

GOM dominates global offshore drilling resurgence

John Kennedy, Contributing Editor

OFFSHORE DRILLING ACTIVITY

gained strength during 2000 in every region and continued at a high level into the first months of 2001. High oil and gas prices resulting from a precarious supply/demand balance helped propel E&P spending.

All regions of the world showed more offshore rigs running in February 2001 than a year earlier, according to the **Baker Hughes Rig Count**.

But it is the US Gulf of Mexico that has dominated the resurgence of offshore drilling activity.

MOST NEWS IS GOOD

Not quite half way through the year, most signs of market strength are positive—some extremely so. Worldwide rig utilization stood at about 82% in mid March, up from an estimated 72% a year earlier, according to **Rigzone.com**.

Day rates are up, too. In mid-March, Rigzone estimated average day rate for a 4th generation semisubmersible was about \$125,000/day. For a dynamically positioned drillship, the rate was about \$144,000/day and for a jackup rated for more than 300 ft water depths, about \$66,000 day. Average jackup rate for all depth ratings was \$48,000/day.

Continued increase in day rates, at least for some equipment, is likely.

And **Global Marine Inc's** SCORE report that tracks the economics of offshore drilling showed a dramatic increase in its indexes in the past year.

Deepwater drilling, in particular, continues to promise great potential. But developing deepwater reserves requires new technology, huge amounts of capital and a new breed of drilling vessels.

Recent high commodity prices have helped fund increased deepwater activity. And the field test of one of the key enabling technologies that will help realize deepwater potential—dual gradient drilling—is now under way (see article, p 20).

Finally, energy demand continues to grow at a healthy pace, especially demand for natural gas.



Discoverer Enterprise is fitted with dual activity system, can drill in 10,000 ft water depths.

Putting all these parts of the puzzle together, a picture emerges of a bright long-term future for offshore drilling activity.

GOM DOMINATES

The US was a big gainer in offshore drilling activity during the past year. The Baker Hughes Rig Count shows a 34% increase from February, 2000 to February, 2001. Total active offshore rigs climbed from 122 to 163 over the period. In February, more than 40% of the world's active mobile offshore drilling units were operating in the Gulf of Mexico.

Many are increasingly bullish on the long-term future of the Gulf of Mexico, including **Robert E Rose**, President, Chairman and CEO, Global Marine Inc.

"I'm extremely bullish," said Mr Rose. "The Gulf of Mexico is a gas story. About 65% of new gas discoveries are currently being made offshore. And we are going to have to put a lot of rigs to work and drill a lot of wells to meet the expected demand for natural gas."

The **National Petroleum Council** estimated in 1999 that US gas consumption could grow from 22 tcf to more than 30 tcf by 2015. As much as a third of the increase will have to be met with supplies from the Gulf of Mexico, said NPC.

Not only is meeting the expected growth

in consumption a challenge, but new supplies are also needed to offset a depletion rate that some estimate at 30%.

"The price envelope that we are now in will encourage capital spending and drilling," said Mr Rose.

Recent surveys indicate operators may spend an average of 20% more in 2001 than in 2000 on exploration and development. Mr Rose thinks that estimate may turn out to be on the conservative side.

A recent sign of faith in the future of the GOM was the enthusiastic participation in Central Gulf Sale 178, held 28 March. High bids totaled \$505 million and bids were made on 547 tracts.

A breakdown by water depth of blocks receiving bids affirms the continued enthusiasm for deepwater opportunities. 47 blocks in water deeper than 1,600 m received bids and 110 tracts in water depths of 800-1599 m received bids.

But all this enthusiasm for the GOM begs a question: Will there be enough rigs?

"It will be tight," said Mr Rose. He expects growth in activity in other parts of the world to cause some rigs from the Gulf of Mexico to mobilize to other areas. That would likely mean a further rise in GOM day rates.

"Gulf of Mexico day rates should experience more upward pressure," said **James C Day**, Chairman and CEO, **Noble Drilling Corp**, "because the equipment situation will get tighter."

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Mr Day says as many as 8 jackups could leave for other parts of the world as activity continues to increase in other areas.

"It will be a challenge for operators to find the rigs needed to drill their prospects," he said.

