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Analysis: Mexico in no rush to exploit shale oil bonanza

Mon, Feb 27 2012

By Mica Rosenberg

MEXICO CITY (Reuters) - Mexico may be sitting on a vast untapped reserve of shale oil just south of the Rio Grande, but state monopoly Pemex is showing little urgency to exploit their share of the bounty.

While U.S. energy companies are racing to drill more wells in the oil-rich Eagle Ford shale play that geologists say extends well south of the border, Mexican energy officials and Pemex executives appear unrushed.

Mexico has the world's fourth-largest reserve of shale gas, according to the U.S. Energy Information Administration, in deposits that can contain rich pockets of both natural gas and more profitable oil. But Mexico has not yet quantified the scale of its resources.

"We don't have an estimate for shale oil," Pemex's head of exploration and production Carlos Morales said in an interview. "We are hoping by the end of the year we will have a clearer idea of where the resources are, how big they are and their quality."

But with a spending plan still focused on probing deeper into the Gulf of Mexico's conventional oil fields, Pemex has little time or money left for onshore shale.

It has drilled one well so far and plans to drill another 175 wells by 2015 in the entire country, while last year alone Texas issued 2,828 drilling permits just for Eagle Ford.

The county's new energy minister Jordy Herrera has set his sights on shale gas, not oil, even though north-of-the-border companies have found more liquids than vapor. But drilling for gas is a hard sell at a time when U.S. prices have slumped to a 10-year low. Imports may be politically unpopular, but they are cheap.

And even when Pemex does wake up to the potential, it will face a cruel fact: the border state of Coahuila where the most promising shale is found is one of Mexico's driest areas and water may be too scarce to use thousands of gallons per well in the extraction process known as "hydraulic fracturing."

So for the moment, and likely for the next several years, Mexico's energy industry, will watch from afar as a shale revolution sweeps across the United States.

"Politically and practically (Mexico is) just not ready to get into this. It's clear they have to find shale oil, that has increasingly become the case in the United States," said Mexico-based energy analyst David Shields.

More than a dozen new onshore shale fields are expected to raise U.S. domestic crude output by more than 20 percent over the next decade.

Those kinds of returns are tempting for Mexico, which relies on oil to fund around a third of its government budget and frets over a dramatic drop in crude production at its largest, traditional fields. The world's No. 7 oil producer has seen output drop to around 2.55 million barrels per day (bpd) from a peak of 3.4 million bpd in 2004.

But the lumbering state oil monopoly Pemex is a very different operator from the small, private companies drilling in the United States and will have a hard time being limber enough to go after unconventional resources.

GAS BOOM

Herrera, named as energy minister last September, is actively plugging the massive gas resources as the ticket to Mexico's energy future. The EIA estimates Mexico has up to 680 trillion cubic feet (tcf), eleven times the country's proven, probable and possible (3P) reserves of natural gas.

Early Pemex studies are more conservative than the EIA estimate and see between 150 and 459 tcf of shale gas in five different geological provinces.

"Even in the most conservative scenarios, exploiting these shale gas resources could and should spark the development of a national industry without precedent," Herrera - who directed Pemex Gas before his current post - said at an event shortly after taking office. He said the industry could attract investment of between $7 billion and $10 billion a year.

Herrera is confident that Mexico could transform itself from a natural gas importer to a global gas powerhouse if it taps its shale resources.

Without shale, national production of natural gas is only expected to grow 0.5 percent over the next 15 years, while demand is seen rising 2.5 percent. That would mean expanding imports at a constant rate of 6.5 percent to keep up, Herrera has said.

It is not clear, however, if Pemex is as equally enthusiastic.

The company plans to spend 30.5 billion Mexican pesos ($2.36 billion) on shale exploration over the next three years, just 2 percent of its requested budget for that same period.

The Eagle Ford formation in Mexico's Burgos basin is by far the most promising with between 27 and 87 tcf of "dry gas" and "liquids-rich" resources, according to a Pemex presentation seen by Reuters.

Mexico reported its first production - 2.9 million cubic feet per day - from its first shale well Emergente-1 in March last year. By the end of this year three more wells - Montanes-1, Nomada-1 and Navajo-1 - should be finished.

Both Nomada-1 and Navajo-1 are within the region where oil has been discovered in Southern Texas, the presentation showed. In the Tampico-Misantla region further south, Pemex says there is possibly light crude in the formations, but no drilling has been done there yet.

Mexico would need a much more aggressive drilling program to fully understand the scale of its shale resources, said Kenneth Medlock, an energy expert at the Baker Institute at Texas' Rice University.

"Pemex's exploration and production projects are focused on traditional offshore fields in the Gulf of Mexico, like Chicontepec, and now deep waters. Given the limited resources Pemex has, I doubt they will be able to expand to include more things. Right now, Pemex has other priorities," said Lourdes Melgar, an energy expert at the EGADE Business School in Mexico.

Pemex is eager to move into deeper waters of its Gulf Coast but has little experience managing the complicated projects.

On Monday, Mexico signed an agreement with the United States to exploit resources in the Gulf of Mexico that straddle maritime boundaries opening up the possibility for more collaboration between U.S. companies and Pemex.

WATER USE IN THE DESERT

If the focus will be in gas instead of oil, Pemex will have to weigh the economic viability of exploiting the area considering the technical complexity and environmental questions.

Unlocking the gas and oil resources from shale requires hydraulic fracturing, or fracking, which uses vast amounts of high pressured water, mixed with sand and other dangerous chemicals to break through hard rock.

Each well drilled at Eagle Ford in the United States uses more than 5 million gallons of water.

Coahuila is Mexico's driest state after the Baja California peninsula - rain falls there at a rate less than half the national average - and all of the surface water rights have already been allocated.

Three-quarters of the state's water is used in agriculture for the production of grains and other crops that can survive the desert climate and the rest is for industrial consumption.

There are no specific national regulations in place yet for shale development.

Other questions remain about the capacity of Pemex, notorious for slow moving government bureaucracy, to enter into the dynamic shale exploration market.

The companies who have done well in the United States are small operators who can jump into a new area, sign leasing agreements with local landholders and get to work fast, said Stan Harbison from the Washington-based Energy Policy Research Foundation.

"Eagle Ford is one large thing but there are other very large pieces of shale. It's a huge prize," he said. "But you need capital, you need nimbleness and quickness, you need a regulatory system that moves quickly ... and with a national company, one of the things it cannot do well is move quickly."

One oil executive working in Mexico said drilling shale wells in Coahuila are still between 30 and 40 percent more expensive than in the United States because of administrative hurdles.

A 2008 law opened up a more flexible contracting scheme to give private companies more incentives to explore for oil in Pemex, but the company has not said if these kind of contracts would apply to shale, or if a new model would be needed.

Even with a deeper energy reform, Mexico may still decide it is more practical to rely on imports, considering the wealth of natural gas and favorable market prices.

High prices in the last decade, which peaked above $13 per million British thermal units (BTUs) in 2005, dropped to around $2.50 per million BTUs this month.

Herrera has also talked about the need to expand Mexico's natural gas pipeline network, a portion of the energy industry which is open to private investment.

The Federal Electricity Commission (CFE) has already tendered three pipelines and Pemex is planning to open two more that would increase transport capacity by 40 percent, he said last October.

"The natural gas balance in North America has changed dramatically and for Mexico it would make a lot more sense to enter into this market and import gas from the United States and Canada at these low prices," said Melgar.

"Going into (shale gas) would be an unnecessary adventure when we have other options," she said. ($1 = 12.9110 Mexican pesos)

(Reporting by Mica Rosenberg)