

# LNG market could mean increased drilling activity

**US NATURAL GAS** reserves are declining at an increasing rate. Natural gas imports from Canada, the US's primary source of gas imports, are also decreasing as a result of the country's own declining production.

As a result, there is an unprecedented push toward the increased use of liquefied natural gas (LNG) as a major US source.

"Demand is growing and supply has been basically flat to declining and it is beginning to decline at a faster rate," said **Allen Brooks**, oil services analyst with **CIBC World Markets** in Houston. "The natural gas shortage was covered by imports from Canada but their production is also declining."

"The US is using more gas to power electric generation plants and more homes are heated with gas," Mr Brooks said.

"So now because of the institutionalization of gas in electric generation we have and will continue to have growth in demand," he concluded, "and it looks like we have a permanent supply shortage situation emerging."

## LNG MARKET

The **US Department of Energy's Energy Information Administration (EIA)** stated in its Annual Energy Outlook 2004 that LNG imports to the US are expected to constitute an increasing proportion of US gas supply, totaling 21% of US gas consumption in 2010 and 23% in 2025.

This compares with recent historical import levels of around 15%. Nearly all of the increase in net imports, the EIA says, is expected to consist of LNG.

LNG imports to the US have already doubled from 2002 to 2003, according to the EIA, with gross imports estimated at 540 bcf in 2003 compared with 228 bcf in 2002.

The EIA believes strong growth will continue with LNG's share of net imports

growing from less than 5% in 2002 to 39% (2.2 tcf) in 2010 and 66% (4.8 tcf) in 2025.

As a result, oil and gas companies are submitting proposals to build regasification facilities in the US in anticipation of

that the global industry has built in the past 40 years.

The industry will need an additional 140 million tons of LNG production capacity by 2012 if it is to meet expectations.

However, the industry is already working to meet that goal he said, "with 60 metric tons of capacity already committed and under construction in Asia, the Middle East and the Atlantic region, and with more than 50 LNG tankers currently on the orderbook."

A strong growth in supply expansion is helping to meet the increasing LNG demand, according to CERA, in order to monetize abundant gas reserves in countries such as Qatar, Nigeria, Trinidad, Egypt and Australia and potentially Iran, Angola and Venezuela.

On the demand side, Asia and Europe will continue to see increased LNG imports, according to CERA, but future growth demand is primarily focused on the US.



Some contractors like GlobalSantaFe could benefit from the red-hot LNG market with rigs such as its RIG 127 drilling offshore Qatar, which is preparing to take advantage of worldwide LNG market.

growing imports. Likewise, new LNG facilities or upgrades to existing facilities are planned for areas around the world.

As of December 1, 2003, there were 32 active proposals for new LNG regasification terminals in the US. These figures compare to 16 active proposals in August 2002.

There were also proposals for four terminals in Baja California, Mexico, to serve both the Mexican and US markets; two in Mexico; three in the Bahamas to serve US markets; and two in Canada to serve Canada and possibly also US markets.

**Cambridge Energy Research Associates (CERA)** Director of Global LNG **Michael Stoppard** said recently that the industry needs to construct enough LNG capacity in the next eight years

Gas-fired electric generation and flat or declining gas production will form a long-term North American supply shortfall of 10 bcf/d of gas with a favorable price environment.

CERA said the more than 30 new LNG projects announced for North America would have a total sustainable deliverability of more than 30 bcf per day by 2010, "an amount far beyond the capability of LNG producers to supply and vastly more than the expected North American natural gas supply shortfall."

"The market should rationalize new construction plans through project drop-outs so that ultimately five large (1.5 bcf per day) regasification terminals will be built and capacity expanded at existing facilities to fill the North American supply shortfall," Mr Stoppard said.

That's in line with EIA estimates, which say that four new LNG terminals are expected to open on the Atlantic and Gulf Coasts between 2007 and 2010.

The first new LNG terminal in more than 20 years is expected to open on the Gulf Coast in 2007.

That also means there will be several new LNG plants internationally to supply the US terminals.

## INCREASED E&P ACTIVITY

New LNG facilities planned around the world are going to have to get their gas supply from somewhere, so that should translate into increased drilling activity, both onshore and offshore.

The big question is how large of a drilling activity increase will result from new LNG facilities.

The answer is that an increase in drilling activity may not be as large as some people anticipate.

**Randy Kubota**, Sponsor of Operations for **ChevronTexaco**, said areas that are being discussed for future LNG developments include Algeria, Norway, Qatar, Oman, Sakhalin Island, Angola, Nigeria,

Venezuela, Australia, Russia, Alaska, Trinidad and Malaysia.

“There are going to have to be some good appraisal programs because a company has to have certified reserves to present to buyers demonstrating that they can deliver the quantity of con-

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**Allen Brooks, CIBC World Markets**

tracted gas on a long-term basis,” Mr Kubota said.

Having said that, however, he believes the number of rigs necessary to explore for and develop gas reserves per LNG project is only going to be 1-2 units.

