



U-Gas News Report

Unconventional Gas Activities in the World

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Main News

CHINA : Unconventional gas consumption.

Zhang Hongtao, chief engineer of the Ministry of Land and Resources said that China's consumption of shale gas is expected to reach **15 billion cubic metres by 2020**. Consumption of coalbed methane is forecast to rise to **23 billion cubic metres by 2020**. (see UG-51-24)

COALBED METHANE & COAL SEAM GAS

CHINA : CBM exploration.

The Ministry of Commerce, the National Development and Reform Commission and the Ministry of Land and Resources and the National Energy Administration issued recently a statement allowing China National Petroleum Corp., China Petrochemical Corp. and Henan Provincial Coal Seam Gas Development & Utilization Co. to **cooperate with foreign companies in developing domestic coalbed methane resources**. will be allowed to work with foreign companies. (see UG-51-4)

INDONESIA : CBM exploration.

Director General of Mines and Energy Ministry Evita Legowo said recently that the Indonesian government plans to **auction 12 coal bed methane blocks**. (see UG-51-5)

SHALE GAS

ARGENTINA : Shale and tight gas reserves.

YPF made recently a major unconventional gas find in the vicinity of the Loma da Lata field. A newspaper claimed that YPF sources had signalled that as much as **20 trillion cubic feet of new gas had been found**. The report suggested that the additional reserves are essentially shale gas and tight gas. (see UG-51-14)

INDIA : Shale gas reserves.

India signed recently a preliminary shale-gas accord with the U.S. The agreement is aimed at **determining shale-gas reserves in India**. The U.S. will also help India prepare for its first shale-gas auction, scheduled to be held by the end of 2011. (see UG-51-17)

UNITED STATES : Shale gas reserves.

According to the U.S. Energy Information Administration's (EIA) Summary: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 2009, recently released. U.S. natural gas proved reserves, estimated as "wet" gas which includes natural gas plant liquids, **increased by 11 percent in 2009 to 284 trillion cubic feet**, the highest level since 1971. "Shale gas development drove an 11 percent increase in U.S. natural gas proved reserves last year, to their highest level since 1971, demonstrating the growing importance of shale gas in meeting both current and projected energy needs," said Richard Newell, EIA's Administrator. (see UG-51-23)

COALBED METHANE & COAL SEAM GAS

EXPLORATION - DISCOVERIES

AUSTRALIA : Coal seam gas potential confirmed in Southern Cooper Basin. — UG51-1

Strike Energy Limited recently advised that laboratory testing of samples from the first well at its Southern Cooper Basin coal seam gas project in South Australia has been completed returning encouraging results. Gas contents are in the order of 40 standard cubic feet (scf)/ton (1.1m³/tonne); a strong result from oxidised samples, with the implication that significant gas contents can be expected in nearby and deeper unaltered

coals. Based upon the results from the oxidised coals the expected range of gas content in unaltered coals, at these depths and for equivalent coal types (in analogue areas) are likely to be to the order of 140 to 250 scf/ton (4 to 7m³/tonne) and are within the range considered to be commercial. The interest holders in PEL 96 are: Strike Energy (Operator) 66%; Australian Gasfields 33%. (Oilvoice, October 28, 2010)

AUSTRALIA : Aromatic chemicals are banned to be used in fracturing in Queensland. — UG51-2

The Australian state of Queensland recently banned the use of benzene and several other aromatic chemicals in fracture stimulation in the state's coal seam methane gas formations. Other chemicals included in the ban are toluene, ethyl benzene, and xylenes. The minister said that only about 5% of the state's wells have been fracked, and fracturing fluids are typically 99% sand and water. Nevertheless, the state's parliament voted to ban the use of these chemicals in any further development of coal seam gas resources. (Oil & Gas Financial Journal, December 6, 2010)

