A BOTSWANA COMPANY BRINGING NEW ENERGY TO SOUTHERN AFRICA

Karoo Sustainable Energy (KSE) Presentation

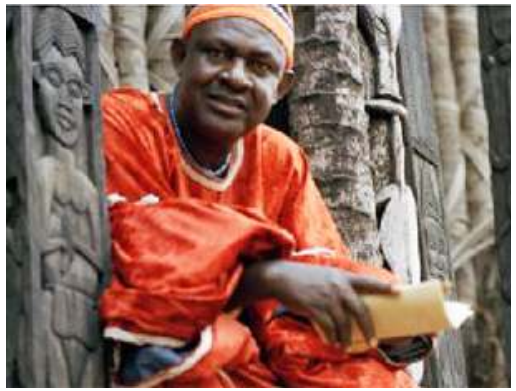
Kalahari Energy Limited

KS Energy

July 24, 2008, Gaborone







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July 23, 2008 Awarded Tender to Build, Operate and Own 250MW Vertically Integrated CBM+IPP under 15 Year PPA with Botswana Power Corporation

» **Sustainable energy at lower prices based on CBM technology, reliable, plentiful and controlled fuel supply**

- Undertaking complete fuel supply and price risk
- Design based on GE LM series gas turbine technology with first unit scheduled for Commercial Operation in Feb'10
- Group 5 of RSA Nominated EPC Turnkey Contractor for IPP
- Development and production from over 300 CBM gas wells
- Infrastructure to supply gas to the power plant
- CBM reserves allow to add multiple blocks of power up to 1000 MW
- Environmentally friendly solution that ensures minimal carbon footprint






KS Energy

Kalahari Energy Limited

» KSE is a Botswana-based corporation with three equal shareholders: TUTEN, Kalahari Energy and Petron Resources

KSE in talks with major IPP to become the majority shareholder

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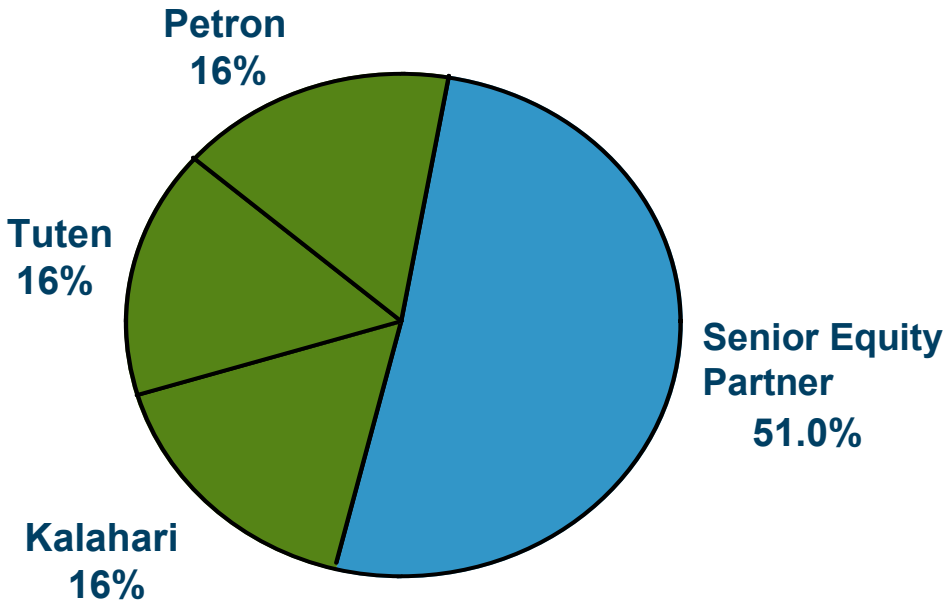






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» This CBM project has significant environmental benefits that help create a secure and sustainable energy future

Why sustainable energy?

- Energy demand increasing
- Energy security
- Public policy
- Technology
- Commercialize CBM sector
- Produce water for agriculture & consumption
- CO2 emissions reductions

Karoo Sustainable Energy Mission…

To be a leader in:

- Providing energy derived from local Botswana sustainable sources that reduce dependence on imported power supplies
- Investing and developing vertically integrated CBM+IPP technologies, delivering high return, rapid growth, and superior shareholder value

Why KSE?