THE NOT-SO-DEEP

Deep water activity gets a lot of attention in the Gulf of Mexico, but the shelf in the 200-400 ft range also "looks great," said **C Robert Palmer**, President and CEO, **Rowan Companies Inc.**

On the overall outlook for the GOM, "Put me in the 'bull' column," said Mr Palmer. "If gas prices remain over \$3, a lot of wells will be drilled."

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Though oil prices are holding at high levels, many operators are still using \$15-18/bbl as a threshold price for evaluating investments, said Mr Palmer.

That could mean activity could still be healthy even when oil and gas prices do moderate.

What's the biggest challenge? "Finding enough good people is everybody's problem," said Mr. Palmer.

Finding people is not just a problem for contractors; it also is a problem for service companies. During the last activity slowdown, layoffs took a toll on service company staffs, he said.

Mr Palmer sees a disturbing number of equipment failures and other problems that can be attributed to inexperience.

One source of new employees that Rowan considers is the military, said Mr Palmer. The number of personnel taking early retirement from the US military has increased in recent years. Those coming from the Navy, in particular, have skills that are often similar to those needed for offshore rig operations.

"Demographics are increasing the people challenge. Almost 40% of the industry's employees are in the late-40 to early-50 age range," said Mr Day.

GLOBAL STRENGTH

In February 2001, the number of active offshore rigs increased over the year earlier count in every region, according to Baker Hughes. "It's as strong as I've seen it," said Mr Day, referring to the global offshore drilling market.

Most areas outside the US were slower to recover than the Gulf of Mexico, and the Middle East is the last to recover, he said.

"The West Coast of Africa is fairly strong, the North Sea continues to recover and the Middle East is recovering," said Mr Day.

At least at this point, Brazil is expected to maintain its drilling activity level, despite having to focus on replacing the production platform that recently sank, he said.

Outside North America, the number of offshore rigs operating in February 2001 totaled 207, up 34% from February 2000. Biggest percentage gain was in Africa where the offshore rig count was 21 in February compared with 13 a year earlier, a 62% jump.

West Africa offshore activity is fueled in part by industry's enthusiasm for deep-water prospects. Angola, Gabon, Nigeria, and South Africa accounted for much of the increase in Africa.

"West Africa was the first to bounce back," said Mr Rose. Growth in several regions was fueled by the major oil companies "getting back into the game" after the rationalization that followed merger and consolidation activity, he said.

There may be more increase in Middle East activity, too. Even the high-capacity oil fields are beginning to experience decline. Not only will it be necessary to

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offset this decline, but Saudi Arabia, for example, is also stepping up its emphasis on natural gas.

Both Norway and the UK had impressive year over year increases in offshore activity, boosting the year's gain in active rigs in Europe by 56% from a total of 36 in early 2000 to 56 in February 2001.

Norway's count was up from 19 to 25; the UK count increased from 13 to 19.

The offshore rig count increased in Latin America over the year from 33 to 49, a jump of 48%. Brazil had 19 offshore rigs working in February compared with only 12 a year earlier and Venezuela's count had climbed from 11 to 18 over the year.

The only other increase over the period was in Trinidad Tobago, which added 2 rigs to bring its total to 4.

Chile, Mexico and Ecuador had lower rig counts in early 2001 than a year earlier.

Middle East offshore activity increased by 6 rigs from 19 in early 2000, a 32% increase.

Iran activity grew by 4 rigs, Egypt by 3 and Qatar and Saudi Arabia by 1 each.

The most modest change in offshore drilling activity in 2000 was in the Asia Pacific region where the number of rigs increased by 3 to 56, a 6% gain.

ENJOYING IT MORE

Global Marine Inc's worldwide SCORE (Summary of Current Offshore Rig Economics) showed early this year that drilling contractors are not only drilling more, they are enjoying it more, too.

SCORE compares the profitability of current mobile offshore drilling rig rates to the profitability of rates at the 1980-

1981 peak of the offshore drilling cycle, when speculative new rig construction was common.

The SCORE for February 2001 increased by 7.1% over the previous month, marking the 18th consecutive month of increase.

"While semisubmersible markets enjoyed a strong gain this month, the big news is that the SCORE for offshore jackup rigs now stands at double the level of a year ago," said Mr Rose.

The jackup figure jumped from 28.4 in February 2000 to 56.8 in February 2001. Semisubmersibles climbed to 31.8, a 37.9% increase from a year earlier. Worldwide the SCORE for February 2001 was 45.1, a jump of almost 75% from 2000.