CHINA : PetroChina and Shell team up for CBM project. — UG51-3

PetroChina and Royal Dutch Shell recently agreed to jointly work on an oil and gas project in Canada and a coalbed methane block in north China, the Chinese company said. The two companies signed a Memorandum of Understanding for the project in Canada and an agreement to jointly evaluate coalbed methane reserves in the Daning block of Erdos Basin in north China. "Compared with international oil

giants, Chinese companies still lack experience in operating overseas projects. Such cooperation will help PetroChina reduce risks in overseas businesses," said Lin Boqiang, director of the China Center for Energy Economics Research at Xiamen University. The country's production of coalbed methane now stands at 1 bcm annually. (People's Daily, November 11, 2010)

CHINA : More firms allowed cooperating with Foreign Companies in coalbed methane development. — UG51-4

China issued recently a statement allowing three more firms to cooperate with foreign companies in developing domestic coalbed methane resources. China National Petroleum Corp., China Petrochemical Corp. and Henan Provincial Coal Seam Gas Development & Utilization Co. will be allowed to work with foreign companies, according to a statement jointly issued by the Ministry of Commerce, the National Development and Reform Commission, the Ministry of Land and Resources and the National Energy Administration.

The nation had aimed to achieve an annual production of 10 billion cubic meters by the end of 2010, but annual CBM output had only reached 700 million cubic meters at the end of 2009 despite proven reserves of 170 billion cubic meters then. CNPC and Sinopec Group, the nation's largest

oil and gas producers, have both said they will expedite development in alternative energy sources with a focus on CBM. CNPC, for example, aims to produce 4.5 billion cubic meters a year of CBM-based gas in the coal-rich Shanxi province by 2015, compared with 600 million cubic meters in 2009, after bringing online its first major CBM project in November 2010 in the Qinshui basin. (Dow Jones, December 8, 2010)

INDONESIA : 12 CBM blocks planned to be auctioned. — UG51-5

Director General of Mines and Energy Ministry Evita Legowo said recently that the Indonesian government plans to auction 12 coal bed methane blocks. Five of the blocks would be offered through direct offers, while the rest would be offered through regular tender offers. The five blocks were located in Kalimantan and Sumatra islands, and the seven blocks were all in Riau province, she said. (Xinhua, November 30, 2010)

NEW ZEALAND : Solid Energy reports update on Taranaki coal seam gas project. — UG51-6

Solid Energy will shortly continue its Taranaki coal seam gas work with a widely spaced exploratory drilling programme in the northern part of the Stratford District and western part of Ruapehu District. Seven exploration holes will be drilled in an area from Tatu through to Whangamomona from

late October through to approximately March 2011. Six similar exploration holes were previously drilled by Solid Energy in the Taranaki near Mt Damper, Waitaanga, and around Tahora and Tangarakau. (Solid Energy, October 19, 2010)

UNITED STATES : GeoPetro Resources provides update on the Cook Inlet LEA #1 well. — UG51-7

GeoPetro Resources Company announced recently that Linc Energy Ltd., the Operator of the Alaska Leases in the Cook Inlet region, has completed the drilling of the LEA #1 exploration well in the Point Mackenzie Block of the Cook Inlet Basin in Alaska.

A testing program to evaluate the potential for commercial gas production from the well will now be undertaken. As expected, a number of significant coal seams were encountered. Coal is recognized as the source rock for all the gas discovered and produced from the prolific Tyonek, Beluga and Sterling formations in the Cook Inlet Basin. (PRNewswire, November 18, 2010)

PRODUCTION

AUSTRALIA : Queensland Gas Company to build a plant for treating CBM production water. — UG51-8

A water treatment plant will be built on the Darling Downs to treat salty water brought to the surface as part of coal seam gas mining. Queensland Gas Company said the water treatment plant will have eventual production capacity of up to 100 mega litres a day and it will be treated and pumped from near the Kenya gas processing plant 20km to Chinchilla Weir for use in irrigation. QGC Managing Director Catherine Tanna

said the water is salty and would otherwise not be used. AgForce policy director Drew Wagner said the water was coming from the Walloon coal measures underground aquifer, part of the Great Artesian Basin. He also said the water supply touted by QGC will last only a few years and the problems of the waste stream, including large quantities of salt, were not resolved. (The Age, November 29, 2010)

