Exploration & Production Activities and Markets

World investment in E&P (including the Russia and China) is expected to reach an all-time high of $170 billion in 2005. On the three most important markets, key players are investing substantially and competition from Chinese companies is increasing.

Capital Expenditure in 2005 and Outlook for 2006(1)

In 2004, world capital expenditure in E&P rose by 8.5% over 2003 to reach $150 billion. This increase was due to favorable business conditions, with a Brent price averaging $38 for the year compared to $29 in 2003.

Latin America reported the strongest growth, driven by Venezuela where E&P spending made a big comeback (+40%) after falling in 2003 in the wake of strikes.

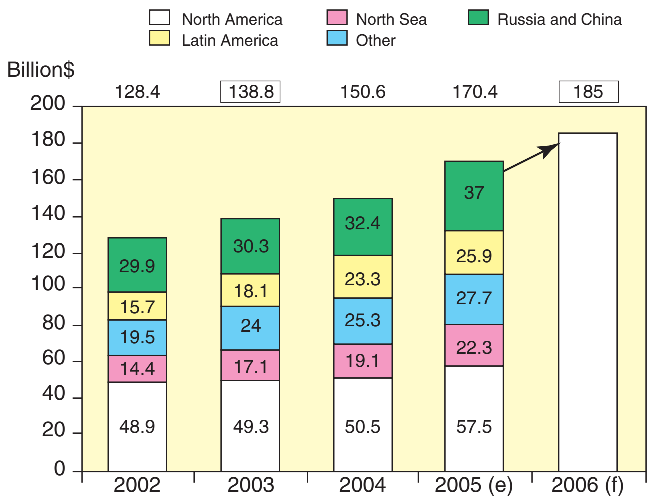
In Russia, investment remained relatively stable between 2003 and 2004 following the Yukos bankruptcy, which disorganized the sector and caused market players to adopt a wait-and-see attitude.

In 2005, with oil and gas prices hitting record highs—the barrel averaged $53 in 2005 versus $38 in 2004, while the Henry Hub gas price stood at $7Mbtu in 2005 versus $5.9 in 2004—E&P investment is expected to show a continued increase and reach $170 billion (+13%). During the period 2000-2005, the share of the majors and North American independents remained relatively stable at 35% and 25% of total world expenditure. Most of the remaining 40% is divided between the Russian and Chinese companies, state-owned companies and independents of various nationalities (e.g. Woodside and BG).

In North America, spending should see an increase of nearly 14% to reach $57.5 billion, the highest figure since 2001. In the United States, an estimate made prior to Hurricane Katrina, which devastated installations in the Gulf of Mexico, indicated that spending was up 16% in 2005 owing to a substantial rally in onshore drilling fueled by high oil and gas prices. Some expense items budgeted for year-end 2005 will probably be put off until 2006, because of the damage to installations and the region needs time to recover. Canada expects an 8% increase, due mostly to tar sand development in Alberta, where production is to double by 2010.

In the North Sea, especially Norway and the United Kingdom, investment continued to rise in 2005. A growth rate for the year of 16% is anticipated, representing a total amount of $22 billion. Drilling in 2005 made a slight recovery, after declining steadily since 2001. In addition, drill-rig day rates hit record highs. The biggest development operations are in the gas sector, especially Norway's Ormen Lange field, which should be producing about 20.6 bcm by 2013.

Fig. 1 World spending in exploration-production (including China and Russia)



(e) estimates (f) forecasts

N.B.: Oil majors have other expenses besides E&P. One must add operating costs, especially those relative to facility maintenance and repairs (a share of this spending represents a large market for certain companies in the related service and supply sector).

Source: IFP/Economics Department/2005

In Latin America, spending should stabilize at about 11.5% after very high growth in 2004. In Venezuela, the 2005 increase should not exceed 6%. On the other hand, there has been an upsurge in E&P investment (+30%) in Brazil, which plans to boost production by two-thirds by 2015 and become self-sufficient in covering its own oil demand.

Finally, E&P spending **in Russia** should grow at the same pace as the world rate of 13%. The objective of oil and gas companies is to exceed 10 Mb/day by 2010.