- Botswana based Southern Africa energy export platform
- Value Added in Botswana, boost to economy
- Greenfield development
- Project structuring expertise






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» Kalahari Energy (KE)/Scales Associates is a local Botswana company experienced in CBM reserves development

- Provides permitting, land leasing, and gas rights licensing for CBM reserves
- Controls substantial gas field leases on the eastern side of the Kalahari Karoo Basin
- Have been working on CBM in Botswana for over a decade.
- Own and operate the only dedicated CBM well completion plant in the region (drill rigs, frac plant, etc)
- KE has received $8.5 million investment guarantee from OPIC to finance the purchase of equipment and the drilling of coal-bed methane wells
- ARI is the consultant to KE to convert the CBM potential from a ‘known’ resource to a reserve

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» Kalahari Energy

Kalahari Energy Limited

Botswana gas exploration and development company based in Gaborone, Botswana. In conjunction with Botswana's Department of Minerals and Energy, Kalahari Energy is developing partnerships to meet the urgent power generation and energy requirements of Southern Africa

MAJOR MILESTONES

2000 - KE acquires prospecting permits on various leases situated on the Eastern edge of the Kalahari Karoo basin.

2000 - KE purchased basic equipment, started training workforce & commenced drilling.

2005 - Overseas Private Investment Corporation (OPIC) provides $8.5 million investment guarantee.

2005 - Botswana Government Officials taken to America and Australia to demonstrate the exploitation of Coal Bed Methane (CBM).

2006 - Capital raised from institutional and individual investors in Australia, Luxembourg, South Africa and U.K.

2007 - Establishment of partnerships on selected leases to fully exploit exploration and mining activities.

2008 - New state of the art drilling rig (RD20) is delivered, commissioned and commences drilling.

2008 - 5-Spot array of wells completed, demonstrating strong gas flows.

2008 - Endorsement from Dept. of Energy Affairs to pilot the provision of natural gas to Government schools in rural villages.






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TUTEN LTD

Kalahari Energy Limited

» **TUTEN is a premium development group specializing in peaking and base load thermal facilities**

Services

› Development of 50-300MW mid-merit, peaking and base load plants

› Project management, LM based IPPs, Design, Procurement, Construction and O&M

› Financial advisory and structuring services focusing on Export Credit Agencies (US Exim-Bank) and other multi-lateral financing sources (EBRD, IFC and OPIC)

› Greenhouse gas (GHG) emissions trading, and monetization of carbon credits

Clients

› General Electric, US

› AES Corporation, US

› Karachi Electric Supply Co, Pakistan

› METKA, Greece

› IEG, Slovakia

› Zorlu, Turkey

› ENKA, Turkey






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TUTEN LTD

Kalahari Energy Limited

KESC KORANGI 4XLM6000PC SPRINT 220MW
'FAST-TRACK' POWER PLANT
Karachi, Pakistan
Photo taken 10 months after Contract Signature






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PETRONRESOURCES
A Texas Limited Partnership

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» PETRON is an oil and gas exploration company with a global reach

- Provide CBM management services and operations
- Combine their technical expertise in gas development with other industry specific operating, developing, and financial strengths
- Specific qualifications
  - Experienced global teams
  - Pioneered CBM drilling and completion technologies
  - Developed CBM basins in the U.S.A
  - Conducted CBM exploration projects in China, Ukraine, Turkey, Kazakhstan

- Petron's brings to KS Energy
  - Unconventional focus (coalbeds, shales, tight gas sands, heavy oil sands)
  - Experience in vertical and horizontal drilling
  - Proven technology






