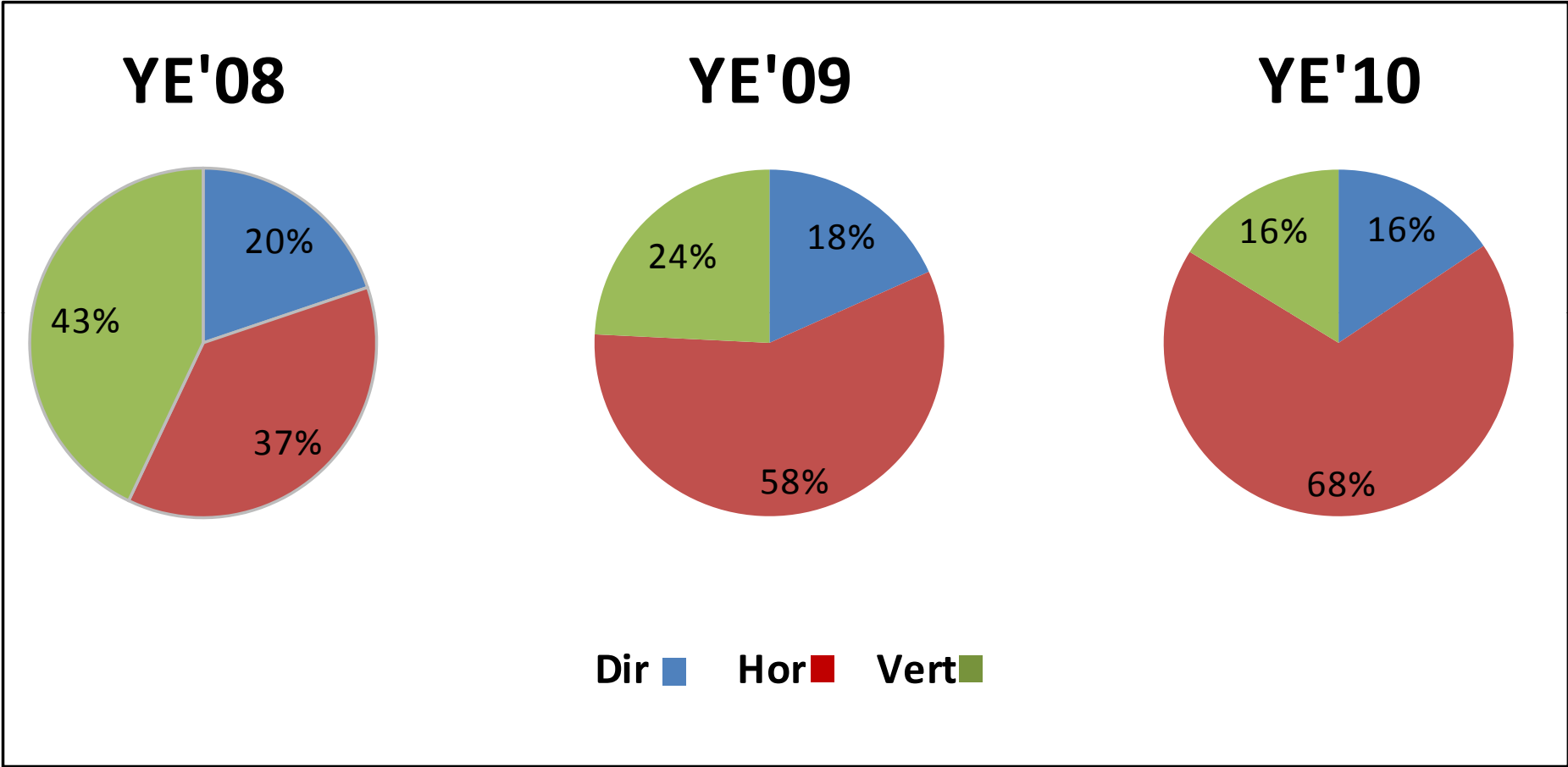
Horizontal Rigs Have Increased

- As a simple rule of thumb, horizontal wells have EURs that are 3x vertical wells and IP rates that are 4-5x vertical wells.



Source: SmithBits.

