

Deepwater Drilling Rig Shortages: Is There a Way Out?

While oil prices rose dramatically to historic highs and then tumbled back down over the course of the last year, deepwater oil and gas development activity continued its steady growth as international oil companies pursue growth in one of the few high potential plays still accessible to them. Drilling programs may be at risk over the near term, however, due to a potential shortage of deepwater rig capacity. To ensure rigs are available when they need them, without taking on undue financial exposure, E&P companies must move now to develop a clear process of defining alternatives and evaluating financial and tactical tradeoffs.

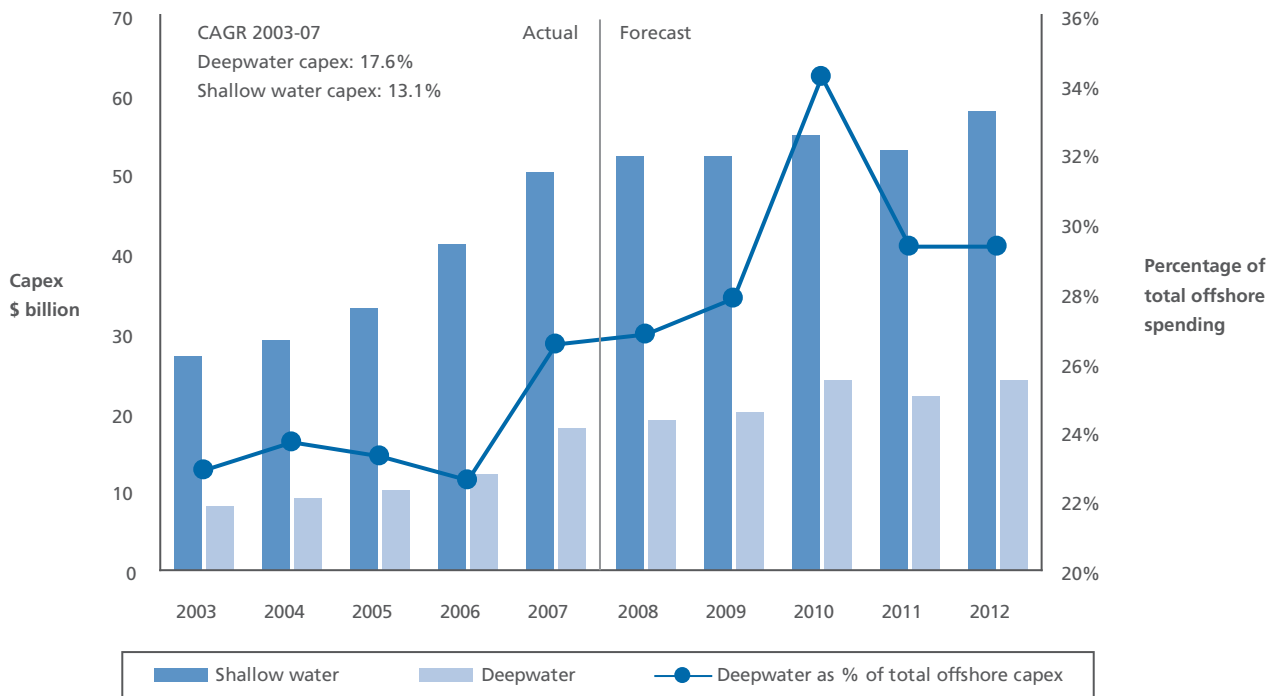
Earning a good return on investment from deepwater developments has never been easy, given the enormous costs associated with finding and producing oil and gas from water depths measured in thousands of feet. Recent sky-high commodity prices obviously are changing the calculus of deepwater development; drilling expenditures for offshore projects are projected to increase by 20 percent in the next five years, from \$68 billion in 2007 to \$82 billion in 2012 (Exhibit 1).

