

Coal Bed Methane

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Index: ASX / LSE

Sector: Energy

Key points

- Coal bed methane is gaining favour with investors
- Technological improvements are improving the flow rates that can be achieved
- Natural Gas is significantly cleaner burning than coal and oil, increasing its popularity
- Several recent high profile transactions have given the sector additional credibility

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Coal Bed Methane



Worldwide investor interest in coal bed methane has soared in recent months due to a combination of high profile corporate deals and increasing world energy prices.

This note provides a brief summary of the coal bed methane industry and the recent high profile transactions.

WHAT IS COAL BED METHANE?

Coal Bed Methane, also known as Coal Seam Gas, is a natural gas formed as a by-product during the coalification process whereby organic matter is turned into coal.

Coal bed methane is an odourless gas that is used just like any other form of conventional gas to power water heaters, stoves etc and as a fuel for electricity generation.

Unlike conventional natural gas reservoirs, where gas is trapped in the pores or void spaces of a rock such as sandstone or limestone, methane trapped in coal is adsorbed onto the coal surface and held in place by reservoir and water pressure. Hence the coal is the source and the reservoir for the methane. The amount of gas trapped in the coal is a function of coal rank, pressure and temperature.

To extract coal bed methane a well is drilled into the coal seam and is cased. The coal seam is perforated which then enables the gas to flow to the surface, where it is gathered and processed as required.

The technology to extract coal bed methane is developing rapidly. One significant improvement is the ability to drill horizontal wells that follow the coal seam and maximise methane capture.

Coal generally has a lower permeability than conventional gas reservoirs meaning the production rates per well are generally lower.

The higher the coal rank, the higher the potential gas in place. However high rank coals have a lower permeability which means the gas may not flow at commercial rates. Conversely, lower ranks coals may not contain as much gas but a higher permeability will lead to higher flow rates.

Coal Bed Methane

13th June 08

Queensland Gas	ASX:QGC
Share price A\$	5.15
52 week High/Low A\$	6.39 / 1.81
Market cap A\$m	4,136

Origin Energy	ASX:ORG
Share price A\$	15.69
52 week High/Low A\$	16.32 / 7.65
Market cap A\$m	13,833

Santos	ASX:STO
Share price A\$	22.00
52 week High/Low A\$	22.34 / 10.55
Market cap A\$m	13,278

Arrow Energy	ASX:AOE
Share price A\$	3.69
52 week High/Low A\$	4.11 / 1.49
Market cap A\$m	2,523

Sunshine Gas	ASX:SHG
Share price A\$	2.60
52 week High/Low A\$	2.86 / 0.65
Market cap A\$m	875

Island Gas	LSE:IGAS
Share price p	83.5
52 week High/Low p	96.5 / 35.0
Market cap £m	50

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DEVELOPMENT TO DATE

The coal bed methane industry is most advanced in the United States, Canada and Australia where coal bed methane currently contributes approximately 10%, 5% and 25% to domestic supply respectively. In addition, China, Russia and India are currently in various stages of developing their coal bed methane industries.

Coal bed methane is in its infancy in the United Kingdom however companies are now recognising the opportunity and looking to establish first mover advantage. Growing domestic demand for natural gas combined with declining North Sea production make for attractive industry fundamentals.

GREENER

Natural gas is cleaner burning than coal with greenhouse gas emissions some 40% lower than that emitted by coal burning. As such, natural gas is gaining favour as a feedstock for electricity generation. Gas fired power stations are well suited to provide 'peaking' power generation due to their fast start-up times.

LNG PRODUCTION

Liquefied natural gas (LNG) is natural gas that has been converted to liquid form for ease of transportation. LNG takes up approximately 1/600th of the volume of natural gas under domestic mains pressure.

Recent investor interest in the sector has been boosted by the potential to convert coal bed methane into LNG, particularly in Eastern Australia where there is a large demand for LNG from its Asian neighbours. Domestic gas prices in Australia have remained low by international standards to date given the large gas reserves and relatively low domestic population. Conversion of coal bed methane to LNG effectively re-prices the value of this 'stranded' asset to international gas prices.

MARKET ACTIVITY

There has been substantial market activity in the coal bed methane industry over the past six months, particularly in Australia where there are substantial and growing reserves of coal bed methane. Market interest has been fuelled by a number of factors including:

- Growing energy demand from Asia, particularly China, which are in close proximity to Australia;
- Rising crude oil and gas prices;
- The search for cleaner energy sources;
- A 'land grab' as world LNG players look to secure up reserves, and;
- Declining production from existing conventional gas fields.

RECENT TRANSACTIONS

BG Group / Queensland Gas Company Ltd

Queensland Gas Company Ltd (QGC) entered into an alliance with BG Group (BG) to develop a 3 – 4Mtpa LNG plant at Gladstone, on the Australian east coast. BG paid £322m for a 9.9% interest in QGC and a 20% interest in several of QGC’s coal bed methane tenements. Under the agreement BG may acquire a further 10% of QGC’s tenements subject to certain levels of reserve certification being achieved.

