EIA Markets Initiative
Modern Energy Markets

Policy/Regulatory Frameworks
- Market structure (entry, exit)
- Transparency
- Public interest

Physical Fundamentals
Supply-demand for Commodities

What are the interactions?

Financial Markets
Supply-demand for commodity derivatives

Behavioral Responses
- To real signals from physical, financial markets
- To perceptions of signals from physical, financial markets
Search for Empirical Answers

• What important factors influencing energy prices have been identified in academic literature, government reports, policy debate, industry analysis, etc?
• What does existing research tell us, with what degree of confidence, about the identified factors, interactions, influence?
• What are key gaps in analysis that are most likely to develop deeper insight?
• What additional information and analysis could be used to generate more definitive results?
Price Level and Volatility Matter

Compiled by CEE using CME (NYMEX) data; STDEV of LN daily, 1-yr MA annualized
F&D Cost Experiment

U.S. breakeven cost is finding and development (FD) expense plus all production cash costs (production operating expense, general & administrative, net interest) plus income and non-income taxes. It is an average for the group of companies included in the U.S. EIA Financial Reporting System. Implied oil price is the price needed by producers based on a formula of 3X FD expense (excluding cash costs; i.e., "drillbit" cost only). When breakeven cost and/or implied price are above U.S. crude oil first purchase price (average price paid for production at the wellhead or lease), companies adjust capital expenditures downward.

Correlations between 3 yr. ave. breakeven, implied oil price and crude oil first purchase price are nearly 1. Standard deviation ranges from 13 to 15.
Correlations between annual breakeven, implied oil price and crude oil first purchase price are close to 0.9. Standard deviation is higher at roughly 19.
A Tough Business, Anyway

Compiled by CEE based on company financial reports

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Price Trends

Discount to Oil

- Actual Ratio, Crude Oil:Gas Prices
- Traditional 6:1 Ratio

- “Drill for oil, find gas? Drill for gas, hope it’s wet?”
- Overall, both drilling and marketed gas production are more responsive to oil price, but...
Spare Capacity/Demand Experiment

And factors like:
- NOCs
- Subsidies
- Many others