But just as development activity is ramping up, a major obstacle has emerged that threatens to strand many programs in drydock: If current predictions hold true, a severe shortage of sophisticated drilling equipment will soon cool the deepwater market—and force every E&P company with deepwater programs to factor these shortages into their long-range planning.

E&P companies are no strangers to cyclical shortages, of course, and their management teams know from experience that markets typically respond to shortfalls by generating new sources of supply. But deepwater drilling rigs bear little resemblance to their onshore cousins, and the tools required for ultra-deepwater development are among the most complex found in any industry. (A few years ago, most deepwater development was conducted by platform rigs, which are basically land rigs that have been adapted. But now that deepwater drilling extends beyond water depths where platform rigs are capable of drilling, essentially all development wells must be drilled using floaters, putting an additional strain on the floating rig fleet.)

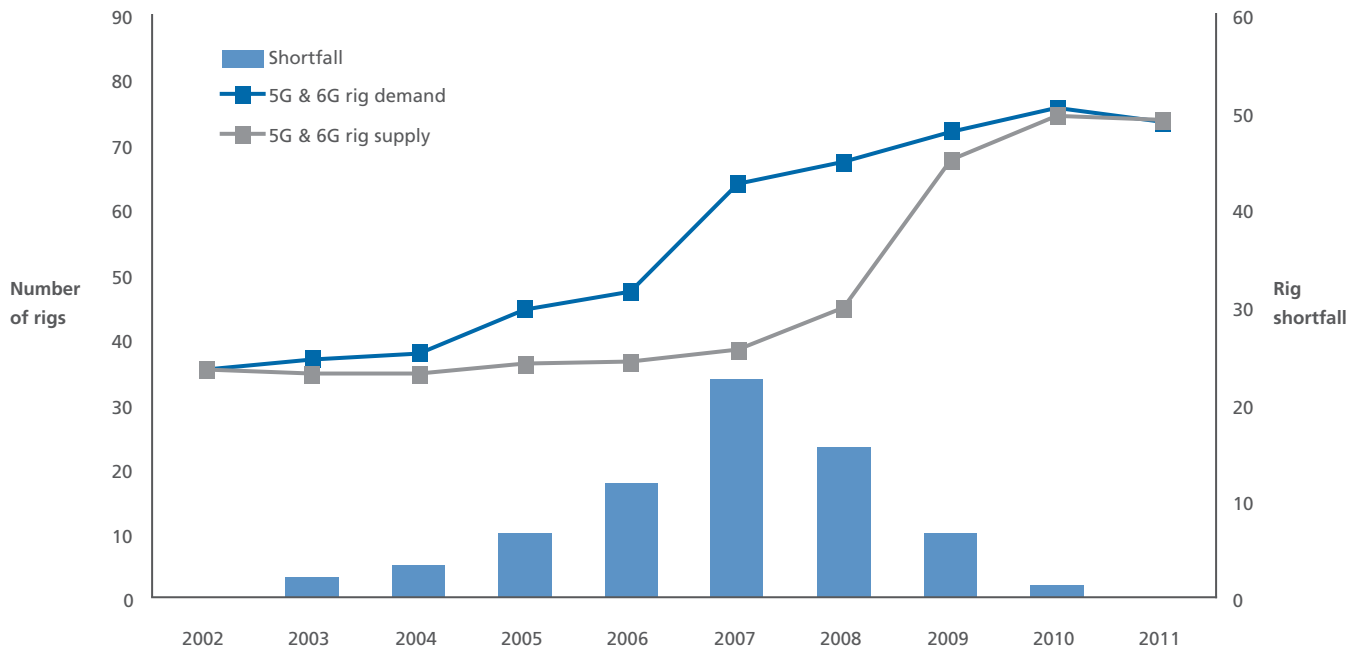
The minimal number of new rigs expected to reach the market in the next three to four years will do

Exhibit 1 Record expenditures for offshore drilling



Source: The World Offshore Drilling Spend Forecast, Douglas-Westwood, April 2008, Oliver Wyman analysis.

