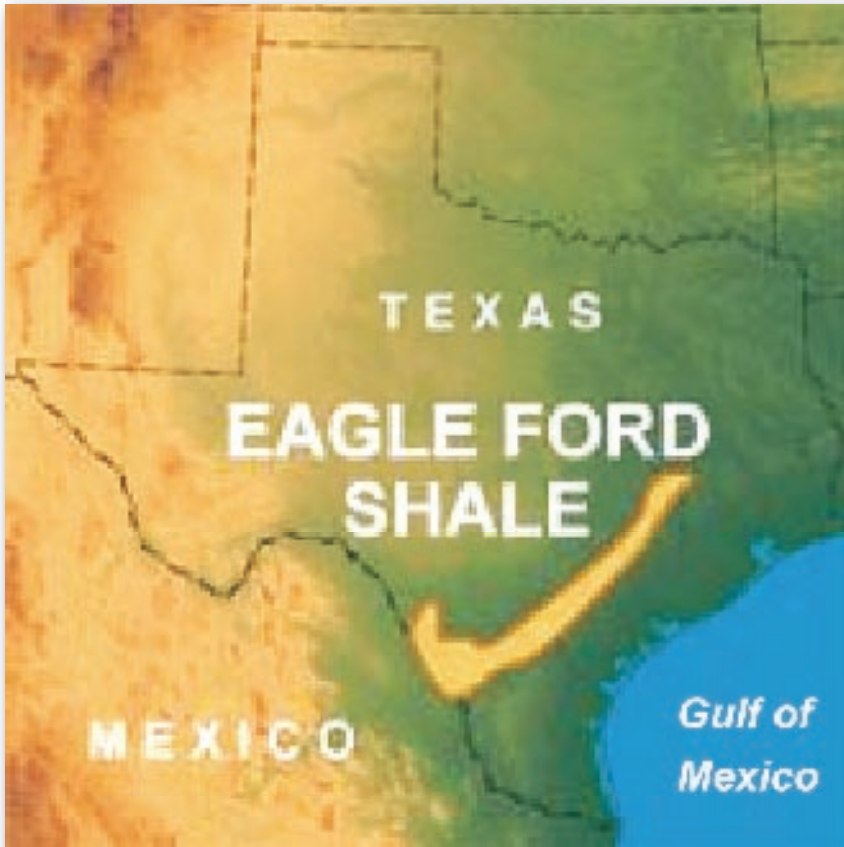


Energy Security

India Steps on Shale Gas

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Companies including Reliance Industries Limited (E&P), RNRL, and Genpact, have expressed interest in exploring for shale gas in India. Reliance Industries paid a reported USD 1.7 billion for a 40 percent share in Atlas Energy's leasehold in the Marcellus shale gas play in the eastern US. A complication to shale gas in India is that the government-issued leases for conventional petroleum exploration do not include unconventional sources such as shale gas.

Shale gas (gas locked in sedimentary rocks) is an emerging area. It was after Houston billionaire George P Mitchell pioneered new extraction techniques in the 1990s, that shale gas deposits were considered worth tapping. Shale gas has become an increasingly more important source of natural gas in the United States (US) over the past decade, and

interest has spread to potential gas shales in India. So far India has only explored for oil and gas. India is stepping on shale gas, encouraged by the US success in the area. It is preparing to start auctioning the fields which could be rich in this resource for exploration. India's shale gas reserves have no definite assessment of the extractable quantity available, although they

are estimated to be higher than its conventional gas reserves. In US, Canada and China, shale gas is the new focus area which is used as an alternative to conventional oil and gas for meeting growing energy needs. These unconventional deposits have raised estimates for US gas reserves from 30 years to 100 years at current usage rates. In North America, Shale Gas is the most

promising development in the energy area. It is likely to overtake both conventional gas as well as liquid fuels as a source of energy within the next decade.

Midstream Tie-up

Reliance Industries (RIL) is playing a leading role when India starts offering shale gas blocks for exploitation. RIL is the first among Indian companies to take exposure to the business through its investment in US shale gas acreages. Global energy giants like Exxon Mobil and Royal Dutch Shell are also expected to join the shale gas fray in India. During the year, RIL entered into a partnership with Atlas Energy to acquire a 40 percent interest for USD 1.7 billion in Atlas's core Marcellus shale acreage position in the USA. RIL shale gas continues. Recently, the company struck a USD 1.3 billion joint venture with US based Pioneer Resources for a 45 percent stake in its Eagle Ford Shale Gas field. Drilling process has started for Pioneer and they probably expect about 26 wells to be drilled in these 6 months. Reliance said it would also contribute USD 1.052 billion toward drilling costs over four years. The valuation of Pioneer, on a per acre basis, it is comparatively lower to what they have paid for the Atlas deal. They ended up paying about USD 12,170 per acre vis-à-vis about USD 15,170 per acre. But the reserves in the case of Pioneer it is about 11 TCF kind of reserves vis-à-vis about 13 TCF kind of a reserve in the case of Atlas. Enterprise value for RIL on a net acreage basis for Pioneer's acquisition could be about



USD 2.5 billion and for Atlas it is USD 2.7 billion.

Policy on Shale Gas

The upstream regulator, Directorate General of Hydrocarbons (DGH) have been asked by the union government to draft an approach paper for shale

India will have shale gas policy in place by next year and the blocks are expected to be allocated in 2012.

gas exploitation in India. A company, under the present Product Sharing Contract (PSC) for oil, gas assets and coal bed methane does not allow to exploit the clean fuel found in rock formations under the ground. The most important factor of gas, is price. If shale gas would cost less than imported LNG, there will be many buyers. In north-eastern states, Gujarat and Rajasthan, India has large shale gas deposits. Shale gas may cost anything between USD 3 and USD 7 per million British thermal units (mBtu). This is against the prevailing natural gas that costs about USD 4.2 to 7 USD per mBtu. A nodal officer needs to be appointed by DGH to work full time

on shale gas policy and identification of deposits. Several basins in India are known to hold shale gas resources. Primarily the focus would be on three basins, they are Cambay in Gujarat, Assam-Arakan in the North-East and Gondwana in Central India. Petroleum minister

Murli Deora will move a proposal before the cabinet for an exploration policy for shale gas and subsequent amendment in the petroleum and natural gas rules, after consultation with firms and other ministries. Shale gas blocks will be offered for exploration in an open bidding process along with oil, gas and CBM blocks, after the policy is formulated. It is learnt that the PSC for shale gas is likely to be on lines with that of Coal Bed Methane (CBM) exploration. In shale gas exploitation, US has offered India help. In March this year, the partnership was discussed between Deora and US deputy secretary of energy Daniel Poneman. For technology transfer, know how and adoption of best practices for economically viable production of cleaner fuel, India is likely to sign an MoU with the US. ■