



Coalbed Methane Presentation

September 6, 2007

Topics

- What is CBM and where does it come from?
- Why is CBM a valuable commodity or asset?
- Where is CBM being produced?
- How is CBM produced and marketed?
- What are some of the issues involved with production?
- Where does the industry go from here?
- How might utilities benefit from CBM?

What is CBM and where does it come from?

- Coalbed Methane is natural gas associated with and sourced by coal.
- Methane is generated by biogenic and thermogenic processes.
- Methane occurs as gas absorbed onto coal surfaces, as free gas in fractures, cleats or other porosity, and as gas dissolved in ground water within coalbeds.

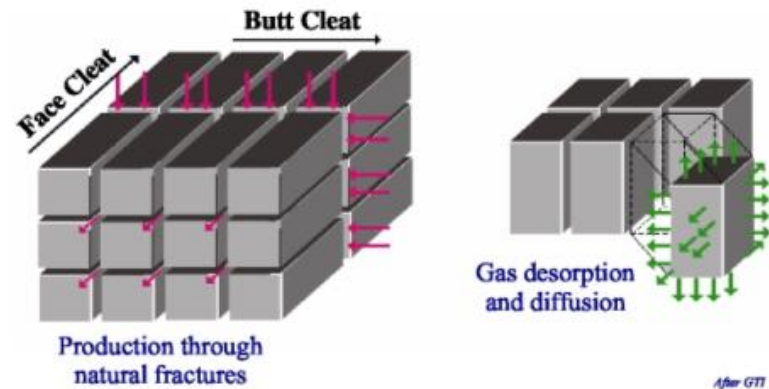
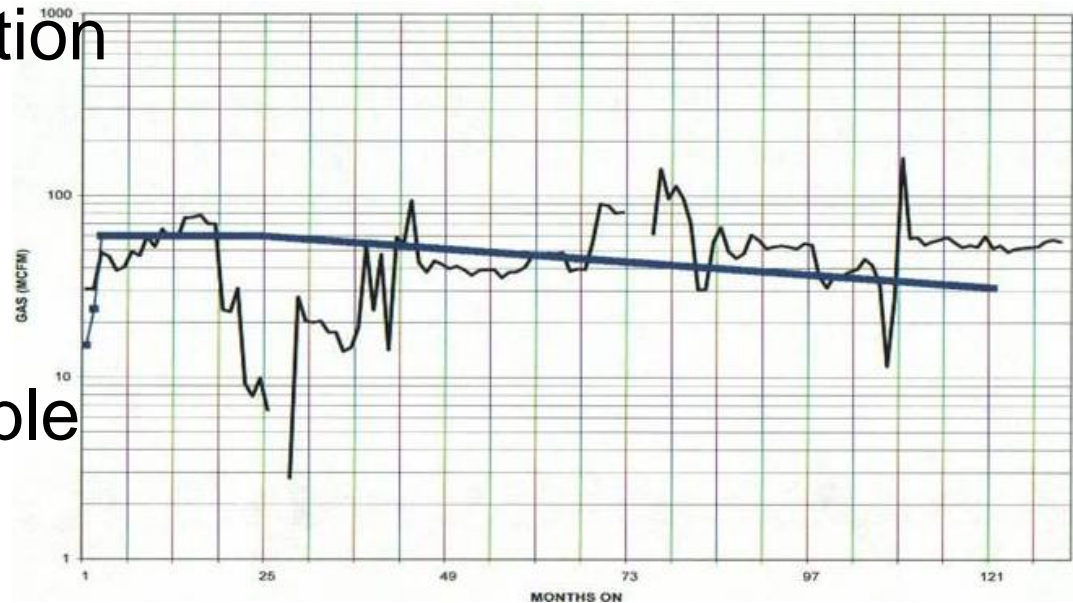