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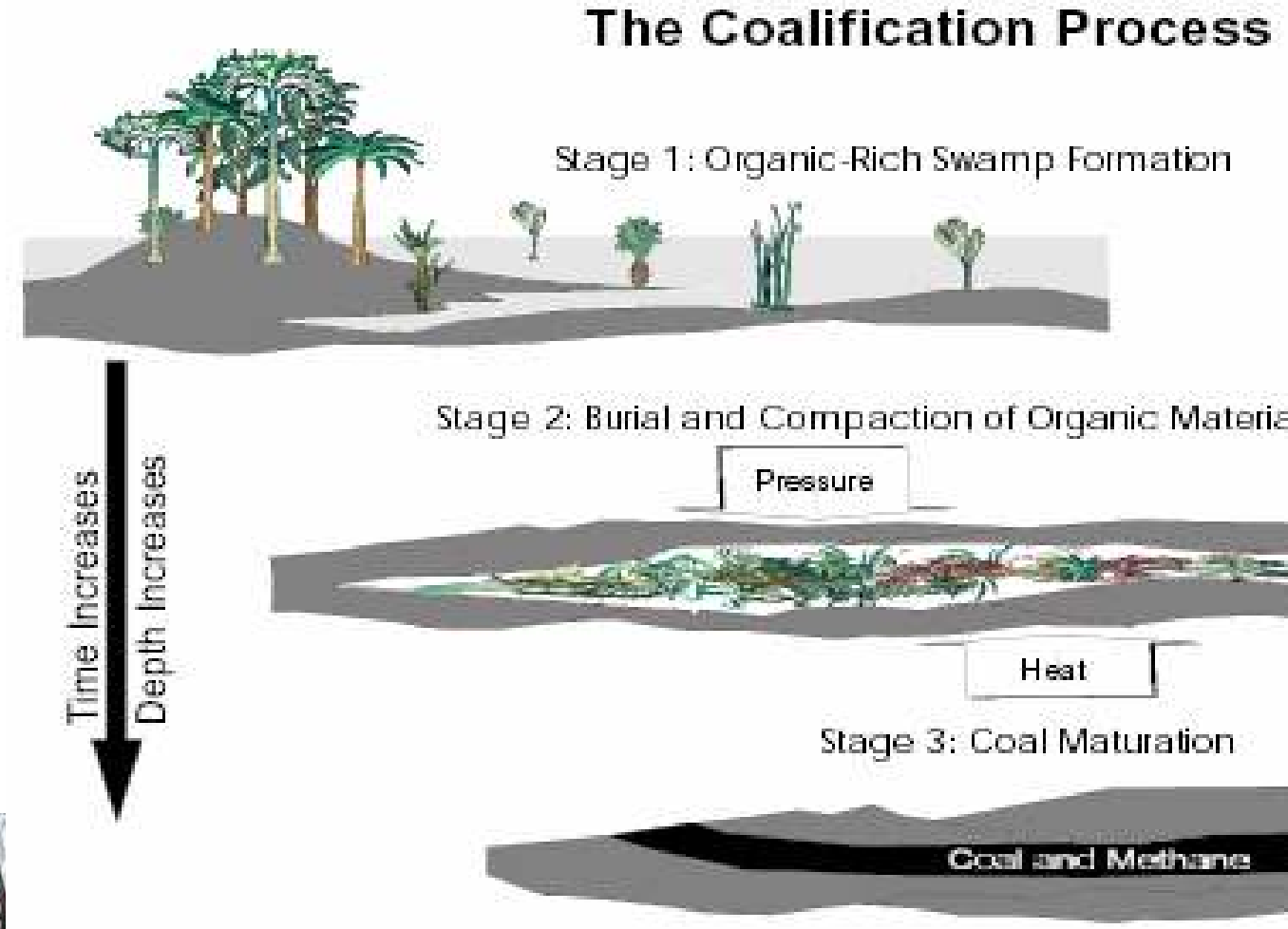
» How is Coal Bed Methane formed?



During the transformation of organic matter to coal, methane and other gases are generated

