

ENERGY

Finding treasures where others have missed

Italian oil major Eni SpA counts on explorer of Zohr natural gas field Luca Bertelli to extend winning run, writes **Stephen Jewkes** of Reuters

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Italian oil major Eni SpA is betting billions on Luca Bertelli being able to achieve something he's been doing since he was nine years old: spotting things others overlook.

The geologist, who heads Eni's exploration team, began collecting rocks as a boy growing up in Tuscany, developing a curious eye that eventually led him to discover two of the world's biggest gas fields this century.

His latest success, the Zohr field off Egypt, sits in an area that Royal Dutch Shell Plc pored over for years before Bertelli persuaded his boss to embark on a drilling programme that turned up the Mediterranean's largest gas discovery.

Now the 59-year-old and his team are under pressure to show they can keep finding treasures others have missed — this time in waters off Mexico where former state oil monopoly Petroleos Mexicanos (Pemex) has been exploring for decades.

"We feel there's room for surprise, even in areas previously explored," Bertelli said up in his 12th-floor office in Milan, fingering a specimen of crumbly oil-rich rock from the Amoca field it won, with two other fields, in 2015.

Bertelli is a lynchpin in Eni's corporate strategy which in recent years has seen it break ranks with major rivals and ignore the rush to shale, focusing instead on eking out the world's conventional energy resources.

In recent years weakness in its "downstream" businesses like refining and chemicals have dragged on profits and placed more of a premium on securing success in "upstream" exploration.

In its new frontier Mexico, Eni has so far targeted shallow waters, close to the coast and Pemex infrastructure facilities — just the kind of target more likely to be picked over already and be on the radar of larger rivals with deeper pockets.

But Bertelli told Reuters that Eni was embarking on a "more aggressive" exploration programme from 2018 with a special eye on Mexico where it will bid in upcoming tenders in deep and ultra-deep waters.

"We believe Mexico is one of the last major opportunities to access material oil assets in unexplored or under-explored areas," he said. "There aren't many of them left."

Drilling deepwater wells thousands of metres under the sea is far more costly and risky than exploring shallow water or shale deposits, but potential rewards are much higher. Last year Eni drilled only five deepwater wells from the 15 or so two years before when crude was double current prices.

So the pressure is now on Eni's geologists to identify the right rocks and wells — and the competition is heating up; majors including BP Plc and Shell are also bidding for acreage in Mexican waters.

INTUITION+SUPERCOMPUTING

Eni is the first foreign oil major to drill off Mexico since the government broke up Pemex's 80-year-old monopoly in 2013.

The company has not disclosed its investment plans, but Mexico's oil regulator chief, Juan Carlos Zepeda, told Reuters its decision to fast-track Amoca would prompt spending of more than \$1 billion.

Eni declined to comment on that figure but is undoubtedly betting big on Bertelli's team extending its record as the industry's most successful conventional

explorer, as measured by energy consultant Wood Mackenzie.

Between 2010 and 2015, Eni's reserve replacement ratio — a key metric showing the amount of reserves added compared with the oil and gas produced — was 480%, excluding shale.

That was way ahead of other majors with Statoil ASA in second place with 126% and Exxon Mobil Corp third with 54%.

The story of how Eni discovered the giant Zohr field in 2015 offers a window into how Bertelli and his team operate; geologic intuition and experience, he said, told him there could be something there that other companies hadn't spotted.

Previous discoveries in the East Mediterranean had all been in sandstone. But it soon became clear this was not the case in Zohr, prompting a host of rivals to dismiss the site.

What Bertelli and his team saw instead were the outlines of a different kind of structure beneath a thick layer of salt and he had a hunch it could be a form of limestone — carbonate — that he had seen yielding oil and gas in fields as far flung as Kazakhstan and Venezuela.

"Intuition comes from experience," he said. "In the case of Zohr we'd already seen similar geological features elsewhere."

Then Eni's supercomputer came in. It is the third most powerful in the industry after those operated by France's Total and Norwegian marine geophysics firm Petroleum Geo-Services, processing 8 million billion operations a second.

It recrunched imaging data hailing from the 1990s to look for signs of carbonate formation, performing the task in a matter of days rather than the months that was once needed.

"The result gave us the confidence to back up our intuition," said Bertelli. "We decided to go for drilling."

But if Eni, the seventh-biggest major by output, might have an edge in exploration, its downstream business has struggled. The consequent shift of focus away from those areas has raised concerns it might be overly exposed to oil price volatility.

Its heavy presence in Africa, with the risk associated with working in places like Libya and Nigeria, is for some another reason why the company's shares have underperformed peers like BP and Total SA.

LOW RISK = SMALL SUCCESS

A decade ago, Eni was all but washed-up as an explorer.

It was struggling to discover as much new oil and gas as it extracted each year. And its ability to run complex projects was in doubt after losing its role as sole operator of the huge Kashagan oil field in 2008 due to delays and cost overruns.

Since then it has discovered two world-class gas fields, in Mozambique and Egypt, adding 115 trillion cubic feet of resources.

Bertelli attributes the turnaround to a strategy he helped CEO Claudio Descalzi implement — a focus on simple projects majority-owned by Eni to better control costs and time.

