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INTERVIEW: Cairn eyes deepwater blocks, leveraging AI to enhance exploration precision

Author Sambit Mohanty

Editor Aastha Agnihotri

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HIGHLIGHTS

Cairn currently contributes 25% of India's upstream output

Sets near-term upstream production target at 300,000 boe/d

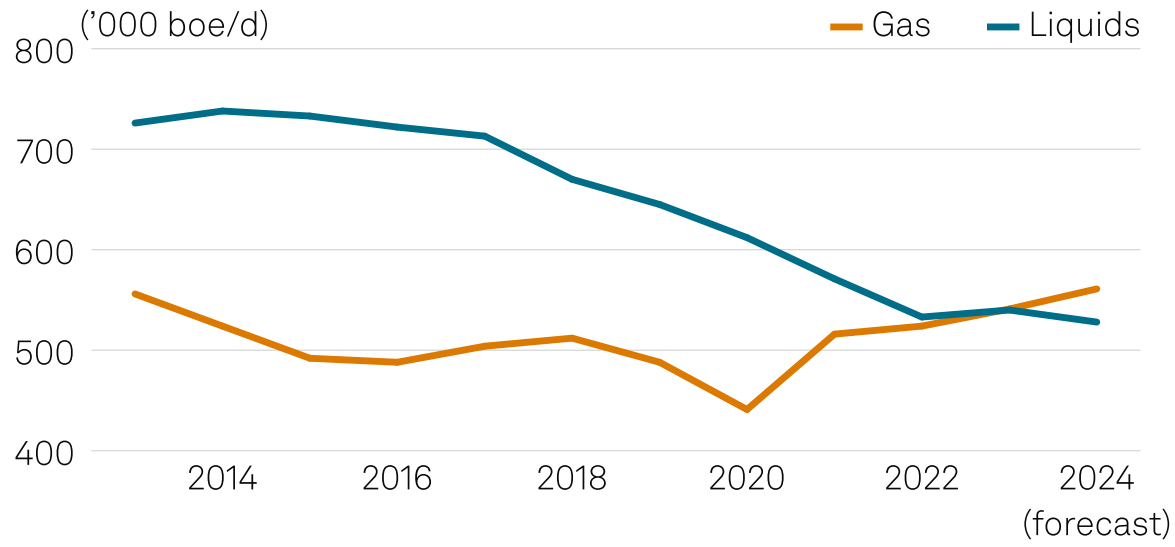
AI, machine learning help to enhance operational efficiencies

Cairn Oil and Gas is looking to expand its upstream exploration footprint by focusing on shallow and deepwater blocks as it strongly believes those areas provide some of the strongest growth opportunities in India, its deputy CEO Steve Moore told S&P Global Commodity Insights in an interview.

He said accelerating technological innovation, digitalizing operations, and embracing artificial intelligence will play key roles in contributing to the growth plans of Cairn -- part of Vedanta Ltd. -- as it accelerates its push towards contributing 50% of India's oil and gas production, compared with 25% currently.

"Our focus now is on exploring shallow and deepwater blocks, which present new opportunities. There are many undiscovered deepwater sites which are remote and unexplored so far. With the government's vision to have more domestic production, Cairn is committed and interested in exploring these offshore areas and increasing domestic production," Moore added.

India's oil and gas production trend



Source: S&P Global Commodity Insights

He said India remains a largely unexplored territory, with 70% of hydrocarbon reserves still untapped. The government plans to expand exploration acreage from 250,000 sq km to 1 million sq km by 2030, which would give Cairn an opportunity to unlock a large share of the country's hydrocarbon potential.

Cairn's annual average gross operated oil and gas production stands at around 128,000 boe/d, with the Rajasthan block contributing the bulk of the output.

"Our target is to achieve 300,000 boe/d of production in the near term and increase it to 500,000 boe/d over the longer term," Moore said.

According to Commodity Insights, the Rajasthan assets are the company's main cash cow and position the company to remain highly liquids-weighted as compared to a general E&P-wide push towards gas-weighted assets. Cairn's portfolio is an attractive dollar hedge for the government.

Role of AI, new technologies

Cairn plans to drill more than 40 wells in the next two years, concentrating on unlocking the potential of the northeast region and coastal areas. Additionally, the company aims to focus on deepwater drilling in the Krishna Godavari Basin and will ramp up operations by mobilizing 20 rigs across the country, Moore said.

It has implemented enhanced oil recovery techniques, such as the alkaline surfactant polymer flooding in the Mangala oil field in Rajasthan, which has helped to raise the recovery from mature fields from 40% to 60%, he added.

Cairn -- whose portfolio includes interests in 62 blocks spread over more than 60,000 sq km -- further plans to explore deepwater drilling in the east coast, as well as for tight oil and shale in the western onshore fields.

"The integration of AI, machine learning, and cloud computing has given us encouraging results towards enhancing our operational efficiencies and also enabling more precise exploration and production techniques," Moore said.

Highlighting some of the new initiatives, Moore said Cairn was leveraging novel technologies, such as well placement in low permeability reservoir, in-field magnetic reference, secondary and tertiary recovery techniques, advanced reservoir characterization, artificial lift systems and limited entry frac technique to aid its upstream development plans.

According to Rajeev Lala, director for upstream companies and transactions at Commodity Insights, digitalization activities are a key element of research and development for upstream companies and AI is beginning to occupy a larger space of these digitization efforts.

However, AI presents a tricky terrain. On one hand, it could be very useful for extracting engineering and operational efficiencies. On the other hand, AI is a big energy guzzler -- even more so in the Indian context where electricity is primarily thermal power. So, for an oil and gas company thinking of decarbonization, AI could easily be a mixed bag, if not handled well, Lala added.

Focus on diversification

Commenting on the company's diversification plans, Moore said Cairn had plans to enhance its focus on natural gas, which aligns with India's vision of a gas-based economy. Its new production facilities -- Jaya field in Gujarat and Hazarigaon field in Assam -- had commenced gas flows.

In addition, Cairn has entered into a power delivery agreement for sourcing 25 MW of renewable energy with an expansion to 70 MW by 2030.

"Our vision includes achieving net zero carbon by 2030. This involves a comprehensive strategy including flare gas reduction, waste-to-energy projects, and exploring carbon capture, utilization and storage technologies," Moore added.

He said that as India was one of the fastest-growing large economies, its energy needs are positioned for growth and transformation. As a result, more needs to be done on the policy front to attract foreign participation.

"India needs huge investments to develop the hydrocarbon potential. We should look at ensuring an ecosystem that drives global collaborations and partnerships, helps in creating a flourishing network for business partners from across the globe, as well as helps in leveraging technological innovations," Moore added.