Changing Rig Composition

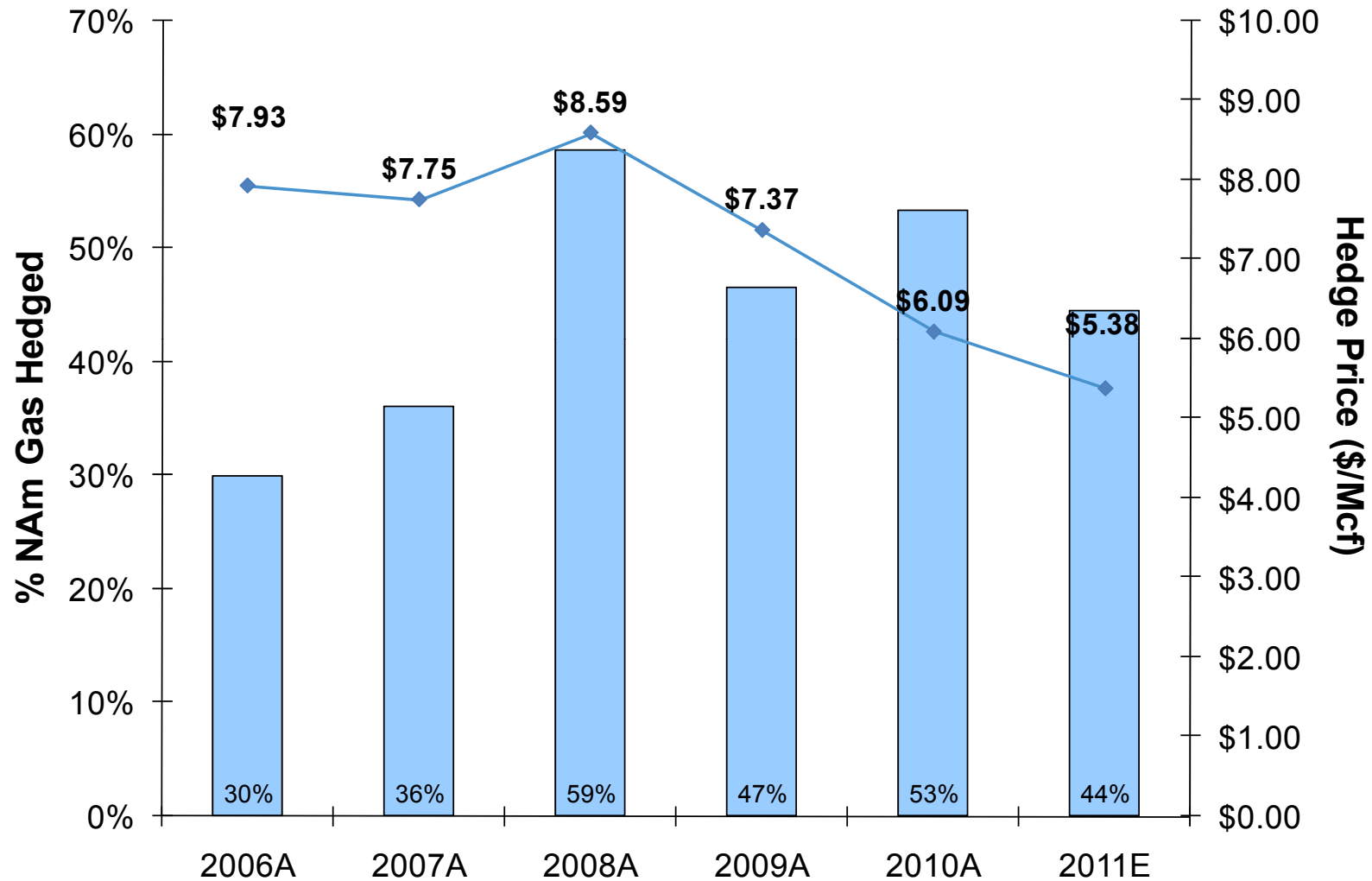


Source: SmithBits.

Drilling to Hold Acreage Continues

- Estimated rigs required to hold leases represent a significant portion of the gas-directed rig count.
- Based on lease expiration data and assumptions on days to drill, about 500 rigs seems to be a reasonable assumption.

