

Helicopter market forecast sees major equipment change

Constraints from increasing transport distances and operators' desire for new equipment may limit drilling schedule without prior planning.

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Helicopters have been an essential part of the offshore energy industry almost as long as producers have searched for oil and gas in water. Whether to relieve a crew after a tour of duty, evacuate a workmate following an accident, deliver an essential piece of equipment to maintain production or evacuate a crew to safety in advance of a Category-5 hurricane, the thump of rotor blades approaching a platform or rig is one of the most comforting sounds over water. In fact, it can be argued that without helicopters, our global offshore oil and gas industry could not be as prolific or effective as it is today.

Like its wildcatting and roughnecking brethren in exploration and production, the helicopter services business has colorful roots. The beginnings of offshore flight service could often be characterized by a Vietnam vet or former bush pilot flying a single reciprocating engine chopper to near-shore rigs and platforms. Service was often local and considered a luxury to be used only when a good crew boat wasn't available or when an executive wanted to visit the platform.

Today's helicopter services industry has evolved to keep pace with technological change and globalization. Sophisticated service providers now offer around the globe 24/7 flight operations on twin-turbine, fuel efficient aircraft flown by highly trained pilots, using the latest electronics to navigate and monitor operations. Passengers most likely pass through check-in procedures and gate security recognizable to commercial airline customers. Flight and ground safety statistics are world-class, driven by cultural changes and deep investments in global standards.

Yet, possibly because transportation still only represents at most a few percent of the total cost of offshore exploration and production, it remains easy for the industry to take helicopter service for granted. This lingering attitude towards air transportation is somewhat of a surprise considering how essential this service is to continuous drilling and production operations.

The global expansion in offshore activity spurred by rising commodity prices may be changing this view, coupled with a growing emphasis on safety standards. Both these trends are

translating to significant investment in new technology and global operating standards. Near 100% availability is the norm (aviation managers often refer to a two percent "failure rate"), while operating environments become both harsher and more remote. Immediate response is essential when facing active storm seasons, political instability or production issues.

In today's high-profile environment, where safety can impact public reputation as well as cost, the quality of helicopter services comes under high public scrutiny. Any incident or accident carries the potential to turn catastrophic and always gets wide coverage in international media. For this reason, many oil and gas companies are now considering helicopter transportation a key strategic service. Next generation aircraft

have the advanced technology equipment to improve safety performance and efficiency. This includes better avionics, vibration monitoring, collision avoidance, satellite tracking and new efficient engines that increase speed, payload, range and power.

MORE PLANNING NEEDED

The shortage of quality drilling rigs and installation vessels in the offshore industry is well documented. Less well known, but with growing visibility, is tightness in the supply of new-generation helicopters. A number of factors both

inside and beyond the offshore energy sector are driving this imbalance in supply and demand.

The key demand-side driver is the explosion of production activity around the globe, particularly in harsh environment, far-from-shore deepwater projects. These projects often require dedicated aircraft. Operating conditions and mission demands can preclude using the existing fleet or make the risks of older aircraft unacceptable. Accordingly, the latest generation Sikorsky, Eurocopter or Agusta equipment is the only tenable solution.

Non-energy markets and political conditions have converged with growing sector demand to create a "perfect storm" in helicopter services markets. Military demand for airframes is at an all-time high. Commercial, governmental, emergency

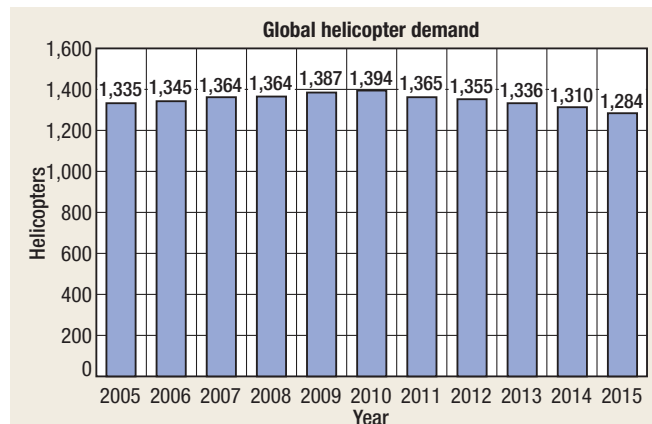


Fig. 1. Global demand is expected to peak in 2010, then drop through 2015.

medical and executive demand has also grown exponentially in response to business and government globalization.