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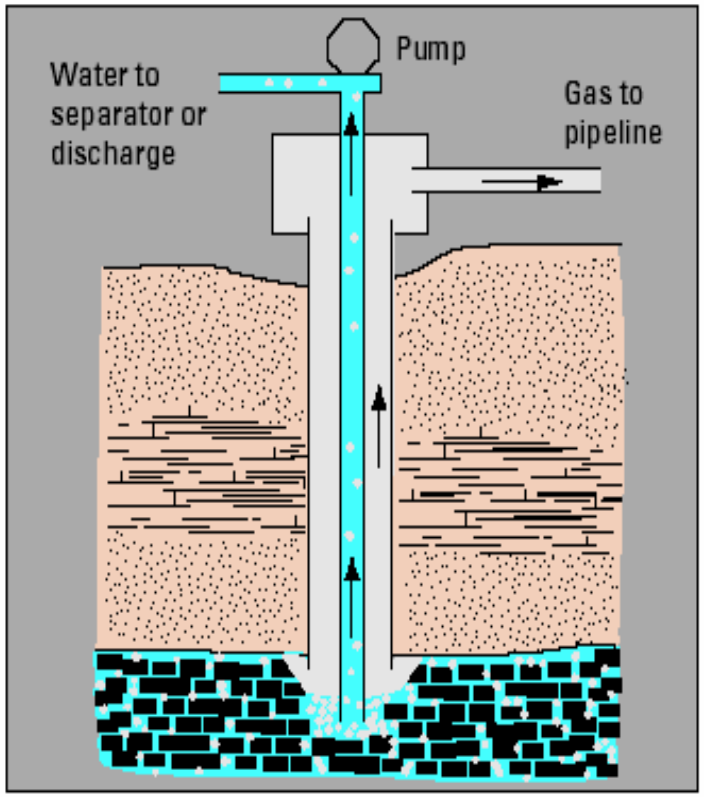
» CBM Fuel Extraction



- Same applies to either vertical or horizontal well completions
- Simple surface mounted pump
- Casing cemented into boreholes
- Prevents aquifer communication
- Pumping enables gas production
- Well proven technology
- Low pressure gas extraction
- Fail safe



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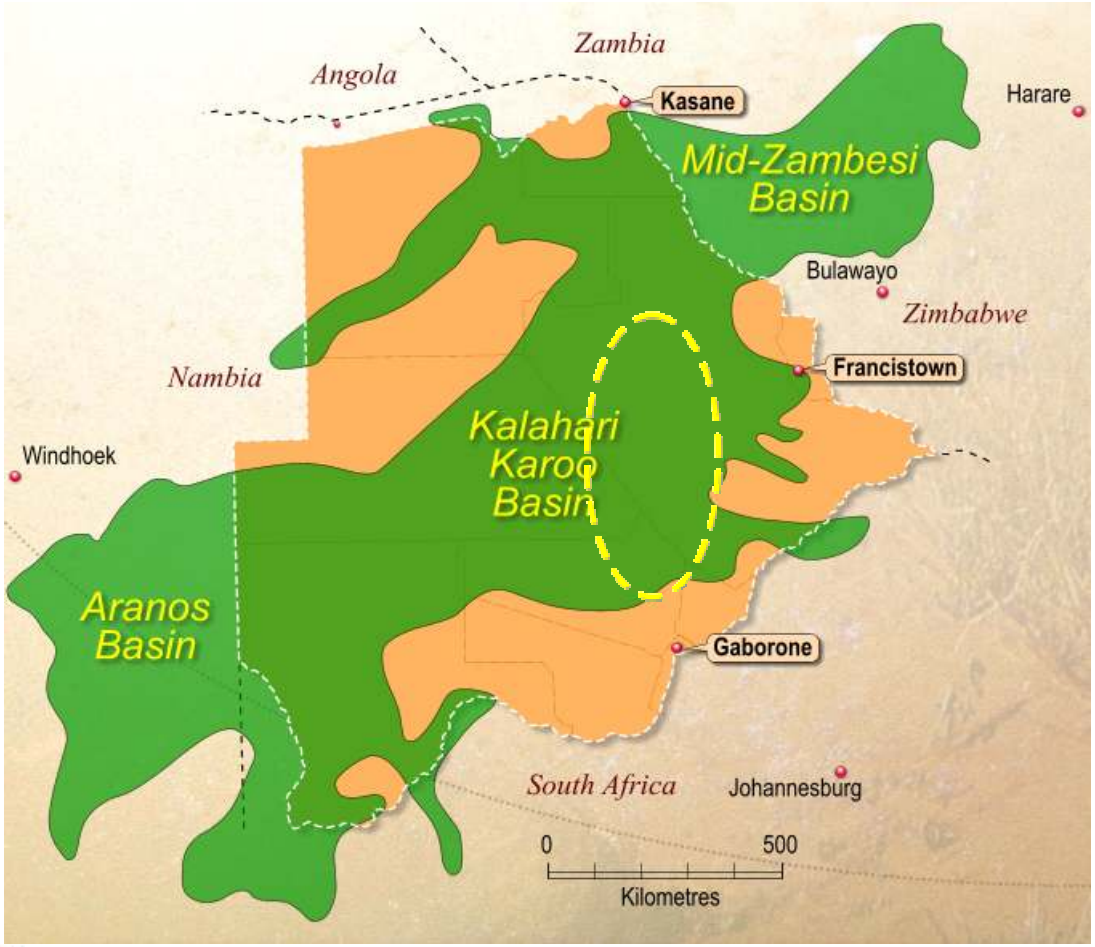
» Botswana Vast Gas Resource



