The US Natural Gas Revolution: Technology Transforms A Market

Presented To:

U.S. Energy Information Administration

2011 EIA Energy Conference

Washington DC

April 27, 2011
Key Points Of My Presentation

- US natural gas production has reached record production levels.
- Growth has occurred because of evolving technology and process innovation that will continue to drive costs down.
- Technology is also improving environmental mitigation.
- Prices will remain relatively low for many years.
- The implications are profound for consumers, the economy and the environment.
US Production Is At Record Levels

Comparison of Marketed Production

Data through April 20, 2011

Pre-2010 US Production High

Source: BENTEK Supply and Demand Report
Drilling Rig Productivity Has Dramatically Improved

Southwest Energy Fayetteville Shale

  - Change: -45%

  - Change: +83%

  - Change: +114%, +142%, +341%

  - Change: +8%

- Init Prod Additions Per Rig Per Yr (Mcf/d): 80,930 (2010)
  - Change: +341%

  - Change: +8%

Source: Southwestern Energy Financials
Concerns About Fracing Are Misplaced

- Water Aquifer
- Several Thousand Feet of Impermeable Rock
- Fracture Stimulation
- Cement Casing

Upper Well Close-up
The Multi-Well Pad Approach Results
In A Smaller Footprint As Well
The Higher The Oil To Gas Price Ratio, The Less Value Accrues To Natural Gas

Values For Typical Sprayberry Formation Well In The Permian Basin

- **6:1 Oil to Gas Price Ratio**
  - 75%
  - 15%
  - 10%

- **12:1 Oil to Gas Price Ratio**
  - 85%
  - 6%
  - 9%

- **20:1 Oil to Gas Price Ratio**
  - 91%
  - 4%
  - 5%

- **120:1 Oil to Gas Price Ratio**
  - 98%
  - 1%
  - 1%
Basis Is Relatively Flat & Approximates Variable Rates

Average Daily Basis In 2010

- $(0.26)
- $(0.16)
- $0.16
- $(0.10)
- $(0.26)
- $(0.39)
- $(0.20)
- $(0.22)
- $(0.11)
- $(0.04)
- $0.16
- $0.08
- $0.15
- $1.03
- $4.37
- $0.03
Technology is and will continue to transform the natural gas business resulting in vastly greater low cost supplies.

As a consequence, the US faces a period of time – at least through the balance of this decade – where prices will remain relatively low and flat -- BENTEK believes $4.00 to $5.00 per MMBtu.

Implications fall into several buckets:

- For producers and investors:
  - Economics will favor liquids and oil exploration over natural gas.
  - The producer community may split into “haves” and “have nots”, with lots of consolidation.
  - Midstream, transportation, processing and storage assets will continue to increase in value.

- For consumers natural gas will provide an increasingly important alternative:
  - Natural gas will continue to gain market share relative to coal, alternative energy and possibly nuclear alternatives.
  - Natural gas vehicles will gain market share over electric alternatives.
  - Industry – both feedstock and thermal users – will increasingly rely on natural gas adding 1000s of jobs the economy. Industry will also gain because of relatively low cost gas-based electricity.

- For state and federal policy makers, changes must occur to achieve maximum benefits:
  - Permitting must become far more expeditious and efficient.
  - Place budgetary resources where they can do the most good to facilitate the market, not subsidizing politically motivated winners and losers; let the market evolve.
  - Policy decisions at either the state or federal levels increasingly will have competitive economic implications which can damage regional, state and local tax bases and economies.
Questions?

Porter Bennett
32045 Castle Court, Suite 200
Evergreen, CO  80439
Office:   303-988-1320
Toll Free:  888-251-1264
pbennett@bentekenergy.com