Biggest 1-year increases by area were the North Sea with an 87% jump and the US Gulf of Mexico with a 77% increase.

The Gulf of Mexico now has the highest SCORE of any region at 50.5. It also has turned in the best 5-year record with almost a 20% gain.

West Africa and Southeast Asia regions February SCORE data of about 48 and 40, respectively, each represented 1-year increases of around 43%.

In the 1980-1981 period, when SCORE averaged 100%, new contract day rates equaled the sum of daily cash operating costs plus approximately \$700/day per million dollars invested.

DEEPWATER NEEDS

There is much excitement about the prospects that deep water—and "ultra-deep" water—may offer.

The US Gulf of Mexico and offshore West Africa are two hot deepwater spots. But there are financial, operating, technical and political challenges.

In late March, the **US Minerals Management Service** reported that 38 rigs were drilling in the Gulf of Mexico in water depths greater than 1,000 ft.

At the end of 2000, 40 rigs were at work in more than 1,000 ft of water; 33 in water depths greater than 1,500 ft.

"This level of deepwater oil and gas activity illustrates the tremendous level of economic activity in the deepwater portion of the Gulf of Mexico.

Just last year (1999), there were only 26 rigs working in deep water, but that number continued to rise, making 2000 a record-setting year," said **Walt Rosenbusch**, MMS Director.

At the time, 7 wells were drilling in water depths of 5,000 ft or more; 3 in

depths to 10,000 ft and are outfitted with the company's dual activity drilling system. The dual activity drilling process allows certain well construction tasks to take place simultaneously and can provide up to a 40% improvement in deepwater well construction efficiency.

New technology will also be required to overcome unique operating challenges in deepwater.

For example, dealing with the slim margin between pore pressure and fracture gradient becomes increasingly important in water depths of 6,000 ft and more.

Understanding pressure relationships and applying proper equipment and procedures are critical to ensuring borehole stability and well control.

Many feel that meeting this challenge is the key to the future of ultra deepwater drilling. A number of projects aimed at developing new technology and equipment are underway. And this year promises to be a pivotal one in the development of answers to the pressure margin problem.

One such effort is at the field trial stage. After several years of work, a dual gradient drilling system developed by a joint industry project (JIP) to control this slim pressure margin, is now beginning its first field test.

The new technology—SubSea MudLift Drilling (SMD)—is preparing to spud the world's first dual gradient well.

The field test is taking place in relatively shallow waters—1,000 ft—to test the SMD components in a drilling environment and evaluate drilling procedures.

What is learned in this test will be integrated into the commercial system design and the operational and well control procedures.

The JIP's goal is to deliver this commercially available system to the participants by late 2002.

"This is enabling technology," said **Ken Smith**, **Conoco**, Project Manager for the SubSea MudLift Drilling JIP.

"Without it, industry simply will not develop many of the reserves found in deepwater environments." ■

How Sale 178 compares

Sale	Year	Area	No tracts bid on	Total bonus, \$ million
178	2001	CGOM	547	505
177	2000	WGOM	226	154
175	2000	CGOM	344	301
174	1999	WGOM	153	95
172	1999	CGOM	207	172
171	1998	WGOM	402	553
169	1998	CGOM	794	810
168	1997	WGOM	804	616
166	1997	CGOM	1,032	824
161	1996	WGOM	617	356

Source: US Minerals Management Service

depths beyond 7,500 ft. Operators on those wells in water more than 5,000 ft deep were **BHP Petroleum**, **Elf Exploration**, **Shell**, **Unocal** and **BP/Amoco** (three wells).

MMS reported in March that about 110 discoveries have been made in water depths greater than 1,500 ft.

The challenges of deepwater are daunting, but industry is responding on a number of fronts.

Several of the latest, most efficient drillships have entered the fleet in recent months; more are almost ready.

These rigs feature the latest in station keeping capability, efficient pipe and materials handling equipment, and well control and evaluation systems.

For example, **Transocean Sedco Forex** just delivered the ultra-deep water drillship **Discoverer Deep Seas**, the third **Discoverer Enterprise** class drillship to join its fleet, following the delivery of the **Discoverer Spirit** in September 2000 and the **Discoverer Enterprise** in December 1999.

All 3 rigs are designed to drill in water