Exhibit 2 Projected deepwater rig shortage



Source: Current Trends in Oilfield Services, Douglas-Westwood, April 2008.

little to alleviate the current situation before 2012, since more than 75 percent of these additions are already earmarked for immediate deployment (Exhibit 2).

As a result, with deepwater fleet utilization approaching 100 percent, dayrates of several hundred thousand dollars or more could easily become the norm (Exhibit 3), and a shortage of resources could continue into the next decade. As a result, companies that fail to “lock in” critical equipment may find themselves “locked out” of new deepwater opportunities.

Rig Market Complexity

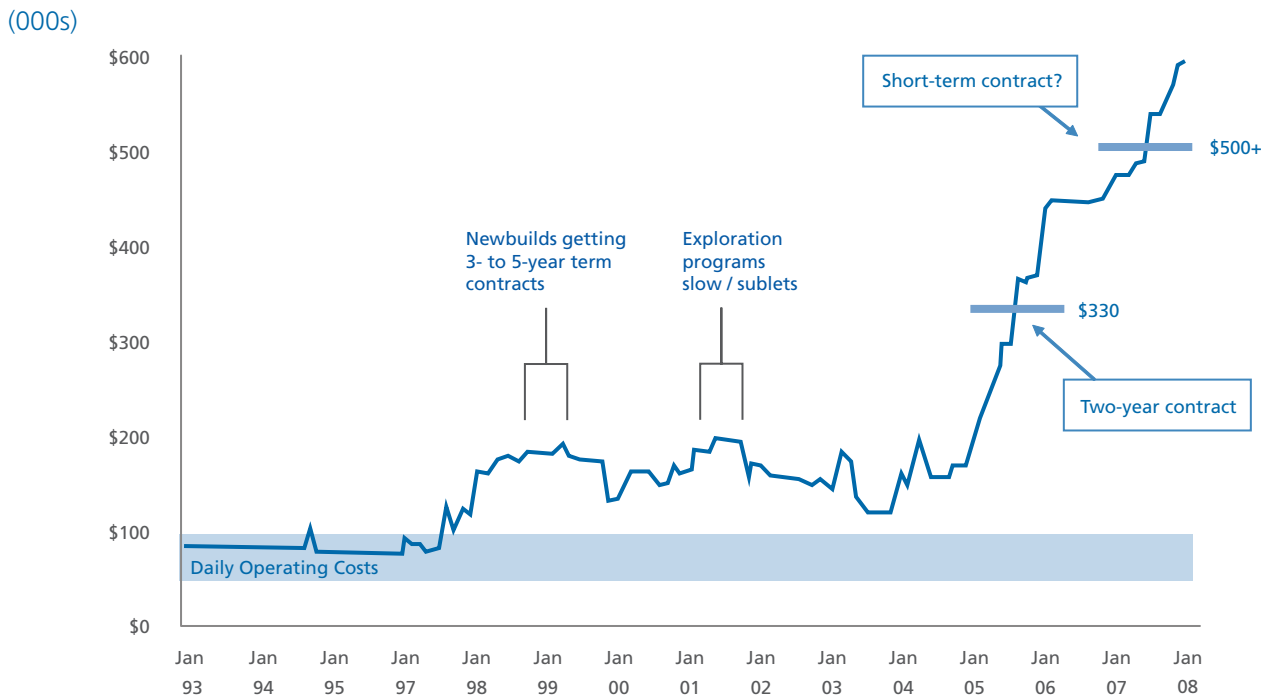
The current rig market adds complexity to the investment decisions that E&P companies must make on deepwater development. Both drillers and producers face unique challenges in the current deepwater dilemma. Drillers are finding themselves hamstrung by:

- Limited rig fleet with appropriate technology
- High cost of newbuilds
- Opportunity cost of not having available rigs
- Reluctance of producers to commit to long contracts
- Lack of adequate shipyard capacity
- Boom and bust industry cycles

Producers meanwhile are beset by a different set of issues, including:

- Limited rig, platform supply vessel, and FPSO availability
- High dayrates
- Delayed development and exploration programs

Exhibit 3 Average ultra-deepwater dayrates, 1993-2008



Source: ODS-Petrodata, Rig Logix, Jefferies & Company, Inc.