CHINA : Authorities approve TerraWest Energy's CBM project. — UG51-9

TerraWest Energy Corp recently received approval of its 2010 CBM field programme and the launch of the Liuhuanguo project. This covers 653 sq km in the southern Junggar basin of Xinjiang. The 2010 programme involves drilling and production tests of up to ten pilot wells to yield CBM from coal seams gas as well as shale gas. TWE will test two locations drilled previously. The LHG 08-01 and 08-03 wells are ready for testing. The 2010 programme will be the first CBM pilot production under a PSC in western China. The joint management committee includes executives from both TWE and PetroChina Coalbed Methane Co. TWE operates and PCCBM holds the PSC. (APS Review, November 8, 2010)

INDONESIA : Dart Energy signs new CBM PSC with Medco Energy. — UG51-10

Dart Energy Limited reported recently the signing of a CBM production sharing contract in relation to the Muralim block in South Sumatra, Indonesia. Dart has partnered with Medco Energy in this PSC. The PSC is for a 30 year term, with a 6 year initial exploration and appraisal period. During the first and second years of appraisal (2011 and 2012) Dart's plan is to undertake various studies and to drill two core wells in each year. During the third year of appraisal (2013), Dart's plan is to complete up to 3 pilot wells. The Muralim block is located within South Sumatra

Province. The area is located within the South Sumatra Basin, which is a major coal and oil producing region with generally net coal thickness in the range of 20 - 35m. The Muralim block is proximate to the South Sumatra pipeline which transports gas to Java. Sewell & Associates, Inc has completed an initial resource estimation of the Muralim block and has estimated the following: Best estimate Gas-in-Place resource (gross): 2.7 Tcf • Best estimate prospective resource (gross): 1.5 Tcf. (Scandoil, December 7, 2010)

UNITED KINGDOM : IGas increases CBM production at Doe Green. — UG51-11

IGas Energy recently increased average gas production at its Doe Green site near Warrington in Cheshire by around 40% percent. This increase has been achieved following the implementation of a range of measures designed to optimize the de-watering process at the site's DG2 well. The contributing laterals have now been producing at the increased rate of around 60,000 standard cubic feet (scf) per day of high quality CBM for over six weeks. IGas has been steadily producing gas and generating electricity for over a year from Doe Green and remains on track to establish the UK's first CBM full production site in 2011. (Pennenergy, October 19, 2010)

RESERVES

AUSTRALIA : Bow announces Blackwater 3P certified reserves increased by 15%. —

— UG51-12

Bow announced recently an additional 213 petajoules 3P certified reserves for its Blackwater coal seam gas field located approximately 250km west of Gladstone, Queensland. The upgrade represents a 15% increase in reserves for the Blackwater CSG Field from 1,383PJ to 1,596PJ. The additional 213 PJ 3P certified reserves was sourced from the deeper south western

section of the Blackwater Field. Independent consultants MHA Petroleum Consultants, LLC (MHA) have now certified 2,467 PJ of 3P reserves and 2,014 PJ 2C resource across two of Bow's three 100% owned Bowen Basin tenements. Pilot Production Programs Continues at Blackwater. (Austral-Asia News, November 8, 2010)

CHINA : Far East Energy reports 7 Tcf of coalbed methane in Shouyang Block. — UG51-13

Far East Energy reported recently the results of an independent engineering report prepared by Netherland, Sewell & Associates estimating the total coalbed methane Original Gas-in-Place in Far East Energy's Shouyang Block situated in Shanxi Province, China. The report covers three target coal seams (the Nos. 3, 9 and 15) and concludes with a best estimate of Original Gas-in-Place of 7.0 trillion cubic feet of coalbed methane and a high estimate of 8.5 Tcf covering the 487,000 acres under the

company's Shouyang Production Sharing Contract. Michael R. McElwrath, CEO and President of Far East Energy said "All of this comes at a time when, based on current exchange rates, the pricing of our natural gas in China is approximately \$6.00 to \$6.45 per Mcf, which includes enacted and announced government subsidies and compares quite favourably to the November 3 Henry Hub US natural gas price of \$3.35 per Mcf". (Rigzone, December 1, 2010)

SHALE GAS

EXPLORATION - DISCOVERIES

ARGENTINA : Major discovery made in shale gas and tight gas plays. — UG51-14

YPF made recently a major unconventional gas find in the vicinity of the giant but mature Loma da Lata field. A newspaper claimed that YPF sources had signalled that as much as 20 trillion cubic feet of new gas had been found, a figure not confirmed by any official spokesperson with YPF.