E&P Gas Hedging Continues to Support Drilling



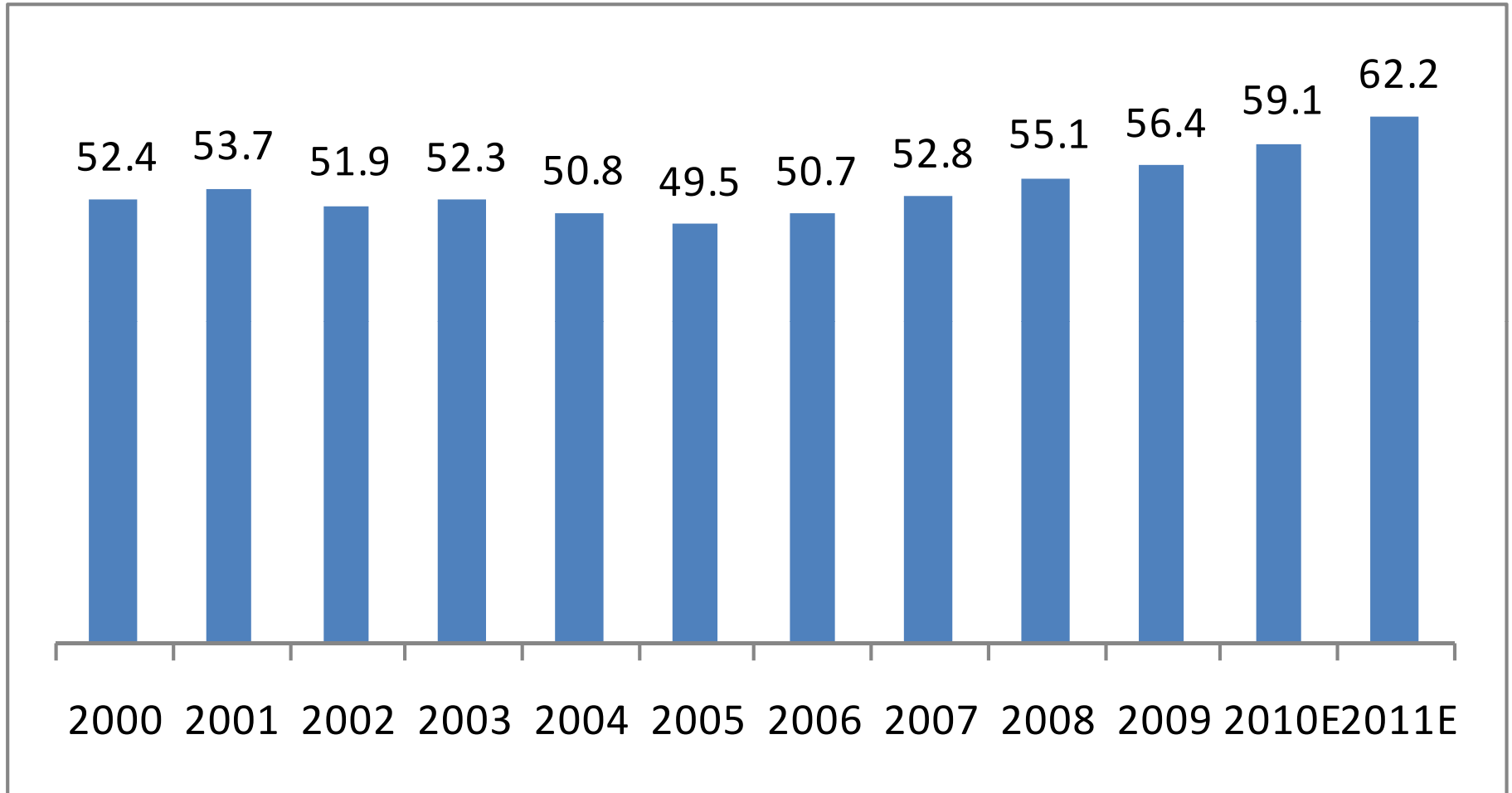
Source: SCl and Company Filings.

E&P Shale Joint Ventures Support Drilling

Year	Qtr	Buyer	Seller	Deal Value (\$MM)	Play	Carry (\$MM)	Carry Remaining (\$MM)	% of WI Carried	Working Interest (%)
2008	2	Plains Exploration	Chesapeake	\$3,150	Haynesville	\$1,500	\$0	50%	20%
2008	3	BP	Chesapeake	\$1,900	Fayetteville	\$800	\$0	100%	25%
2008	4	Avista Capital	Carrizo Oil & Gas	\$72	Marcellus	\$72	\$0	100%	50%
2008	4	StatOil	Chesapeake	\$3,375	Marcellus	\$2,125	\$1,566	75%	33%
2009	2	ENI	Quicksilver Resources	\$280	Barnett	\$0	\$0	0%	28%
2009	2	BG	Exco Resources	\$1,055	Haynesville	\$400	\$134	75%	50%
2009	2	Williams Companies	Rex Energy Corp.	\$33	Marcellus	\$33	\$3	90%	50%
2009	4	Hess	Newfield	N/A	Marcellus	N/A	N/A	N/A	50%
2009	4	Lime Rock Partners	Petroleum Development Cor	\$57	Marcellus	N/A	N/A	N/A	50%
2009	4	Swift Energy	Petrohawk	\$39	Eagle Ford	\$13	\$0	50%	50%
2010	1	Total	Chesapeake	\$2,250	Barnett	\$1,450	\$1,023	60%	25%
2010	1	Mitsui E&P	Anadarko	\$1,400	Marcellus	\$1,400	\$1,165	90%	33%
2010	1	BP	Lewis Energy Group	\$160	Eagle Ford	N/A	N/A	N/A	N/A
2010	2	Reliance Industries	Atlas Energy	\$1,700	Marcellus	\$1,360	\$1,360	75%	40%
2010	2	BG	Exco Resources	\$950	Marcellus	\$150	\$147	75%	50%
2010	2	NextEra	Petroquest	\$235	Woodford	\$54	\$46	80%	50%
2010	2	Reliance Industries	Pioneer Natural Resources	\$1,099	Eagle Ford	\$879	\$800	75%	45%
2010	2	Reliance Industries	ALFA, S.A.B de C.V	\$210	Eagle Ford	\$168	N/A	75%	45%
2010	3	Reliance Industries	Carrizo Oil & Gas	\$392	Marcellus	\$52	\$52	75%	60%
2010	3	Sumitomo	Rex Energy Corp.	\$116	Marcellus	\$58	\$49	50%	N/A
2010	4	CNOOC	Chesapeake	\$2,200	Eagle Ford	\$1,080	\$1,080	75%	33%
2010	4	Talisman/Statoil	Enduring Resources	\$1,050	Eagle Ford	\$0	\$0	N/A	N/A
2010	4	Sasol	Talisman	\$1,050	Montney	\$790	\$790	75%	50%
2011	1	CNOOC	Chesapeake	\$1,267	Niobrara	\$697	\$697	67%	33%
2011	1	CNPC	Encana	\$5,400	Montney	N/A	N/A	N/A	50%
2011	1	Sasol	Talisman	\$1,050	Montney	\$790	\$790	75%	50%
Total				\$29,439		\$13,871	\$9,702	71%	42%

