



Natural Gas Outlook

IURC Gas Forum

October 13, 2011

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Natural Gas Outlook: Summary

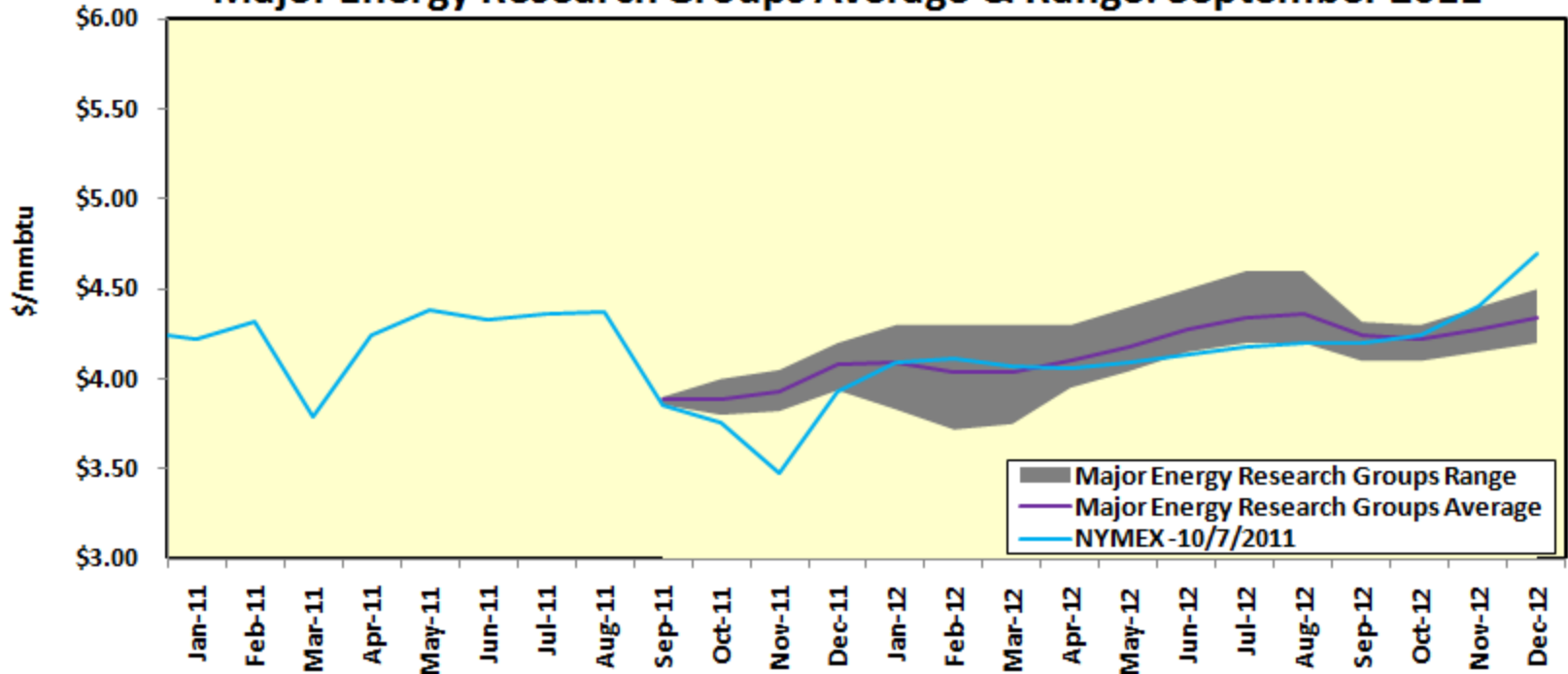
The resurgence of domestic shale gas production has transformed our natural gas supply and price outlook. The lack of bullish price response over the last two years, with repeated domestic weather extremes as well as global crises, is due to the abundance of shale gas.

