Market Conditions

1. Natural Gas Supply
2. Demand Fundamentals
Emergence of Shale Plays
Emergence of Shale Plays

Big “Six” Shale Production Projection

Estimated 2011 Incremental Production Growth
6.4 Bcf/d

Bcf/d

Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12

Eagle Ford
Haynesville
Fayetteville
Barnett
Woodford
Marcellus

Projection Based on Current Drilling Activity. Source: HPDI, BEN TEK
Overall Production

Figure 1. Long-term growth in the lower-48 States and long-term declines offshore continued in 2010

billion cubic feet per day

The dip in production in the fall of 2008 reflects production shut-ins (mainly in the Gulf of Mexico) resulting from Hurricanes Gustav and Ike.

Source: U.S. Energy Information Administration, *Natural Gas Monthly*
Gas Flow Across U.S.

Major U.S. Natural Gas Transportation Corridors, 2008

Legend
- Interstate Pipelines
- Intrastate Pipelines

Source: Energy Information Administration, Office of Oil and Gas, Natural Gas Division, GasTran Gas Transportation Information System.
Basis Changes 2008 vs. 2011

- $1.63 at Cheyenne Hub
- $1.35 at Mid-Continent Center
- $0.18 at Opal Hub
- $0.09 at Waha Hub
- $0.06 at Henry Hub
- $0.34 at Houston Ship Channel
- $0.01 at Chicago Hub
- $0.16 at Houston Ship Channel
- $0.82 at Transco-NY Hub
- $0.52 at Henry Hub

= Interstate Pipeline
Total Working Gas in Storage

![Graph showing Total Working Gas in Storage over time with different colored lines indicating 5-year high/low range, 5-year average, 2010-2011, and current year.]
Demand Expectations
Fuel Switching Cost (Generation)

Energy Cost Per MMBtu

- Oil
- Natural Gas
- Coal
Fuel Switching Cost (Generation)

Energy Cost Per MMBtu (Oil x .628)

- Oil
- Natural Gas
- Coal
- Oil/NG Ratio
Unemployed Longer

Unemployed by Duration, as percent of civilian labor force

- < 5 Weeks
- 5 to 14 Weeks
- 15 to 26 Weeks
- 27+ Weeks

http://www.calculatedriskblog.com/
Demand on Public Services

U.S. Food Stamp Participation

- Participation in Millions (Left)
- Participation Rate (Right)

Source: SNAP
Bernanke expects to see high levels of foreclosure starts in 2011...“this in turn affects household wealth, consumer confidence, consumer liquidity and the rate of new construction.” April 2011
Household Wealth

Case-Shiller Price Cumulative Declines from Peak (SA), Year and City

- through Dec 2007
- through Dec 2008
- Through Dec 2009
- Through Dec 2010
- Through Oct 2011

- NV Las Vegas: -61.3%
- AL Phoenix: -56.7%
- FL Miami: -51.1%
- FL Tampa: -47.6%
- MI Detroit: -45.4%
- CA San Francisco: -40.6%
- CA Los Angeles: -40.0%
- CA San Diego: -39.8%
- MN Minneapolis: -37.8%
- GA Atlanta: -33.6%
- IL Chicago: -33.3%
- WA Seattle: -30.6%
- OR Portland: -27.7%
- DC Washington: -26.9%
- NY New York: -23.1%
- OH Cleveland: -20.0%
- MA Boston: -16.4%
- NC Charlotte: -16.1%
- CO Denver: -11.2%
- TX Dallas: 8.8%

http://www.calculatedriskblog.com/
New Home Sales

New and Existing Home Sales

- Existing Home Sales (left axis)
- New Home Sales (right axis)

Home Buyer Tax Credit

The "Distressing" Gap

http://www.calculatedriskblog.com/
Existing Home Inventory

http://www.calculatedriskblog.com/

Source: NAR
State Budgets - Deficits

44 States have deficits. (FY11 $130B - FY12 $112B)

WI $1.8B
TX $13B
NY $10B
NJ $10B
CA $25B

Moody’s warns that this year would be “the toughest year for local governments since the economic downturn.” (March 23, 2011)
Public & Private % of Economy

Government Versus Private: Percentage Of US Economy

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2009</th>
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<tbody>
<tr>
<td>All Government</td>
<td>35%</td>
<td>43%</td>
</tr>
<tr>
<td>Private Sector</td>
<td>65%</td>
<td>57%</td>
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</tbody>
</table>
April 2011 – Bill Gross, founder/CEO of PIMCO (world’s largest bond fund $1.2T), reduced its US Bonds holding from 45%-50% to less than 5% Jan11.

- We’ve been selling treasuries “because they have little value within the context of a $75 trillion total debt burden. Unless entitlements (Social Security, Medicare, Medicaid) are substantially reformed, I am confident that this country will default on its debt; not in conventional ways, but by picking the pockets of savers via a combination of less observable, yet historically verifiable policies – inflation, currency devaluation, and low to negative real interest rates.”
Un-Funded Liabilities

USA Balance Sheet Liabilities

- **Federal Debt**: 9.1T
- **Unfunded Social Security**: 7.9T
- **Unfunded Medicare**: 22.8T
- **Medicaid**: 35.3T

Source: A Basic Summary of America's Financial Statements, USA Inc., Mary Meeker
### Who is invested in US...

