Oil & Gas Supplier Forum

US Unconventional Gas: Contribution & Opportunity

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Overview

• Introduction
• Unconventional gas in the US
  1. What unconventional gas has done for the US
  2. US opportunities
• Case study: Marcellus
• Conclusion
Introduction: TFG

Tiger Financial Group (‘TFG’)

• Independent, financial services firm for growth markets between Australia & US
• Energy/resources a sector focus
• Clients from high growth private to large, publicly-listed
• Australia & US operations
• Extensive experience in global business development and deals

www.tigerfg.com
Introduction: Global

An Elusive Prize | Many nations are believed to have large shale deposits

Note: Excludes Middle East, offshore

Source: EIA, ARI; www.tigerfg.com
Introduction: US Brief History

• Large-scale shale gas production started ~2000
  • Shale gas production commercial reality in Barnett, north-central Texas

• By 2005, Barnett alone producing ~half a trillion cubic feet per year of natural gas

• Soon to follow:
  • Fayetteville Shale, northern Arkansas
  • Haynesville, TX & LA
  • Marcellus, PA
  • Woodford/Andarko, OK
  • Eagle Ford, TX

Source: EIA
Introduction: US

Shale Gas Plays, Lower 48 States

Source: Energy Information Administration based on data from various published studies. Updated: March 10, 2010
Unconventional gas in the US: Contribution

- $585 billion gross output estimated by 2025
  - In 2012, $345 billion (42% supply chain)
  - Supply chain ~0.5% of total economy
  - Government revenue 1.75x in <15 year period
- Driving job growth
  - Outpace overall US employment growth (2.9% vs 1.1%)
  - Outpace manufacturing (3.0% vs 0.2% CAGR) thru 2025
  - Total direct/indirect jobs: 1.1M in 2012 to 1.8M in 2025
- Direct wealth impact
  - Energy workers avg salary ~60% above overall US avg (JLL)
  - Real estate values increasing, lower vacancy rates (8%), increasing commercial yields

Source: IHS Economics estimates focused on unconventional oil & gas supply chain
Unconventional gas in the US: Contribution

• US to be world’s top oil producer by 2015 (IEA)

• “The gas that we have found is in the first inning — it's like the Internet in 1990. This is the first inning of the great American century."

  Jack Welch, ex-CEO of General Electric, in 2012
Unconventional gas in the US: Opportunity

**Upstream**
- Capital goods
- Construction, machine/tools, engines
- Construction & well services
  - Drilling, well pads, gathering

**Midstream**
- Capital goods
  - Truck, pumps, compressors
- Construction & well services
  - Processing, refining, roads
- Logistics
  - Pipeline, rail, truck

**Downstream**
- Logistics
- Water
- Materials
  - Steel, frack sand, chemicals, cement, hoses, aggregates
- Professional services
  - Site engineering, land, water, environ., waste

Sources: [www.marcellus-shale.us](http://www.marcellus-shale.us); EEIA
Unconventional gas in the US: Opportunity

• Fastest growing supply chain segments

US unconventional energy supply chain gross output (USD$b)

<table>
<thead>
<tr>
<th>#</th>
<th>Activity</th>
<th>2025E</th>
<th>CAGR (2012-25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drilling oil and gas wells</td>
<td>$16.6</td>
<td>5.2%</td>
</tr>
<tr>
<td>2</td>
<td>Support activity for oil and gas operations</td>
<td>$40.2</td>
<td>5.0%</td>
</tr>
<tr>
<td>3</td>
<td>Industrial gas manufacturing</td>
<td>$6.1</td>
<td>4.5%</td>
</tr>
<tr>
<td>4</td>
<td>Air and gas compressor manufacturing</td>
<td>$9.0</td>
<td>4.3%</td>
</tr>
<tr>
<td>5</td>
<td>Cutting tool and machine tool accessory</td>
<td>$7.8</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Source: IHS Economics

Sources: www.marcellus-shale.us; EEIA
Case Study: Marcellus

• “Beast in the East”
  • If Marcellus Shale were a country, it would be the 7th largest gas producer in the world
  • Volumes
    • 2013 total production exceeded 3.0 Tcf
    • 2008-12, gas production up <1 Bcf/d to 7 Bcf/d
    • US EIA estimates 410 Tcf technically recoverable resources
  • Investment
    • 2010-12 - 4,500+ wells drilled for $32 billion
    • $1.8 billion taxes paid since 2006

Source: MSC
Conclusion

• US is one of the largest and most developed unconventional gas plays in the world

• Economic contributions are real and meaningful, with high expectations for further growth in the next 10 years

• Huge opportunity exists in the supply chain
  • Savvy, cost-conscious Australian resources supply chain companies may be well-positioned to benefit