Looking forward:

- Production growth continues, as productivity in shale plays increases and horizontal rig counts remain strong.
- Research groups do not expect supply growth to continue into 2012, but they have underestimated production for the last 2 years.
- Economic turbulence, both domestically and globally has muted the natural gas demand outlook in the power and industrial sectors.
- Normal weather for winter 2011/'12 could result in a record level of gas in storage at the start of 2012 injection season.
- The price outlook for next year is relatively stable and flat. With pressures from our struggling economy, along with the potential of a global recession, the price risk for 2012 appears to be to the downside.

Natural Gas Price Outlook: 2011 & 2012

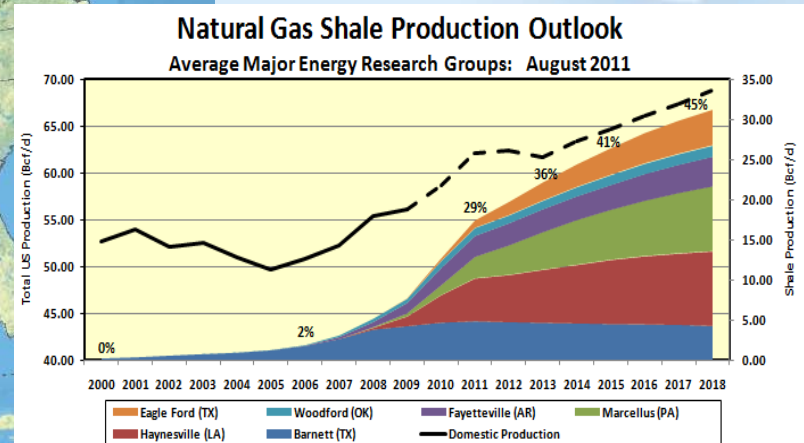
Henry Hub Short-Term Monthly Price Forecast
Major Energy Research Groups Average & Range: September 2011



- In 2012 prices should trade in a relatively sideways pattern with additional production providing resistance at the high end and coal/gas fuel switching giving support at the low end.
- 2011 Henry Hub price forecast: \$4.15*/mmbtu. 2012 Henry Hub price forecast: \$4.21*/mmbtu. These forecasts assume normal weather.
- Continued, but slow, economic recovery along with ample production/supply levels are the primary drivers going forward.

*Major Energy Research Groups Avg.

Natural Gas Supply Outlook: Shale Gas



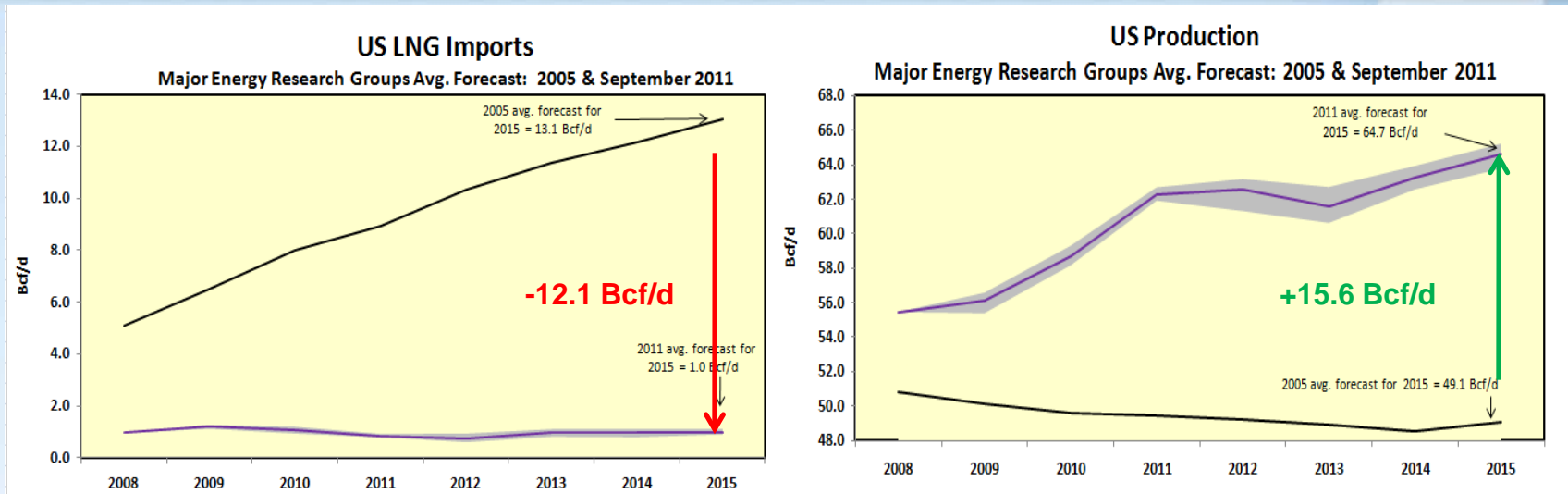
- Given current technology, domestic natural gas recoverable reserve est. 2,500 Tcf, ~100+ years* usage, @ today's demand level.
- In 2006, only 2% of US production came from shale. Today it is 29%, and is expected to rise to over 40% by 2015. New shale plays such as Utica are not included in the forward production projections.
- The breakeven costs of shale gas in current production areas are declining, with Haynesville avg. \$3.40, Barnett avg. \$4.10, and Marcellus ~\$3.10. Liquids rich Eagle Ford and Granite Wash avg. costs are well under \$3.00.***
- EPA Fracturing Study to determine the potential impact of fracking fluids on drinking water, human health and environment. Draft to be released at end of 2012.