- Expiring leases
- Impediment to bidding on new leases
- Long lead times

This is not the first time that E&P companies have faced a dilemma in deepwater development. Rig availability tightened in the 1990s, and many of the solutions that were pursued during that era are once again being considered—such as E&P companies moving to own deepwater drilling rigs rather than merely renting them. The simple economics of such a decision are that at the leading edge of \$500,000 dayrates, for example, a company could purchase a \$700 million drillship with daily operating costs of \$100,000 and recoup the total investment in less than four years.

Proper due diligence, as always, should confirm the status of the drivers that influence supply and demand of rigs, and the resulting utilization of the fleet that drives rig dayrates. Developing a

clear view on these drivers requires understanding the factors that influence each of them. For instance, getting a handle on the supply of newbuilds requires an understanding of shipyard availability, rig designers and engineers, equipment delivery constraints, etc. A thorough assessment of exploration drilling demand requires an understanding of the effects of expiring leases, production sharing agreements, and more. All together, it can be a significant challenge to understand the net effect of these many interlocking factors.

Rig Ownership: Not a Good Strategy?

So should E&P companies own their own rigs? The question is not whether these companies can afford to own rigs; clearly, they can. The better question is whether such a move is in the best interests of the company and its stakeholders.

After calculating the ROIC/WACC, deepwater development groups at Petrobras, Shell, ONCG, and CNOOC decided to make substantial equity

investments in deepwater rigs. In every instance, these equity positions involved substantial amounts of cash—but the companies evidently believe the rewards outweigh the risks. Their reasoning is simple: by making a large investment today, they guarantee their deepwater programs will have access to the rigs they need. Moreover, recent market value gains posted by deepwater drilling contractors such as Diamond Offshore, Transocean, Atwood, and others have outpaced (and even doubled or tripled) the value gains recorded by the major oil and gas companies.

There is a downside risk to rig ownership, however, that extends beyond the amount of capital being invested. A decade ago, several multinational E&P companies that experimented with rig ownership found themselves after a few years in a market with flat or declining dayrates and less-than-robust levels of fleet utilization. Over time, virtually all of these companies concluded that owning a deepwater drilling rig was not economically viable in the long term.

With this as a background, significantly fewer ownership deals have been struck this time around. Some companies may be holding back because they fear the market may soften. Others may worry that exploratory drilling programs could produce less than stellar results if commodity prices plummet.

Other factors that may forestall these types of collaborations include:

- Compared to a decade ago, there is much more “spot market” activity in deepwater rig chartering, which may be mitigating the short-term panic among E&P companies about the future availability of rigs.
- Contract drillers are flush with cash, and can afford to pick and choose their strategic partners.
- E&P companies are more willing to enter into long-term agreements with rig contractors,

which can then “bank” these commitments to finance new construction at favorable rates.

- Oil & gas companies did not fare well in the last round of “rig ownership deals” of the 1990s—and neither did the rig contractors.
- In the post-Enron era, companies are less inclined to pursue deals away from the balance sheet that could be criticized as “creative financing.”