The combined impact of these trends is that the airframe manufacturers serving the offshore energy industry have fully-committed production queues for at least the next two years, and in some cases longer. Offshore helicopter service providers have a number of slots in these queues, but their expected deliveries are often committed to known projects.

The broader offshore energy industry has, however, been slower to recognize and respond to the helicopter supply issue. It often operates on the assumption that capacity is readily available. A number of project managers have recently faced the uncomfortable situation of discovering that the helicopters they need to meet internal deadlines just aren't available with a single phone call. This has come as a huge shock to some people, since helicopters "are always there" and so have been on the tail-end of supply chain planning, almost an afterthought!

Stronger and early partnership between offshore operators, helicopter service providers and airframe manufacturers can be the key to project success in this environment. Planning for, identification of and commitment to transportation services 12 to 24 months before project commencement is a growing norm in the industry. Global supply agreements between producers and major service providers are being signed, often for the first time. Pricing remains important, but doesn't trump availability, safety and service.

Shared search and rescue operations, where all operators in a basin contract collectively for emergency flight capacity, are being considered, as exploration and production push into the Arctic and other remote and deepwater environments.

MODERNIZING THE FLEET

PFC Energy, an energy consulting firm, working in conjunction with the Bristow Group recently completed a survey of the world helicopter fleet serving offshore energy. This data was used to forecast aircraft demand and supply based on future oil price forecasts, continuing offshore production, upcoming offshore projects and likely aircraft retirements.

The survey indicates that about 1,300 to 1,400 aircraft presently operate in the energy sector worldwide. At the end of 2006, more than 45% of the world fleet had been in service longer than 20 years. Total fleet count will likely remain relatively static over the next decade as new technology replaces older aircraft, Fig. 1. However, a shift in fleet mix coupled with increased efficiency and capacity will lead to a future fleet able to provide more and safer service.

This demand forecast is surprisingly flat in light of future exploration and development plans. A more detailed investigation of underlying parameters explains this anomaly. The number of platforms required for future oil and gas production is dropping. With large deepwater fields, larger floating platforms are being designed with higher production capacities, Fig. 2. So, one platform produces more oil and gas



Fig. 2. New deepwater fields require larger floating platforms that must be serviced with larger capacity, longer range helicopters.

with fewer people, and less helicopter transportation is needed per barrel produced. Also, as shallow water reserves are exhausted in some mature markets, platforms will be decommissioned, thus reducing transportation demand.

The prevalence of deepwater growth lessens the number of helicopters needed. However, since these deepwater fields are usually further from shore, the type of helicopter required is different, and the overall oil and gas helicopter fleet make-up is changing to a higher number of medium and heavy type helicopters, Fig. 3.

CHANGING REQUIREMENTS

PFC Energy tested retirement assumptions on world aircraft supply and the balance between supply and demand. While most major and national oil companies are implementing standards that will require all aircraft to be less than 15-yr old, immediate adoption is not practical given the large number of older aircraft still operating. Accordingly, PFC Energy forecasted a "most likely case," where the world fleet moves toward a maximum 25-yr operating age over the coming five years, Fig. 4 and 5.

While the forecast suggests the possibility of shortages in all helicopter types and in most significant energy producing basins, several trends are worth noting. First, the shift in activity from mature basins to "new horizons" is expected to continue through the intermediate term. Accordingly, PFC Energy forecasts less of a helicopter supply crunch in the US Gulf of Mexico and the North Sea than in developing basins.

