



Expertise and investment: A service company view

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With nearly five years now having passed since the start of the financial crisis, the global economic outlook is starting to offer some positive news as a more encouraging picture emerges within the OECD. In the US, growth is being driven by consumer spending although various fiscal factors are currently slowing momentum. In Europe, while the eurozone remains in recession, the risk of any particular country leaving the monetary union has significantly decreased. On the other hand, expectations of lower growth have risen in many of the developing economies. In China, for example, the latest data have been mixed, but the outlook for a long and progressive soft landing remains unchanged and among other emerging markets, the outlooks for India and Brazil remain soft in the short term before increasing late this year or early next.

Against this landscape, levels of supply and demand in the oil market this year are expected to be similar to 2012. Demand is forecast to increase by around 1 per cent, or approximately 900,000 bopd, driven by the non-OECD economies with China accounting for almost half of the net global year-on-year increase. On the supply side, the continuing surge in North American output from light tight oil will almost equal the increase in overall demand. We can therefore expect the oil market to remain tight, and this will continue to support oil prices more or less at current levels.

Within the natural gas markets, demand is expected to increase in all areas of the world driven by growth in the emerging countries, particularly in Asia, and by expanded use of gas for power generation in the OECD. Much of the supply response will come from North America, the former Soviet Union, China and the Pacific region.

Looking at production from unconventional reservoirs, North America will remain the centre of activity with liquids being the primary objective. Internationally, the short-term focus will mostly remain on pilot projects but activity and production will become more meaningful toward the end of the decade. Production from deepwater fields will also grow as successful recent exploration leads to new developments. Central to such operations will be the drive towards increased recovery through sophisticated subsea technology development.

Overall, upstream well-related capex and opex are expected to grow steadily, driven by exploration, new development and higher investment to offset mature production decline. In this environment, oil and gas operators

are likely to intensify their plans on reducing finding, development and lifting costs. This should encourage closer partnerships with service companies to leverage the latter's technical expertise and allow faster technology adoption and integration.

Growth Opportunities

A number of geographical areas stand out in terms of growth opportunities in both the near and medium term. Within these, different service company investment strategies are required to adapt to particular market characteristics. In all cases, it is important to align global business models with local priorities, guided by engagement with stakeholders that include customers, regulators, government bodies, suppliers, professional organisations, universities and technical training schools. The objective must be to manage national content to comply with obligations, to strengthen individual business cases, and to achieve objectives in a sustainable manner.

Russia

Russia represents an area where growth is driven by maintaining oil production at current levels, supported in turn by incentives to stimulate E&P investment. Since our return to Russia in the early 1990s, we have invested in people, technology and infrastructure to be able to offer tailor-made services for the local market. Our operational footprint spans all the major oil and gas regions and we count almost 14,000 Russians among our workforce. In 2012, we opened state-of-the-art facilities in Sakhalin, Russia, and Aktau, Kazakhstan, to bring our total number of locations in the area to almost 140.

The key to success in the Russian oilfield market is the development of fit-for-purpose technology, whether on land in Siberia, offshore Sakhalin or in Arctic areas. As examples, we have recently begun offering customers a tailor-made ESP pump, designed and manufactured for the Russian market in the Tyumen Product Centre in Western Siberia. We have also developed new PDC bits designed to overcome specific challenges in Russia while a new fibre fracturing technology, which has already penetrated markets in 15 countries worldwide, was developed in our Novosibirsk product centre.

In addition to these engineering and manufacturing successes, we have also established a significant research programme in Russia, which is managed by our research

centre in Moscow. This centre, opened in 1998, now houses more than 100 researchers and capitalises on a collaborative academic network in Russia covering more than 40 projects and involving over 250 Russian scientists. The extent of this network is tremendous, offering as it does a significant extension to a worldwide effort.

China

In China, for example, activity growth is driven by a combination of maximising production from conventional resources, accelerating development of unconventional gas resources, and pursuing deepwater exploration and development. Schlumberger has been working in country since 1980 and today, we are supplying products and services from across our extensive technology portfolio from a total of 40 operating bases spread around the country. We have more than 4,500 employees in China, of whom 93 per cent are Chinese nationals. We also have more than 1,000 senior Chinese employees on international assignment throughout our global operations sharing expertise and gaining worldwide experience.