The report suggested that the additional reserves are essentially shale gas and tight gas. The Argentine government has put in place a package of fiscal incentives for exploration and production of unconventional gas in the country. (Dow Jones, December 8, 2010)

BULGARIA : Chevron interested in shale gas exploration. — UG51-15

US ambassador to Sofia James Warlick said recently "Chevron has been expressing a strong interest in exploring for shale gas since May, and it is still waiting to receive a permit". As things stand, Bulgarian legislation, in particular the Law on Underground Resources requires that permits for exploration for oil and gas be issued after a formal contest and cannot just be granted at will. According to Warlick, Chevron's own estimates are that some 20-25 Bcm of shale gas might be lying untapped in Bulgaria. (Novinite, November 8, 2010)

CANADA : Gaz Métro submits its brief on the sustainable development of shale gas to the BAPE. — UG51-16

As part of the public hearings before the Bureau des Audiences Publiques sur l'Environnement (BAPE) on the sustainable development of the shale gas industry in Quebec, Gaz Métro presented recently a summary of the brief it has submitted to the BAPE. The summary emphasized the three main points made in the brief: the reliability and safety of the Gaz Métro network, the growth potential of the natural gas industry in Quebec and the economic and environmental benefits that could result from the development of the natural gas industry. Martin Imbleau, Gaz Métro's Vice President, Operations and Major Projects said "We are therefore already reaping the positive economic and environmental effects associated with shale gas production. Developing the potential of the industry in Quebec would help keep prices low in the medium term. This would facilitate the switch to natural gas from polluting energy sources that produce more GHG emissions and thereby improve Quebec's environmental performance". "Increasing the use of natural gas in certain situations would mean an immediate

reduction in greenhouse gas emissions. The opportunity that is being presented to the people of Quebec is, in this regard, a unique one,” stated Mr. Imbleau. (Gaz Métro press release, November 17, 2010)

INDIA : Agreement signed with United States to assess shale gas reserves. —

UG51-17

India signed recently a preliminary shale-gas accord with the U.S. The agreement is aimed at determining shale-gas reserves in India, Oil Minister Murli Deora said. The U.S. will also help India prepare for its first shale-gas auction, scheduled to be held by the end of 2011, Oil Secretary S. Sundareshan said.

Preliminary estimates show India’s shale-gas reserves may be larger than its proven conventional gas deposits, according to P.K. Bhowmick, president of the country’s Association of Petroleum Geologists. (Bloomberg, November 8, 2010)

JAPAN : Osaka Gas is considering to invest in shale gas projects. — UG51-18

Osaka Gas President Hiroshi Ozaki said recently that the company would not rule out the possibility of investing in upstream shale gas projects, production from which is expected to grow globally in the coming years. “Unconventional gas is one of the upstream sources that we are looking at,” told reporters, adding that it would invest in such projects if the chance emerged. (Reuters, November 18, 2010)

KUWAIT : Kuwait Energy Company seeks to develop production of unconventional hydrocarbons in its concessions. — UG51-19

Kuwait Energy Company entered recently into a three-year agreement with East West Petroleum Corporation, a Calgary-based company, for the application of emerging unconventional oil and gas technologies in concessions owned by Kuwait Energy. Kuwait Energy will benefit from East West Petroleum’s technologies in identifying resource plays such as: shale gas, shale oil and tight sand gas, for future development. The agreement covers 13 exploration and

production concessions held by Kuwait Energy in four countries, namely Egypt, Yemen, Ukraine and Russia. Under the terms of this agreement, East West Petroleum will have the right to negotiate, on an exclusive basis, to acquire equity-sharing arrangements for commercial benefit of unconventional developments in the acreage evaluated, where new and enhanced petroleum reserves are identified. (Zawya, November 9, 2010)

POLAND : ExxonMobil receives shale gas exploration acreage in Lublin Province. — UG51-20