*Major Energy Research Groups Avg.

** Colorado School of Mines, Potential Gas Committee June 2009 .

***Bentek June 2010

Natural Gas Supply: History/Outlook



2000-2008: For most of the last decade US production could not support our growing demand.

- Importing LNG was the only answer, there was no “Plan B”.
- A revived, global LNG industry emerged. \$100 billion was invested by International Oil Companies (IOC’s) and National Oil Companies for liquefaction. \$10 billion went into regasification capacity in the US.

2009: Unknown to the IOC’s, the EIA and Major Energy Research Groups, the technology for shale gas was evolving.

- Costs came down and technology became transferable. Production came on line in significant volume to dampen prices.
- Exxon Mobil bought XTO for \$41 billion, bringing credibility, capital and long term reality to shale production.

2012 and beyond: Shale will lead a long term domestic supply resurgence.

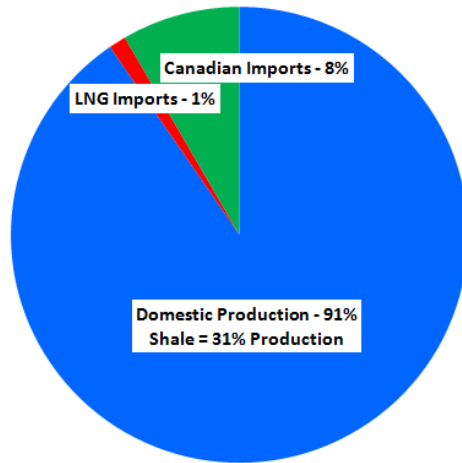
- Production outlooks for 2015 have increased by almost 16 Bcf/d, +32%, from those made just 6 years ago.
- LNG import projections have not only dropped precipitously, but the US is expected to be an exporter of LNG by 2015 – 2020.