The decision not to chase the shale bonanza that reshaped the industry was also key. "We found a window of opportunity in a field no longer dominated by the super-majors but by smaller independent players."

In Mexico, Pemex has picked over much of the area, including the Cantarell field in Campeche Bay. But with its relatively small budget, it has not been able to deploy the full range of modern technology and expertise energy majors can bring to bear.

Eni originally estimated its Mexican fields held 800 million barrels, but it raised that to 1.4 billion in September. The aim now is to explore areas in deeper waters carrying greater risk.

"Lowest risk usually means very small success," said Woodmac head of exploration Andrew Latham. "All exploration depends on seeing value that others miss, which requires innovation or original thinking."

Eni will be counting above all on its chief geologist's intuition and — like all explorers — a little luck to pull off another big discovery.

Bertelli points to a map on his wall of the company's giant Mamba field off Mozambique, calling it one of a kind. Then he pauses for thought.

"But it's probably not unique," he adds. "There's another one out there waiting to be found."

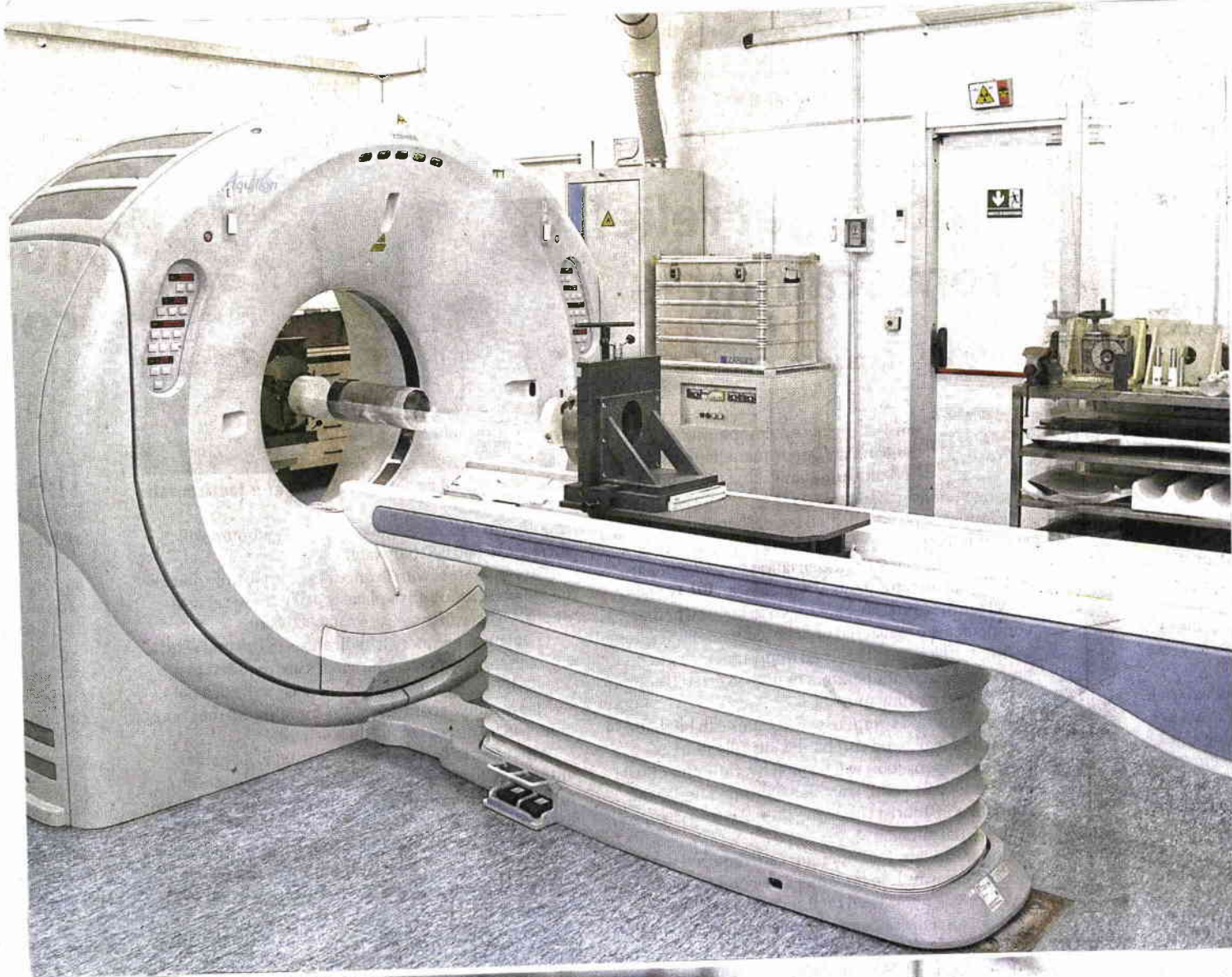


Eni staff members work in the laboratory.



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LUCA BERTELLI
ENI SPA'S CHIEF EXPLORATION OFFICER



ABOVE
Oil samples are displayed from fields in Italy.

LEFT
A CAT scanner used to test rocks from fields is in the Eni laboratory.



MAIN PHOTO

Eni SpA's chief exploration officer **Luca Bertelli** poses at the company's headquarters in San Donato near Milan.

