India on the Rise

The government is taking bold moves to open up the oil exploration & production market, and companies around the world are taking notice of this natural resource-rich yet underexplored nation.

By Linda Hsieh, associate editor

INDIA IS BIG and getting bigger. It has the world's second-largest population and a fast-growing economy that's expected to become the world's third-largest within a decade. But what's really big is its thirst for energy.

The country currently imports about 70% of its energy requirements. That's a jump from about 30% in 1991.

The Indian government recognized a need to bridge that widening gap, and since the mid-1990s, the country has been aggressively moving to step up E&P activities, taking many steps to open the market.

LICENSE-DRIVEN

The Indian oil and gas industry is different from the rest of the world, said **Arun Karle**, president of **Askara Enterprises**, which provides technical and business consulting to foreign companies in India. Historically, oil and gas exploration had been held very closely by the government. State-owned companies like **Oil and Natural Gas Corp** (ONGC) and **Oil India** monopolized the market.

"The problem was our demand was increasing, but we weren't finding any more oil," Mr Karle said.

In 1997, the government approved the New Exploration Licensing Policy (NELP) to help level the playing field between private and public sector companies. In essence, NELP eliminated mandatory state participation and said public-sector companies will have to compete for petroleum exploration licenses along with private companies.

According to India's Directorate General of Hydrocarbons, which was created in 1993 under the Ministry of Petroleum & Natural Gas, the government has so far awarded 110 blocks over 5 rounds of NELP, including 40 deepwater blocks, 32 in shallow water and 38 onshore. That's a significant increase over the 28 blocks awarded in Pre-NELP rounds since 1993.

The program has definitely opened up the market, said **Suresh Kumar**, special technical advisor for **Gujarat State Petroleum Corp** (GSPC), an oil company owned by the state of Gujarat. "India hadn't been attractive for foreign bidders, but the liberalization process is on, and the trend is changing," he said.

The fifth round of NELP, which concluded in December 2005, saw a high level of participation, with 69 bids received for the 20 blocks on offer. In addition to 23 Indian companies, 27 international companies submitted bids, including **BP**, **BG** and **Petrobras**. They lost out, however, to companies such as ONGC and India's privately held **Reliance Industries**. Officials pointed to those companies offering more aggressive programs that included commitments to drill more wells and conduct more extensive surveys of blocks.

The 6th round, NELP-VI, opened for bidding in February 2006 and will close by September. A record 55 blocks were put up for bidding, with 24 in deep water, 6 in shallow water and 25 onshore.

This time, the government said, it has reduced the weight given to work programs and will instead emphasize technical capability and the bidder's fiscal terms.

To further attract foreign firms, the government in February decided to begin taking its share of oil and gas every 5 years rather than annually.

DAYRATE INCREASES

From a drilling contractor's perspective, NELP and the licensing boom are great news, Mr Kumar said.

"India is license-driven, and the commitments on the licenses are the driving force on the drilling rig market," he said. "So NELP is pushing work commitments, and the work commitments are driving rig activity. Companies that want to hold on to their blocks are having to take the rigs at any rate to fulfill their commitment."

And like in other markets around the world, dayrates in India have shown marked increases over the past year.

"We were averaging around $50,000 to $60,000 for 300-ft water depth cantilevered jackups. That has gone up now to $144,00," Mr Karle said.

In February, ONGC awarded **Transocean** contracts for 5 of its jackups totaling 15 rig years. The rigs – Ron Tappmeyer, Randolph Yost, Trident II, Trident XII and J.T. Angel – were each awarded 3-year contracts.

In April 2006, Transocean also began reactivating the semisubmersible C. Kirk Rhein Jr. against a 2-year contract from Reliance. The rig had been idle in the US Gulf of Mexico since March 2002 and is now undergoing a reactivation program. The Reliance contract is scheduled to begin in December 2006. An estimated $248 million in revenues could be generated over the 2-year term.

Locally, Indian drilling contractors have also been aggressivly bulking up their fleets, Mr Karle said, such as **Aban Offshore** (formerly Aban Loyd Chiles Offshore). The Chennai-based company began with 2 jackups, and since 2004 has acquired 2 drillships and 2 jackups and placed an order for a new 375-ft jackup through its Singapore subsidiary.

In addition, in June 2006 it spent $446 million to buy 33.76% stake in Norwegian drilling company **Sinvest**. Sinvest recently took ownership of

Coalbed methane, gas hydrates

In addition to the New Exploration Licensing Policy (NELP), the Indian government has been actively awarding blocks for development of coal bed methane (CBM). The 3rd round of bidding, CBM-III, was launched in February 2006 and offered 10 blocks, the highest number so far. A total of 54 bids were received, with 18 Indian companies and 8 foreign companies participating. Results are expected to be announced soon, and Production Sharing Contracts could be signed by late October.

Out of the 10 blocks offered, 2 blocks each are located in the states of Andhra Pradesh, Chhattisgarh, Madhya Pradesh and Rajasthan, and 1 each in Jharkhand and West Bengal.

According to the Indian Directorate General of Hydrocarbons, 16 CBM blocks making up 7,800 sq km have been awarded, and more than 75 exploratory/test wells have been drilled in the past 3 years in those blocks.

India is also staying on the forefront of gas hydrate research with the National Gas Hydrate Programme (NGHP), formed in 1997 for exploration and development of the country's gas hydrate resources. DGH has already carried out reconnaissance surveys to determine areas for exploration with the most potential. "Gas hydrates is a promising resource, and a lot of research is still being done," Arun Karle of Askara Enterprises said. "There seems to be a lot of it on the Eastern coast. They just have to figure out how to get it."