US Supply Growth Driven by Domestic Shale Gas Production

2012 US Supply Profile

68.8 Bcf/d, 25.1 Tcf

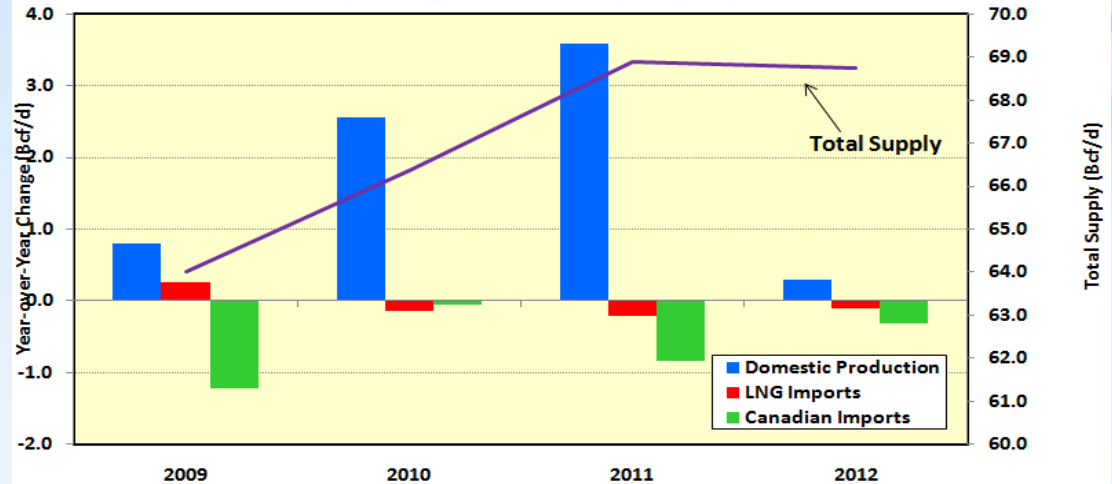
Avg. Major Energy Research Groups: September 2011



US Supply Profile

Year-over-Year Change (Bcf/d)

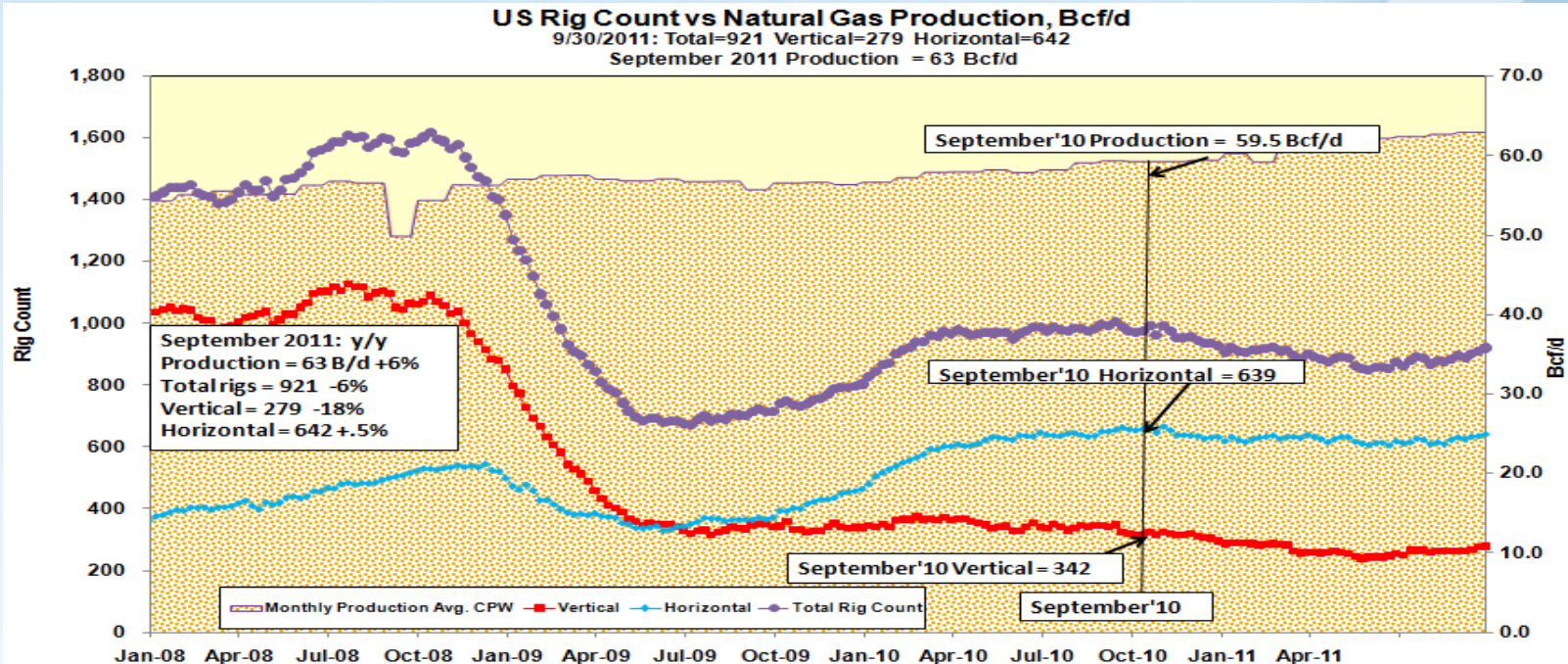
Major Energy Research Groups Avg: September 2011