- 210 billion tons of proven Permian Karoo coal reserves
- Gas-in-place resource of 280 Tcf (40-60 Tcf Recoverable)
- Most prospective area for CBM is eastern part of basin
- Energy demand in Southern Africa exceeds supply resulting in an energy shortage.



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» CBM Business Opportunity

- Kalahari Energy holds 5 prospecting licenses (3,500km^2)
- Botswana imports 70% of its energy from South Africa.
- Extraction of CBM presents an opportunity to develop:
  - Power Generation Plants -> gas supply
  - Compressed Natural Gas (CNG):
    - Large industry customers to substitute other sources of energy (diesel, LPG etc.);
    - Vehicle conversions for large company vehicle fleets and eventual private transportation;
    - Residential uses like heating, cooking etc;
    - Community projects (Gas to villages).
  - Gas to Liquids

Farmed out

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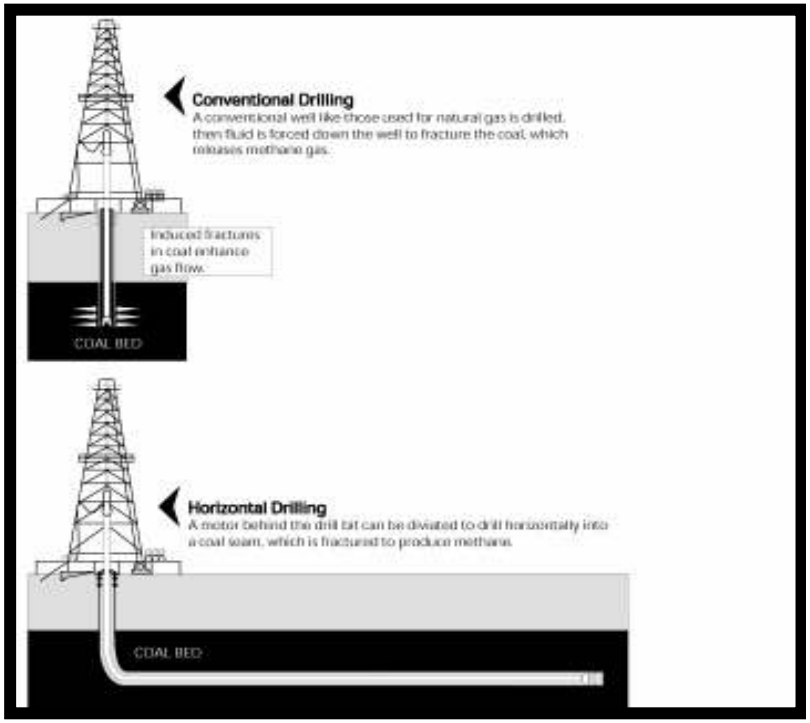
» Vertical vs Horizontal Drilling



Two types of CBM wells technologies:

1. Conventional (or Vertical) Drilling
2. Horizontal Drilling, well suited for low perm reservoirs & thick coals/shale:

- Low permeability of coal at depth from 500-900 m may not be productive with conventional (vertical) well
- Thick Coal Beds Above 1 m best with suited for horizontal.
- Shale Deposits – Barnett Shale, Devonian Shale, Fayetteville Shale became major natural gas plays in the US as result of developments in Horizontal Drilling

Horizontal Drilling Technology well suited for low permeable coal

- Could increase recovery in low perm area (4.5 md) from 50% up to 75% and in 1.5 md Recovery Factor would go from 45% up to 67.5 – 76.5%
- In certain coal basins in the US horizontal (Z-Pinnate) drilling achieved recovery factors in excess of 90%.