Figure 1. Coalbed Methane Development and Produced Water

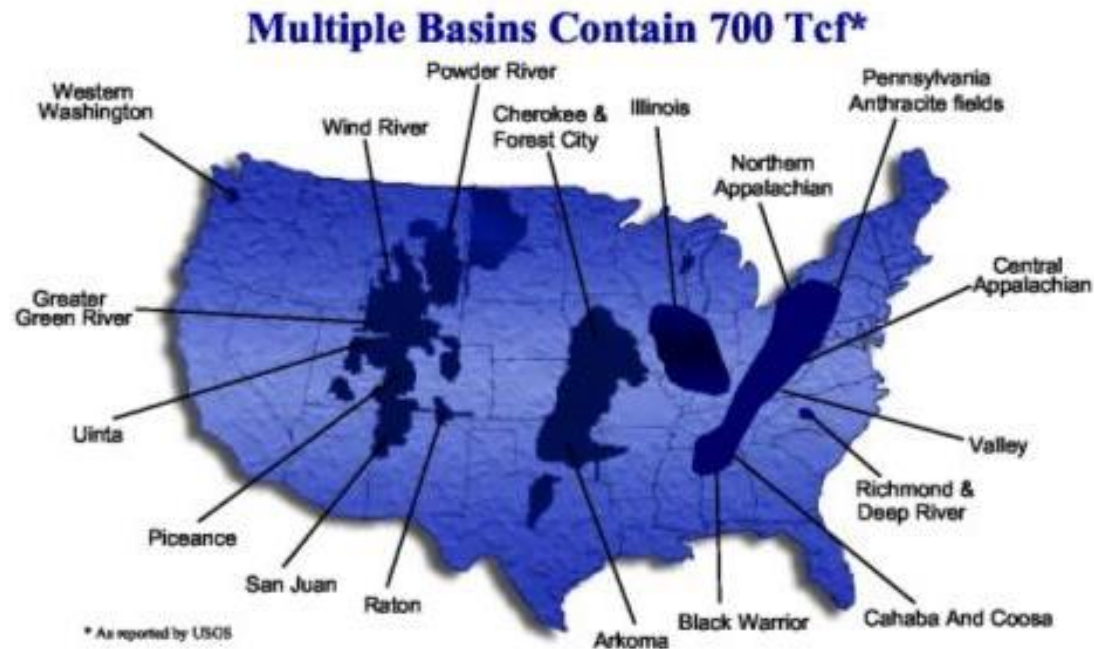
Why is CBM a valuable commodity or asset?

- Low risk reserves
- Long term production
- Low cost
- development of BTU's
- Possible Renewable Energy Source



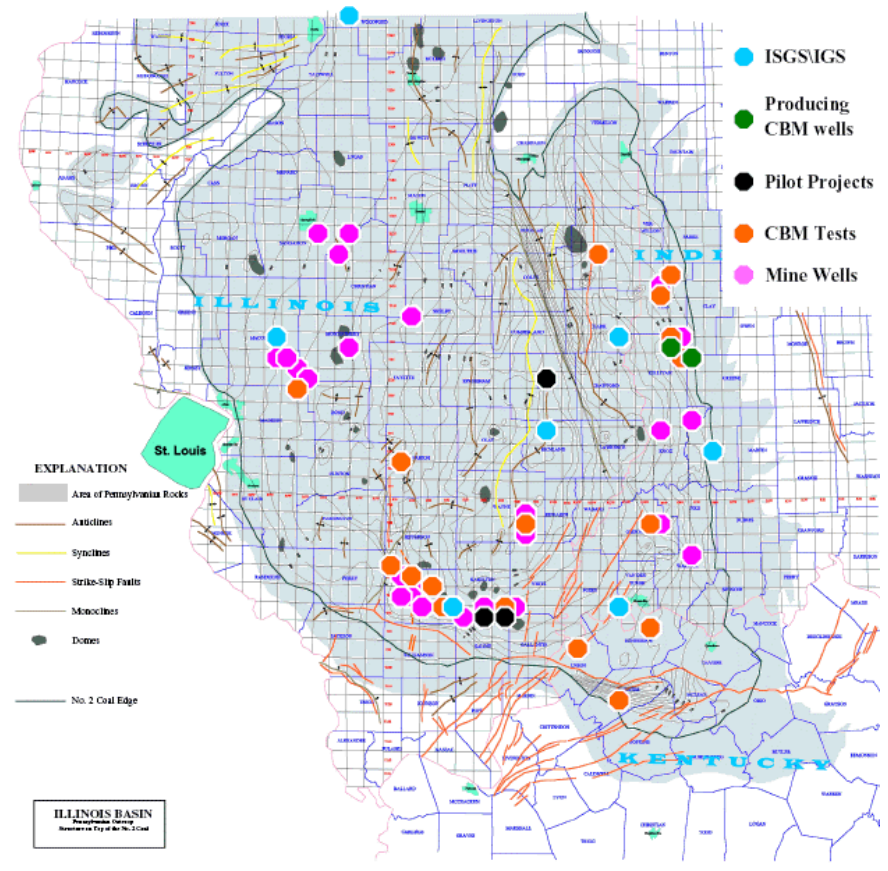
Where is CBM being produced?