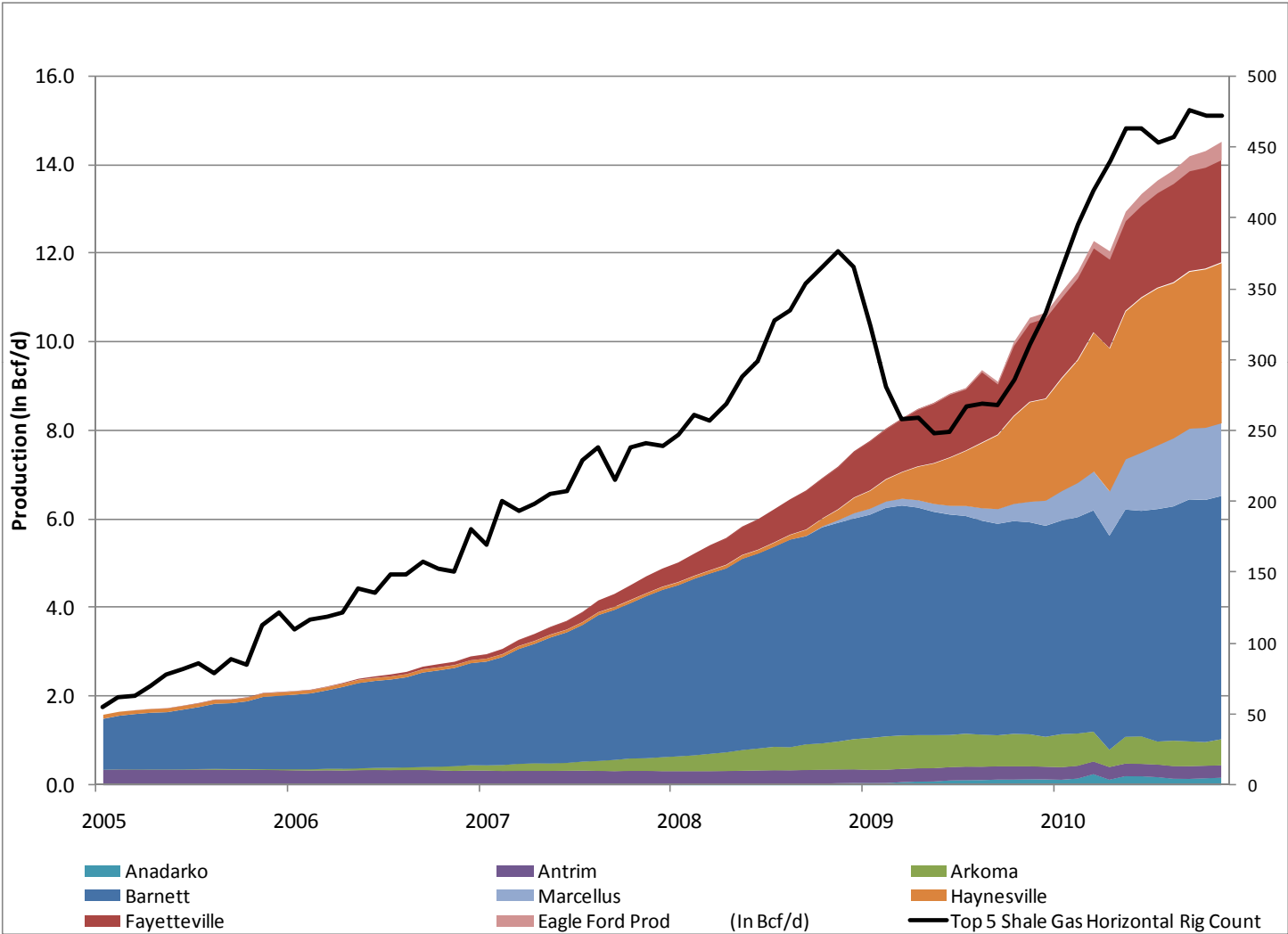
Source: SCI and Company Filings.

Net Result is Robust Production Growth



Source: EIA and SCI Estimates.

Historical Shale Gas Production—Unabated Growth



Source: HPDI and SCI Estimates.