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» Horizontal CBM Well Benefits

Horizontal well completions provide significant advantages over conventional vertical wells

Horizontal CBM well benefits:

- Faster gas available to IPP
- Higher recovery rates (80% horizontal vs 40-50% vertical)
- Lower CAPEX/OPEX and far fewer wells required
- Higher returns and far less plant and infrastructure in a challenging project environment
- Reduced project risk

Vertical test program:

- Five pilot well vertical test program under way
- Preliminary production testing in June-July
- Dewatering - under way
- First gas flows observed in early July 2008

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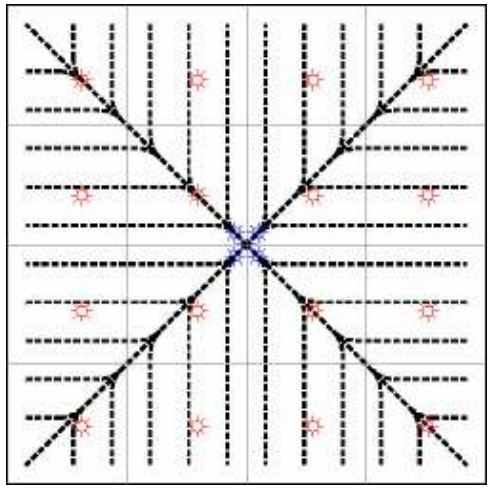
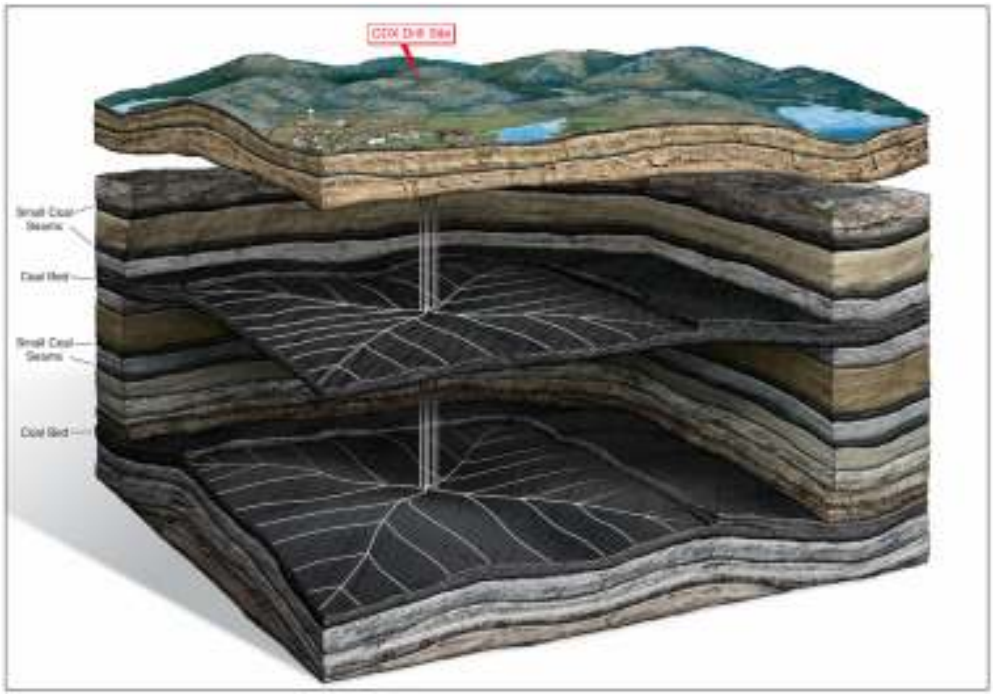
» Understanding the Production Profiles: *Rate versus Time Comparison*