- As of 2005 there are 30,000 wells producing coalbed gas in approximately eighteen basins.



Where is CBM being produced?

- Coalbed gas accounts for 8.8% of the gas reserves and 9.2% of annual production of dry gas in the U.S.
- In Indiana only one project, the Jericho Project, is commercially producing.
- To date, the Jericho Project has sold 2 Billion Cubic Feet of gas for use in Indiana.



How CBM is marketed and produced?

- Negotiate gas interconnect with pipeline company
- Negotiate gas sales agreement
- Drilled, completed and stimulated to put in production
- Infrastructure for gathering of both water and gas
- Start de-watering process
- Science and reserve study
- Treatment facility to produce

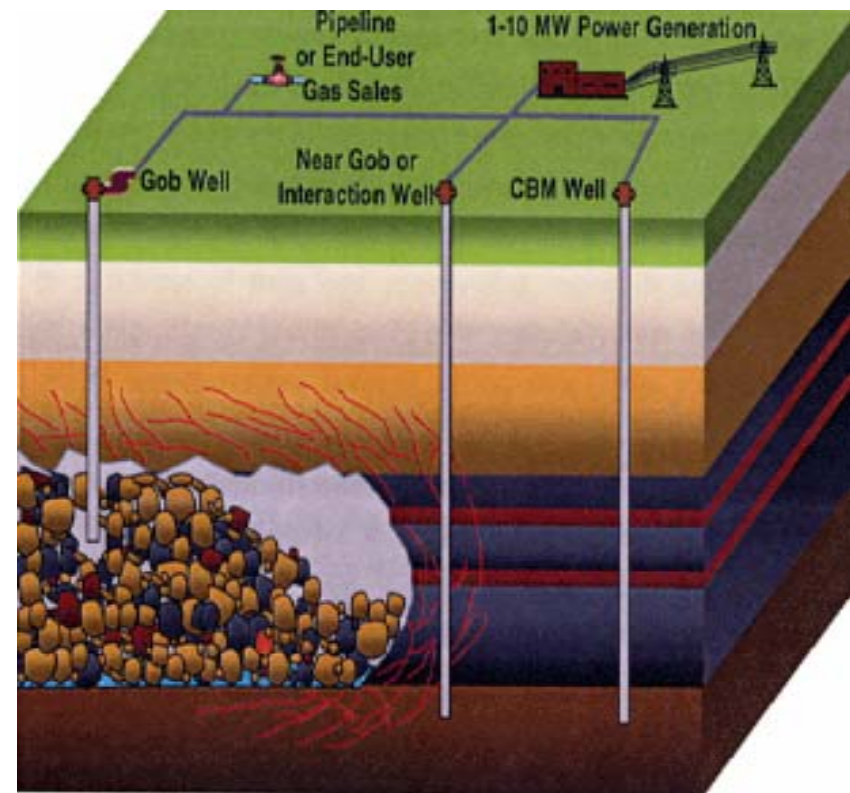


What are some of the issues involved with production?

- Ownership
- Water Production Management
- Gathering System Choices
- Low Pressure Operation
- Gas Quality
- Compression Choices

Where does the industry go from here?

- Access to Capital
- Coalbed Methane Association
- Basin Wide Information
- CO₂ Sequestration



How might utilities benefit from CBM?

- Invest directly in CBM recovery projects
- Purchase emission reductions from coal mines that recover methane
- Arrange “green coal” deals where utility includes greenhouse gas emission reduction reports with coal purchases
- Swap SO₂ allowances for greenhouse gas emission reductions
- Participate in multi-utility CBM recovery project and share the emission reductions



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