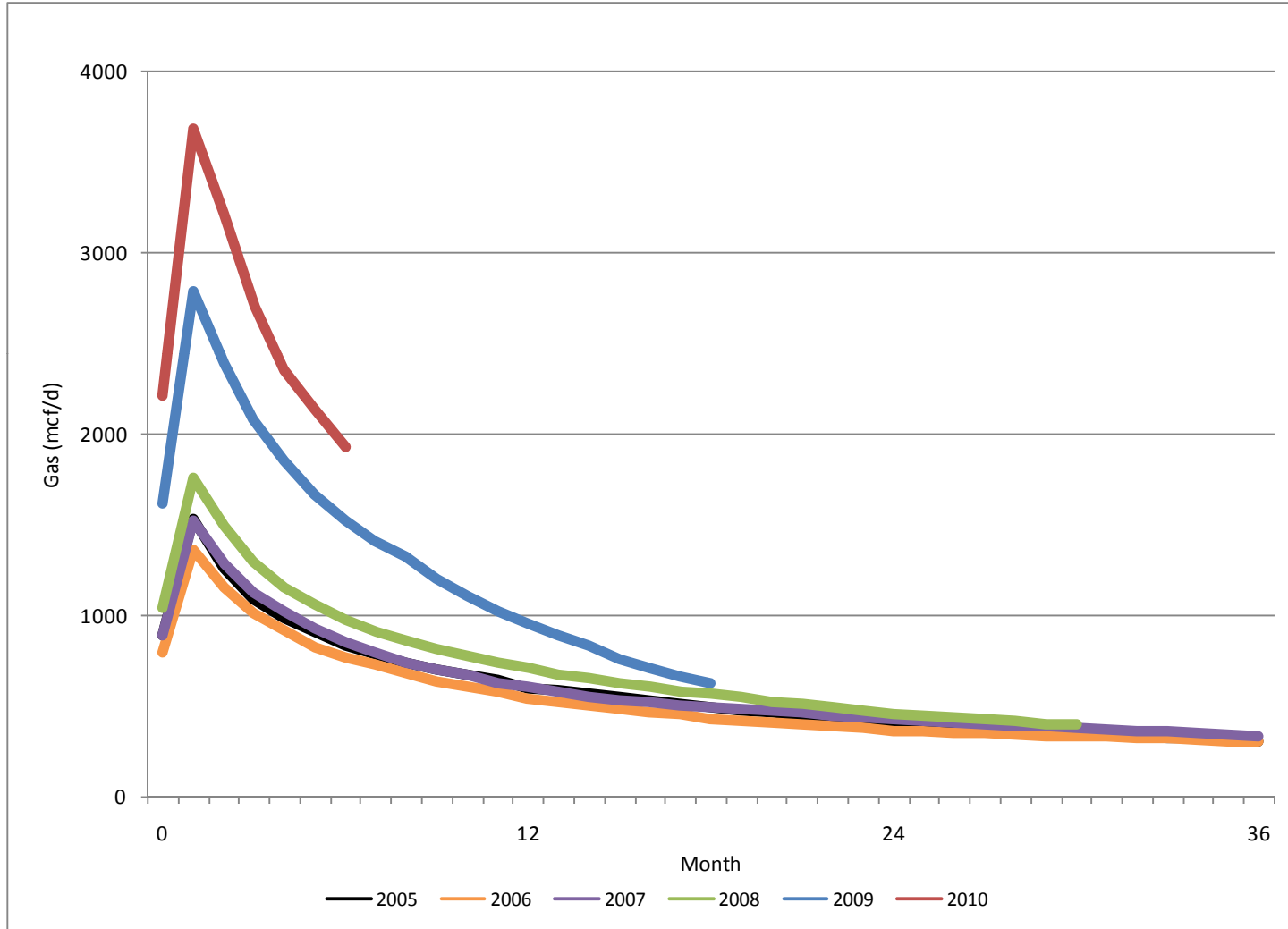
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Why a Reduction in Gas-directed Rig Count Will Have a Muted Impact on Production

- Increased recoveries per well.
- Drilling efficiency gains.
- Gas production associated with liquids-focused drilling.

Historical Horizontal Gas Well Type Curve By Year



Source: HPDI.

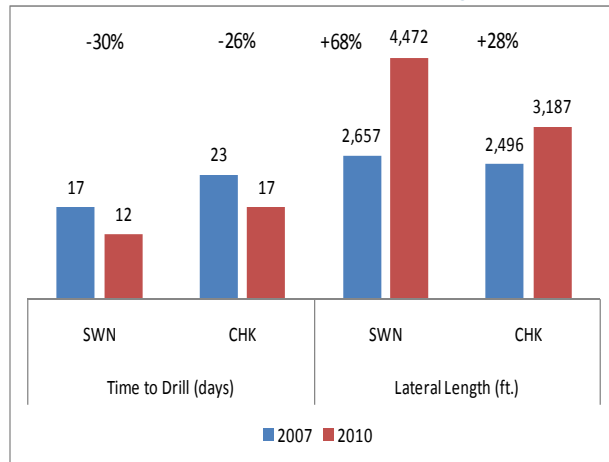
Drilling Efficiency Gains

Lateral Length and Frac Stages by Play

Lateral Length	Eagle Ford	Fayetteville	Haynesville	Marcellus	Woodford
2008	3,700	3,600	4,000		4,000
2009	4,350	4,100	4,400	2,750	5,000
2010E	5,500	4,400	4,600	4,000	6,500
Leading Edge	8,000	8,000	5,500	9,000	10,000