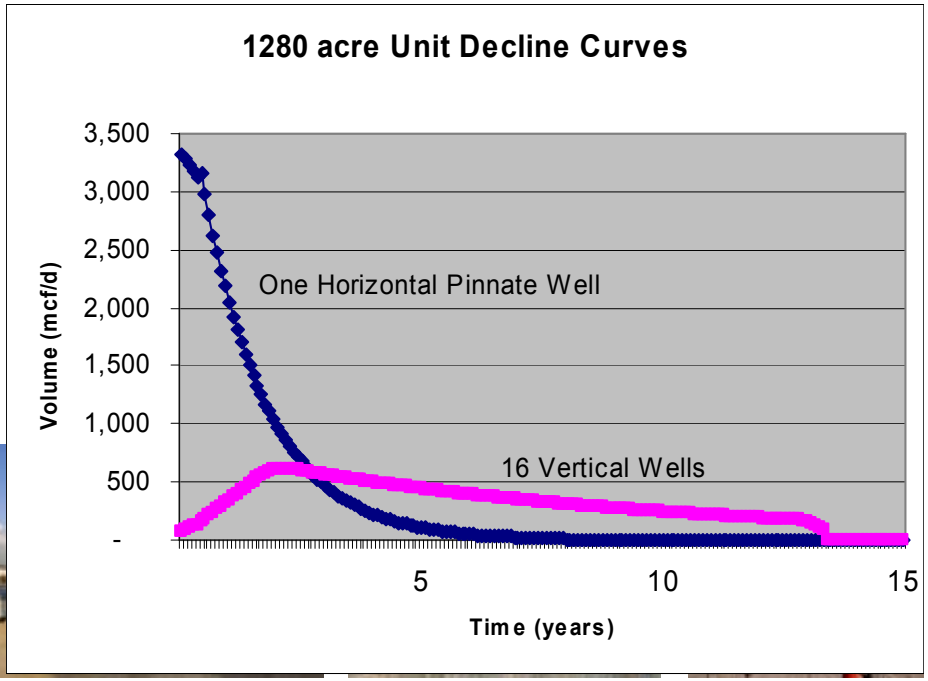
Dual Seam Completion, Pinnate Development 1 well (1280 acres)



Replaces 16 standard 75 acre vertical well locations



Understanding the Production Profiles: Rate versus Time Comparison



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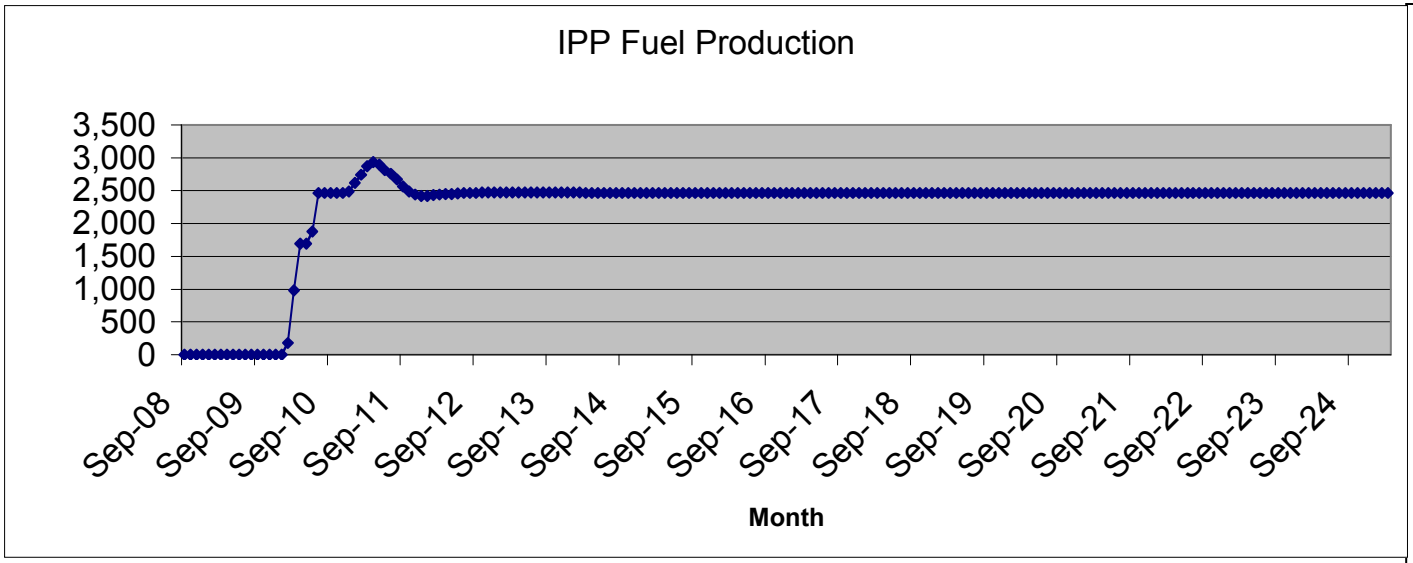
» KS Energy Vertically Integrated CBM+IPP Fuel Supply Plan