Aircraft are mobile, and some equipment may relocate with activity. However, customer requirements and government airframe age restrictions may be barriers to the past practice of moving older aircraft to the fringes of the energy industry. As an example, Nigeria recently instituted a 22-yr age

Small helicopters hold 4 to 8 passengers and are better suited for the support of small production facilities, daytime flights and short routes.

Medium helicopters hold up to 12 passengers and are the most versatile type of helicopter. They are widely used across all markets.

Large helicopters hold up to 19 passengers. They can fly longer distances and in harsher weather conditions.

Fig. 3. The oil and gas helicopter fleet make-up is changing to a higher number of medium- and heavy-type helicopters.

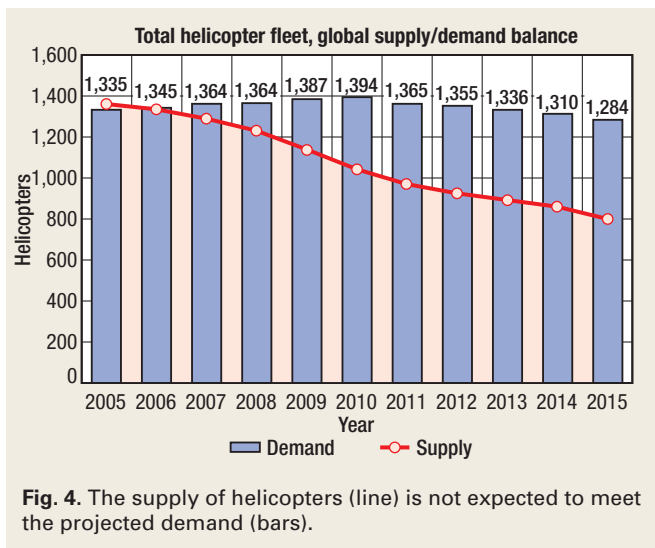


Fig. 4. The supply of helicopters (line) is not expected to meet the projected demand (bars).

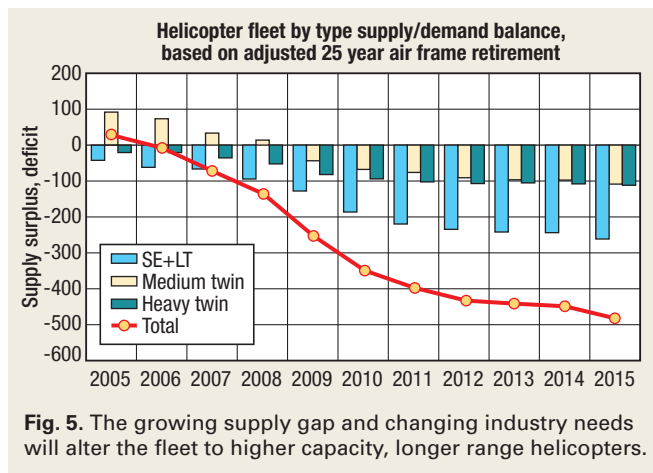


Fig. 5. The growing supply gap and changing industry needs will alter the fleet to higher capacity, longer range helicopters.

limit on aircraft entering the country. Similarly, Mexico has established rules preventing aircraft older than 10 yr from operating offshore. The industry can no longer count on bringing new aircraft into traditional markets, while redeploying older aircraft to international markets. Customer standards are increasingly being applied across the globe, whether for the major international oil companies or the new customers in emerging international markets, usually national oil companies. Bottom line: all markets care about safety and want new equipment and technology.

The prolific use of the single-engine turbine helicopter as a stalwart of the offshore helicopter fleet in the US GOM may diminish over time. Some energy companies are re-evaluating flying employees to remote locations by single engine aircraft. Production from near-shore platforms may finally begin to taper when oil prices fall, pushing operations further into deep water and more distant from onshore bases. The US GOM shallow water shelf, home to the largest number of single-engine aircraft does not therefore attract the same level of interest or investment as other production basins.