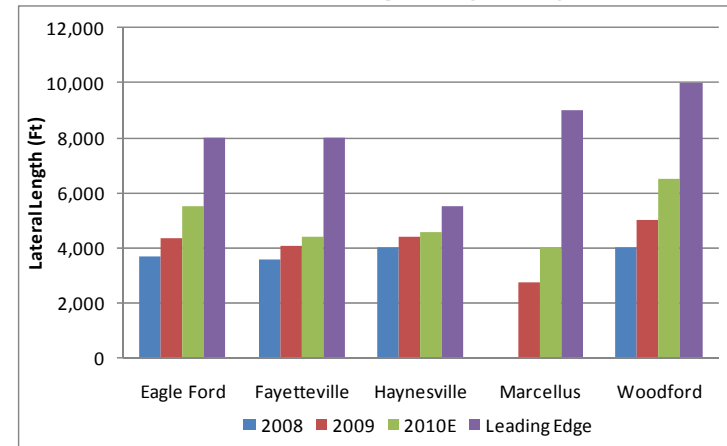
Frac Stages	Eagle Ford	Fayetteville	Haynesville	Marcellus	Woodford
2008	11	8	12		8
2009	15	10	14	6 to 9	10
2010E	17	11	15	8 to 12+	13
Leading Edge	20	20	20	28	20

SWN and CHK Efficiency Gains

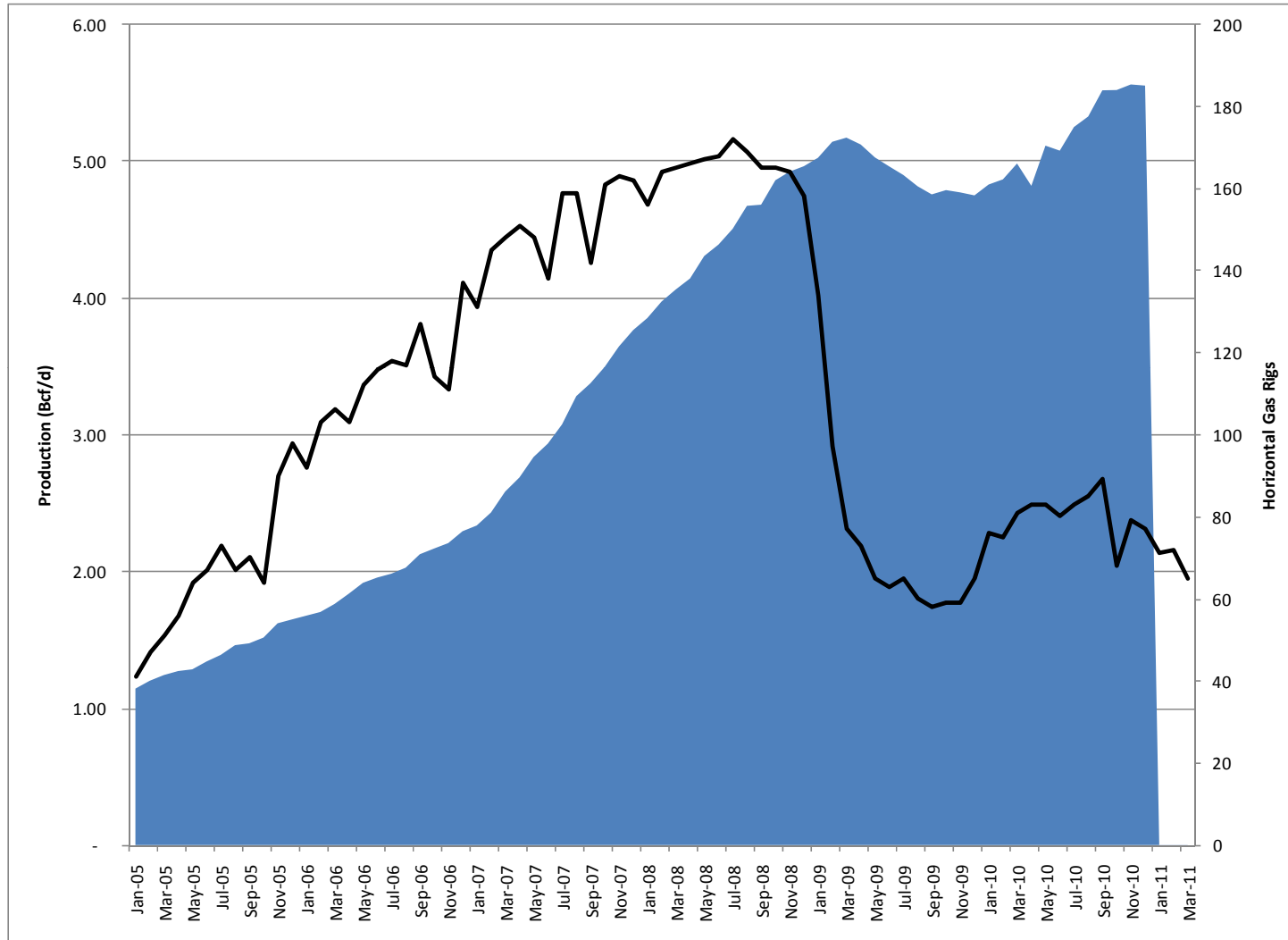


Sources: Company Reports and SCI Estimates.