- 2012 Supply: Est. 68.8 Bcf/d*, almost unchanged y/y; Canadian imports down .3 Bcf/d*, LNG imports down .1 Bcf/d* and domestic production up .3 Bcf/d*.
- During the last 12 months, US domestic production outlook for 2011 has grown by 5%, or up 3.2 Bcf/d, from 59.1 Bcf/d in September 2010 to 62.3 Bcf/d, as shale technology and efficiencies improve, in spite of flat horizontal drilling numbers and lower forward prices.
- Japanese LNG demand will not reduce US LNG imports further, as they were already at contractual minimums.
- 2012-15 growth is expected to be dominated by domestic production/shale gas.

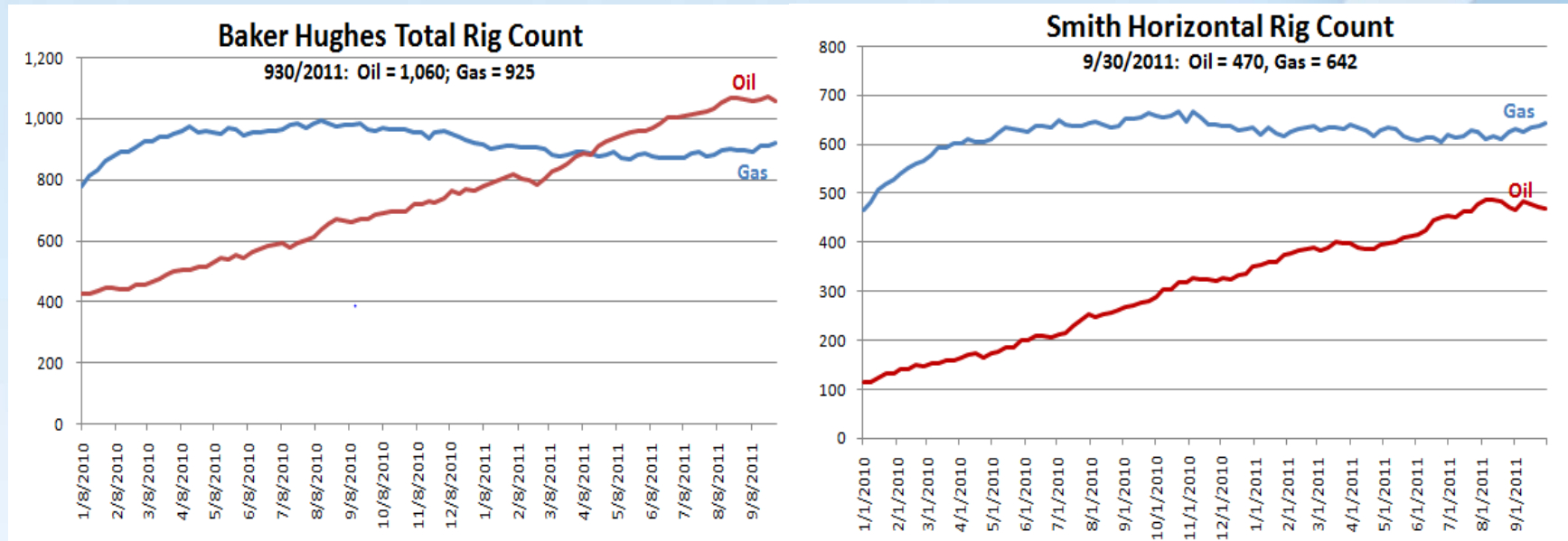
Natural Gas Supply: Drilling & Production