(1) The figures presented include Russia and China.

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In 2006, growth can be expected to continue, since prices are firm and no significant downturn in the short or medium term is forecast. In 2006, upstream investment should rise by a further 8 to 10% to $185 billion.

Since 2002, oil prices have nearly doubled on average, up from $25 to more than $50 for the 9 first months of 2005, but world E&P capex only climbed about 30%. Several reasons can be cited to explain why spending increased more slowly than the barrel price:

– ***Difficult access to the most attractive prospects.*** In Arabian Gulf countries, the State has a lock on the upstream sector, which is extremely attractive in terms of reserves, although Saudi Arabia and Kuwait have started to open up a bit. In Russia, access to oil and gas acreage has been reduced for international companies by limiting their eligibility in bidding procedures. It is expected that Kazakhstan will restrict foreign companies to 50% of production-sharing contracts.

– ***Heavier tax burden.*** As crude prices soar, the governments in oil-producing countries (Nigeria, Venezuela and Bolivia) are showing an inclination to increase the tax burden on oil companies in order to benefit more from the rise in oil revenue.

– ***Lack of qualified personnel.*** This problem is particularly acute in the province of Alberta, Canada where many tar-sand development projects are qualified-labor intensive.

– ***Shortage of drilling rigs.*** There are too few of them and utilization rates are nearing 90%. The units now under construction will not be able to ease tension on the market, especially offshore, until 2007. Hurricane Katrina damaged many rigs, aggravating the situation.

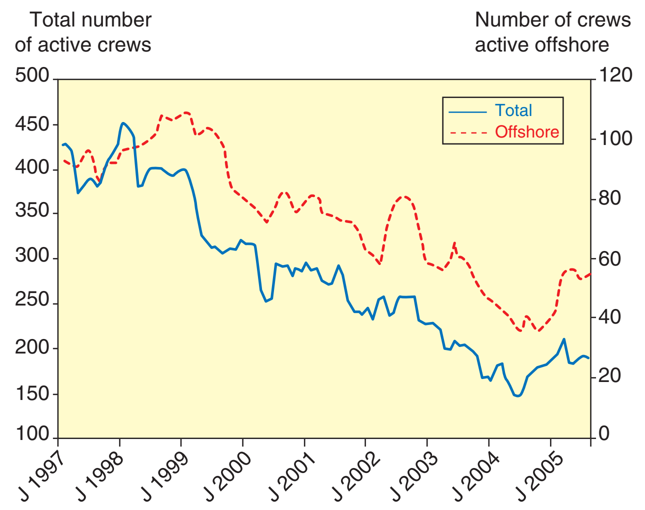
Seismic

Worldwide Activity (Number of Active Crews)

The number of seismic crews active worldwide, steadily declining since 1999, **regressed sharply in 2004 (–16%)**. All geographic areas reported a decrease, except the United States. **For the first time in this decade, seismic activity grew (+17%) during the first 9 months of 2005**. This happened in all regions, especially Europe and Latin America (22% and 39%).

Offshore activity, measured by the number of active crews, eroded faster than the sector as a whole in 2004 with a decrease of nearly 30%. **In 2005, offshore activity grew by 30% for the first 9 months of the year, or twice as fast as the sector overall.** All regions were up, especially Latin America (+50%) and Europe where crews doubled during this period.

Fig. 2 Number of seismic crews active worldwide (not including the CIS and China)



These figures don't take into account CIS countries and China for which it is difficult to obtain coherant information.

Source: World Geophysical News IFP/Economics Department/2005

The Market

2004 was a transition year for the seismic sector. In the second half of the year, there was:

– a strong comeback for services on the exploration side;

– a return to profits thanks to a significant improvement in the capacity/demand equilibrium.

Thanks to this rally, growth should gain momentum in 2005 and 2006. With demand for hydrocarbons steadily rising, it has become imperative for most oil and gas companies to maintain production at mature fields and renew existing reserves. In the short term, the seismic industry should benefit from the recovery of exploration spending. In the longer run, the industry is expected to become even more vital on the production side as 4D technology comes into more widespread use.

