



U-Gas News Report

Unconventional Gas Activities in the World

www.cedigaz.org

Published by Cedigaz

Edited by Thierry Rouaud

N° 74 — December 2012

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Main News

COALBED METHANE

SOUTH AFRICA: Planned Ermelo project - Agreement. — UG74-1

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AUSTRALIA: Regulation. — UG74-2

Australia's coal seam gas industry could face future carbon tax liabilities if "fugitive" emissions of methane from unconventional gas production turn out to be substantially higher than expected.

CHINA: Regulation. — UG74-3

China plans to triple its current subsidy for coal bed methane gas production to encourage the development of the sector.

SHALE GAS

ALGERIA: Forecast — Domestic supply. — UG74-6

The government plans to introduce a new hydrocarbons bill in parliament to encourage the exploration of unconventional gas and oil resources

AUSTRALIA: Planned project in Kimberley region- Approved. — UG74-7

Australian oil and gas producer Buru Energy and Mitsubishi Corporation have struck a deal to develop massive unconventional gas reserves in the environmentally sensitive Kimberley region of Western Australia.

KAZAKHSTAN: Planned project - Feasibility. — UG74-9

Kazakhstan will hold a comprehensive analysis of the feasibility of developing shale gas.

TIGHT GAS

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Pakistan's state-run gas utility Sui Southern Gas Co. has signed the country's first-ever tight gas sales and purchase agreement with Polish company PGNiG and Pakistan Petroleum Ltd.

COALBED METHANE

EXPLORATION - DISCOVERIES

SOUTH AFRICA: Planned Ermelo project - Agreement. — UG74-1

Africa focused and Australia listed coal bed methane (CBM) and gas explorer Sunbird Energy has been awarded the Ermelo West Exploration Right which covers 797 sq. km of prospective acreage in the Ermelo Project in South Africa, in the Witbank coal mining region. The granting of the licence allows Sunbird to **focus its exploration efforts at the Ermelo Project on the western licence area where the coals are at greater depth and have the potential to deliver a commercial gas resource**, the company said. Ermelo is considered a potential CBM project due to its extensive coal deposits and the presence of large quantities of methane gas in an old coal mine that operated in the area until 1997.

The key driver for the Ermelo Project is its location immediately adjacent to gas pipeline infrastructure and South Africa's largest gas users. The gas pipeline from Mozambique traverses the licences providing direct access to markets and customers. The project is also located approximately 60 km east of Secunda where Sasol operates major coal and gas to liquid fuels and petrochemical complexes.

(December 2, 2012)

PRODUCTION

AUSTRALIA: Regulation. — UG74-2

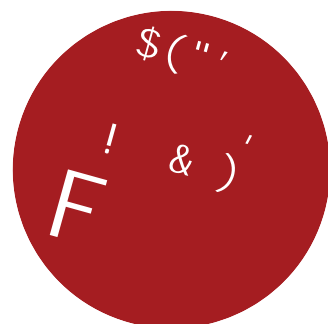
Australia's coal seam gas industry could face future carbon tax liabilities of up to \$4 billion a year if "fugitive" emissions of methane from unconventional gas production turn out to be substantially higher than expected. Three huge coal seam gas-to-LNG projects worth \$60 billion are under construction in Queensland by BG Group, Origin Energy and Santos. Both BG and Santos have had multibillion-dollar cost blowouts this year. Investors are nervous about costs, execution and rates of return on these LNG projects.

The federal government calculates carbon tax liability for conventional and unconventional gas alike, using estimates that just 0.12 per cent of the produced gas escapes to the atmosphere. But recent studies of unconventional gas fields in the US and Australia suggest emissions could be 4 per cent or higher. The US Environmental Protection Agency has doubled its own estimate of fugitive emissions to 2.4 per cent and Australia's Department of Climate Change is reviewing its methodology for calculating greenhouse gas emissions from coal seam gas operations, for potential use in the 2013 National Greenhouse Accounts. (November 19, 2012)

CHINA: Regulation. — UG74-3

China plans to **triple its current subsidy for coal bed methane gas production** to 0.60 yuan per cubic metre to encourage the development of the sector, Reuters reported. The Ministry of Finance in 2008 gave coalbed methane companies a production subsidy of 0.20 yuan per cubic metres.

The country is expected to raise total funds aimed at supporting mining related technology to 5 billion yuan (\$802 million) per annum, according to State Administration of Coal Mine Safety. China aims to produce 30 billion cubic metres of CBM gas by 2015, more than triple the about 9 bcm produced in 2010, as part of a five-year plan for the industry. It also aims to find 1 trillion cubic metres of proven geological reserves of coal seam gas by 2015, up from current proven deposits of 273.4 bcm. (November 16, 2012)



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CONSUMPTION

AUSTRALIA: Forecast – Domestic supply. — UG74-4

Queensland's biggest gas users, including Incitec Pivot, Rio Tinto and Xstrata, have stepped up their campaign to **reserve gas for local industry**, producing a report that says their use of gas is up to 70 times more economically beneficial to the state than that of LNG exporters.