BG will have a 70% interest in the LNG plant with the right to purchase 100% of the LNG production under a 20 year agreement.



ADVFN

BG Group / Origin Energy Ltd

BG made a £6.2b cash bid, later increased to £6.6b for Origin Energy (Origin) which was subsequently rejected by the Origin board. BG’s strategy was to utilise Origin’s significant coal bed methane reserves as feedstock for its planned LNG plant in Gladstone. BG is currently reviewing their options with regard to their bid.



ADVFN

Petronas / Santos Ltd

Malaysian state owned energy company Petronas invested £1.03b for a 40% interest in Santos's planned 3Mtpa LNG plant, to be located in Gladstone, Australia. Petronas will pay an additional £256m should a second LNG train be achieved in the future.

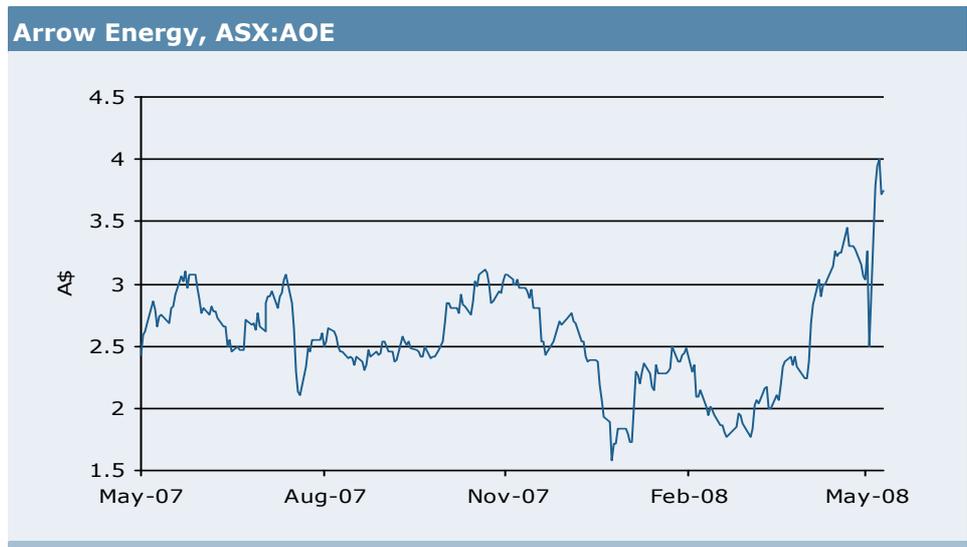


ADVFN

Royal Dutch Shell PLC / Arrow Energy Ltd

Royal Dutch Shell (Shell) has invested £210m for a 30% interest in Arrow Energy's (Arrow) upstream coal bed methane operations with staged bonus payments up to a total of £312m subject to Arrow successfully developing their 1.3 – 2.6Mtpa LNG plant in Gladstone, Australia. Under the agreement Shell will have the rights to purchase the LNG from Arrow's plant.

Shell has also paid £26m for a 10% interest in Arrow's international operations with staged bonus payments up to a total of £65m subject to certain levels of reserve certification being achieved.



ADVFN

Sojitz Corporation / Sunshine Gas Ltd

Sojitz Corporation (Sojitz) has entered into an agreement with Sunshine Energy Ltd (Sunshine) to develop a 0.5 – 1.0Mtpa LNG plant in which Sojitz will hold a 70% interest. Sojitz also has the option to purchase 20% of Sunshine’s upstream coal bed methane assets.



ADVFN

Island Gas

We note the increased investor interest in Island Gas (LSE:IGAS) in recent weeks which appears to be both correlated to the transactions summarised above, and in response to the recent awards from the UK’s 13th onshore oil and gas licensing round. Island gained 7 blocks close to existing assets which have increased their licensed areas by almost two thirds in size.

Island Gas now holds several exploration and development licenses in the United Kingdom which are prospective for coal bed methane. In conjunction with its Canadian farm-in partner Nexen, Island Gas has a significant drilling programme over the next 12-24 months.



ADVFN

TRANSACTION MULTIPLES

The implied value paid per unit of certified gas reserves in these transactions are difficult to compare as the transactions are valuing contingent resources in addition to certified reserves. Contingent resource and gas initially in place estimates vary widely based on the tenement land area each company holds.

Transaction Multiples					
Transaction	2P £/mcf	3P £/mcf	3P+3C £/mcf	GIIP £/mcf	Comment
BG / Queensland Gas	0.71	0.30	0.13	0.05	Based on initial payment
BG / Origin Energy	0.43	0.27	0.13	-	Bid rejected by Origin Energy
Petronas / Santos	2.20	0.74	0.26	0.04	
Shell / Arrow Energy	0.82	0.24	0.11	0.02	Based on initial payment

Company Announcements / ED

2P: Proven + Probable Reserves

3P: Proven + Probable + Possible Reserves

3C: Contingent Resources

GIIP: Gas Initially in Place

mcf: 1000 cubic feet

I certify that this report represents my own opinions
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