2 newbuild jackups and has orders for 6 more. Sinvest also owns 20% of **Petrojack**, another Norwegian company with 3 more jackups under construction in Singapore.

EXPLORATION BOOM

The stage appears to be set for an exploration boom in India, and experts like Mr Karle and Mr Kumar agree that's exactly what the country needs.

"Most of the country has not really been explored," Mr Kumar said.

Of the 26 sedimentary basins identified in India, only 7 are on commercial production, and it's been estimated that about 80% of acreage with potential remain unexplored.

The good news is that increased exploration activities in recent years have been turning up more and more discoveries. According to the DGH, there were 9 discoveries in 2000-01, 10 in 2001-02, 16 in 2002-03, 12 in 2003-04 and 27 in 2004-05.

One of the most significant finds in recent years is Reliance's 2002 gas discovery in the Krishna Godavari basin, on the eastern coast of India.

Reliance is the largest exploration acreage holder among private-sector companies in India. It was awarded 12 exploration blocks in NELP-I, 4 in NELP-II, 9 in NELP-III, 1 in NELP-IV and 5 in NELP-V.

In late June 2006, Reliance announced a crude oil discovery in the deepwater D6 block in the Krishna Godavari basin, site of the 2002 gas discovery. Testing has been done in 2 zones located 3 km below sea level, and the discovery signifies a large geological play that could result in future discoveries, according to the company.

ONGC, however, remains the biggest player in town. It has been significantly stepping up its investments in offshore exploration. In August 2003 it announced "Sagar Samriddhi," a deep-sea oil and gas project to explore a third of the estimated 11 billion tons of oil and oil equivalent reserves offshore. The project is the biggest offshore exploration program worldwide to be conducted by a single operator, and ONGC has said it's targeting adding 4 billion tons of reserves from the campaign.

The company has also made several discoveries in the highly promising Krishna Godavari basin. In 2005-06, ONGC made

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>
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10 oil and gas discoveries, 5 of them in the deep waters of the KG basin, the company said.

In April 2006, ONGC signed a Memorandum of Understanding (MoU) with the Ministry of Petroleum and Natural Gas to guide the company's performance targets for the financial year 2006-07. The MoU provides a crude oil production target of 27.45 million metric tonnes (MMT), or an increase of 2.76% over last year's target. The target for gas production is 21.97 billion cu m (BCM), compared with last year's target of 21.31 BCM, or a 2.65% increase. ONGC achieved 91.7% of the 2005-06 MoU target for crude oil production and 105.4% of the target for natural gas production.

RAJASTHAN DEVELOPMENT

Another big player in the region is Edinburgh, Scotland-based **Cairn Energy**. A majority of Cairn's operational activities for the past few years has been focused on the exploration and appraisal of its Rajasthan block in northwest India. It has made 18 discoveries in that block, which also contains the big Mangala field discovered in 2004. The Aishwariya and Bhagyam fields were discovered after that, and collectively, the 3 fields could produce 15,000 bbls of oil/day.

Mangala was discovered with the 16th well drilled in the basin, after investments of more than $100 million. The company is focusing future development on these 3 fields – Mangala, Bhagyam and Aishwariya – in the northern section of the block. On 30 May 2006, the company announced that the Field Development Plans for fields in the Rajasthan block have been approved by the Management Committee (DGH, ONGC and Cairn). Production for Mangala is targeted for 2008.

GSPC

With the opening up of the exploration and production market, more and more smaller companies have been making bigger and bigger finds.

For example, GSPC made headlines in June 2005 when it struck natural gas reserves estimated at 20 trillion cu ft in the Krishna Godavari basin, about 6 km off the Andhra Pradesh coast. The gas is valued at about $50 billion and could possibly double India's current gas production.

At the time of discovery, it was called a "historical moment for the entire hydrocarbon sector in India" by Gujarat chief minister **Narendra Modi** at a press briefing. GSPC had began drilling in the KG basin on 31 July 2004 and made the discovery with the KG8 well nearly a year later.

"The success of a few companies making it big is definitely changing the market," Mr Kumar said. "GSPC is 100% owned by the government of Gujarat, but we have been doing things rather unconventionally for a government company. We've gone into exploration with a zeal that I think is as good as any private entrepreneur. Krishna Godavari was a risky bit, but we moved forward on it."

The deep HPHT wells of the project posed many challenges, with temperatures in excess of 400°F and pressures upwards of 14,000 psi. "There are onshore productions at 450°F, but not in offshore fields, so we are a bit on the frontier of that," Mr Kumar said.

In July 2006, drilling commenced on the KG#15 from the KG8 well platform. Plans are to drill it directionally to an intended total vertical depth (TVD) of 5,500 m.

GSPC currently has 1 offshore rig working – the **Saipem** Perro Negro 3 jackup, which also drilled the discovery well. In September 2005, it announced a 25-month contract with **Atwood Oceanics** for the Atwood Beacon. That rig is expected to begin operating for GSPC in October 2006, Mr Kumar said, adding that the company was still negotiating for a 3rd offshore rig to begin work in March 2007.

"We'll be spending about a billion dollars on offshore exploration over the next 3 years," he said. "Offshore is our main thrust. Our target is to start production by 2009."

"Going by the success ratio of people making discoveries," Mr Kumar said, "it looks like it's going to become very bullish on the exploration front."