After Exxon Mobil granted exploration acreage in Chełm, Krasynstaw, Hrubieszów and Tomaszów districts, Genowefa Tokarska, Chairman of Lublin Province, said recently ‘ We are at the very beginning of exploration. Evaluating the situation will take about a year and a half. Then we will be able to say if it is possible to exploit shale gas. Some more years will be needed to confirm that this enterprise is profitable business-wise’. In her talks with ExxonMobil representatives she emphasized the importance of environment protection. (Polish Market, November 9, 2010)

POLAND : San Leon expands shale gas acreage in the Baltic Basin. — UG51-21

San Leon Energy announced recently that its wholly-owned Polish subsidiary Oculis Energy Sp. z o.o. has expanded the Concession for oil and gas reconnaissance and exploration and the mining usufruct agreement following an application process with the Polish Government. San Leon currently has 100% interest in the concession. The concession, totalling 894.41 km², is located in the Baltic Basin, onshore northern Poland, across license blocks 48

and 49. The concession is valid for up to 5 years and covers a work programme which includes geological studies, 280 km 2D seismic acquisition and a one well drilling obligation. The concession also has an optional 3D seismic survey and an additional two wells. The expansion of the Gdansk W concession increases the total area of the farm-out agreement with Talisman Energy. (Oilvoice, November 3, 2010)

POLAND : Conoco and Lane Energy to drill new well in northern Poland. — UG51-22

Kamlesh Parmar, Country Manager at Lane Energy Poland, said that ConocoPhillips and Lane Energy Poland plan to drill another exploratory well for natural gas in a Polish shale formation. In 2010, Lane Energy drilled two vertical wells at its license in northern Poland. The company is now testing the results and getting ready to drill a

horizontal well in the same area in the second quarter of 2011 and results should be ready by the end of 2011. Poland's reserves of shale and tight gas may be as much as 3 trillion cubic meters, according to estimates by Advanced Resources International. (Bloomberg, December 2, 2010)

RESERVES

UNITED STATES : Shale gas development drives natural gas proved reserves to highest level since 1971. — UG51-23

According to the U.S. Energy Information Administration's (EIA) Summary: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 2009, recently released. U.S. natural gas proved reserves, estimated as "wet" gas which includes natural gas plant liquids, increased by 11 percent in 2009 to 284 trillion cubic feet, the highest level since 1971. "Shale gas development drove an 11 percent increase in U.S. natural gas proved reserves last year, to their highest level since 1971, demonstrating the growing importance of shale gas in meeting both current and projected energy needs" said Richard Newell, EIA's Administrator.

"Louisiana, Arkansas, Texas, Oklahoma, and Pennsylvania were the leading states in adding new proved reserves of shale gas during 2009," he said. Louisiana led the nation in additions of natural gas proved reserves with a net increase of 9.2 Tcf (77 percent) owing primarily to development of the Haynesville Shale. Both Arkansas (Fayetteville Shale) and Pennsylvania (Marcellus Shale) nearly doubled their reserves with net increases of 5.2 Tcf and 3.4 Tcf respectively.

These increases occurred despite a 32 percent decline in the natural gas wellhead prices used to assess economic viability for 2009 reserves as compared to the prices used in reserves reporting for 2008. Proved reserves of U.S. oil (crude oil plus condensate) also increased in 2009, rising 9 percent to 22.3 billion barrels. Texas showed the largest increase in reserve volume, while North Dakota had the second largest increase reflecting growth in the Bakken Shale. (EIA press release, November 30, 2010)

CONSUMPTION

CHINA : Shale gas consumption could reach 15 bcm by 2020. — UG51-24

China Daily reported recently, citing a government official, that China's consumption of shale gas is expected to reach 15 billion cubic metres by 2020, or 0.45 percent of total energy used. China's consumption of coalbed methane is forecast to rise to 23 billion cubic metres by 2020, or

0.7 percent of overall demand by then, Zhang Hongtao, chief engineer of the Ministry of Land and Resources said. China's gas consumption is expected to make up 9 percent of energy mix by 2020 from the current 3.8 percent, Zhang said. (Reuters, October 19, 2010)

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