• *Services and Equipment*

This market was worth an estimated $5.2 billion in 2004, up 12% over 2003. Based on the results for the first half of **2005, it can be estimated at $6.5 billion for the year**, which is 25% higher than in 2004. In the data acquisition and processing sector, growth should be comparable, in the vicinity of 25%.

The data acquisition and processing market totaled an estimated $4.5 billion in 2004, up 7% over 2003. **Surplus marine acquisition capacity was finally resorbed at the end of 2004**, for the first time since 1998. The improvement in offshore business volume and operating margins, noted in the last quarter, should be even more pronounced in 2005.

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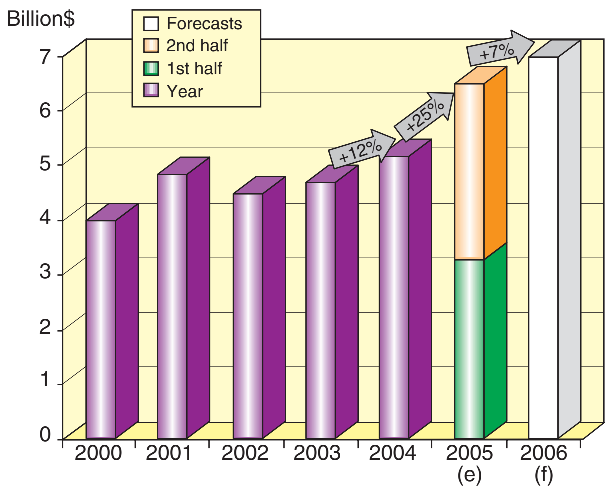
The onshore sector, having shown a downtrend in 2004, seemed to stabilize in 2005. The revenue generated by multi-client surveys rose sharply in 2004 and continued to rise in the first half of 2005. On this basis, **2005** data acquisition and processing sales have been estimated at **$5.6 billion**.

Fig. 3 The seismic market



(e) estimates (f) forecasts

Source: IFP/Economics Department//2005

Equipment sales climbed by more than 50% in 2004 to **$700 million**, thanks to higher sales onshore as well as offshore. In 2005, pressured by customers, contractors began to renew their offshore equipment after years of under-investing, which should lead to higher sales and prices. Demand for onshore equipment is expected to remain unchanged. It is thought that the equipment sector overall will expand 25% in **2005** to **$875 million**.

For 2006, considering backlogs and offshore investment operations, the market should keep expanding and reach $7 billion.

- *Key Market Players*

In 2004, the following contractors were active on the seismic market: WesternGeco maintained its lead with market share of 24%, ahead of CGG (17%), PGS (14%), Veritas DGC (11%), BGP (6%) and Fugro (6%).

The front-runners were joined by a new arrival: the state-owned Chinese firm BGP. By dint of a particularly aggressive pricing policy, it moved into the Number Five position worldwide in 2004 with 6% of the market. In its core business, the supply of onshore data acquisition and processing services, BGP is the world leader with market share of 20%.

In 2005, CGG acquired a 100% interest in the Norwegian firm Exploration Resources. This makes **CGG a leader in the marine seismic field**, by boosting its marine acquisition capacity by nearly 60% and significantly reinforcing its position on the emerging seabed seismic segment.

Drilling

Wells Drilled

North America still represented the bulk of worldwide drilling with 71% of the wells drilled in 2004. China stood second at 13%. In 2004, onshore activity accounted for 95% of the world total, with a heavy concentration in North America (88%). By comparison, offshore drilling remained geographically diverse: 31% in North America, 26% in Asia (not including China), 16% in the North Sea, 13% in Latin America and 5% in the Middle East.

In 2004, 75 500 wells were drilled worldwide, up 8% year on year. Growth in North America slowed substantially (e.g. the Henry Hub gas price rose only 12% compared to 60% in 2003). There was a downturn in two geographic areas: Western Europe, where oil production is reaching maturity, and Russia, whose tax and economic situation is characterized by uncertainty.