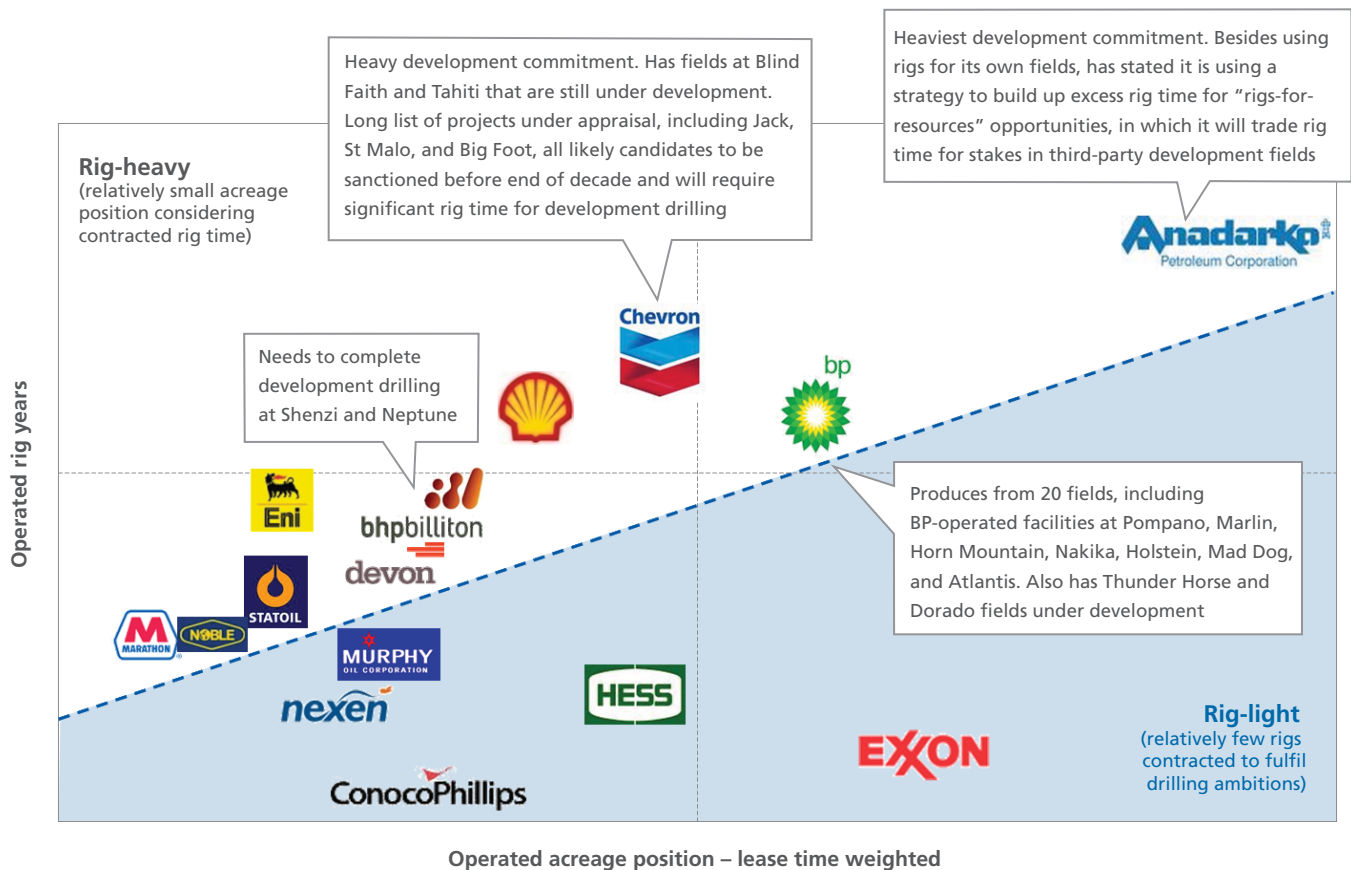
A Roadmap for Deepwater Development

There are several possible solutions beyond the extremes of outright ownership of rig assets or relying on the spot market. These include, for example, sale/leaseback arrangements between a financial party and an E&P company, with an agreement for a rig contractor to operate the rig, as well as longer-term chartering with indexed dayrates. Whichever choice an E&P company makes, it is consciously (or unconsciously, as Oliver Wyman has found in several cases) making a bet on where the deepwater rig market is headed—and the economic implications of getting this bet right are enormous.