From 2014, \$70 billion of coal seam gas export plants will start to ramp up liquefied natural gas production, quickly increasing east coast demand threefold and doubling or tripling domestic gas prices, as local buyers compete with Asian gas buyers willing to pay much higher prices. (December 4, 2012)

ENVIRONMENT

AUSTRALIA: Environment - Regulation. — UG74-5

Coal seam gas companies have given the Queensland government more than \$100 million in **environmental bonds in case they damage waterways or land**. CSG companies are required under the state's Environmental Protection Act 1994 to provide financial assurance or environmental bonds. Queensland's environment department is holding just

over \$101,402,008 in environmental bonds lodged by CSG companies involved in major projects, a spokeswoman for Environment Minister Andrew Powell says. Environmentalists are concerned CSG could contaminate underground water and leak gasses into waterways, and the air and spoil good farming land. (December 11, 2012)

SHALE GAS

EXPLORATION - DISCOVERIES

ALGERIA: Forecast – Domestic supply. — UG74-6

Algeria is reportedly considering development of shale gas by tapping 600 trillion cubic feet reserves. By 2019, the entire production will be used to meet local demand with little left for exports. **The government plans to introduce a new hydrocarbons bill in parliament to encourage the exploration of unconventional gas and oil resources**, reports AFP. Currently, hydrocarbons mark over 90% of Algeria's exports, which is another reason for the country to consider shale gas development to increase production.

Meanwhile, Algerian hydrocarbons company Sonatrach, which has drilled its first shale gas well in the Ahnet basin near Tamanrasset, recently discovered a new property in the southeast near Illizi and plans to begin offshore exploration in 2014. The company has signed agreements with Shell, Eni and Talisman for shale gas development. (November 14, 2012)

AUSTRALIA: Planned project in Kimberley region- Approved. — UG74-7

Australian oil and gas producer Buru Energy and Mitsubishi Corporation have struck a deal to **develop massive unconventional gas reserves in the environmentally sensitive Kimberley region of Western Australia**. The WA government has agreed to allow the joint venture partners to **explore for gas and build a pipeline** in the Canning Basin. Under the agreement, the first 1500 petajoules of gas would be allocated to the domestic market in WA. Premier Colin Barnett said there was enormous potential for natural gas in the 530,000-square-kilometre Canning Basin. The 25-year agreement, which includes a possible extension for another 25 years,

will provide additional security of tenure for 1.7 million hectares covered by five exploration permits held by the joint venture.

If commercially viable gas resources are discovered by mid-2016, Buru and Mitsubishi will be required to submit a plan for construction of the domestic gas project, including a pipeline connecting to the existing State gas network in the Pilbara.

Unconventional gas extraction can be carried out by several drilling techniques including fracturing rock formations to liberate gas. The US Energy Information Administration has estimated the **Canning Basin's unconventional gas resources at about 229 trillion cubic feet**, or about one and a half times WA's identified offshore resources. (November 8, 2012)

INDIA: Planned projects - Talks. — UG74-8

Former Canadian minister Herb Dhaliwal, who owns East-West Petroleum Corporation, met Assam Chief Minister Tarun Gogoi recently and expressed his company's **willingness to explore shale oil and shale gas in Assam** which has huge

potential. He also apprised the chief minister that he has been in talks with Oil India, ONGC and GAIL to adopt state of the art technology for exploration of oil and gas. (November 17, 2012)

KAZAKHSTAN: Planned project - Feasibility. — UG74-9

Kazakhstan will hold a comprehensive **analysis of the feasibility of developing shale gas**, one of the leaders of the National Welfare Fund Samruk-Kazyna told Trend last week. The purpose of this study is to determine the presence and technical capacity of shale gas in the Republic of Kazakhstan, the analysis of the existing legal framework and proposals for improvement of the legal regulation of the sector. Besides the analysis of shale gas, the study will analyse such sources as coal bed methane and tight gas formations. (November 15, 2012)

POLAND: Planned projects — Drilling campaign. — UG74-10

Poland's **efforts to develop shale gas resources** to reduce its dependence on Russian supplies **have so far produced only "humble" results** with only 33 wells completed, deputy environment minister Piotr Wozniak said. An uncertain legal landscape and a lengthy testing process from exploration wells partly explain why Poland has not yet cashed in on the potential that has attracted oil majors and international exploration companies to the country. Wozniak said the government expects to pick up the pace by **drilling a further 270 wells over the next seven to**

eight years. Poland had high hopes for domestic shale gas after a 2011 study by the U.S. Energy Information Association estimated its reserves at 5.3 trillion cubic metres, enough to cover domestic demand for around three centuries. But the country's own study published this year slashed the estimate for recoverable shale gas reserves to between 346 billion and 768 billion cubic metres. The country's shale future suffered another blow this year when U.S. oil major ExxonMobil announced it would pull out of exploration projects in Poland. (November 28, 2012)

UNITED KINGDOM: Shale gas discovery. — UG74-11

A study has confirmed a natural gas field in west Clare of up to 3.86 trillion cubic feet of shale gas. UK-based energy company, **Enegi confirmed that on the basis of the study findings, it intends to apply to the Government for an exploration licence** before February of next year. Extraction of the shale gas will involve the controversial technique of fracking and opposition to fracking in Clare has already been voiced.