In 2005, the number of wells drilled should be close to 83 000, an increase of 9%, with North America (+11%) driving this growth. Other geographic areas should post increases ranging from 6% to 10%, while drilling in China remains stable at about 10 000 wells.

As for **offshore** drilling equipment, the utilization rate worldwide remained stable in 2004 at about 82%. For the first eight months of 2005, the world rate rose sharply to 88%, due mainly to the North Sea and the Gulf of Mexico. The equipment shortage had an impact on day rates, which showed a large increase. After declining steadily for two or three years, offshore drilling is reporting growth for 2005. In addition, Asia (not including China) contains the largest number of offshore wells (31% of the world total), ahead of the United States.

The Market

- *All-Time High in 2004*

The market rallied in 2003 and in 2004, when it reached an all-time high of **$23.5 billion** (+13%). The onshore market expanded by 24% to $9.5 billion. The onshore market also grew (+7%), reaching $14 billion in 2004, after falling 2% in 2003.

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Fig. 4 Wells drilled per geographic area

	2002	2003	2004	2005 (e)	Var 2003/2002	Var 2004/2003
North America	36 600	47 242	52 653	58 431	11.5%	11.0%
Rest of world	7 477	7 486	8 073	8 742	7.8%	8.3%
including: Latin America	2 128	2 295	2 534	2 775	10.4%	9.5%
Western Europe	615	494	432	472	– 12.6%	9.3%
Africa	768	757	806	856	6.4%	6.3%
Middle East	1 393	1 451	1 593	1 700	9.8%	6.7%
Asia not including China	2 155	2 184	2 282	2 538	4.5%	11.2%
World not incl. Russia and China	44 077	54 728	60 726	67 173	11.0%	10.6%
China	9 999	10 204	10 211	10 342	0.1%	1.3%
Russia	4 266	4 831	4 541	5 000	– 6.0%	10.1%
World incl. Russia and China	58 342	69 763	75 478	82 515	8.2%	9.3%

(e) estimates

Source: IHS Energy, Spears *IFP/Economics Department/2005*

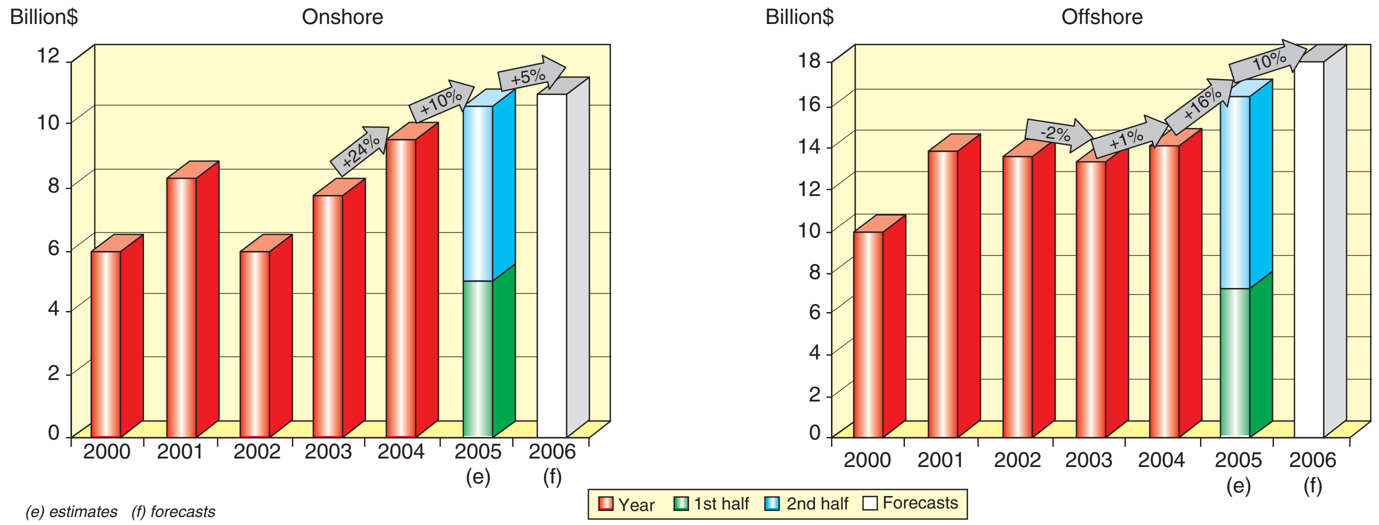
- *Continued Growth in 2005*

In 2005, the drilling market overall is expected to approach $26.7 billion, up 13.5%. **For the first half-year 2005, most market players reported record-breaking growth figures**.

