Papa: Boosting US gas output will be big challenge

"SHORT TERM, IT'S a pretty ugly picture; long term, it's a pretty picture."

That's how **Mark G Papa**, Chairman and CEO, **EOG Resources Inc**, Houston, described the North American natural gas market during a luncheon talk at the 2001 IADC Annual Meeting in New Orleans, 27 Sept.

He noted that for a decade now, industry has "barely raised" peak natural gas deliverability in the US.

One of the biggest challenges is that the decline rate of wells drilled in recent years is much greater than in the past. Mr Papa said total US decline rate jumped from 16% in 1990 to 23% in 1999. He expects the decline rate to increase in the future by 0.7% per year.

"In 1990, we only had to produce 16% more gas to replace reserves," he said.

As decline rates increase, maintaining reserves will become increasingly difficult. Part of the cause is advances in technology that have helped find reservoirs that can be produced more rapidly, he said.

About 75% of EOG's production is North American gas. The company is geographically diverse within the US, but its only interest outside the US is offshore Trinidad.

In 1999, EOG drilled more wells in the US than any other company; it was the second busiest driller in 2000 and through the first half of 2001.

THE CHALLENGE

Though US natural gas production grew at about 1.4%/year from 1983 to 1994, since 1994 it has been essentially flat, said Mr Papa. "Despite all the technology—horizontal drilling, PDC bits, and the rest—we are only able to keep supply flat."

In the first half of 2001, the number of rigs operating was up 47% compared with the first of 2000, but gas production was up only 1% compared to the year earlier period.

In Texas, which produces 26% of US gas, rig activity for the same period was up 57% while gas production dropped over the period by 1%.

Oklahoma drilling during the first half was up a dramatic 76% compared to first half 2000, but gas production fell 6%. Oklahoma provides about 8% of total US natural gas.

"Despite all the technology—horizontal drilling, PDC bits and the rest—we are only able to keep (natural gas) supply flat. More than 1,000 gas rigs operating will be needed to boost US gas production by 1-1½%/year."

—Mark G Papa
EOG Resources Inc

Wyoming, which also provides 8% of US gas supply, was one of the few bright spots, said Mr Papa. Drilling in the first half of the year was up 51% in Wyoming compared with the year earlier period and gas production was up 13%.

In Canada, gas production in 2001 to date has been up significantly compared to the same period in 2000, but production was flat last year vs 1999.

SUPPLY CONSTRAINED

Mr Papa expects long-term natural gas markets to be "a supply constrained environment 75-80% of the time."

There is a 4 bcf supply/demand imbalance now, he said, 25% of which is caused by supply growth and 75% resulting from demand loss.

A key to the drop in demand is "the most severe industrial downturn" in decades. In May 2000, industrial production began a decline that has now lasted 11 months. Factory capacity is at its lowest level since 1983, he said. Organic chemical production is down 22% year to year and metals production is down 20%.

THE NEAR TERM

Before the 11 Sept terrorist attack on the US, natural gas supply growth in the US was expected to be about 1.5% this year, said Mr Papa. Now it may be closer to 1%. Canadian imports are expected to be up 0.8 bcf this year.

"There is no significant supply relief until an Arctic gas pipeline gets built, perhaps in 2007," he said. Though the long-term gas price outlook is favorable, there is considerable near term risk.

An industrial recession that is the worst in 20 years will weaken demand. And industry is putting too much gas in storage, said Mr Papa. "Storage is getting jam packed."

In October, storage volumes would continue to increase, he said, and "gas prices may get even worse in the next 30-45 days."

EOG started selling gas forward in May and has part of its production hedged through the end of 2001 at a price of $3.88/MMBTU.

EOG has devised a strategy to respond to the weak price environment it sees, said Mr Papa.

"Due to constricting economics, we will reduce the number of rigs we have operating in the US from 45 to 35. We're not going to pull our wells as hard or be in any rush to hook up new wells."

He said EOG can moderate its production because it is comfortable with a lower level of cash flow during the weak price environment.

EOG also will buy back up to 2% of its shares, he said.

THE OUTLOOK

"The short term will get even uglier in the next 3-6 months," said Mr Papa.

Though the near term outlook is weak, that will change when industrial demand recovers, said Mr Papa. "Before the attack, we were near the bottom, but now we don't know when that will be reached."

Recent years have shown that a large increase in drilling activity generates only a "miniscule" increase in natural gas production. Canadian production, however, has responded more strongly than expected.

“The gas demand for power generation is real,” said Mr Papa. “It is the largest area of growth for gas consumption.” And as rig activity drops, production will fall, boosting prices.

Neither nuclear energy nor coal will play a substantial role in the incremental growth in demand for electricity, he said.

Mr Papa looks for a long-term average US natural gas price of $3.25-3.50. “Anything above $4 destroys demand, and a price of $2.25 would cause production to fall.”

Significant demand was lost in the first half of this year due to high prices, said Mr Papa. “At $4/MMBTU, there is a switch away from natural gas.”

As to whether LNG is a viable supply option, he said most LNG projects need about $3.25/MMBTU to be economic. A $2/MMBTU price at Henry Hub returns about $0.30/MMBTU at the wellhead in Trinidad, the closest LNG source for the US lower 48, he said.

Supply of LNG to the US is expected to double in the next 2 years. But LNG only meets about 0.7% of US demand currently and the incremental growth will not be sufficient to meet the increase in US gas demand.

WHAT IT MEANS

Mr Papa also focused on how his analysis and outlook will impact drilling contractors.

“Rig activity will fall through year end,” he said, “declining by as much as 200 rigs.”

The Gulf of Mexico Continental Shelf “will be harder hit than land,” he expects. “The Gulf of Mexico Shelf does not work at gas prices below $3.25/MMBTU,” he said.

Because recent experience has shown the difficulty of increasing gas production, Mr Papa estimates that more than 1,000 operating gas rigs will be needed to increase US gas production by 1-1½%/year.

He expects EOG’s use of horizontal drilling to increase significantly. It will likely be used on 25% of EOG wells in 5 years, compared with about 10% today.

Another critical technology need is a new seismic breakthrough for deep formations, he said.

How does industry get out of the cycles it continues to endure?

“It probably won’t,” said Mr Papa.

As others did at the IADC Annual Meeting, he expressed concern about the widespread and universally acknowledged “people problem.”

At EOG, the average age of the professional staff is 47, he said. “We have lost a generation of talent.”

Over the next 10 years, one of the biggest challenges he sees is in devising ways to retain people in the 55-65 age range. ■