Drilling Cutback not Reflected in Production



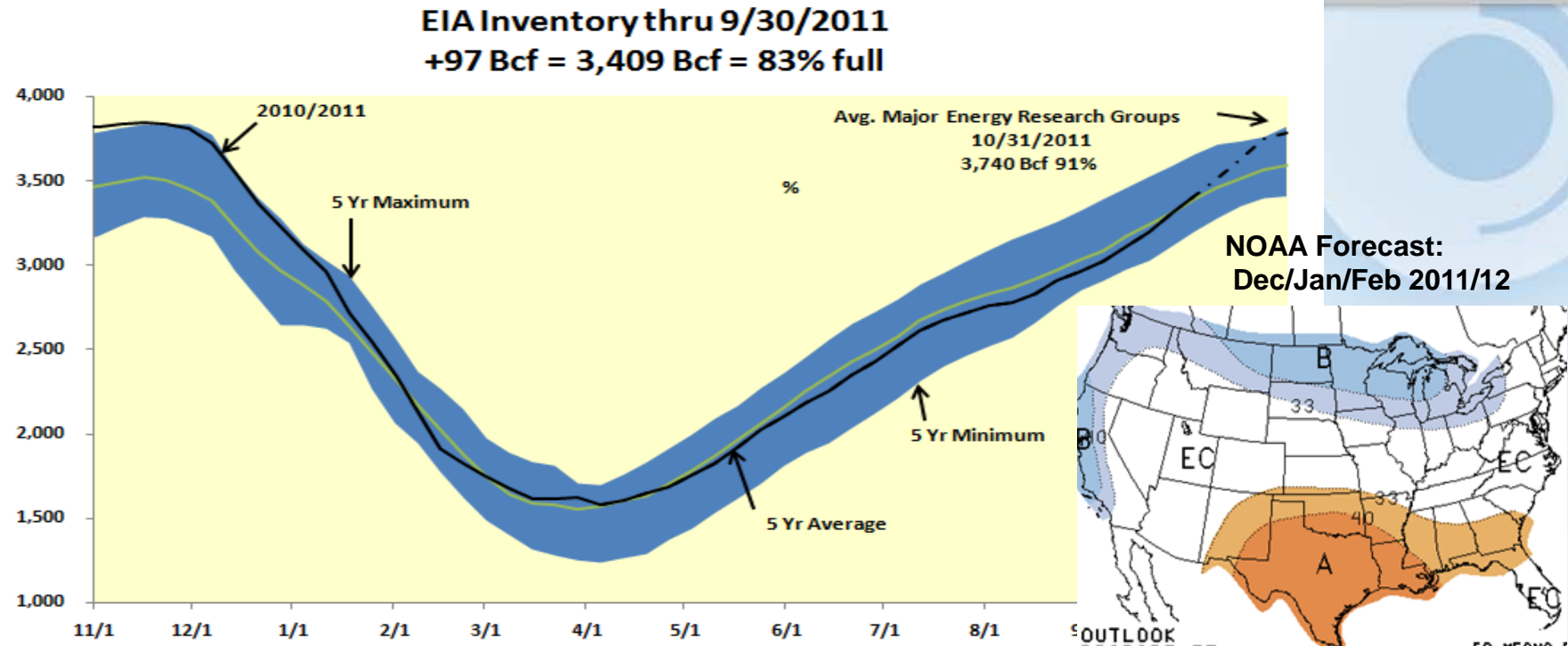
- Natural gas rig counts hit a new high of 1,620, September 2008, then plunged to 675 in July 2009, as natural gas prices fell. To date, rigs have recovered to 886, 55% of the 2008 peak. Vertical drilling is down to only 24% from that at the peak, while horizontal, shale drilling is 18% higher than at peak.
- 2011 production is projected to be 62.2 Bcf/d*, up 4.2 Bcf/d or +6% * from 2010.
- September 2011: Total drilling is down 6% y/y. Vertical (conventional) drilling is down 18% y/y, and horizontal (unconventional/shale) is up .5%. August production is up 6%, y/y.
- Producers may be calibrating activity based on weather extremes of the last 2 years, leading to future over supply.