New technology is finding application in China within the domestic land market in response to growing technical complexity and increasing requirements to meet production

targets as demand for oil and gas grows. And new business models are also proving successful. These include innovations such as the lease of land seismic systems and the introduction of proprietary service company fluid technology to be deployed through customer-operated hydraulic fracturing equipment. Our own R&D activity in China is led by a software engineering centre in Beijing, and last year we opened the Schlumberger China Petroleum Institute, which provides petrotechnical expertise for the exploration and development of both conventional and unconventional resources.

Saudi Arabia

Another important market, the Middle East, has played a central role in the E&P industry and for Schlumberger for more than 70 years. The largest operational area in the region is in Saudi Arabia, where activity is driven by the development of the country's large oil production base and by increasing domestic demand for natural gas. Onshore, the focus continues to be on conventional oil and gas developments and on the management of mature production. Natural gas exploration from unconventional resources has begun, but is currently limited to smaller pilot projects. Offshore, operations are steadily moving into deepwater basins following last

Schlumberger Integrated Operations team working on a shale gas well in the Erdos basin, ShaanXi Province, China





Central lab bay at the Schlumberger Dhahran Carbonate Research Centre showing different teams working to improve the evaluation of carbonate rocks in terms of porosity, permeability, mineralogy, saturation and recovery

year's gas discovery in the Red Sea.

Schlumberger has been operating in Saudi Arabia since 1941. In 2010 we opened one of our largest worldwide operational facilities in Al-Khobar. This together with facilities in Udhailiyah and Dhahran provides the strong infrastructure needed to service all the oil and gas fields in the country. In addition to ongoing operations involving most of our 16 product lines, we have owned a 49 per cent stake in the Arabian Drilling Company since 1971. This highly successful joint venture operates more than 20 high-performance drilling rigs in the Kingdom on a variety of projects both offshore and on land and shows further benefits of customer and service company partnership.

Saudi Arabia is also home to one of six Schlumberger research centres. The decision to open this centre in 2006 was based on the need to address regional technical challenges – such as carbonate reservoir understanding – as well as a desire to establish research facilities in locations closer to our customers. The centre is staffed by 28 scientists and engineers, including a growing number of Saudi nationals, and more than 100 patents have been filed since 2006.

Brazil

The last of the four areas I would like to mention is Brazil, where activity is driven by a focus on maintaining oil production in mature onshore and offshore fields along

with the development of the huge deepwater pre-salt reserves that will make the production of the future. As in many other countries, Schlumberger has been present in Brazil for almost 70 years since we acquired the first electric log onshore Bahia in 1945. Almost all Schlumberger product lines are present supplying products and services from a wide footprint of operating facilities spread across the country. In response to customer demand, and in line with our commitment to R&D, we signed a landmark technology cooperation agreement in 2009, which led to the construction of the Brazil Research & GeoEngineering Centre on the campus of the Federal University of Rio de Janeiro. With an initial focus on reservoir characterisation studies

in pre-salt carbonates, the scope of this new centre has since expanded to include integrated drilling and production enhancement projects as well as the emerging technical challenges of unconventional reservoirs.

New technology continues to play an important role in deepwater exploration and development in Brazil. In reservoir characterisation, new formation dynamics tester systems with three-dimensional probes have enabled recovery of higher quality reservoir samples while reducing rig time. In drilling, deep-reading resistivity measurements while drilling have enabled optimised reservoir contact and eliminated unnecessary costly pilot holes. In production, new offshore treatment vessels, the largest in the world, have established new standards for operational quality in the matrix stimulation of horizontal wells in presalt carbonate reservoirs.

These examples have shown what can be achieved when global business models are combined with local and national priorities. Continuous investment in expanding regional markets enables sustained long-term growth while the development of closer partnerships between customer and service company leads to mutual benefit and value generation. Through more collaborative technical problem solving, customers can better utilise complementary expertise and further leverage a wide technology portfolio, integration capability and global footprint. The result is improved reservoir performance. 