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Shale Gas: What Is New in China?

The National Development and Reform Commission, China's Ministry of Finance, the Ministry of Land and Resources (MLR), and the National Agency of Energy on March 13, 2012 jointly published the first five-year plan for development of shale gas in China for 2011–2015.

Production targets are ambitious and emphasize the need for foreign cooperation, particularly in technology, to allow the growth of this economic sector.

China's resources are estimated at 134,420 billion cubic meters gas reserves, with an estimated 25,000 billion cubic meters of exploitable shale (for reference, U.S. reserves are estimated at 13,600 billion). China has one of the largest shale gas reserves in the world.

Overview of Shale Gas in China

Onshore deposits of shale gas are located all over the Chinese territory, and 180 areas of shale gas have now been identified by the MLR as priority development areas.

The study of shale gas in China began in 2004. In 2009, a number of blocks were designated as "priority development projects".

In May 2010, China conducted its first performance of hydraulic fracturing using U.S. technology and, in March 2011 a Sino-foreign joint venture started the first horizontal drilling of shale gas in the Sichuan Weiyuan block.

The exploitation of shale gas deposits is controlled by a handful of Chinese State-owned enterprises relatively inexperienced in this area. The central government is encouraging them to partner with international companies which have developed advanced technologies in this field and have extensive experience in developing shale gas reserves.

A first round of bidding for the commercial development of shale gas in China was launched by the MLR in June 2011. Six SOEs were invited to bid, but only two of the four blocks opened for tender received offers considered satisfactory and in the end only two SOEs were granted an operating license. Although foreign energy companies were not allowed to directly participate in this round of bidding, they were allowed to form joint ventures and provide technology services to Chinese companies involved in the exploration and production of shale gas.

Challenges for Foreign Companies

Foreign companies willing to be involved in the exploration and production of shale gas in China will face several major challenges. Investors will thus likely face high development costs and significant environmental and business challenges.

A Legal Vacuum to Fill

While the development of shale gas involves the setting up of an appropriate legal regime, no detailed rules have so far been enacted to regulate the licensing, exploration or production of shale gas.

However MLR announced on December 31, 2011, that China's State Council had approved changing the legal status of shale gas from a "natural resource" to an "independent mining resource". The consequence of such legal qualification is that shale gas is now exempted from the restrictive legal regime currently in effect for exploration and hydrocarbon production in China. Furthermore, the revised Foreign Investment Industry Guidance Catalogue (the “catalogue”), which took effect on January 30, 2012, specifies that foreign investments in the exploration and development of shale gas and shale liquids now fall in the “encouraged” category of the catalogue, which allows foreign investors to set up joint ventures with their Chinese partners and to enjoy certain administrative and tax benefits.

A Complex Geological Environment

The shale gas deposits in China are generally located in mountainous, rocky desert and are buried deep underground. The routing and installation of heavy equipment required for the operation of these deposits will be a complicated and expensive process.

A Strong Protection of IP is Essential

Chinese companies still lack the experience and technologies essential for the development of shale gas reserves. These companies rely very heavily on foreign technology, which is also not always able to solve the problems inherent in the local geology. A real effort in innovation will therefore be necessary to adapt foreign technology to local conditions, and a real policy of protection of intellectual property should be implemented by foreign companies.

Anticipate Water Supply Needs

The process of hydraulic fracturing requires large volumes of water. However, many shale gas fields in China are located precisely in areas facing serious problems of water shortages. The large-scale development of shale gas in these regions will need to take into account the availability of accessible water supplies.

Anticipate Environmental Impacts

Like most industrial operations, shale drilling has the potential to implicate environmental considerations. Issues deserving primary attention relate to water — both the use of chemically treated water to extract the gas and the disposal of waste water after extraction. Air quality issues also deserve attention, particularly during drilling operations. Modern drilling standards using advanced technologies, as well as careful oversight, can address these issues.

Upgrade of the Existing Infrastructure Network

Most shale gas reserves have to be connected to the existing network of pipelines. Although China has already increased the development of its pipeline network in recent years, the identification of new routes, the construction of new pipelines and their connection with the existing network will inevitably be a long-term process. Such bottlenecks, coupled with high development costs, could also slow the development of shale gas.

The Shape of Things to Come

The exploitation of shale gas fields in China is currently open to a limited number of Chinese SOEs. These companies are authorized to build partnerships with international companies (as minority shareholders). However, the MLR has announced that a larger number of investors will be invited to participate in the development of shale gas resources in China. Many large foreign oil companies are indeed willing to leverage their technology and know-how to gain access to the Chinese shale gas market and participate in the second round of bidding that should take place by the end of 2012 (20 blocks in 10 regions will be involved). Any firm with sufficient funding and an exploration license will be authorized to participate in the tendering process. However, the Chinese government has not indicated whether foreign energy companies will be allowed to participate directly in this second round, and if so, if foreign companies will be allowed to hold majority ownership and/or act as operators in the operation and development of shale gas blocks.

The Chinese government intends to replicate the coal bed methane legal regime for shale gas. This would imply a reduction or exemption of user charges for prospection, an exemption of customs duties for the import of some high-tech equipment needed for the exploration of blocks of shale gas, the implementation of a certain degree of liberalization in the price of natural gas, the fast-tracking of the approval process for land use rights qualification, etc.

The National Commission for Development and Reform Commission announced that the government target was to increase the production of shale gas to 6.5 billion cubic meters annually by 2015 and 100 billion cubic meters annually by 2020 (compared to a production of almost zero now), with an overarching goal of 26% growth in natural gas consumption in China by 2020.

Achieving these objectives will enable China to strengthen its energy independence and reduce its dependence on coal and imported crude oil and natural gas.

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