Oil Rigs Competing with Natural Gas Rigs



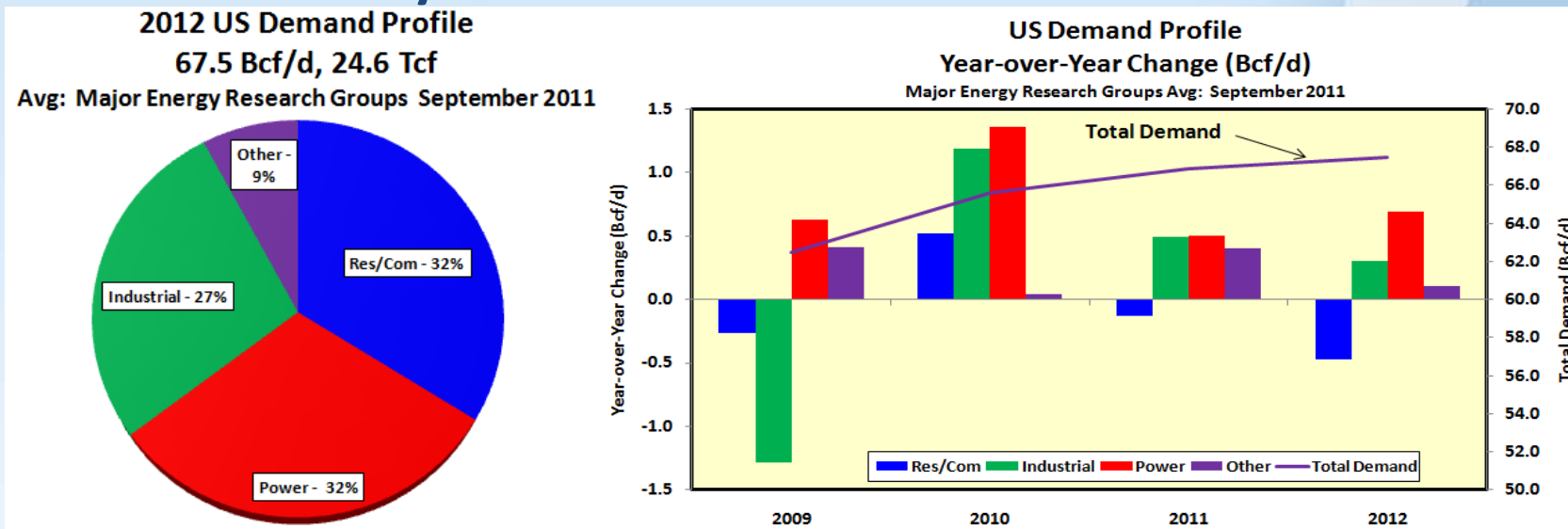
- During the last year, as crude prices have risen relative to natural gas, rigs have moved to liquid plays, both liquid rich gas plays as well as migrate from horizontal shale gas to shale oil plays.
- In the last year total gas rigs have dropped 6%. Vertical rigs, 30% of the total, represent all of the drop.
- At the same time oil rigs have surpassed gas, rising 91%, from 555 to 1,060. Horizontal oil rigs have risen 135% from 200 to 470, while gas rigs have remained flat.
- As long as crude prices continue to hold a premium to gas, competition between oil and gas drilling is expected to continue.
- Associated gas from shale oil plays is unclear. Best estimate is ~ 3 Bcf/d, and is expected to grow.

Natural Gas Supply: Storage



- Weather can dramatically alter the rate of storage fill. Summer of 2011 was projected to be relatively normal, but has been one of the hottest year in recorded history, east of Mississippi.
- At the beginning of November, 2010, we started winter with a record level of gas in storage, 3,821 Bcf. Extended colder than normal temperatures elevated winter demand significantly. During December, January and February we withdrew more gas in storage than in any prior year.
- Nuclear outages, extended summer heat and low summer/winter spreads kept injections below the 5 year average through most of September 2011, in spite of record production.
- Given normal winter weather, energy research groups are expecting to end the 2011/12 withdrawal season at an unprecedented high, 1.9 Tcf, 48% capacity, by 3/31/2012.