The net result of these trends may be the introduction of light-twin engine aircraft as replacements for single-engine aircraft and reduced demand for light aircraft in offshore applications. However, the single-engine helicopter remains the only viable solution on many older production platforms with load capacity constraints, since the light-twin is heavier than single-engine aircraft and some heli-decks cannot accept the additional weight.

PFC Energy and Bristow forecast the opposite trend for medium and heavy aircraft. Supplies of these classes, capable of carrying up to 20 passengers and a “ton” of equipment, are already tight and could tighten even more given oil companies’ plans. Both Sikorsky and Eurocopter have indicated that the production capacity for their new generation heavy S-92 and EC225 models is fully committed through 2009. Global service providers Bristow Group and CHC have aircraft on order, but these aircraft are already committed to known customer needs. Statoil’s recent award of a contract for up to nine heavy helicopters, commencing operations in January 2010, stands as an early-allocation example of future aircraft to known needs. Clearly, the Norwegian energy company is getting ahead of the curve to secure its helicopter transportation requirements.

PERSONNEL CONCERNS

As with all other sectors of the energy business, the availability of skilled personnel (both pilots and ground support) is a real and growing capacity constraint for helicopter service providers. Many helicopter pilots and engineers entered the offshore business from the military following experience in Vietnam and are now approaching retirement. This coupled with growing demand for offshore helicopter services, including the short-term issue of re-training existing pilots and engineers on new aircraft types, is creating real shortages in the field. Furthermore, these shortages are surfacing at the same time that demand from other flight sectors like military and air medical services is also growing. The net result is that crewing and supporting aircraft can be a challenge, even if new aircraft are available.

Demands on pilot and engineer training (both initial and recurrent) are escalating, as new aircraft introduction is at an all-time high. A six-month wait for flight simulator time has developed on some new aircraft types, delaying aircraft deployment. Restrictive union agreements and the disappearance of qualified independent technical schools have converged to create similar training and development bottlenecks in ground support.

Offshore E&P companies increasingly face the uncomfortable possibility of watching a \$500,000 per day drilling rig sitting idle, waiting on reliable air logistics support. The need for early, open dialog and planning between energy companies and their helicopter service providers has never been more critical.

FINAL THOUGHTS

Helicopter service companies provide a strategic service to offshore operations. This service will likely never amount to more than a few percent of the total cost of producing oil and gas offshore. However, its importance to the efficient conduct of business over water far outweighs its portion of spending.

Without helicopters, offshore operators would be unable to transport crews and equipment quickly, face significant risk related to emergency transport and storm response, further stress a supply boat industry already stretched by demand and subject valuable employees to long transport times in rough seas and risky platform/boat transfers.

The helicopter’s reputation for safety, quality and reliability, as well as a commitment to investing in the newest technology, are important factors in choosing a service

provider. Increasingly, this means introducing the newest and safest technology. Thirty-year old-airframes, regardless of how well maintained, cannot continue indefinitely supporting a growing level of activity offshore. The public relations and liability cost of one flying incident makes the risk of relying on older airframes increasingly intolerable to both energy companies and service providers. Moreover, the industry desires to protect its workers with the safest and most comfortable transportation possible; it is simply the right thing to do. Manufacturing capacity is stretched by non-energy demand, production slots are scarce and equipment prices are rising.

Service providers are now and will continue to make significant financial and human resource investments in aircraft and personnel. Lead times to market presently extend beyond one year. The capital required for these investments is significant, putting upward pressure on costs. The good news is that its strong correlation to production (rather than commodity price or drilling) cycles means that helicopter service prices do not experience the same volatility as drilling rigs and supply vessels. However, with a new generation of heavy aircraft costing as much as \$25 million apiece, prices must increase to justify new investment.

Forward thinking offshore energy companies have begun to partner with their service providers to insure the availability of safe, quality transportation in coordination with their internal development plans. Lead times on joint planning efforts are already stretching beyond a year and could continue to grow. So, helicopter transportation is just like the rest of the

offshore energy industry: safe, exciting, changing to meet new challenges and wonderfully busy. **WO**

THE AUTHORS



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