Lateral Length by Play



Barnett: Getting More From Less



Source: HPDI, SmithBits and SCI Estimates.

Redirection of Rigs from Gas to Liquids-levered Plays May Not Reduce Gas Production

- **Haynesville to Eagle Ford:** An operator can drill almost two Eagle Ford wells for every Haynesville well. While there will be a staggered production impact from the second Eagle Ford well (online one month later due to drill time), aggregate first year natural gas production would be ~70% of production versus a single Haynesville well.

- **Haynesville to Marcellus:** If we assume that two Marcellus wells can be drilled in the time it takes to drill a Haynesville well, annual natural gas production associated with that redirection could be ~10% greater than that of a Haynesville well.

- There are numerous variables that could change the outcome of this analysis (i.e., choking back wells, different IP's, different declines, etc.).

Haynesville to Eagle Ford

	Haynesville Well	Eagle Ford Well
Days to Drill	45	21
IP (MMcfe/d)	10	6
Dry Gas % (Does not include NGLs)	100%	41%
Dry Gas IP	10	2.5
First Year Decline Rate	80%	65%
1 Year Cumulative Production (Bcf)	1.21	0.43
Number of Wells drilled per Haynesville Well	1	2
Comparable Annual Well Production (Bcf)	1.21	0.83
Percentage Nat. Gas Production vs. Haynesville Well	100%	68%

Haynesville to Marcellus

	Haynesville Well	Marcellus Well
Days to Drill	45	22
IP (MMcfe/d)	10	4.6
Dry Gas % (Does not include NGLs)	100%	71%
Dry Gas IP	10	3.3
First Year Decline Rate	80%	62%
1 Year Cumulative Production (Bcf)	1.21	0.69
Number of Wells drilled per Haynesville Well	1	2
Comparable Annual Well Production (Bcf)	1.21	1.34
Percentage Nat. Gas Production vs. Haynesville Well	100%	110%

Source: SCI Estimates.

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Can Natural Gas Recover: 2011?

- Will be challenging for natural gas.
- Tailwinds:
 - Power Generation
 - Coal-gas switching (+0.5 bcf/d in '11)
 - Lower nuclear utilization driven by Japanese events
 - Industrial
 - Faster growing economy
 - Chemical industry
 - Net Imports
 - LNG likely to decline driven by low prices + Japan.
- Headwinds:
 - Production, production, production!

Japan Impacts

- A 3 percentage point reduction in U.S. nuclear capacity utilization could equate to a 0.27 bcf/d increase in '11 gas demand for power generation assuming 50% of lost nuclear electricity is filled by natural gas.
- If nuclear capacity utilization declined by 6 percentage points and gas met 90% of the lost nuclear electricity, then incremental gas demand would jump to 1.0 bcf/d.