US Economy Faces Continued Slow Growth in 2012.



- US GDP Outlook: 2011 = 1.5%*, 2012 = 1.9%*.
- Although demand is expected to grow modestly, slow growth in industrial production and competition from new coal fired power generation are expected to limit growth through 2012.
- 2012 Demand: Est. 67.5 Bcf/d, up 1% from 2011 with
 - Power Demand : +.7 Bcf/d*.
 - Industrial Demand: +.3 Bcf/d*.
 - Res/Com Demand: -.5 Bcf/d*. Will remain weather driven and continue to be a wild card going forward.
- 2012-2015 demand is expected to grow primarily in the power sector.

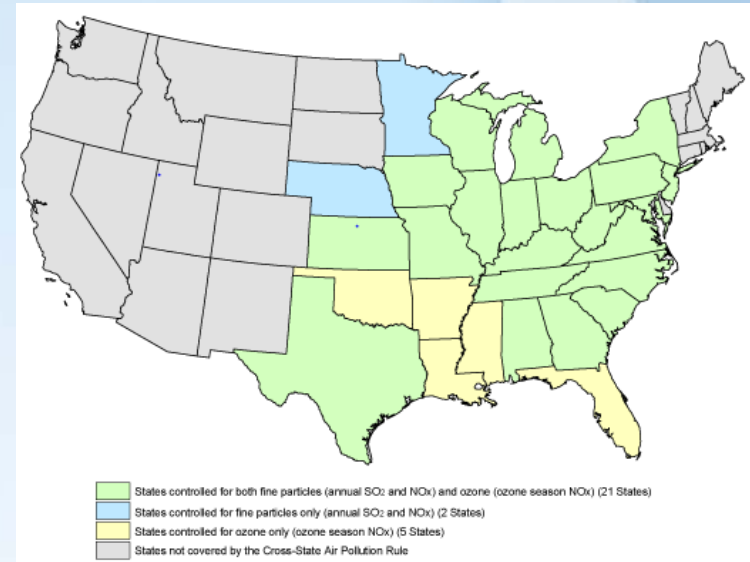
*Major Energy Research Groups Avg.

EPA Mandates Could Alter Gas Demand

The EPA's Cross-State Air Pollution Rule (CSAPR), July 6, 2011, should begin January 1, 2012, limiting air pollution from coal plants in the Eastern half of the US where ozone or fine particulate matter blows across state lines.

- Impacts 28 Eastern States, including Indiana, as shown in map to the right.
- Early estimates are that ruling could increase natural gas demand by as much as 1 Bcf/d.
- Short lead time for SO₂ and NO_x emission reduction mandates face compliance difficulty.
- Litigation could delay start of program.

EPA CSAPR Impacts Eastern States 2012



Final implementation of EPA Clean Air Act (CAAR) regulations on air emissions will force gradual retirement of older coal plants by 2015, or later.

- Regulates mercury, hydrogen chloride and total particulate matter.
- Between 30 GW and 60 GW coal likely to retire.
- Could initially increase natural gas demand between 2.7 Bcf/d to 5.4 Bcf/d.
- Potential of delayed implementation of 1 to 2 years.

Major Drivers Through 2012

- Pace of economic slowdown/recovery on natural gas demand in industrial production and power generation.
- Further impact of oil prices on consumer confidence, and the extent to which they could undermine consumer sales and domestic growth.
- Storage Injections/withdrawals: Current end of summer (10/31/2011) est. @ 3,740 Bcf*, 91% full. Winter temps will direct withdrawal numbers through 3/31/2012.
- Rig counts, especially in horizontal drilling.
- Timing of further shale drilling recovery/pullback, and its impact on US production.
- Unlikely increase in LNG Imports, even as new global capacity comes on line.
- New coal fired power generation coming on line 2011/'12 displacing natural gas, as well as coal to gas fuel switching.
- Impact of CSAPR implementation on natural gas demand.
- Speculative activity, with net speculative short positions recently near record highs. Abrupt closing of positions could again be bullish for prices.

Thank You

**Further Questions?
Please contact**

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