It is thought that the **onshore** market will total an estimated $10.5 billion for 2005, up 10% over 2004. This year, growth slowed, after an unprecedented 24% increase in 2004.

Offshore, the market should continue to grow in 2005 (+16%) to $16 billion. Drill-fleet utilization rates are very high across the board. High demand boosted day rates which, for jack-ups in the North Sea and the Gulf of Mexico, up by 50-60% for the first nine months of 2005. In these two geographical areas, the rates for deepwater rigs saw the largest hikes (+160 to 170%). **In response to this shortage, contractors are investing in new equipment:** 33 new jack-ups and 5 semi-submersible rigs are currently under construction, mostly in Singapore but also in the United States, China, Iran, Russia and South Korea. They should come onstream gradually between year-end 2005 and 2009, but will not impact prices for a year or two; the situation on the offshore drilling market will remain tight.

Fig. 5 Drilling market



(e) estimates (f) forecasts

Source: IFP/Economics Department/2005

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For 2006, many new orders have already been placed, since operators fear a shortage of drilling equipment. Looking at the business prospects, growth on these segments is expected to be lower than in 2005 (about 5% for onshore and 10% for offshore).

Key Players

Nabors Industries maintained its Number One position in onshore drilling, controlling about 17% of the market. Two Canadian companies, Ensign Resource Service and Precision Drilling, ranked second and third with respective market share of 11% and 10%, followed by Patterson UTI Energy in fourth place with 8.5%. Next come Pride International, Grey Wolf and Helmerich & Payne, each with about 5% of the market.

In offshore drilling, the acknowledged leader Transocean accounted for 19% of the market, followed by Global Santa Fe (8%), then Pride International (7%), with Diamond Offshore and ENSCO International each claiming 5.5% of the market.

Observers note **the emergence of Chinese market players**, rig builders (primarily onshore) as well as about sixty contractors. The largest contractor is Great Wall Drilling, the services and engineering arm of CNPC. Although these firms mainly operate on the domestic market, they are also present abroad: so far, they have targeted relatively small international markets (e.g. Uzbekistan, Mongolia and Turkmenistan). They also do subcontracting for major service and equipment companies.

Construction of Offshore Production Infrastructure

Offshore Construction Activity

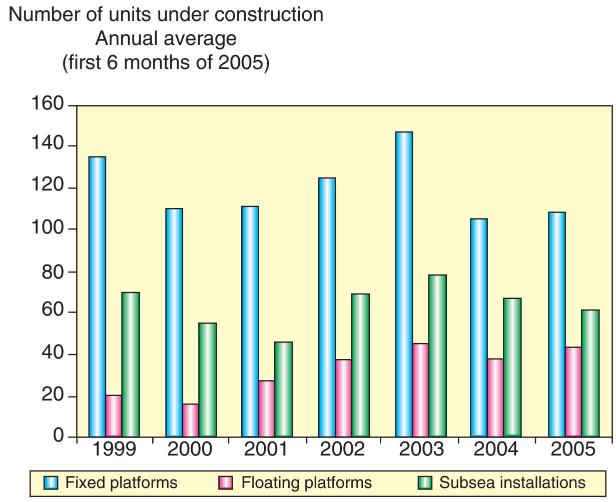
After falling off in 2004, offshore construction recovered during the first half of 2005 on two segments: fixed platforms (+3%) and floating platforms (+13%). On the other hand, subsea installations were down 9%.

During the first half-year 2005, the fixed platform segment registered slight progress, with an average of 108 units under construction versus 105 for 2004. Latin America was mainly responsible for this uptrend.