The study, carried out on behalf of Enegi by Fugro Robertson, **estimates the area to be between 1.49tn and 3.86tn cubic feet of shale gas**. The firm said that "results of the work programme indicate that, given the maturity, thickness and buried depth of the shale, the whole area under the option remains prospective for shale gas".

A company spokesman said that the high-grade area is south of Doonbeg and north of Kilrush. The company confirmed it has lodged a report with the petroleum affairs division of the Department of Communications, Energy and Natural Resources. (December 1, 2012)

PRODUCTION

CHINA: Planned shale gas project – Final investment decision. — UG74-12

Royal Dutch Shell Plc, said its shale gas project in China will require billions of dollars in investment from 2014 before it can supply the domestic market. Along with China National Petroleum Corp., **Shell plans to take a final investment decision by the end of next year after carrying out exploration work at the Fushun-Yongchuan block** in the Sichuan basin. The partners

have so far drilled 24 wells and plan a further 14 next year, said Maarten Wetselaar, executive vice president of Shell Upstream International. Chinese may hold 1,275 trillion cubic feet of technically recoverable gas, almost 50 percent more than that of the U.S., according to a U.S. Energy Information Administration forecast in April. (November 15, 2012)

RESERVES

UNITED KINGDOM: Reserves estimates. — UG74-13

The huge shale gas deposit around Blackpool is 50pc larger than previously thought, according to reports. The British Geological Survey (BGS) is currently carrying out a **review of the UK's shale gas reserves**, published in the new year.

The Times newspaper reported that the BGS will conclude that the 1,000 square kilometres covered by the Bowland Basin to the east of Blackpool contains 300 **trillion cubic feet of gas**. This is roughly 17 times more than the known reserves in the North Sea.

In 2011, exploration company Cuadrilla estimated there was 200 trillion cubic feet of gas in the area. **Controversial shale gas extraction**, or fracking, currently banned after it caused minor earthquakes, **could be expanded in Scotland under government plans to exploit reserves** across the UK. Official documents are understood to show Westminster hopes to extract shale gas in 64 per cent of the UK, including the central belt. (December 7, 2012)

GENERAL INFORMATION

SOUTH KOREA: Cooperation - Talks. — UG74-14

South Korea and the United States have agreed to step up cooperation on shale gas, Yonhap news agency reported. Major Korean energy firms have expressed interest in moving into the US shale gas space. Earlier this year Korea National Oil Corp. said it **will enter shale gas**

development by establishing a related company in the U.S. KNOC will join hands with Korea Gas Corp. (Kogas), as the latter is an established shale gas player with expertise in the sector. (December 7, 2012)

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TIGHT GAS

PRODUCTION

OMAN: Planned project - Delay. — UG74-15

BP said that its agreement with Oman government for a full-field commercial development of its Block 61 tight gas fields in north-central Oman is **seen only next year**. Nevertheless BP and the Ministry of Oil and Gas are in an advanced stage to finalise the deal, which will be the driving force for the development of gas-rich Khazzan and Makarem fields with a

whopping capital expenditure of \$24 billion. The first phase of the development programme is spread over a 25 year-concession period and aimed at producing 6.7 trillion cubic feet (TCF) of natural gas, which is equivalent to one billion standard cubic feet of gas per day. BP is planning to drill 282 wells and the first delivery of gas is expected by 2017. (December 2, 2012)

SUPPLIES – IMPORTS - EXPORTS

PAKISTAN: Supply contract - Agreement. — UG74-16

Pakistan's state-run gas utility Sui Southern Gas Co. has signed the country's first-ever **tight gas sales and purchase agreement** with Polish company PGNiG and Pakistan Petroleum Ltd. Under the agreement, SSGC will get 30,000 Mcf/d of tight gas from the Kirthar block starting May 2013 according to the Ministry of Petroleum and Natural Gas.

The Kirthar block is located in the southern province of Sindh and is jointly owned by PGNiG (70%) and PPL (30%). The **production of tight gas is expected to start in May 2013 and SSGC will lay a 52 kilometer (32.24 mile) pipeline** at an estimated cost of \$3.4 million to move the gas. The gas will be sold at \$6.00/MMBtu, around 40% higher than the current price of conventional gas. Leases for tight gas fields will run for 40 years, instead of the 30 years for conventional gas assets. Pakistan's tight gas reserves are pegged at 40 Tcf and most of this is believed to be in the Sindh province, which produces 70% of the 4.2 Bcf/d the country's natural gas output. (November 16, 2012)

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Centre International d'Information sur le Gaz Naturel et tous Hydrocarbures Gazeux

1 et 4, avenue de Bois Préau, 92852 Rueil-Malmaison Cedex, France

Tel. +33 1 47 52 60 12 - Fax +33 1 47 52 70 14 - www.cedigaz.org

Editor's contact : constancio.silva@ifpen.fr