<table>
<thead>
<tr>
<th>Country</th>
<th>Amount</th>
<th>% Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>$891.6 billion</td>
<td>20.4%</td>
</tr>
<tr>
<td>Japan</td>
<td>$883.6 billion</td>
<td>20.2%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>$541.3 billion</td>
<td>12.4%</td>
</tr>
<tr>
<td>Oil Exporters</td>
<td>$218 billion</td>
<td>5%</td>
</tr>
<tr>
<td>Brazil</td>
<td>$180.8 billion</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

China doesn't buy our treasury bonds because they like us... they buy them to prop up the value of the dollar, keeping the US dollar artificially high, so their goods stay artificially cheap.
Does Bill Gross know what he is talking about?

We’ve been selling treasuries “because they have little value within the context of a $75 trillion total debt burden. Unless entitlements (Social Security, Medicare, Medicaid) are substantially reformed, I am confident that this country will default on its debt; not in conventional ways, but by picking the pockets of savers via a combination of less observable, yet historically verifiable policies –

- inflation,
- currency devaluation,
- and low to negative real interest rates.”
Annual Consumer Inflation - Official vs SGS (1980-Based) Alternate
Year to Year Change. Through Nov. 2011. (BLS, SGS)

- SGS Alternate CPI, 1980-Based
- CPI-U

Published: Dec. 16, 2011
“Hot Money” Fiscal Policy

Concerning for holders of US Treasuries…WHO?

QE I and QE II (and now Operation Twist) - keeping interest rates low
Manufacturing

Capacity Utilization, Total Industry and Manufacturing

Source: Federal Reserve [http://www.calculatedriskblog.com/]
“I would recommend against buying long-term fixed dollar investments...If you ask me if the US Dollar is going to hold its purchasing power fully at the level of 2011 in 5, 10 years from now, I would tell you it will not.” Buffett (Mar 25)
Manufacturing and Dollar?
Benefits of a Softer US Dollar

Slight improvement in real estate values…
Consumer Spending begins to improve…
Manufacturing begins to return to US…
Unemployment begins to improve…
Budgetary Constraints on State and Local Gov't ease…

Everyone starts to ‘feel’ a little better.
Recap - Supply Impacts

General collapse of price spreads - Basis has flattened

New rate structures foreshadow shifts in basis differentials resulting from changes to pipeline tariff rate structures and cost allocations.

- Rate hikes of 30-60% and tariff restructuring proposed by traditional long-haul pipelines.
- New competition. Reduced long-haul supply.
What’s the Outlook?

Mid-Term (12-18 Months):
Ample Supply
Lackluster Industrial Demand
Lethargic Economy
• Budgetary constraints on State and Local Gov’ts…
• Higher Unemployment Rates…
• QE III (Operation Twist), QE IV, Etc…???
Uncertainty in EU, MENA continues…
Stable/Stronger US Dollar…
Stable Energy NG ($3.50-$5.50) on average
What’s the Outlook?

Long-Term (24 to 48 Months):
Continued Supply Growth...assuming no Regulatory intervention...no deterioration in Liquids Play
Demand Growth
• Power Generation 7 Bcf Day possible Due to EPA Coal Regs
• BACT and MACT...etc.
• Industrial Demand Growth due to Weaker Dollar
QE XXI? - Ratings Agencies consider placing another downgrade on US Debt...
Loss of confidence in US Dollar by foreign creditors...
Inflation Realization...Commodities (Energy/Ags/Metals) Rise...
Interest Rates Increase...somewhat offsetting benefits of lower US Dollar...
What Does All This Mean to Me?

End-Users need to change their hedging perspective.
  • Focus more on the back-end of the futures curve to manage risk. Layer purchases in 10-15% increments of supply longer-term = 24-60 months.

Producers of dry gas...hang on for a tough year...or years.

Wet gas producers...get another wheelbarrel as long as crude oil remains high (above $70/bbl).

Mid-Term (1-2 Yrs): NG b/t $3.50 and $5.50.
Long-Term (3-5 Yrs): NG $7.00 to $9.00
                      CL $150-$200.
What Does All This Mean to Me?

- The current prompt month NG contract has plummeted to a 10 year low and is currently at $2.65.
- Current 12, 24 and 36 mo prices of $3.05, $3.40 and $3.70 are also at lowest the levels since 2002.
- The lack of cold weather has compounded the effects of an already over-supplied market. With production levels remaining healthy, in part due to strength in the liquids markets, $2.50 seems like a near term certainty.
- I remain a proponent maintaining the long range vision provided by a disciplined risk management strategy. Profound statement of 2012...10 yr low prices only come around every 10 years, so take advantage of this opportunity and layer in purchases for the next 12, 24 or 36 mos.
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