Determining which option makes the most sense will vary from company to company. Some E&P companies are long on attractive prospects and properties—and short on rig time. Others, on the other hand, appear to have more rig time than their drilling program needs imply, but long-term contracts at highly inflated prices leave them vulnerable to even a mild decline in oil prices (Exhibit 4).

To identify the best options for avoiding a rig shortage—or paying sky-high rates for available capacity—requires a clear process of defining alternatives and evaluating financial and tactical tradeoffs. Oliver Wyman and Decision Strategies, for example, have used a five-point approach with E&P clients as a roadmap for developing the assets needed to deliver on a deepwater drilling program. Briefly, the steps in this program include:

Exhibit 4 Operator exposure in Gulf of Mexico deepwater



Source: GOMExplorer (Rigzone/MMS), Upstream Magazine, company websites, Oliver Wyman analysis.

Note: Weighted acreage position represents the reciprocal of the remaining lease years.

■ Overall strategy and opportunity screening:

The first step is to develop an accurate understanding of the current situation, in terms of existing rig availability, dayrate volatility, and the overall deepwater strategy and objectives (e.g., minimizing drilling costs versus maximizing NPV). Potential opportunities to secure rigs at appropriate rates are initially screened against these goals.

- **Framing alternatives:** Alternatives for securing capacity to meet drilling program goals are framed through input from key stakeholders and experts (e.g., drilling department manager, strategic planning department, corporate treasury, external industry experts). Key decision

points are also developed along three lines: policy (such as whether the company will borrow funds to execute the drilling program), strategic (such as whether the company is willing to consider purchasing an equity interest in a rig), and tactical (decisions to be made later, such as the timing for when a well will be drilled).

- **Modeling and sensitivity analysis:** Quantitative modeling is used to compare the expected values and upside/downside of identified alternatives. Information continues to be gathered from experts in each area to develop critical insights and test sensitivities. As an example, if a key objective is the expected NPV

of a drilling program, some of the insights might include the effect of financing mechanisms and shipyard capacity on dayrates. An important outcome from this phase is a properly defined set of uncertainties that might impact the adopted strategic approach.

- **Analysis of selected alternatives:** A strategy is selected that appears to best meet the company's objectives and refined through an examination of 1) the value of information (VOI) to determine how much value can be gained by further analysis of uncertainties, and 2) the value of control (VOC) to help the company understand how much to pay for controlling a future outcome. An example of this might include buying an option for a rig to be delivered in the future. The selected alternative is validated against program objectives and key decision points, and contingency plans are

created to mitigate the risks associated with the selected strategy.

- **Implementation and monitoring the strategy:** The final phase of this process is the creation of the tactical plan to implement the strategy. This should include a resource plan, communication strategy, and tracking metrics to be most effective.

Such a process can be instrumental in aligning rig supply with actual demand in a manner that makes economic and operational sense. With some producers spending more than half a billion dollars a year on their deepwater fleets, and demand for such equipment scaling rapidly, it is clearly critical to get decisions about rig capacity commitments right the first time—and right now.❖

Oliver Wyman's Oil & Gas Practice

Oliver Wyman's Oil and Gas Practice assists clients across the breadth of strategic, organizational, and operational issues, delivering value growth strategies and improved operations with *measurable results* to clients.

For more information, please contact **Bob Orr**, the Oil and Gas practice leader. He can be reached at bob.orr@oliverwyman.com or 713.276.2187.

Decision Strategies, Inc.

Decision Strategies is a decision-focused business consultancy that enables clients in oil & gas, chemicals, and related industries to solve their most complex problems, ranging from asset management to field development and operations. The company maintains a strong position in these industries through best practices in strategy creation, portfolio management, and investment decisions.

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