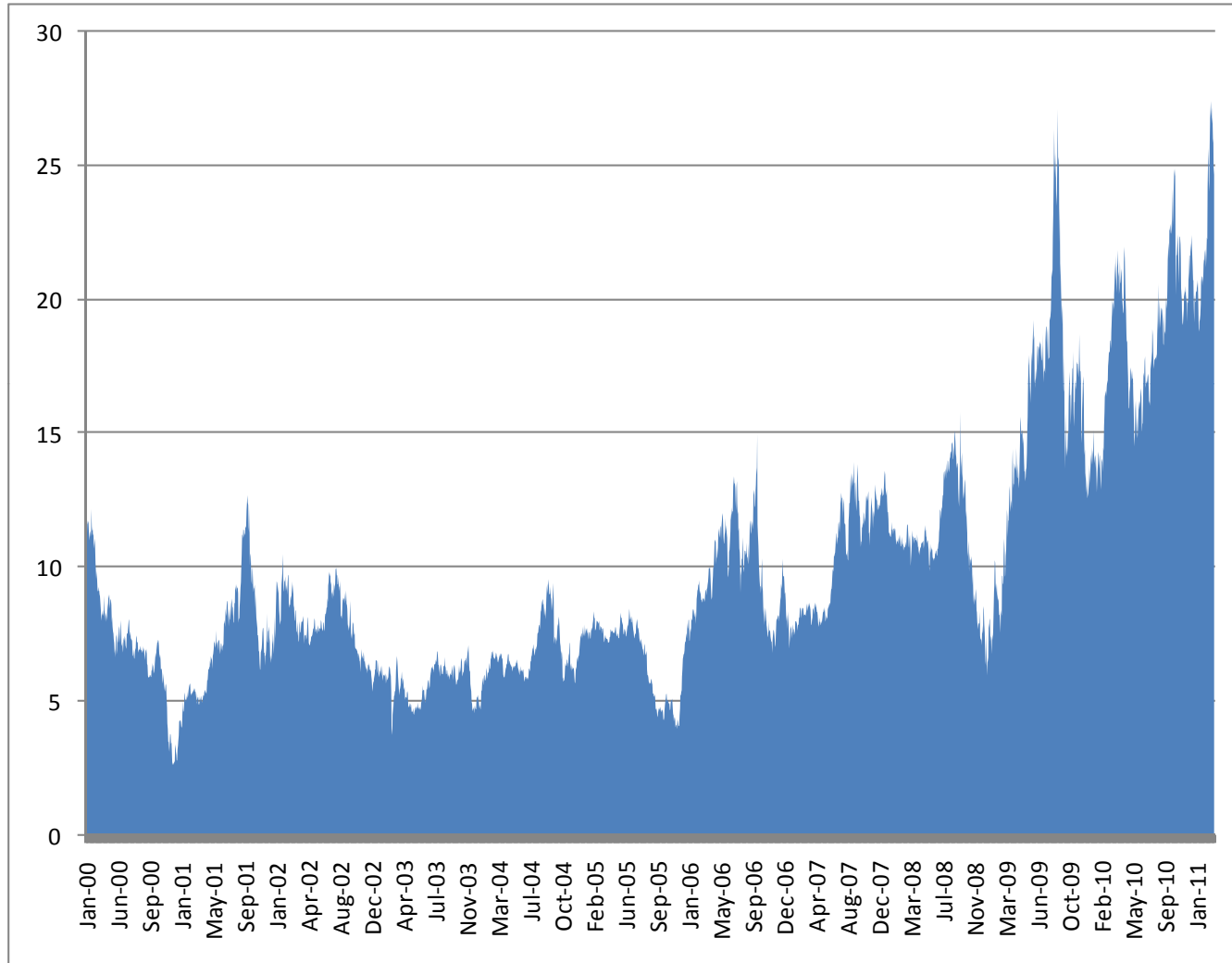
		% Nuclear Capacity Utilization Negatively Impacted						
		1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%
% Filled by Gas Plants	50%	0.1	0.2	0.3	0.4	0.5	0.5	0.6
	60%	0.1	0.2	0.3	0.4	0.5	0.7	0.8
	70%	0.1	0.3	0.4	0.5	0.6	0.8	0.9
	80%	0.1	0.3	0.4	0.6	0.7	0.9	1.0
	90%	0.2	0.3	0.5	0.7	0.8	1.0	1.1
	100%	0.2	0.4	0.5	0.7	0.9	1.1	1.3

Source: SCI Estimates.

Can Natural Gas Recover: Long Term?

- Yes. Maybe the better question is at what price will all of this new demand be met.
- Tailwinds
 - Power Generation
 - Coal plant retirements: 50-60 GW (~17% of the coal fleet).
 - Transportation
 - BTU convergence
 - Industrial
 - Reindustrialization of the U.S.?

Crude/Gas Spread



Source: Bloomberg.

Nat Gas as Transportation Fuel

- Natural gas as a transportation fuel has certainly garnered a great deal of attention given the record spread between crude oil and natural gas.
- While nat gas transportation fuels have grown in the past few years, they remain extremely small relative to the size of the overall U.S. natural gas market.
- For example, according to the EIA, in 2010 the U.S. consumed 32.9 Bcf (90 MMcf/d) of natural gas in the transportation sector. This compares to 24.1 Tcf (66.1 Bcf/d) of total U.S. natural gas consumption in 2010.
- From 1997-2010, natural gas demand for transportation fuel grew at 11% per annum compared to 50 bps for total natural gas consumption.
- What we find interesting is that even if transportation fuel natural gas demand grew at 50% per annum over the next 5 years, then total transportation fuel natural gas demand (249 Bcf) would make up only 1% of the 2010 U.S. gas market.
- If it grew at 100% over the next 5 years, then total transportation fuel natural gas demand (1,051 Bcf) would make up only 4% of the 2010 U.S. gas market.

Source: EIA.

Potential Drivers of Convergence

Economic advantage of gas will ultimately prevail. However, all visible solutions take time.

Driver	Amount	Timing
Coal to Gas Switching	1.5 - 2.5 Bcf/d	Currently
Coal Plant Retirement	1 - 1.5 Bcf/d	by 2020 - but gradually
Increased Industrial Demand	3.5 Bcf/d	Previous Peak Demand - Several Years
CNG Transportation	< 1 Bcf/d	infrastructure Build Out - Multiple Years
LNG	2 - 4 Bcf/d	Permit and Infrastructure Build Out - Multiple Years
GTL Projects	Initial Progress	Sasol/TLM JV - Multiple Years

Additional Considerations

- Dramatic reduction in natural gas rig count
- Government initiatives could accelerate convergence
- Potential fracture stimulation regulation could rapidly halt natural gas production growth

Questions and Answers

Appendix D

Analyst Certification:

I, David Kistler, hereby certify that the views expressed in this research report to the best of my knowledge, accurately reflect my personal views about the subject compan(ies) and its (their) securities; and that, I have not been, am not, and will not be receiving direct or indirect compensation in exchange for expressing the specific recommendation(s) or views in this research report.

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