“If you count up the countries I mentioned, you’re probably going to have one rig per project. It could have 20 rigs off the market but that’s not going to impact the world (rig) market,” Mr Kubota said.

Mr Kubota’s reasoning is that if an LNG project is planned, for example in a Middle Eastern country, then drilling will occur while the facility is being built, which could take two or more years.

“A rig can drill a lot of wells in two years,” Mr Kubota said. “You’re drilling your wells and building supply while the plant is being built, which is why you won’t have a rush of rigs.”

“So Oman and Qatar might have one project each, for example, but that is only going to take two rigs off the market for about two years.”

He also said the 1-2 rigs per project may not be sustainable. In other words, several wells may be drilled and then drilling could halt while the wells are being evaluated.

The LNG facility operators are going to have to build a certain amount of flexibility into the drilling program, he explained.

"There will probably be some uncertainty over reservoir performance and production rates," Mr Kubota said.

"You can almost treat it like a subsea project where you can phase the CAPEX."

"You get your initial well on stream," he continued, "and then ask if you need more wells. They are added when required."

If an operator commits to a three train LNG plant (a train is a process line or system to convert the gas to LNG), they might commit to a targeted production plus one extra well.

As they observe how the reservoir performs and the actual production rates, the operator might then come back and add one or two more wells.

"So even with only one additional rig per project," Mr Kubota said, "you're not looking necessarily at steady work."

While some industry observers believe that LNG imports to the US will affect US drilling activity, Mr Kubota disagrees.

"The problem the US has is with its decline curve, and it's a pretty serious decline curve," Mr Kubota notes.

"I think there will always be drilling for gas in the US because the price of gas is right," he explains.

"It's easy to drill a US well and turn it on," he continues, "but the big fields aren't there so you're going to be drilling up a storm because of the depletion curves."

## **A MORE OPTIMISTIC OUTLOOK**

Mr Brooks with CIBC generally agrees with Mr Kubota on the number of rigs needed when it comes time to drill wells in support of the LNG market.

As an example of the type of thinking, Mr Brooks said a lot of people believe that when the Alaska natural gas pipeline will be approved and built that there is going to be a lot of drilling activity in the region.

"The reality is that the pipeline they are talking about will handle 4 to 4 ½ bcf per day," he said, "but the reinjection rate from oil production there is about 7 bcf per day, which suggest that all that needs to be done is to repipe the gas rather than drill new wells."

However, Mr Brooks said, there could be some areas that open up to new drilling

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**Cambridge Energy Research Associates (CERA)**

for the LNG market.

"There is a lot of known gas around the world," Mr Brooks noted, "some of it in reserves large enough to justify an LNG plant and some not."

"Where it is not large enough to justify an LNG plant, the opening of the demand side of the equation may cause more drilling in a particular area to try to prove up more gas to justify an LNG facility."

"On the other hand," he continued, "some areas have huge gas reserves and the wells are so productive that some rigs may be needed but not many."

"So the LNG market will be a plus to the rig market but it will not drive it to much higher highs."

"Over the next couple of years," Mr Brooks said, "Qatar could need anywhere from four to eight jackups in support of the LNG market there."

"It will have an impact on the market but it won't last for five years, for example," Mr Brooks added.

"From a drilling contractor's point of view," he continued, "they are looking at the incremental demand today off Qatar,

a few offshore Trinidad and some potentially off Venezuela, and they can get excited about the impact over the next few years."

Every industry has its niche markets within a market and the offshore industry is no exception when it comes to LNG. There will be niches that are going to impact the market for certain drilling contractors.

"I think the problem is the imbalance of drilling activity relative to the fleet composition," Mr Brooks said.

"For example, the TODCO's of the world I think are the ones that are going to continue to struggle even if LNG becomes a significant market because a lot of the gas wells are very deep. TODCO's shallow rigs can't handle that type of drilling."

"We're talking about deep, high pressure wells that will have to be drilled by larger rigs with more mast capacity, pumps, etc."

Companies like ENSCO, Noble, Global-SantaFe or Maersk will look at the LNG market as a good market."

"LNG will likely not have an impact on the companies with the older and smaller rigs, and that's where the LNG market will shake out on whether it is going to help or hurt."

## **NEW RIGS FOR LNG?**

**Rowan Companies** is building four of its new Tarzan Class jackups aimed at the shallow water deep drilling market, a concept that could be ideally suited for drilling reserves in support of LNG.

For most of the recognized LNG markets a rig with the size and capacity of a Tarzan Class unit would be necessary but it doesn't need to be a harsh environment unit.

"From listening to several drilling contractors," Mr Brooks said, "there is a recognition that there will be some new rigs built but there is not going to be any wholesale rig building boom."

The rigs wouldn't be built necessarily to go after the LNG market, Mr Brooks said, but they would be built because those are the types of rigs that the LNG market is going to need as gas demand continues to increase. ■