The number of floating platforms under construction during the first half of 2005 averaged 43, compared to 38 units one year earlier (+13%). Most were for Africa and Asia/Pacific.

The average number of subsea installations under construction in the first half of 2005 was down 9% year on year, except for Africa (+17%). However, the size of projects

Fig. 6 Offshore construction



Sources: Offshore Data Services, IFP/Economics Department/2005

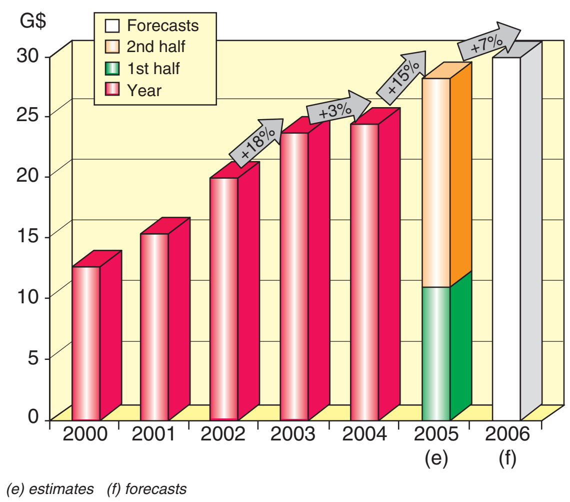
was larger in 2005: expressed as a number of wellheads, activity grew by 38%. Furthermore, more than 50% of wellheads to be installed in 2005 involved depths greater than 300 m; this trend has been stable for two years.

The Market for Offshore Engineering, Construction and Equipment

It is difficult to quantify this market, which involves many players that differ greatly in their business activities, size and international scale.

As we define it, this market includes platform construction, subsea installation construction and the supply of subsea production equipment, but not maintenance services or the leasing of floating installations.

Fig. 7 Offshore engineering, equipment and construction



(e) estimates (f) forecasts

Source: IFP/Economics Department/2005

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After several years of strong growth, the size of this market totaled **$24.4 billion for 2004**, up 6% over 2003 ($23 billion). This increase was mainly due to the appreciation of the dollar against the currencies (£, €, NOK) in which the companies in this sector do their accounting.

In the first half-year 2005, the market grew substantially, up about 18% year on year. As a result, total sales for 2005 reached about $28 billion (+15%).

- *Key Players*

Technip, Saipem and AkerKvaerner prevailed on this market, each with a share of 12-13%. Next came McDermott, Stolt Offshore and Halliburton-KBR, each controlling about 6% of the market. Certain companies were dominant in certain sectors: FMC Technologies in subsea equipment supply, Oceaneering in works requiring underwater robots as well as umbilicals via its subsidiary Multiflex, and IHC-Caland in FPSOs (Floating Production Storage and Offloading).

South Korean yards are providing increasing competition on the fixed and mobile platform segments, especially FPSOs. These companies, especially Hyundai Heavy Industries and Samsung Heavy Industries, which used to concentrate on subcontracting, are now positioned to handle project management and bidding in competition with major services and equipment companies.

For now, Chinese companies are operating on their home market and in South-East Asia. Their activity is limited to the construction of hulls for FPSOs. They have taken up a positioning as second-tier subcontractors similar to that adopted by the South Koreans ten or fifteen years ago.

2006 looks more promising. It is thought that the market will reach $30 billion, up 7% over 2005. For key market players, backlogs and new orders are up substantially.

Conclusions

World E&P investment should increase by 13% and reach an all-time high of $170 billion in 2005, driven by a perception that high oil and gas prices are here to stay. This would benefit the service and supply markets, especially the three largest (seismic, drilling and offshore construction), which are expected to grow 15% overall.

Market	2004 sales	2005 sales	2006 sales	Variation 2004-2006
Seismic	$5.2 billion	$6.5 billion	$7 billion	+35%
Drilling	$23.5 billion	$26.7 billion	$29 billion	+23%
Offshore construction	$24.4 billion	$28 billion	$30 billion	+23%

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