Production Plan Stats

- Ramp up Drilling from 1>1.5>1.9 Wells/Mo until Plateau
- Pause Drilling during IPP Construction as CBM gas not on critical path
- Dill 1.5 Wells/Mo from Nov10 to maintain level
- 300+ Total Wells

Plateau Production Profile - 8000 hrs/year

- Drilling will proceed until a peak production rate is achieved
- Drilling is carried out to maintain the peak rate for several years
- This “plateau rate” drilling schedule was selected in order to simulate sales to an end user who requires a long stable and sustained production profile, such as a power plant
- 15 year PPA with an annual dispatch target +/- tolerance



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» Why KSE?

We provide…

› Fast track experience

› As much power as economically feasible in as short a time as possible

› Proven Horizontal CBM technology

› Full control of fuel supply

› Fixed electricity tariff to BPC

› Sustainable and environmentally friendly power supply

› Long term water production for human, agricultural and industrial development

› Commercialization of domestic CBM resource

› Independence from primary imported energy

› Development of local economy from new sector






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» Q&A Session






» Additional Slides






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» CBM Fuel Supply

What is CBM?

Basically drilling into coal seams at depths of 300-900 meters to release and produce methane gas that naturally exists there.

How is CBM different from other Natural Gas Exploration & Production?

Loose sand or other traditional gas production requires ‘wild-catting’ to find the gas being stored there. Methane is the main component of natural gas and is a by-product from the decomposition of organic matter, like the ‘coalification’ process of organic matter to coal. Methane doesn’t naturally occur in sand formations but migrates from coal, lignite, shale or other organic matter and is resting there.

What are the main risks of CBM compared to other O&G development?

CBM is not really an O&G type risk but more of a mining risk that can be quantified and considered much like coal mining. When prospecting a mine-mouth power plant an ideal site has reasonably high calorie coal close or at the surface without much water or methane content. CBM is just the reverse…






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» CBM Fuel Supply

What defines a commercially viable CBM potential?

- Basically if you have coal you have methane
- Methane is a by-product of the coalification process, however,
- Methane must be 'held' or adsorbed onto the coal cleat/cube structure in large volumes and. . .
- Must be an economic means to release and recover the methane out of the coal seams… does the market and/or infrastructure to market exist?

What are the 'key' variables that help determine the likelihood of CBM potential?

- Depth and thickness of coal seams 300-1000m deep with at least 1-4m thick seams are a good target zone.
- Water existing in coal seams is a must. No water means lower formation pressure, thus the methane may have migrated out of coal.
- High calorie coal with good cleating… imagine a piece of coal in your hand that crumbles into very tiny cubes… this is good cleating.
- Good permeability of coal in the range of 10-0.5 mili D'arcy (md).






» CBM Fuel Supply

How can you test for CBM potential??

Once a target zone is identified, there are several tests, but the most valuable results are obtained from the following tests. Then a pilot production well should be drilled, completed and produced.

- **Desorption Testing** of a coal sample by take a core sample of the coal to the surface, place it in a vacuum sealed canister and to perform a desorption test to determine 'gas in place' (GiP) reserves.
- **Gamma ray, density and caliper logs** of the geologic formations in the test well bore. This will determine the thickness, depth and density of the various formations.
- **Drilling, completing and actually producing a pilot well program** to verify water and gas volumes produced in the target pay zones.
- Obtaining or generating **geologic survey data** on the target area (reservoir) to ensure that the target pay zones are continuous throughout.






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» Fuel Supply: Coal Bed Methane

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Drilling into coal seams at 300-900 meter depths to release naturally existing methane gas

Musts:

- Methane held or adsorbed onto the coal cleat/cube structure in large volumes
- Coal seams have depth of 300-1000m and thickness of 1-4m must
- Water in the coal bed; lack of water indicates lower formation pressure and methane migration out of coal.
- High calorie coal with good cleating
- Good permeability of coal in the range of 10-0.5 mili D'arcy (md).

Testing CBM potential:

- Desorption testing – Gas in Place (GiP) reserves
- Gamma ray, density and caliper logs of the geologic formations
- Pilot well program
- Geological survey data to ensure continuity of formations/pay zones